CYBER 18/1700 MSOS ANALYSIS

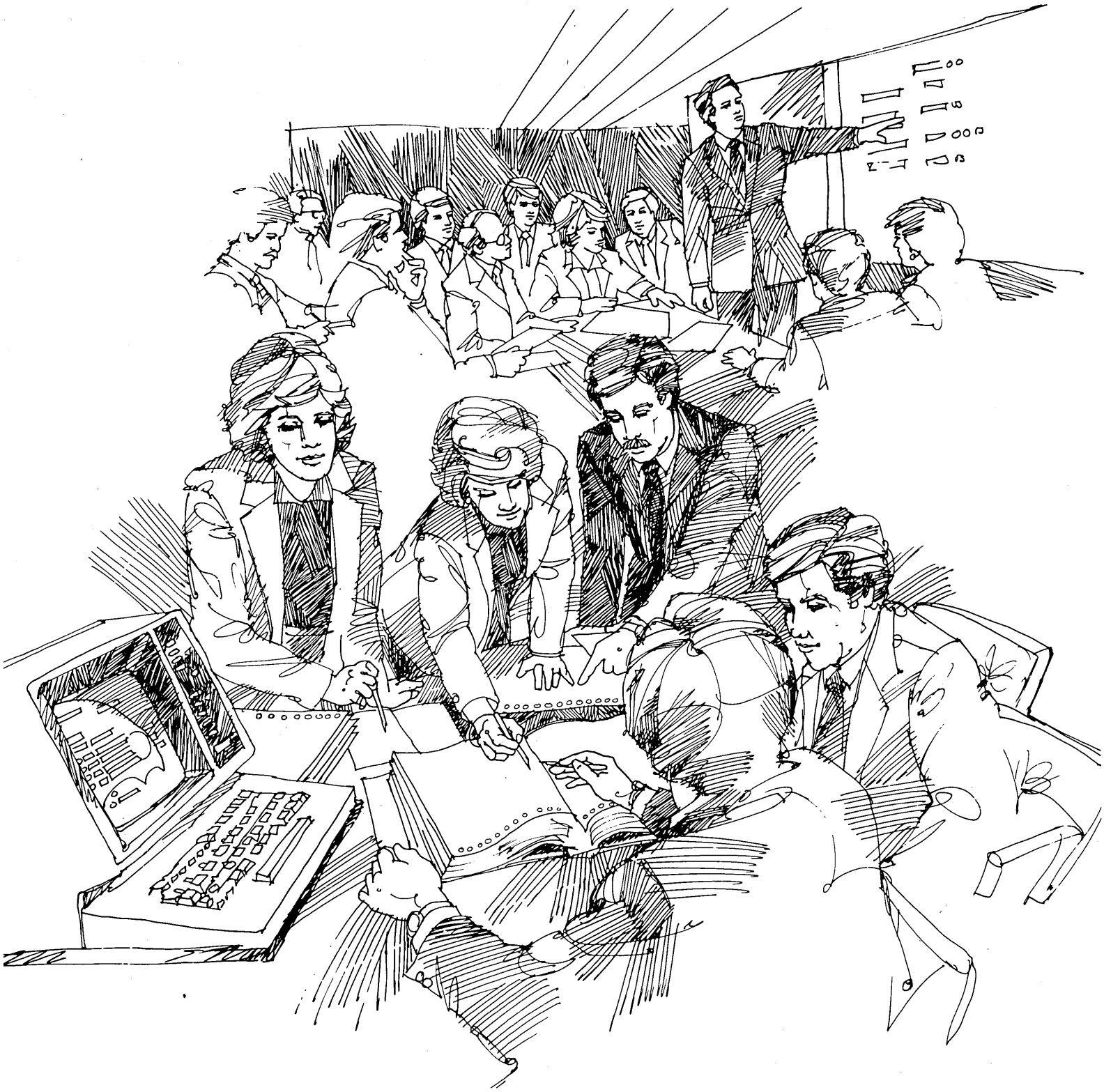
Seminar Number QA4020
Volume 2

Seminars designed to help improve performance and productivity.

APPLICATIONS & SOFTWARE EDUCATION

CONTROL DATA

SEMINAR DIVISION



COURSE NO. QA4020-1

CYBER 18/1700 MSOS ANALYSIS LISTINGS

STUDENT HANDOUT

VOLUME 2

PROPRIETARY NOTICE

REVISION RECORD	
REVISION	**DESCRIPTION**
A	Manual Release
(11-22-78)	
B	
(02-01-79)	Manual Update
Publication No. QA4020-1	

REVISION LETTERS I, O, Q AND X ARE NOT USED

CYBER 18/1700 MSOS ANALYSIS

Address comments concerning this manual to:

CONTROL DATA CORPORATION
National Coordinator
5001 West 80th Street
Bloomington, Minnesota 55437
Attn: Curtis Vicha

or use Comment Sheet in the back of this manual.

80/12/04. 12.30.11.
PROGRAM LTMSOS

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

0000 0027 NAM COMMON DECK-ID M13 MSOS 5.0 SUMMARY
0027 END

ENTRY POINT NAMES AND ADDRESSES.

ALLIN -- 0000

EXTERNAL SYMBOLS.

PRO

```
                                        NAM  COMMON        DECK-ID M13  MSOS 5.0                SUMMARY-110 COMMON      2
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                              COMMON      3
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                          COMMON      4
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                               COMMON      5


                                    *   COMMON INTERRUPT HANDLER                                              COMMON      7

                                        ENT ALLIN                                                             COMMON      9
                                        EXT  PRO            ENTRY IN NIPROC                                   COMMON     10
                                        EQU  COUNT($B8)                                                       COMMON     11
                                        EQU  PRLVL($EF)                                                       COMMON     12
                                        EQU  AMASKT($B7)                                                      COMMON     13
                                        EQU  ZERO($22)                                                        COMMON     14
                                        EQU  LPMSK(2)                                         **MSOS 4.0 COMMON     15
                                    *                                                                         COMMON     16
                                    *  AFTER CONTROL IS TRANSFERRED FROM THE INTERRUPT                        COMMON     17
                                    *   TRAP LOCATION TO THE COMMON INTERRUPT HANDLER,                        COMMON     18
                                    *   THE RETURN LOCATION, A, Q AND I REGISTERS AND                         COMMON     19
                                    *   PRIORITY ARE SAVED IN A PUSH-UP POP-DOWN STACK                        COMMON     20
                                    *   BY PRIORITY LEVEL. THEN THE NEW PRIORITY AND                          COMMON     21
                                    *   MASK ARE SET AND CONTROL IS TRANSFERRED TO THE                        COMMON     22
                                    *   ADDRESS ASSOCIATED WITH THE LINE ON WHICH THE                         COMMON     23
                                    *   INTERRUPT APPEARED.                                                   COMMON     24
                                    *                                                                         COMMON     25
                                        EQU  XA(1),XI(2),XR(3),XPL(4),XL(5)                                   COMMON     26
                                        0002
                                        0003
                                        0004
                                        0005
P0000  0000                         ALLIN 0    0              LINK TO LEVEL ENTRY                            COMMON     27
P0001  01FC                               SNF  CPMFIX         PROTECT FAULT                                  COMMON     28
P0002  480B                               STQ* QREG           YES, SET UP LINKAGE TO IPROC                   COMMON     29
P0003  E8FC                               LDQ* ALLIN          SO IT CAN PROCESS THE FAULT                    COMMON     30
P0004  0DFD                               INQ  -2                                                            COMMON     31
P0005  E622                               LDQ- (ZERO),Q                                                      COMMON     32
P0006  442B                               STQ- ($2B)                                                         COMMON     33
P0007  E000  0102                         LDQ  =N$102                                                        COMMON     34
P0009  44F8                               STQ- ($F8)                                                         COMMON     35
P000A  E803                               LDQ* QREG                                                          COMMON     36
P000B  1400  7FFF X                       JMP  PRO                                                           COMMON     37
P000D  0000                         QREG  NUM  0                                                             COMMON     38
P000E  44B8                         CPMFIX STQ- (COUNT)       SAVE Q IN STACK                              COMMON     39
P000F  E0B8                               LDQ- COUNT            STACK COUNTER AS INDEX                       COMMON     40
P0010  6201                               STA- XA,Q                   SAVE A                                 COMMON     41
P0011  C0EF                               LDA- PRLVL                  SAVE PRIORITY                          COMMON     42
P0012  A011                               AND- LPMSK+15                                     **MSOS 4.0 COMMON     43
P0013  01B1                               SNO  ALLA-*-1       CHECK IF OVERFLOW CONDITION EXISTED **MSOS 4.0 COMMON     44
                                    *                         AT THE TIME THE INTERRUPT OCCURRED  **MSOS 4.0 COMMON     45
P0014  B032                               EOR- ZERO+16        SAVE OVERFLOW AS BIT 15 WITH PRIORITY*MSOS 4.0 COMMON     46
P0015  6204                         ALLA  STA- XPL,Q          SAVE OVERFLOW AND PRIORITY LEVEL    Y*MSOS 4.0 COMMON     47
P0016  C0FF                               LDA- I                      SAVE MEMORY                            COMMON     48
P0017  6202                               STA- XI,Q                   INDEX REGISTER                         COMMON     49
P0018  40FF                               STQ- I                STACK LOCATION BASE                          COMMON     50
P0019  0D05                               INQ  XL                     UPDATE STACK                           COMMON     51
P001A  40B8                               STQ- COUNT                                                         COMMON     52
P001B  E8E4                               LDQ* ALLIN                  LEVEL LINK                             COMMON     53
```

```
                P001C   0DFD            INQ  -2              ADJUST TRAP LOCATION                    COMMON   54
                P001D   C622            LDA- (ZERO),Q        RETURN LOCATION                         COMMON   55
          5     P001E   6103            STA- XR,I                                                    COMMON   56
                P001F   40FF            STQ- I               SAVE TRAP LOCATION IN I                 COMMON   57
                P0020   E202            LDQ- 2,Q                       SET NEW                       COMMON   58
                P0021   40EF            STQ- PRLVL                     PRIORITY LEVEL                COMMON   59
                P0022   C6B7            LDA- (AMASKT),Q      SET NEW MASK I M REGISTER               COMMON   60
         10     P0023   0400            EIN                                                          COMMON   61
                P0024   0821            TRA  M                                                       COMMON   62
                P0025   E103            LDQ- 3,I             JUMP TO PROCESSOR                       COMMON   63
                P0026   1622            JMP- (ZERO),Q        LOCATION IN Q                           COMMON   64
                P0027                   END                                                          COMMON   65


                        56751B STORAGE USED          64 STATEMENTS       15 SYMBOLS
                            6400 ASSEMBLY         0.506 SECONDS          42 REFERENCES
```

COMPLETE REFERENCE MAP.

ALLA	0015		2/50	2/53 L			
ALLIN	0000		2/11 E	2/33 L	2/36	2/59	
AMASKT	00B7	ABSOLUTE	2/15 Q	3/09			
COUNT	00B8	ABSOLUTE	2/13 Q	2/45	2/46	2/58	
CPMFIX	000E		2/34	2/45 L			
I	00FF	-SYSTEM-	2/54	2/56	3/06		
LPMSK	0002	ABSOLUTE	2/17 Q	2/49			
PRLVL	00EF	ABSOLUTE	2/14 Q	2/48	3/08		
PRO	000C	*EXTERNAL*	2/12 X	2/43			
QREG	000D		2/35	2/42	2/44 L		
XA	0001	ABSOLUTE	2/28 Q	2/47			
XI	0002	ABSOLUTE	2/28 Q	2/55			
XL	0005	ABSOLUTE	2/31 Q	2/57			
XPL	0004	ABSOLUTE	2/30 Q	2/53			
XR	0003	ABSOLUTE	2/29 Q	3/05			
ZERO	0022	ABSOLUTE	2/16 Q	2/38	2/52	3/04	3/13

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

0000	0092	NAM	NIPROC	DECK-ID M12 MSOS 5.0	SUMMARY
0092		END			

ENTRY POINT NAMES AND ADDRESSES.

ASAV	-- 0025	IP1	-- 0010	PRO	-- 0004	PWFOV	-- 0071
HA	-- 0074	MSAV	-- 0070	PTYERR	-- 0011	QSAV	-- 006F
IPROC	-- 0000	NIPROC	-- 0000	PWFAIL	-- 0050		

EXTERNAL SYMBOLS.

JOBIND PARITY POWERU SWTCH SYFAIL

```
                                        NAM  NIPROC       DECK-ID M12  MSOS 5.0                SUMMARY-118 NIPROC132   1
                                    *   INTERNAL INTERRUPT PROCESSOR                                         NIPROC     3
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                            NIPROC     4
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                         NIPROC     5
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                              NIPROC     6


                          0000 P         ENT  IPROC,IP1                                    **MSOS 4.1* NIPROC     8
                          0010 P
                          0025 P         ENT  ASAV          A-REGISTER SAVED FROM ENTRY    **MSOS 4.1** NIPROC     9
                          006F P         ENT  QSAV          Q-REGISTER SAVED FROM ENTRY    **MSOS 4.1** NIPROC    10
                          0070 P         ENT  MSAV          M-REGISTER SAVED FROM ENTRY    **MSOS 4.1** NIPROC    11
                          0071 P         ENT  PWFOV         OVERFLOW SAVED FROM ENTRY      **MSOS 4.1** NIPROC    12
                          0074 P         ENT  HA            GENERALIZED HEX TO ASCII CONV. **MSOS 4.1** NIPROC    13
                          0004 P         ENT  PRO                                                        NIPROC    14
                          0050 P         ENT  PWFAIL        POWER FAILURE INTERRUPT PROCESSOR     116*4372 NIPROC132   2
                          0011 P         ENT  PTYERR        MEMORY PARITY ERROR PROCESSOR         116*4372 NIPROC132   3
                                         EXT  POWERU        USER SUPPLIED POWER RESTORE HAND. **MSOS 4.1** NIPROC    15
                                         EXT  JOBIND,SWTCH                                               NIPROC    16
                                         EXT  PARITY                                                     NIPROC    17
                                         EXT  SYFAIL        SITE FAIL LOCATED IN SYSDAT ($18FF)          NIPROC    18
                          002B           EQU  INT($2B)                                                   NIPROC    19
                          002B           EQU  ATEH($2B),SIGN($32)                                        NIPROC    20
                          0032
                          0002           EQU  LPMASK(2)                                                  NIPROC    21
                                    *   THIS PROCESSOR MUST BE IN RESIDENT IN ORDER TO                   NIPROC    22
                                    *   PROCESS MEMMORY PARITY. THE PROCESSOR WHICH                      NIPROC    23
                                    *   RESPONDS TO PROTECT VIOLATIONS MAY BE IN RES-                    NIPROC    24
                                    *   DENT OR ON MASS STORAGE AS PART OF THE JOB                       NIPROC    25
                                    *   PROCESSOR. IF THE LATTER IS THE CASE, THEN                       NIPROC    26
                                    *   IPROC1 WILL BE REPORTED AS AN UNUSED MODULE AT                   NIPROC    27
                                    *   THE END OF SYSTEM INITIALIZATION.                                NIPROC    28
                                    *                                                                   NIPROC    29
                          0000 P         ENT   NIPROC                                                    NIPROC    30
                          0000 P         EQU   NIPROC(*)                                                 NIPROC    31
                                    *                                                                   NIPROC    32
P0000     0000                    IPROC  ADC  0          INTERNAL INTERRUPT PROCESSOR                   NIPROC    33
P0001     01E2                           SPF  PRO-*-1    PROTECT VIOL                                   NIPROC    34
P0002     01CE                           SPE  CONVRT-*-1 PARITY                                         NIPROC    35
P0003     184D                           JMP* PWFAIL     POWER                                          NIPROC    36
P0004     6821                    PRO    STA* ASAV                                                      NIPROC    37
P0005     C400    7FFF X                 LDA  JOBIND     TEST FOR JOB-PROCESSOR OR LIBEDT IN            NIPROC    38
P0007     0116                           SAN  PPROC-*-1                                                 NIPROC    39
P0008     C400    7FFF X                 LDA SWTCH       CORE.                                          NIPROC    40
P000A     0113                           SAN  PPROC-*-1                                                 NIPROC    41
P000B     0500                           IIN  0                                          *585           NIPROC    42
P000C     5400    7FFF X                 RTJ+ SYFAIL        JOB PROCESSOR NOT IN CORE - HANG            NIPROC    43
P000E     C817                    PPROC  LDA* ASAV       RESTORE A                                       NIPROC    44
P000F     1C01                           JMP* (IP1)      GO TO PROTECT PROCESSOR                        NIPROC    45
P0010     0000                    IP1    ADC  0                                                         NIPROC    46
                          0011 P         EQU  PTYERR(*)                                    118*4372 NIPROC132   4
P0011     0500                    CONVRT IIN  0                                          *585           NIPROC    47
                                    *   THE FOLLOWING CODE SHOULD BE IMPLEMENTED TO                      68*1519 NIPROC    48
                                    *   TYPE OUT THE CORRECT P.E. ADDRESS WHEN                           68*1519 NIPROC    49
                                    *   1. THE P.E. WAS GENERATED WHEN P-REG WAS NOT EQ Y-REG            68*1519 NIPROC    50
                                    *   2. THE P.E. WAS GENERATED BY DSATRANSFER                         68*1519 NIPROC    51
```

```
                P0012  C0F5           LDA- $F5        MAXCOR+1 IS NECESSARY FOR          70*1519  NIPROC  53
 5              P0013  0901           INA  1          THE SEARCH THROUGH MAXCOR          70*1519  NIPROC  54
                P0014  680F           STA* MAXCOR                                        70*1519  NIPROC  55
                P0015  0844           CLR  A                                             68*1519  NIPROC  56
                P0016  680E           STA* TCPAR                                         68*1519  NIPROC  57
                P0017  CC0D   PARMOR  LDA* (TCPAR)    SCAN ALL CORE FOR PARITY ERROR     68*1519  NIPROC  58
10              P0018  01CD           SPE  FNDPE-*-1                                     72*1519  NIPROC  59
                P0019  D80B           RAO* TCPAR      MAKE P.E. PRINTOUT EQ P+1          72*1519  NIPROC  60
                P001A  C80A           LDA* TCPAR                                         68*1519  NIPROC  61
                P001B  B808           EOR* MAXCOR     DONE WITH SCAN                     70*1519  NIPROC  62
                P001C  0101           SAZ  NOFND-*-1  YES                                68*1519  NIPROC  63
15              P001D  18F9           JMP* PARMOR     NO                                 68*1519  NIPROC  64
                P001E  E000  4453 NOFND LDQ  =N$4453  OUTPUT  PARITY  DSA<  IF NO                   NIPROC  65
                P0020  C000  413F       LDA  =N$413F  PARITY ERROR IS FOUND DURING                 NIPROC  66
                P0022  1807             JMP* NOPE     THE CORE SCAN                                NIPROC  67

20
                P0023  0000   MAXCOR NUM  0           HIGHEST CORE ADDRESS + 1           70*1519  NIPROC  69
                P0024  0000   TCPAR  NUM  0           ADDRESS COUNTER                    68*1519  NIPROC  70
                P0025  0000   ASAV   NUM  0                                             68*1519  NIPROC  71

25
                P0026  C8FD   FNDPE  LDA* TCPAR       ADDRESS OF P.E. CELL + 1           68*1519  NIPROC  73
                P0027  642B           STA- (INT)                                         68*1519  NIPROC  74
                                      *               2 CARDS DELETED                              NIPROC  75
                P0028  584C           RTJ* HA         CONVERT PARITY ADDRESS TO ASCII  **MSOS 4.1** NIPROC  76
30              P0029  01A0   NOPE   SOV  0           CLEAR OVERFLOW                               NIPROC  77
                P002A  4824           STQ* MESSAG+5   SAVED ASCII IN PARITY MESSAGE     **MSOS 4.1** NIPROC  78
                P002B  6824           STA* MESSAG+6                                    **MSOS 4.1** NIPROC  79
                P002C  E000  0091     LDQ  =N$91                                                 NIPROC  80
                P002E  C02B           LDA- ATEH                                                  NIPROC  81
35              P002F  03FE           OUT  -1         SET WRITE MODE                             NIPROC  82
                P0030  0A00           ENA  0                                                     NIPROC  83
                P0031  60FF           STA- I          INITIALIZE COUNT                           NIPROC  84
                P0032  C917   MORE    LDA*  MESSAG,I                                           NIPROC  85
                P0033  E000  0090     LDQ  =N$90                                                 NIPROC  86
40              P0035  0FC8           ALS  8                                                     NIPROC  87
                P0036  03FE           OUT  -1         SEND UPPER CHARACTER                       NIPROC  88
                P0037  0FC8           ALS  8                                                     NIPROC  89
                P0038  03FE           OUT  -1         SEND LOWER HALF                            NIPROC  90
                P0039  D0FF           RAO- I          INCREMENT COUNT                            NIPROC  91
45              P003A  C0FF           LDA- I                                                     NIPROC  92
                P003B  09F8           INA  -7                                                    NIPROC  93
                P003C  0101           SAZ  GOON-*-1                                              NIPROC  94
                P003D  18F4           JMP* MORE       GO DO SOME MORE                            NIPROC  95
                P003E  C807   GOON    LDA* PAREXT                                                NIPROC  96
50              P003F  0500           IIN  0                                                     NIPROC  97
                P0040  B032           EOR- SIGN                                                  NIPROC  98
                P0041  0900           INA  0                                                     NIPROC  99
                P0042  0103           SAZ  NOEXIT-*-1 SKIP IF USER PGM NOT HERE                  NIPROC 100
                P0043  E02B           LDQ- INT        GET CONTENTS OF $100                       NIPROC 101
55              P0044  1C01           JMP* (PAREXT)   GO TO PROGRAM NAMED PARITY                 NIPROC 102
                P0045  7FFF X PAREXT  ADC  PARITY                                                NIPROC 103
                P0046  0500   NOEXIT IIN  0                                                     NIPROC 104
                P0047  5400  000D X   RTJ+ SYFAIL     PARITY ERROR - HANG                        NIPROC 105
                                      *               1 CARD DELETED                68*1519  NIPROC 106
```

```
                                *                                                                NIPROC  107
         P0049  0D0A            MESSAG NUM  $0D0A                                                NIPROC  108
    5    P004A  5041                   ALF  6,PARITY, 0000                                       NIPROC  109
         P004B  5249
         P004C  5459
         P004D  2C20
         P004E  3030
   10    P004F  3030
                                *                                                                NIPROC  110
         P0050  0500            PWFAIL IIN  0                                                     NIPROC  111
         P0051  68D3                   STA* ASAV       (A)                                       NIPROC  112
         P0052  481D                   STQ* QSAV       (Q)                                       NIPROC  113
   15    P0053  0A00                   ENA  0                                  **MSOS 4.0 NIPROC  114
         P0054  01B1                   SNO  PWOV-*-1     CHECK IF OVERFLOW EXISTS  **MSOS 4.0 NIPROC  115
         P0055  0A01                   ENA  1            YES,SET INDICATOR       **MSOS 4.0 NIPROC  116
         P0056  681B            PWOV   STA* PWFOV        SAVE IND.0=NO OVERFLOW,1=OVERFLOW **MSOS 4.0 NIPROC  117
         P0057  080C                   TRM  A                                                    NIPROC  118
   20    P0058  6818                   STA* MSAV       (M)                                       NIPROC  119
         P0059  C422                   LDA- ($22)                                                NIPROC  120
         P005A  6818                   STA* LZERO      (0)                                       NIPROC  121
         P005B  C001                   LDA- 1                                                    NIPROC  122
         P005C  6817                   STA* LONE       (1)                                       NIPROC  123
   25    P005D  C000  1400             LDA  =N$1400    JMP+  INSTRUCTION                         NIPROC  124
         P005F  6422                   STA- ($22)                                                NIPROC  125
         P0060  C000  0064 P           LDA  =XPRFAIL                                             NIPROC  126
         P0062  6001                   STA- 1                                                    NIPROC  127
         P0063  18FF                   NUM  $18FF      HANG UNTIL POWER RETURNS                  NIPROC  128
   30    P0064  C80E            PRFAIL LDA* LZERO                                                NIPROC  129
         P0065  6422                   STA- ($22)      (0)                                       NIPROC  130
         P0066  C80D                   LDA* LONE       (1)                                       NIPROC  131
         P0067  6001                   STA- 1                                                    NIPROC  132
         P0068  C806                   LDA* UPOWER       CHECK IF USER ROUTINE LOADED  **MSOS 4.1** NIPROC  133
   35    P0069  B011                   EOR- LPMASK+15                          **MSOS 4.1** NIPROC  134
         P006A  0101                   SAZ  HANG         SKIP IF NO ROUTINE    **MSOS 4.1** NIPROC  135
         P006B  1C03                   JMP* (UPOWER)     EXIT TO USER POWER RESTORE ROUTINE**MSOS 4.1** NIPROC  136
         P006C  5400  0048 X    HANG   RTJ+ SYFAIL       POWER UP - HANG                           NIPROC  137
         P006E  7FFF X          UPOWER ADC  POWERU       ADDRESS OF USER PROGRAM  **MSOS 4.1** NIPROC  138
   40    P006F  0000            QSAV   ADC  0                                                    NIPROC  139
         P0070  0000            MSAV   ADC  0                                                    NIPROC  140
         P0071  0000            PWFOV  ADC  0                                  **MSOS 4.0 NIPROC  141
         P0072  0000            LZERO  ADC  0                                                    NIPROC  142
         P0073  0000            LONE   ADC  0                                                    NIPROC  143
```

```
                                ************************************************************MSOS 4.1** NIPROC   145
                                *                                                          ***MSOS 4.1** NIPROC   146
                                *     H E X  T O  A S C I I  C O N V E R S I O N             **MSOS 4.1** NIPROC   147
                                *                                                          ***MSOS 4.1** NIPROC   148
                                ************************************************************MSOS 4.1** NIPROC   149

     P0074  0000          HA     NUM  0          HEX-ASCII CONVERSION                 **MSOS 4.1** NIPROC   151
     P0075  0500                 IIN  0                                               **MSOS 4.1** NIPROC   152
     P0076  0822                 TRA  Q          ENTRY WITH HEX VALUE IN A-REG.       **MSOS 4.1** NIPROC   153
     P0077  5811                 RTJ* CHAR                                            **MSOS 4.1** NIPROC   154
     P0078  680E                 STA* C01                                             **MSOS 4.1** NIPROC   155
     P0079  580F                 RTJ* CHAR                                            **MSOS 4.1** NIPROC   156
     P007A  0FC8                 ALS  8                                               **MSOS 4.1** NIPROC   157
     P007B  880B                 ADD* C01                                             **MSOS 4.1** NIPROC   158
     P007C  680A                 STA* C01        MAKE LOWER BYTES                     **MSOS 4.1** NIPROC   159
     P007D  580B                 RTJ* CHAR                                            **MSOS 4.1** NIPROC   160
     P007E  6809                 STA* C02                                             **MSOS 4.1** NIPROC   161
     P007F  5809                 RTJ* CHAR                                            **MSOS 4.1** NIPROC   162
     P0080  0FC8                 ALS  8                                               **MSOS 4.1** NIPROC   163
     P0081  8806                 ADD* C02        MAKE UPPER BYTES                     **MSOS 4.1** NIPROC   164
     P0082  E804                 LDQ* C01                                             **MSOS 4.1** NIPROC   165
     P0083  0FF0                 LLS  16                                              **MSOS 4.1** NIPROC   166
     P0084  0400                 EIN  0                                               **MSOS 4.1** NIPROC   167
     P0085  1CEE                 JMP* (HA)       RETURN (Q)=UPPER  (A)=LOWER          **MSOS 4.1** NIPROC   168
     P0086  0000          C01    NUM  0                                               **MSOS 4.1** NIPROC   169
     P0087  0000          C02    NUM  0                                               **MSOS 4.1** NIPROC   170
     P0088  0000          CHAR   NUM  0          CHARACTER CONVERSION                 **MSOS 4.1** NIPROC   171
     P0089  0844                 CLR  A                                               **MSOS 4.1** NIPROC   172
     P008A  0F64                 LRS  4                                               **MSOS 4.1** NIPROC   173
     P008B  0FC4                 ALS  4                                               **MSOS 4.1** NIPROC   174
     P008C  09F5                 INA  -10                                             **MSOS 4.1** NIPROC   175
     P008D  0122                 SAP  ATHRUF                                          **MSOS 4.1** NIPROC   176
     P008E  093A                 INA  $3A                                             **MSOS 4.1** NIPROC   177
     P008F  1CF8                 JMP* (CHAR)                                          **MSOS 4.1** NIPROC   178
     P0090  0941          ATHRUF INA  $41                                             **MSOS 4.1** NIPROC   179
     P0091  1CF6                 JMP* (CHAR)                                          **MSOS 4.1** NIPROC   180
     P0092                       END                                                              NIPROC   181

          61007B STORAGE USED          183 STATEMENTS       43 SYMBOLS
                 6400 ASSEMBLY       1.049 SECONDS        124 REFERENCES
```

COMPLETE REFERENCE MAP.

ASAV	0025		2/12 E	2/43	2/50	3/23 L	4/13		
ATEH	002B	ABSOLUTE	2/25 Q	3/34					
ATHRUF	0090		5/36	5/39 L					
CHAR	0088		5/14	5/16	5/20	5/22	5/31 L	5/38	5/40
CONVRT	0011		2/41	2/54 L					
CO1	0086		5/15	5/18	5/19	5/25	5/29 L		
CO2	0087		5/21	5/24	5/30 L				
FNDPE	0026		3/10	3/26 L					
GOON	003E		3/47	3/49 L					
HA	0074		2/16 E	3/29	5/11 L	5/28			
HANG	006C		4/36	4/38 L					
I	00FF	-SYSTEM-	3/37	3/44	3/45				
INT	002B	ABSOLUTE	2/24 Q	3/27	3/54				
IPROC	0000		2/10 E	2/39 L					
IP1	0010		2/10 E	2/51	2/52 L				
JOBIND	0006	*EXTERNAL*	2/21 X	2/44					
LONE	0073		4/24	4/32	4/44 L				
LPMASK	0002	ABSOLUTE	2/27 Q	4/35					
LZERO	0072		4/22	4/30	4/43 L				
MAXCOR	0023		3/06	3/13	3/21 L				
MESSAG	0049		3/31	3/32	3/38	4/04 L			
MORE	0032		3/38 L	3/48					
MSAV	0070		2/14 E	4/20	4/41 L				
NIPROC	0000		2/36 E	2/37 Q					
NOEXIT	0046		3/53	3/57 L					
NOFND	001E		3/14	3/16 L					
NOPE	0029		3/18	3/30 L					
PAREXT	0045		3/49	3/55	3/56 L				
PARITY	0045	*EXTERNAL*	2/22 X	3/56					
PARMOR	0017		3/09 L	3/15					
POWERU	006E	*EXTERNAL*	2/20 X	4/39					
PPROC	000E		2/45	2/47	2/50 L				
PRFAIL	0064		4/27	4/30 L					
PRO	0004		2/17 E	2/40	2/43 L				
PTYERR	0011		2/19 E	2/53 Q					
PWFAIL	0050		2/18 E	2/42	4/12 L				
PWFOV	0071		2/15 E	4/18	4/42 L				
PWOV	0056		4/16	4/18 L					
QSAV	006F		2/13 E	4/14	4/40 L				
SIGN	0032	ABSOLUTE	2/25 Q	3/51					
SWTCH	0009	*EXTERNAL*	2/21 X	2/46					
SYFAIL	006D	*EXTERNAL*	2/23 X	2/49	3/58	4/38			
TCPAR	0024		3/08	3/09	3/11	3/12	3/22 L	3/26	
UPOWER	006E		4/34	4/37	4/39 L				

STORAGE ALLOCATION.

```
ADDRESS   LENGTH          BINARY CONTROL CARDS.

   0000     012A          NAM    MINT        DECK-ID M07  MSOS 5.0          SUMMAR
   012A                   END

ENTRY POINT NAMES AND ADDRESSES.

        JOBSTR -- 005B     MIB    -- 0070     MINT   -- 0000     S200BS -- 0129
        MI     -- 0000     MIBX   -- 0071     RELFLE -- 00BC

EXTERNAL SYMBOLS.

        BATCLU    JBCNCL    JPCHGE    LVLSTR    RESTOR    SWTCH
        CCP       JOBENT    LEND      MIINP     SIM200    TSCNAC
        FILE1     JOBIND    LOADIN    MIPRO     SWAPON    TSCNMI
```

```
                                NAM  MINT          DECK-ID M07  MSOS 5.0              SUMMARY-116 MINT132    1
                           *    MASS STORAGE OPERATING SYSTEM VERSION 5.0                          MINT       3
                           *    SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                       MINT       4
                           *    COPYRIGHT CONTROL DATA CORPORATION 1976                            MINT       5


                           *    MANUAL INTERRUPTS PROCESSOR                                        MINT       7
                      0000 P       ENT   MINT                                                      MINT       8
                      0000 P       EQU   MINT(*)                                                  MINT       9


                           * THIS IS THE MANUAL INTERRUPT ROUTINE                                  MINT      12
                           * NO ATTEMPT IS MADE TO INTERRUPT REQUESTS IN PROGRESS                  MINT      13

                      0000 P       ENT   MI                                                       MINT      15
                      0070 P       ENT   MIB                                                      MINT      16
                      0071 P       ENT   MIBX                                                     MINT      17
                      00BC P       ENT   RELFLE                                                   MINT      18
                      0129 P       ENT   S200BS                                  116*4377 MINT132    2
                      005B P       ENT   JOBSTR                                                   MINT      20
                           *                E X T E R N A L S                     116*4377 MINT132    3

                                EXT  MIINP         "MI" INPUT BUFFER (IN "SYSDAT")  116*4377 MINT132    5
                                EXT  TSCNAC        TIME SHARE ACTIVE ON             116*4377 MINT132    6
                           *                          COMMENT DEVICE FLAG            116*4377 MINT132    7
                                EXT  TSCNMI        TIME SHARE MANUAL INTERRUPT ROUTINE. 116*4377 MINT132  8
                                EXT  SIM200                                         116*4377 MINT132    9
                                EXT  CCP           CURRENT CONTROL POINT            116*4377 MINT132   10

                                EXT   JOBIND                                                       MINT      22
                                EXT   FILE1                                                        MINT      23
                                EXT   SWTCH                                                        MINT      24
                                EXT   JOBENT                                                       MINT      25
                                EXT  BATCLU                                         116*4377 MINT132   11
                                EXT   JBCNCL                                                       MINT      26
                                EXT   MIPRO                                                        MINT      27
                                EXT  LVLSTR,SWAPON,LEND                                            MINT      28
                                EXT  RESTOR                                                        MINT      29
                                EXT  JPCHGE                                                        MINT      30
                                EXT  LOADIN         LOADER IN CORE FLAG             *444****  MINT      31

                           *                S Y S T E M     E Q U I V A L E N C E  116*4377 MINT132   13
                      00F4       EQU  MONIT($F4)    LOCATION CONTAINS MONITOR ADDRESS 116*4377 MINT132   14
                      0002       EQU  LPMSK(2)                                     116*4377 MINT132   15
                      0022       EQU  ZERO($22)     LOCATION CONTAINS ZERO         116*4377 MINT132   16
                      00F7       EQU  LOCORE($F7)   LOW CORE STARTING ADDRESS      116*4377 MINT132   17
                      00E9       EQU  CREXTB($E9)   LOCATION CONTAINS CORE EXTENDED TABLE 116*4377 MINT132 18
                      002A       EQU  CHARSK($2A)   CHARACTER *                    116*4377 MINT132   19

                      00EA       EQU   DISP($EA)                                                   MINT      33
                      0024       EQU  L(36)         BUFFER LENGTH                 **MSOS 4.0 MINT      34
                      0001       EQU  RP(1)                                                        MINT      35
                      00F6       EQU  HICORE($F6)                                                  MINT      36


P0000 C870           MI     LDA* MIB                                                           MINT      38
P0001 8870                  ADD* MIBX          BOTH LOCK OUT FLAGS MUST BE ZERO             MINT      39
```

```
                P0002  0101                SAZ  MIGO                                          MINT      40
                P0003  14EA                JMP- (DISP)       NOT ZERO, JUST GO AWAY     116*4377 MINT132   20
      5         P0004  D86C         MIGO   RAO* MIB                                          MINT      42
                P0005  54F4                RTJ- (MONIT)      OUTPUT "MI"                116*4377 MINT132   21
                P0006  4CE3                NUM  $4CE3                                       MINT      48
                P0007  0000                ADC   $0,$0,$18FC,$2,MIOUT                      MINT      49
                P0008  0000
     10         P0009  18FC
                P000A  0002
                P000B  00B6 P
                P000C  0AFF                ENA  -0                                          MINT      50
                P000D  0C23                ENQ  L-1                                  **MSOS 4.0 MINT   51
     15         P000E  6E0A         MI1    STA* (MIBFAD),Q                            116*4377 MINT132   22
                P000F  0DFE                INQ   -1                                         MINT      53
                P0010  0171                SQM   MI2-*-1                                    MINT      54
                P0011  18FC                JMP*  MI1                                        MINT      55

     20         P0012  54F4         MI2    RTJ- (MONIT)      INPUT STATEMENT            116*4377 MINT132   23
                P0013  48E7                NUM  $48E7                                    116*4377 MINT132   24
                P0014  0021 P              ADC  MI2AX        COMPLETION ADDRESS TO BE ENTERED 116*4377 MINT132 25
                                    *                          AT LEVEL 7              116*4377 MINT132   26
                P0015  0000         THR    ADC  $0,$18FD,L+1,MIINP                   **MSOS 4.0 MINT   59
     25         P0016  18FD
                P0017  0025
                P0018  7FFF X
                           0018 P          EQU  MIBFAD(*-1)  "MI" INPUT BUFFER ADDRESS  116*4377 MINT132   27
                P0019  54F4                RTJ- (MONIT)      SCHEDULE DOWN TO         116*4377 MINT132   28
     30         P001A  5203                NUM  $5203        LEVEL 3.                 116*4377 MINT132   29
                P001B  001D P              ADC  MI2AA                                 116*4377 MINT132   30
                P001C  14EA                JMP- (DISP)                                116*4377 MINT132   31
                P001D  C8F7         MI2AA  LDA* THR          THIS LOOP RUNS AT LEVEL 3.  ITS 116*4377 MINT132 32
                P001E  0101                SAZ  MI2AE        PURPOSE IS TO INHIBIT THE BACKGROUND 116*4377 MINT132 33
     35         P001F  18FD                JMP* MI2AA        PROGRAMS FROM EXECUTING UNTIL THE MI 116*4377 MINT132 34
                P0020  14EA         MI2AE  JMP- (DISP)       INPUT REQUEST IS COMPLETED 116*4377 MINT132   35
                                    *                        (AT LEVEL 7)               116*4377 MINT132   36

     40                             *                        THE INPUT REQUEST IS SATISFIED. 116*4377 MINT132 38
                                    *                                                   116*4377 MINT132   39
                P0021  0162         MI2AX  SQP  MI2A         SKIP IF NO INPUT ERROR.    116*4377 MINT132   40
                P0022  1800  008A          JMP  MI16         IGNORE INPUT AND EXIT.     116*4377 MINT132   41
                P0024  C000  7FFF X MI2A   LDA  =XCCP        CURRENT CONTROL POINT      116*4377 MINT132   42
     45         P0026  B011                EOR- LPMSK+15                              116*4377 MINT132   43
                P0027  0108                SAZ  MI21         SKIP IF NOT TIMESHARE SYSTEM 116*4377 MINT132 44
                P0028  C400  7FFF X        LDA+ TSCNAC       SKIP IF TIME SHARE IS NOT  116*4377 MINT132   45
                P002A  0105                SAZ  MI21         ACTIVE AT THE COMMENT DEVICE. 116*4377 MINT132 46
                P002B  E8EC                LDQ* MIBFAD       SET Q EQUAL TO INPUT BUFFER ADDRESS 116*4377 MINT132 47
     50         P002C  54F4                RTJ- (MONIT)      SCHEDULE THE               116*4377 MINT132   48
                P002D  5205                NUM  $5205        TIME SHARE MANUAL INTERRUPT ROUTINE. 116*4377 MINT132 49
                P002E  7FFF X              ADC  TSCNMI                                  116*4377 MINT132   50
                P002F  187E                JMP* MI16         CLEAR FLAGS AND EXIT.      116*4377 MINT132   51
                P0030  CCE7         MI21   LDA* (MIBFAD)                              116*4377 MINT132   52
     55         P0031  0F48                ARS   8                                          MINT      67
                P0032  09D5                INA  -CHARSK       CHECK FOR "*"              116*4377 MINT132   53
                P0033  0104                SAZ   MI3-*-1                                    MINT      69
                P0034  1800  00C5          JMP  SIMPRO       GO TO TEST FOR SIM200 ENTRY 116*4377 MINT132   54
```

```
                P0036  5AFF           Z      NUM   $5AFF                                                    MINT      72
 5              P0037  7FFF X         STH    ADC   SWTCH                                                    MINT      73


                P0038  C800  00F0     MI3    LDA   S200BS      IF SIM200 IS RUNNING, DO NOT          116*4377 MINT132   55
                P003A  0101                 SAZ   MI31        ALLOW THE JOB PROCESSOR TO EXECUTE.    116*4377 MINT132   56
10              P003B  186B                 JMP*  MI12        GO PRINT A JP05 ERROR MESSAGE.         116*4377 MINT132   57
                P003C  CC36           MI31  LDA*  (JOBI)      CHECK IF JOB PROCESSOR IN CORE         116*4377 MINT132   58
                P003D  0101                 SAZ   1          IN CORE.                                         MINT      76
                P003E  1835                 JMP*  MI5                                                      MINT      77
                P003F  CCF7                 LDA*  (STH)     CHECK JP LOCK-OUT SWITCH IF                    MINT      78
15              P0040  010C                 SAZ   NLO-*-1    LIBEDIT OR RECOVERY PROGRAM                    MINT      79
                P0041  0C01                 ENQ   1             IN OPERATION.                       116*4377 MINT132   59
                P0042  EED5                 LDQ*  (MIBFAD),Q                                        116*4377 MINT132   60
                P0043  CCD4                 LDA*  (MIBFAD)     CHECK IF *Z                         116*4377 MINT132   61
                P0044  0FE8                 LLS   8                                                        MINT      82
20              P0045  98F0                 SUB*  Z                                                        MINT      83
                P0046  0101                 SAZ   NLA-*-1                                                  MINT      84
                P0047  1845                 JMP*  MI6         CK FOR *, *R, *K                             MINT      85
                P0048  6400  7FFF X   NLA    STA   LOADIN       CLEAR LOADER IN CORE FLAG          *444***** MINT      86
                P004A  0A01                 ENA   1                                              *444****  MINT      87
25              P004B  6CEB                 STA*  (STH)      FLAG POSITIVE.                               MINT      88
                P004C  182D                 JMP*  MI5AA       GO CANCEL LIBEDT AS ANY OTHER JOB   116*4377 MINT132   62
                       004D P   NLO    EQU   NLO(*)                                                        MINT      90
                P004D  CCCA                 LDA*  (MIBFAD)                                          116*4377 MINT132   63
                P004E  9000  2A52           SUB   =A*R                                             **MSOS 4.0 MINT      92
30                     004F P   ASTSKR EQU   ASTSKR(*-1)                                             116*4377 MINT132   64
                P0050  0112                 SAN   2                                                **MSOS 4.0 MINT      93
                P0051  E84A                 LDQ*  MIP         LET AN *R THRU                       **MSOS 4.0 MINT      94
                P0052  1844                 JMP*  MI9B        FOR FOREGROUND UNITS                 **MSOS 4.0 MINT      95
                P0053  0C02                 ENQ   2                                                  116*4377 MINT132   65
35              P0054  CEC3           MORE   LDA*  (MIBFAD),Q                                        116*4377 MINT132   66
                P0055  9A5B                 SUB*  BATCH,Q                                           116*4377 MINT132   67
                P0056  0113                 SAN   ERR                                              **MSOS 4.0 MINT      99
                P0057  0143                 SQZ   JOBSTR                                             116*4377 MINT132   68
                P0058  0DFE                 INQ   -1                                                 116*4377 MINT132   69
40              P0059  18FA                 JMP*  MORE                                             **MSOS 4.0 MINT     102
                P005A  184C           ERR    JMP*  MI12                                            **MSOS 4.0 MINT     103
                P005B  E0E9           JOBSTR LDQ-  CREXIB                                           116*4377 MINT132   70
                P005C  C20B                 LDA-  11,Q        TEST FOR AND SKIP IF SWAP NOT ALLOWED          MINT     105
                P005D  011D                 SAN   SJOB        SWAPPING NOT ALLOWED                         MINT     106
45              P005E  C20A                 LDA-  10,Q        TEST FOR AND SKIP IF UNPROTEC IN PART        MINT     107
                P005F  0108                 SAZ   JOBA        PART 0 SWAPPED                               MINT     108
                P0060  54F4                 RTJ-  (MONIT)     REQ FOR PARTITION 16                 116*4377 MINT132   71
                P0061  6200                 ADC   $6200          BEFORE CALLING IN                **MSOS 4.0 MINT     110
                P0062  006B P               ADC   SJOB            JOB PROCESSOR                    **MSOS 4.0 MINT     111
50              P0063  0000                 NUM   0,0                                                **MSOS 4.0 MINT     112
                P0064  0000
                P0065  000A                 NUM   10                                               **MSOS 4.0 MINT     113
                P0066  0010                 NUM   16                                               **MSOS 4.0 MINT     114
                P0067  14EA                 JMP-  (DISP)                                           **MSOS 4.0 MINT     115
55              P0068  54F4           JOBA   RTJ-  (MONIT)     RELEASE PART 0                       116*4377 MINT132   72
                P0069  1800                 NUM   $1800                                                    MINT     117
                P006A  0000           RELSWP ADC   0                                                       MINT     118
```

```
                                *       THE JOB PROCESSOR IS NOW SCHEDULED BUT                          MINT    120
                                *       CANNOT RUN UNTIL THE SWAPPED AREA IS                            MINT    121
                                *       AVAILABLE AND THE LEVEL 2 LOOP IN THE                           MINT    122
                                *       SPACE DRIVER IS TURNED OFF.                                     MINT    123

 P006B  E830          SJOB   LDQ* MIP                                  **MSOS 4.0 MINT    125
 P006C  54F4                 RTJ- (MONIT)       SCHEDULE JOB PROCESSOR    116*4377 MINT132  73
 P006D  2400                 NUM  $2400         PART 1 DIRECTORY SCHEDULE              MINT    127
 P006E  7FFF X               ADC  JOBENT                                  **MSOS 4.0 MINT    128
 P006F  14EA                 JMP-  (DISP)                                            MINT    129

 P0070  0000          MIB    NUM  0                                       **MSOS 4.0 MINT    131
 P0071  0000          MIBX   NUM  0                                       **MSOS 4.0 MINT    132
 P0072  7FFF X        JOBI   ADC  JOBIND                                  **MSOS 4.0 MINT    133
 P0073  0C01          MI5    ENQ  1              CHECK IF *Z               116*4377 MINT132  74
 P0074  EEA3                 LDQ* (MIBFAD),Q                              116*4377 MINT132  75
 P0075  CCA2                 LDA* (MIBFAD)                                116*4377 MINT132  76
 P0076  0FE8                 LLS  8                                                 MINT    136
 P0077  98BE                 SUB* Z                                                 MINT    137
 P0078  0117                 SAN  MI5A                                              MINT    138
 P0079  C0FD          MI5AA  LDA- $FD            SET CONTROL LU TO COMMENT DEVICE  116*4377 MINT132  77
 P007A  6400  7FFF X         STA+ BATCLU                                  116*4377 MINT132  78
 P007C  54F4                 RTJ- (MONIT)       SCHEDULE JOB CANCEL       116*4377 MINT132  79
 P007D  5202                 NUM  $5202         AT LEVEL TWO             **MSOS 4.0 MINT    140
 P007E  7FFF X               ADC   JBCNCL                                           MINT    141
 P007F  182E                 JMP*  MI16            RESET MIB                        MINT    142
 P0080  CC97          MI5A   LDA* (MIBFAD)                                116*4377 MINT132  80
 P0081  B000  2A4B           EOR  =A*K          CHECK FOR *K STATEMENT                 MINT    144
 P0083  0102                 SAZ  MI5B                                    **MSOS 4.0 MINT    145
 P0084  09F7                 INA  -8            *C                        **MSOS 4.0 MINT    146
 P0085  0116                 SAN  MI6                                     **MSOS 4.0 MINT    147
 P0086  E815          MI5B   LDQ* MIP                                     **MSOS 4.0 MINT    148
 P0087  D8E9                 RAO* MIBX                                    **MSOS 4.0 MINT    149
 P0088  54F4                 RTJ- (MONIT)                                 116*4377 MINT132  81
 P0089  2403                 NUM  $2403                                             MINT    151
 P008A  7FFF X               ADC  JPCHGE                                            MINT    152
 P008B  1822                 JMP* MI16                                    **MSOS 4.0 MINT    153
 P008C  CC8B          MI6    LDA* (MIBFAD)                                116*4377 MINT132  82
 P008D  B000  2AFF           EOR  =X$2AFF       CK FOR * CR                         MINT    155
 P008F  0111                 SAN  MI9                                               MINT    156
 P0090  181D                 JMP* MI16          * CR - JUST CONTINUE                MINT    157
 P0091  E80A          MI9    LDQ* MIP           Q POINTS TO INPUT BUFFER            MINT    158
 P0092  CC85                 LDA* (MIBFAD)                                116*4377 MINT132  83
 P0093  B8BB                 EOR* ASTSKR        CHECK FOR RESTORE A DEVICE 116*4377 MINT132  84
 P0094  0101                 SAZ  MI9B          YES - SCHEDULE RESTOR               MINT    161
 P0095  1811                 JMP* MI12          NO - J05 ERROR                      MINT    162
 P0096  D8DA          MI9B   RAO* MIBX          SET LOCK OUT FLAG                   MINT    163
 P0097  54F4                 RTJ- (MONIT)                                 116*4377 MINT132  85
 P0098  2403                 NUM  $2403                                             MINT    165
 P0099  7FFF X               ADC  RESTOR                                            MINT    166
 P009A  1813                 JMP* MI16          EXIT                                MINT    167
 P009B  0018 X        MIP    ADC  MIINP                                   **MSOS 4.0 MINT    168

 P009C  C808          MI10   LDA* AMIPRO      PROCESSOR OTHER THAN J.P.           MINT    170
 P009D  8032                 ADD- $32           8000                      **MSOS 4.0 MINT    171
 P009E  0900                 INA  0                                                 MINT    172
```

```
                P009F  0106                SAZ   MI12-*-1      SKIP IF NOT PRESENT                          MINT    173
                P00A0  E8FA                LDQ*  MIP                                                        MINT    174
                P00A1  D8CF                RAO*  MIBX          SET MIBX FLAG - RECOVER, MIPRO               MINT    175
            5   P00A2  54F4                RTJ-  (MONIT)       SCHEDULE PROCESSOR                 116*4377  MINT132  86
                P00A3  2447                NUM   $2447                                              116*4377  MINT132  87
                P00A4  7FFF X      AMIPRO  ADC   MIPRO         SYSTEM DIRECTORY ENTRY             **MSOS 4.0 MINT    178
                P00A5  1808                JMP*  MI16                                                       MINT    179
           10
                P00A6  54F4        MI12    RTJ-  (MONIT)       NO PROCESSOR                       116*4377  MINT132  88
                P00A7  4C00                NUM   $4C00         ERROR - JP05                       **MSOS 4.0 MINT    182
                P00A8  0000                ADC    $0,$0,$18FC,$2                                             MINT    183
                P00A9  0000
           15   P00AA  18FC
                P00AB  0002
                P00AC  00B4 P              ADC   MI14                                                       MINT    184
                P00AD  0A00        MI16    ENA   0                                                          MINT    185
                P00AE  68C1                STA*  MIB           SET MI NOT BUSY                            MINT    186
           20   P00AF  14EA                JMP-  (DISP)                                                     MINT    187

                                   *                                                        116*4377  MINT132  89
                                   *----              KEY WORD, ADDRESSES AND STORAGE       116*4377  MINT132  90
                                   *                                                        116*4377  MINT132  91
           25
                P00B0  2A42        BATCH   ALF   3,*BATCH                                 **MSOS 4.0 MINT    189
                P00B1  4154
                P00B2  4348
                                   *                          1 CARD DELETED              116*4377  MINT132  93
           30   P00B3  7FFF X      F1      ADC    FILE1                                                     MINT    191
                P00B4  4A50        MI14    ALF   2,JP05                                  **MSOS 4.0 MINT    192
                P00B5  3035
                P00B6  4D49        MIOUT   ALF    1,MI                                                     MINT    193
                P00B7  0DFF                NUM    $0DFF                                                    MINT    194
                P00B8  7FFF X      ALVLST  ADC   LVLSTR        ADR OF START OF RP=0 ALLOCATABLE           MINT    195
                P00B9  7FFF X              ADC   LEND          ADR OF END OF ALLOCATABLE AREA             MINT    196
                P00BA  7FFF X              ADC   SWAPON         ADR OF UNPROTECTED INDICATOR              MINT    197
                P00BB  0000        LVLSTV  ADC   0                                                         MINT    198
```

```
                        *       THIS ROUTINE IS ENTERED WHEN THE JOB PROCESSOR                MINT    200
                        *       IS SIGNED OFF OR CANCELLED.                                   MINT    201
                        *       THE JOB AREA IS MADE AVAILABLE TO THE                         MINT    202
                        *       PROTECTED PROGRAMS.  THIS IS DONE BY                          MINT    203
                        *       FORCING A CORE-SWAP WHICH WILL NOT BE                         MINT    204
                        *       TERMINATED UNTIL THE JOB PROCESSOR IS                         MINT    205
                        *       REQUESTED AGAIN                                               MINT    206
                        *       CORE SWAP IS NOT FORCED IN PART 0 IF          **MSOS 4.0      MINT    207
                        *       NOSWAP FLAG IS SET                            **MSOS 4.0      MINT    208

P00BC  0B00             RELFLE NOP   0          RELEASE ALL FILES ROUTINE                     MINT    210
P00BD  D8B2                    RAO* MIB           SET MIB - LOCK OUT FOR MANUAL INTERRUPT    MINT    211
P00BE  0400                    EIN  0                                                        MINT    212
P00BF  0C03                    ENQ   3                                                       MINT    213
P00C0  CEF2             RELFL0 LDA*  (F1),Q     RELEASE LAST FILE FIRST                     MINT    214
P00C1  0106                    SAZ   RELFL1-*-1   IF ZERO, SKIP RELEASE                     MINT    215
P00C2  6803                    STA*  RELFL                                                   MINT    216
P00C3  54F4                    RTJ-  (MONIT)       RELEASE FILE                116*4377 MINT132  94
P00C4  1800                    NUM   $1800                                                   MINT    218
P00C5  0000             RELFL  NUM   $0000                                                   MINT    219
P00C6  0A00                    ENA   0                                                       MINT    220
P00C7  6EEB                    STA*  (F1),Q     ZERO FILE LOCATION                          MINT    221
P00C8  0DFE             RELFL1 INQ   -1                                                      MINT    222
P00C9  0171                    SQM   RELFL2-*-1                                              MINT    223
P00CA  18F5                    JMP*  RELFL0                                                  MINT    224
P00CB  0A00             RELFL2 ENA   0          ZERO JP IN-CORE SWITCH.                     MINT    225
P00CC  6CA5                    STA* (JOB1)                                 116*4377 MINT132  95
P00CD  E0E9                    LDQ- CREXTB                                 116*4377 MINT132  96
P00CE  C20B                    LDA- 11,Q                                                     MINT    228
P00CF  0101                    SAZ  RELFL3        SKIP IF SWAP ALLOWED                       MINT    229
P00D0  18DC                    JMP* MI16          NO SWAP ALLOWED                            MINT    230
P00D1  C20A             RELFL3 LDA- 10,Q                                                     MINT    231
P00D2  0101                    SAZ  RELFL4        SKIP IF UNPROTECTED IN PART 0              MINT    232
P00D3  1814                    JMP* RELPRT        UNPROTECTED IN PART 1                      MINT    233

                        *                          FORCE A CORE SWAP                          MINT    235

P00D4  0C01             RELFL4 ENQ  RP             SET REQUEST PRIORITY                       MINT    237
P00D5  CEE2                    LDA* (ALVLST),Q     SAVE START OF ALLOCATABLE FOR THIS RP      MINT    238
P00D6  68E4                    STA* LVLSTV                                                   MINT    239
P00D7  C0F6                    LDA- HICORE                                                   MINT    240
P00D8  09FA                    INA  -5                                                       MINT    241
P00D9  6EDE                    STA* (ALVLST),Q                                               MINT    242
P00DA  54F4                    RTJ- (MONIT)        SPACE REQUEST               116*4377 MINT132  97
P00DB  5413                    ADC  RP*16+$5403                                61*1285  MINT    244
P00DC  00E1 P                  ADC  SWAPPD,0,0,0   LENGTH 0                              MINT    245
P00DD  0000
P00DE  0000
P00DF  0000
P00E0  14EA                    JMP- (DISP)                                                   MINT    246

P00E1  C8D9             SWAPPD LDA* LVLSTV         SWAP COMPLETED                             MINT    248
```

```
                P00E2  4800  FF86          STQ  RELSWP        SAVE ADR FOR RELEASE          **MSOS 4.0 MINT      249
                P00E4  0C01               ENQ  RP                                                MINT      250
     5          P00E5  6ED2               STA* (ALVLST),Q    RESTORE LVLSTR + RP                 MINT      251
                P00E6  18C6               JMP* MI16          RELEASE MIB AND EXIT                MINT      252
                                        *                                                  **MSOS 4.0 MINT      253
                                        *                                                  **MSOS 4.0 MINT      254
                P00E7  C0F7             RELPRT LDA- LOCORE                                   116*4377 MINT132   98
    10          P00E8  0901               INA  1                                           **MSOS 4.0 MINT      256
                P00E9  6804               STA* RELUP                                       **MSOS 4.0 MINT      257
                P00EA  680E               STA* RELUPA                                      **MSOS 4.0 MINT      258
                P00EB  54F4               RTJ- (MONIT)                                         116*4377 MINT132   99
                P00EC  5800               ADC  $5800         PARTITION CORE RELEASE              MINT      260
    15          P00ED  0000             RELUP  NUM  0        OF BACKGROUND                    **MSOS 4.0 MINT      261
                P00EE  54F4               RTJ- (MONIT)                                         116*4377 MINT132  100
                P00EF  62F3               ADC  $62F3         REQ OF PART 16 AT CP>2           **MSOS 4.0 MINT      263
                P00F0  00F6 P             ADC  RELA            WILL CAUSE PROTECT BITS        **MSOS 4.0 MINT      264
                P00F1  0000               NUM  0,0             TO BE SET, THEN PARTITION      **MSOS 4.0 MINT      265
    20          P00F2  0000
                P00F3  000A               NUM  10              16 IS RELEASED FOR             **MSOS 4.0 MINT      266
                P00F4  0010               NUM  16               SYSTEM USE                    **MSOS 4.0 MINT      267
                P00F5  14EA               JMP- (DISP)                                          116*4377 MINT132  101
                P00F6  54F4             RELA   RTJ- (MONIT)                                    116*4377 MINT132  102
    25          P00F7  5800               ADC  $5800                                       **MSOS 4.0 MINT      270
                P00F8  0000             RELUPA ADC  0                                      **MSOS 4.0 MINT      271
                P00F9  18B3               JMP* MI16                                        **MSOS 4.0 MINT      272
                                        *                                                    116*4377 MINT132  103
                                        *                                                    116*4377 MINT132  104
    30                                  *      200 USER TERMINAL SIMULATOR ROUTINE           116*4377 MINT132  105
                                        *                                                    116*4377 MINT132  106
                                        *                                                    116*4377 MINT132  107
                P00FA  CCA0             SIMPRO LDA* (MIP)       TEST IF RES IS INPUT         116*4377 MINT132  108
                P00FB  9000  5245         SUB  =ARE                                          116*4377 MINT132  109
    35          P00FD  0101               SAZ  SPR                                           116*4377 MINT132  110
                P00FE  1813               JMP* SLCK                                          116*4377 MINT132  111
                P00FF  0C01             SPR    ENQ  1                                       116*4377 MINT132  112
                P0100  CE9A               LDA* (MIP),Q       TEST FOR FINAL S              116*4377 MINT132  113
                P0101  0F48               ARS  8                                           116*4377 MINT132  114
    40          P0102  09AC               INA  -$53                                        116*4377 MINT132  115
                P0103  011D               SAN  SLCK                                        116*4377 MINT132  116
                P0104  C825               LDA* S200BS                                      116*4377 MINT132  117
                P0105  0101               SAZ  SPRO                                        116*4377 MINT132  118
                P0106  189F               JMP* MI12                                        116*4377 MINT132  119
    45          P0107  6800  FF68       SPRO   STA  MIBX       ZERO MI PERMISSIVE FLAGS      116*4377 MINT132  120
                P0109  6800  FF65         STA  MIB                                         116*4377 MINT132  121
                P010B  D81E               RAO* S200BS        SET 200UT BUSY FLAG           116*4377 MINT132  122
                P010C  E88E               LDQ* MIP           PICKUP START OF MESSAGE ADDRESS 116*4377 MINT132 123
                P010D  54F4               RTJ- (MONIT)       SCHEDULE SIM200               116*4377 MINT132  124
    50          P010E  2404               NUM  $2404         GET SIM200                    116*4377 MINT132  125
                P010F  7FFF X             ADC  SIM200                                      116*4377 MINT132  126
                P0110  14EA               JMP- (DISP)        RETURN TO DISPATCHER          116*4377 MINT132  127
                P0111  CC89             SLCK   LDA* (MIP)    NOT RES, SO TEST FOR SLASK (/)  116*4377 MINT132  128
                P0112  0F48               ARS  8                                           116*4377 MINT132  129
    55          P0113  09D0               INA  -$2F                                        116*4377 MINT132  130
                P0114  0101               SAZ  G02                                         116*4377 MINT132  131
                P0115  1886               JMP* MI10          NOT A SIM200 COMMAND, SO RETURN 116*4377 MINT132  132
                P0116  C813             G02    LDA* S200BS  TEST IF SIM200 IS IN CORE        116*4377 MINT132  133
                P0117  0111               SAN  G020                                        116*4377 MINT132  134
```

```
         P0118  188D                    JMP* MI12      NOT IN CORE, SO GO TO PRINT ERROR 5   116*4377 MINT132  135
         P0119  E000  010F X    G020    LDQ  =XSIM200  BUILD ADDRESS OF SIM200 DIRECTORY LOC.116*4377 MINT132  136
    5    P011B  F0EB                    ADQ- $EB                                             116*4377 MINT132  137
         P011C  C201                    LDA- 1,Q       PICKUP CORE ADDRESS                   116*4377 MINT132  138
         P011D  680A                    STA* LOC+1                                           116*4377 MINT132  139
         P011E  0A0F                    ENA  15                                              116*4377 MINT132  140
         P011F  A622                    AND- (ZERO),Q                                        116*4377 MINT132  141
   10    P0120  8000  1200              ADD  =N$1200                                         116*4377 MINT132  142
         P0122  6804                    STA* LOC                                             116*4377 MINT132  143
         P0123  E800  FF76              LDQ  MIP       PICKUP MESSAGE START ADDRESS          116*4377 MINT132  144
         P0125  54F4                    RTJ- (MONIT)                                         116*4377 MINT132  145
         P0126  1207            LOC     NUM  $1207                                           116*4377 MINT132  146
   15    P0127  0000                    NUM  0                                               116*4377 MINT132  147
         P0128  14EA                    JMP- (DISP)                                          116*4377 MINT132  148
                                *                                                           116*4377 MINT132  149
         P0129  0000            S200BS  NUM  0                                               116*4377 MINT132  150
         P012A                          END                                                          MINT      273

                    64127B STORAGE USED          366 STATEMENTS       94 SYMBOLS
                          6400 ASSEMBLY        2.029 SECONDS        284 REFERENCES
```

COMPLETE REFERENCE MAP.

ALVLST	00B8		6/35 L	7/45	7/49	8/05			
AMIPRO	00A4		5/57	6/08 L					
ASTSKR	004F		4/30 Q	5/47					
BATCH	00B0		4/36	6/26 L					
BATCLU	007B	*EXTERNAL*	2/36 X	5/25					
CCP	0025	*EXTERNAL*	2/30 X	3/44					
CHARSK	002A	ABSOLUTE	2/50 Q	3/56					
CREXTB	00E9	ABSOLUTE	2/49 Q	4/42	7/32				
DISP	00EA	ABSOLUTE	2/52 Q	3/32	4/54	6/20	8/23	9/16	
			3/04	3/36	5/13	7/56	8/52		
ERR	005A		4/37	4/41 L					
FILE1	00B3	*EXTERNAL*	2/33 X	6/30					
F1	00B3		6/30 L	7/19	7/26				
G02	0116		8/56	8/58 L					
G020	0119		8/59	9/04 L					
HICORE	00F6	ABSOLUTE	2/55 Q	7/47					
JBCNCL	007E	*EXTERNAL*	2/37 X	5/28					
JOBA	0068		4/46	4/55 L					
JOBENT	006E	*EXTERNAL*	2/35 X	5/12					
JOBI	0072		4/11	5/17 L	7/31				
JOBIND	0072	*EXTERNAL*	2/32 X	5/17					
JOBSTR	005B		2/22 E	4/38	4/42 L				
JPCHGE	008A	*EXTERNAL*	2/41 X	5/39					
L	0024	ABSOLUTE	2/53 Q	3/14	3/25				
LEND	00B9	*EXTERNAL*	2/39 X	6/36					
LOADIN	0049	*EXTERNAL*	2/42 X	4/23					
LOC	0126		9/07	9/11	9/14 L				
LOCORE	00F7	ABSOLUTE	2/48 Q	8/09					
LPMSK	0002	ABSOLUTE	2/46 Q	3/45					
LVLSTR	00B8	*EXTERNAL*	2/39 X	6/35					
LVLSTV	00BB		6/38 L	7/46	7/59				
MI	0000		2/17 E	2/58 L					
MIB	0070		2/18 E	2/58	3/05	5/15 L	6/19	7/16	8/46
MIBFAD	0018		3/15	3/49	4/17	4/28	5/19	5/30	5/46
			3/28 Q	3/54	4/18	4/35	5/20	5/41	
MIBX	0071		2/19 E	2/59	5/16 L	5/36	5/50	6/05	8/45
MIGO	0004		2/60	3/05 L					
MIINP	009B	*EXTERNAL*	2/25 X	3/26	5/55				
MINT	0000		2/10 E	2/11 Q					
MIOUT	00B6		3/11	6/33 L					
MIP	009B		4/32	5/35	5/55 L	8/33	8/48	9/12	
			5/09	5/45	6/04	8/38	8/53		
MIPRO	00A4	*EXTERNAL*	2/38 X	6/08					
MI1	000E		3/15 L	3/18					
MI10	009C		5/57 L	8/57					
MI12	00A6		4/10	4/41	5/49	5/60	6/11 L	8/44	8/60
MI14	00B4		6/17	6/31 L					
MI16	00AD		3/43	5/29	5/44	6/09	7/35	8/27	
			3/53	5/40	5/54	6/18 L	8/06		
MI2	0012		3/17	3/20 L					
MI2A	0024		3/42	3/44 L					
MI2AA	001D		3/31	3/33 L	3/35				
MI2AE	0020		3/34	3/36 L					
MI2AX	0021		3/22	3/42 L					
MI21	0030		3/46	3/48	3/54 L				
MI3	0038		3/57	4/08 L					
MI31	003C		4/09	4/11 L					

COMPLETE REFERENCE MAP.

MI5	0073		4/13	5/18 L					
MI5A	0080		5/23	5/30 L					
MI5AA	0079		4/26	5/24 L					
MI5B	0086		5/32	5/35 L					
MI6	008C		4/22	5/34	5/41 L				
MI9	0091		5/43	5/45 L					
MI9B	0096		4/33	5/48	5/50 L				
MONIT	00F4	ABSOLUTE	2/45 Q	3/29	4/55	5/37	6/11	8/13	8/49
			3/06	3/50	5/10	5/51	7/22	8/16	9/13
			3/20	4/47	5/26	6/06	7/50	8/24	
MORE	0054		4/35 L	4/40					
NLA	0048		4/21	4/23 L					
NLO	004D		4/15	4/27 Q					
RELA	00F6		8/18	8/24 L					
RELFL	00C5		7/21	7/24 L					
RELFLE	00BC		2/20 E	7/15 L					
RELFLO	00C0		7/19 L	7/29					
RELFL1	00C8		7/20	7/27 L					
RELFL2	00CB		7/28	7/30 L					
RELFL3	00D1		7/34	7/36 L					
RELFL4	00D4		7/37	7/44 L					
RELPRT	00E7		7/38	8/09 L					
RELSWP	006A		4/57 L	7/60					
RELUP	00ED		8/11	8/15 L					
RELUPA	00F8		8/12	8/26 L					
RESTOR	0099	*EXTERNAL*	2/40 X	5/53					
RP	0001	ABSOLUTE	2/54 Q	7/44	7/51	8/04			
SIMPRO	00FA		3/58	8/33 L					
SIM200	011A	*EXTERNAL*	2/29 X	8/51	9/04				
SJOB	006B		4/44	4/49	5/09 L				
SLCK	0111		8/36	8/41	8/53 L				
SPR	00FF		8/35	8/37 L					
SPRO	0107		8/43	8/45 L					
STH	0037		4/05 L	4/14	4/25				
SWAPON	00BA	*EXTERNAL*	2/39 X	6/37					
SWAPPD	00E1		7/52	7/59 L					
SWTCH	0037	*EXTERNAL*	2/34 X	4/05					
S200BS	0129		2/21 E	4/08	8/42	8/47	8/58	9/18 L	
THR	0015		3/24 L	3/33					
TSCNAC	0029	*EXTERNAL*	2/26 X	3/47					
TSCNMI	002E	*EXTERNAL*	2/28 X	3/52					
Z	0036		4/04 L	4/20	5/22				
ZERO	0022	ABSOLUTE	2/47 Q	9/09					

STORAGE ALLOCATION.

ADDRESS	LENGTH	BINARY CONTROL CARDS.
0000	0038	NAM LIN1V4 DECK-ID M11 MSOS 5.0 SUMMAR
0038		END

ENTRY POINT NAMES AND ADDRESSES.

INVINT -- 0033 LIN1V4 -- 0000

EXTERNAL SYMBOLS.

LN1TV4

```
                                    NAM  LIN1V4       DECK-ID M11  MSOS 5.0            SUMMARY-110 LIN1V4     2
                                *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                        LIN1V4     3
                                *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                    LIN1V4     4
                                *   COPYRIGHT CONTROL DATA CORPORATION 1976                         LIN1V4     5

                                *                                                                   LIN1V4     7

                                ****************************************************              LIN1V4     9
                                *   LIN1V4 PROCESSES ONLY LINE 1 INTERRUPTS.                        LIN1V4    10
                                *   IF INTERRUPT IS LINE 1,ALL DEVICE LISTED IN                     LIN1V4    11
                                *   LN1TV4 WILL BE CHECKED FOR INTERRUPT STATUS.                    LIN1V4    12
                                *   THE DRIVER CONTINUATOR FOR INTERRUPT DEVICE                     LIN1V4    13
                                *   WILL BE ENTER.IF NO DEVICE IN LN1TV4 HAS -                      LIN1V4    14
                                *   INTERRUPTED, A GHOST INTERRUPT MESSAGE IS                       LIN1V4    15
                                *   SCHEDULED, AND CONTROL IS RETURNED TO THE                       LIN1V4    16
                                *   DISPATCHER.                                                     LIN1V4    17
                                *   IF THE INTERRUPT IS NOT FROM LINE 1 A JUMP IS                   LIN1V4    18
                                *   MADE TO DEBUG CELL "NOTLN1"(SLS),LINE NUMBER                    LIN1V4    19
                                *   WILL BE IN "Q".IF STOP SWITCH IS NOT SET,                       LIN1V4    20
                                *   THE INTERRUPT WILL BE PROCESSED AS AN INVAL. INTERRUPT.         LIN1V4    21

                                *   INVALID INTERRUPTS WILL BE PROCESSED AS                         LIN1V4    23
                                *   GHOST INTERRUPTS.                                               LIN1V4    24

                                ****************************************************              LIN1V4    26

                      0000 P        ENT  LIN1V4      LINE 1 INTERRUPT PROCESSOR      *MSOS V4.0  LIN1V4    28
                      0033 P        ENT  INVINT      INVALID INTERRUPT PROCESSOR     *MSOS V4.0  LIN1V4    29

                                    EXT  LN1TV4      TABLE OF LINE 1 DEVICES         *MSOS V4.0  LIN1V4    31
                      00EA          EQU   DISP($EA)                                              LIN1V4    32
                      0023          EQU  ONEBIT($23)                                             LIN1V4    33
                      0002          EQU  LPMSK(2)                                                LIN1V4    34

      P0000  E0FF     LIN1V4 LDQ- I          ENTRY I CONTAINS TRAP LOC.      *MSOS V4.0  LIN1V4    36
      P0001  0F22            QRS  2                                          *MSOS V4.0  LIN1V4    37
      P0002  0DBF            INQ  -$40       Q CONTAINS INTERRUPT LINE       *MSOS V4.0  LIN1V4    38
      P0003  0814            TRQ  A          NUMBER.                         *MSOS V4.0  LIN1V4    39
      P0004  09FE            INA  -1         CHECK FOR LINE 1                *MSOS V4.0  LIN1V4    40
      P0005  0101            SAZ  LN1-*-1    SKIP IF LINE 1 INTERRUPT        *MSOS V4.0  LIN1V4    41
      P0006  1814            JMP* NOTLN1    LINE NUMBER IN "Q"               *MSOS V4.0  LIN1V4    42
      P0007  60FF     LN1    STA- I                                          *MSOS V4.0  LIN1V4    43
      P0008  ED2F     CHKDEV LDQ* (DEVTAB),I  PHYTAB ADDRESS                 *MSOS V4.0  LIN1V4    44
      P0009  017A            SQM  ENDT-*-1    SKIP IF END OF TABLE            *MSOS V4.0  LIN1V4    45
      P000A  0814            TRQ  A                                          *MSOS V4.0  LIN1V4    46
      P000B  B011            EOR- LPMSK+15    7FFF MASK                      *MSOS V4.0  LIN1V4    47
      P000C  0104            SAZ  CHKNXT-*-1  SKIP IF DEVICE NOT PRESENT     *MSOS V4.0  LIN1V4    48
      P000D  E207            LDQ- 7,Q         HARDWARE ADDRESS               *MSOS V4.0  LIN1V4    49
      P000E  0203            INP  CHKNXT-*   STATUS                          *MSOS V4.0  LIN1V4    50
      P000F  A025            AND- ONEBIT+2                                   *MSOS V4.0  LIN1V4    51
      P0010  0115            SAN  GOTIT-*-1   SKIP IF INTERRUPT STATUS       *MSOS V4.0  LIN1V4    52
      P0011  0B00     CHKNXT NOP  0                                          *MSOS V4.0  LIN1V4    53
```

```
         P0012  D0FF              RAO- I          INCREMENT INDEX                *MSOS V4.0  LIN1V4   54
         P0013  18F4              JMP* CHKDEV     CHECK NEXT DEVICE              *MSOS V4.0  LIN1V4   55
    5    P0014  0C01       ENDT   ENQ  1          GHOST FROM LINE 1                          LIN1V4   56
         P0015  1805              JMP* SCDPRT                                               LIN1V4   57
         P0016  ED21       GOTIT  LDQ* (DEVTAB),I GET PHYTAB ADDRESS             *MSOS V4.0  LIN1V4   58
         P0017  C202              LDA- 2,Q        CONTINUATOR ADDRESS            *MSOS V4.0  LIN1V4   59
         P0018  60FF              STA- I                                         *MSOS V4.0  LIN1V4   60
   10    P0019  1522              JMP- ($22),I    JUMP TO CONTINUATOR            *MSOS V4.0  LIN1V4   61
                     001A P       EQU  NOTLN1(*)  LINE 1 INT. RESP. WAS USED     *MSOS V4.0  LIN1V4   62
                                  *               FOR INT. LINES 2-15,LINE NO. IS IN "Q"     LIN1V4   63
         P001A  54F4       SCDPRT RTJ- ($F4)                                     *MSOS V4.0  LIN1V4   64
         P001B  5204              NUM  $5204                                     *MSOS V4.0  LIN1V4   65
   15    P001C  001E P            ADC  PRINT                                     *MSOS V4.0  LIN1V4   66
         P001D  14EA              JMP- (DISP)                                    *MSOS V4.0  LIN1V4   67


         P001E  0814       PRINT  TRQ  A          PRINT ERROR MESSAGE -GI LINE NO. *MSOS V4.0  LIN1V4   69
   20    P001F  0D30              INQ  $30                                                  LIN1V4   70
         P0020  09F5              INA  -$A                                                  LIN1V4   71
         P0021  0131              SAM  PRINT3-*-1                                           LIN1V4   72
         P0022  0D07              INQ  7                                                    LIN1V4   73
         P0023  F030       PRINT3 ADQ- $30        RECORD ASCII CODE FOR SPACE               LIN1V4   74
   25    P0024  480E              STQ* LN           AND LINE NUMBER AT LN                  LIN1V4   75
         P0025  C808              LDA*  PRINT1                                              LIN1V4   76
         P0026  A00F              AND-  $F                                                  LIN1V4   77
         P0027  8030              ADD-  $30                                                 LIN1V4   78
         P0028  6805              STA*  PRINT1                                              LIN1V4   79
   30    P0029  54F4              RTJ-  ($F4)                                               LIN1V4   80
         P002A  4C00              NUM  $4C00,0,0                                 *MSOS V4.0  LIN1V4   81
         P002B  0000
         P002C  0000
         P002D  18FC       PRINT1 NUM   $18FC,$0002                                       LIN1V4   82
   35    P002E  0002
         P002F  0031 P            ADC   GI                                                  LIN1V4   83
         P0030  14EA              JMP- (DISP)                                               LIN1V4   84

         P0031  4749       GI     ALF   1,GI                                              LIN1V4   86
   40    P0032  0000       LN     NUM   $0000                                             LIN1V4   87

                             **          INVALID INTERRUPT ROUTINE                        LIN1V4   89
                             *                                                            LIN1V4   90
         P0033  E0FF       INVINT LDQ- I                                  *MSOS V4.0  LIN1V4   91
   45    P0034  0F22              QRS  2          GET LINE NUMBER           *MSOS V4.0  LIN1V4   92
         P0035  0DBF              INQ -$40                                  *MSOS V4.0  LIN1V4   93
         P0036  18E3              JMP* SCDPRT       USE BALANCE OF LINE 1 GI PATH *MSOS V4.0  LIN1V4   94
         P0037  7FFF X     DEVTAB ADC  LN1TV4       TABLE OF LINE 1 DEVICES   *MSOS V4.0  LIN1V4   95
         P0038                    END                                                     LIN1V4   96


                   57442B STORAGE USED          95 STATEMENTS      19 SYMBOLS
                          6400 ASSEMBLY       0.746 SECONDS        48 REFERENCES
```

COMPLETE REFERENCE MAP.

CHKDEV	0008		2/50 L	3/04			
CHKNXT	0011		2/54	2/56	2/59 L		
DEVTAB	0037		2/50	3/07	3/48 L		
DISP	00EA	ABSOLUTE	2/37 Q	3/16	3/37		
ENDT	0014		2/51	3/05 L			
GI	0031		3/36	3/39 L			
GOTIT	0016		2/58	3/07 L			
I	00FF	-SYSTEM-	2/42	2/49	2/60	3/09	3/44
INVINT	0033		2/33 E	3/44 L			
LIN1V4	0000		2/32 E	2/42 L			
LN	0032		3/25	3/40 L			
LN1	0007		2/47	2/49 L			
LN1TV4	0037	*EXTERNAL*	2/36 X	3/48			
LPMSK	0002	ABSOLUTE	2/39 Q	2/53			
NOTLN1	001A		2/48	3/11 Q			
ONEBIT	0023	ABSOLUTE	2/38 Q	2/57			
PRINT	001E		3/15	3/19 L			
PRINT1	002D		3/26	3/29	3/34 L		
PRINT3	0023		3/22	3/24 L			
SCDPRT	001A		3/06	3/13 L	3/47		

STORAGE ALLOCATION.

ADDRESS	LENGTH	BINARY CONTROL CARDS.			
0000	024A	NAM	MIPRO	DECK-ID N06 MSOS 5.0	SUMMAR
024A		END	MIPROC		

ENTRY POINT NAMES AND ADDRESSES.

MIPROC -- 0000

EXTERNAL SYMBOLS.

CHRSFG	EQ3644	E15721	INDACS	ODEBUG	SCMMLC	TMCODE
CRIMPT	E10336	E1573	LOG1A	010336	SCMM17	TMRTYP
D15721	E1572	F10336	MIBX	01572	SYSCOP	TSUTIL
EFLIST	E1572F	H15721	ODBSIZ	015721	TDFUNC	VERIFY

```
                NAM  MIPRO        DECK-ID N06  MSOS 5.0              SUMMARY-110 MIPRO      2
*               MANUAL INTERRUPT RESPONSE HANDLER FOR INPUTS OTHER THAN *          MIPRO      3
*               MASS STORAGE OPERATING SYSTEM VERSION 5.0                          MIPRO      4
*               SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                       MIPRO      5
*               COPYRIGHT CONTROL DATA CORPORATION 1976                            MIPRO      6


*  THE PROGRAM BASICALLY INVOLVES ENTRY FROM MINT (IN       **MSOS 4.1** MIPRO      8
*    MONITOR) WHEN THE FIRST CHARACTER INPUT AFTER A MANUAL **MSOS 4.1** MIPRO      9
*    INTERRUPT IS NOT AN *.  IF THE INPUT CHARACTER STRING  **MSOS 4.1** MIPRO     10
*    IS MATCHED IN TABLE -FUNCTN-, THE REQUESTED ACTION IS  **MSOS 4.1** MIPRO     11
*    TAKEN.  IF THE ACTION INVOLVES STARTING OR STOPPING A  **MSOS 4.1** MIPRO     12
*    TIMER AND A REJECT IS FOUND, THE MESSAGE -TIMER REJECT-**MSOS 4.1** MIPRO     13
*    UNLINKED, OR THE INPUT IS OTHERWISE IN ERROR, THE      **MSOS 4.1** MIPRO     14
*    MESSAGE, -MI INPUT ERROR IS PRINTED.  THE FOLLOWING    **MSOS 4.1** MIPRO     15
*    LIST OF INPUT CODES IS CONSIDERED BASIC TO THE PROGRAM.**MSOS 4.1** MIPRO     16
*    ADDITIONS TO THIS LIST MAY BE MADE BY USERS AS REQUIRED**MSOS 4.1** MIPRO     17


*       INPUT    FUNCTION                                  **MSOS 4.1** MIPRO     19

*       =S       FOR SCHEDULING SYSTEM LIBRARY ORDINAL WITH **MSOS 4.1** MIPRO     21
*                  THE INPUT FORMAT =SXXX,Y,ZZZZ WHERE XXX IS**MSOS 4.1** MIPRO     22
*                  THE 3-DIGIT DECIMAL ORDINAL NUMBER (NUMBER**MSOS 4.1** MIPRO     23
*                  CORRESPONDS TO DIRECTORY POSITION), Y IS  **MSOS 4.1** MIPRO     24
*                  THE HEX PRIORITY FOR EXECUTION, AND ZZZZ  **MSOS 4.1** MIPRO     25
*                  IS A HEX PARAMETER PASSED TO THE PROGRAM  **MSOS 4.1** MIPRO     26
*                  IN THE Q-REGISTER.                        **MSOS 4.1** MIPRO     27

*       SCMM     SCHEDULES ON-LINE SMALL COMPUTER MAINTENANCE**MSOS 4.1** MIPRO     29
*                  MONITOR (SCMM-17) LOADED UNDER ORDINAL    **MSOS 4.1** MIPRO     30
*                  NAME SCMM17                               **MSOS 4.1** MIPRO     31

*       EF       SCHEDULES ORDINAL EFLIST TO PRINT          **MSOS 4.1** MIPRO     33
*                  ENGINEERING FILE DATA FOR ALL LOGICAL     **MSOS 4.1** MIPRO     34
*                  UNITS                                     **MSOS 4.1** MIPRO     35

*       EFMM     SCHEDULES ORDINAL EFLIST TO PRINT          **MSOS 4.1** MIPRO     37
*                  ENGINEERING FILE DATA FOR MASS MEMORY     **MSOS 4.1** MIPRO     38
*                  UNITS                                     **MSOS 4.1** MIPRO     39

*       EFLU     SCHEDULES ORDINAL EFLIST TO PRINT          **MSOS 4.1** MIPRO     41
*                  ENGINEERING FILE DATA FOR SPECIFIED       **MSOS 4.1** MIPRO     42
*                  LOGICAL UNIT                              **MSOS 4.1** MIPRO     43

*       TON      STARTS SYSTEM HARDWARE TIME BASE AS DEFINED **MSOS 4.1** MIPRO     45
*                  IN SYSDAT                                 **MSOS 4.1** MIPRO     46

*       TOFF     STOPS SYSTEM HARDWARE TIME BASE AS DEFINED  **MSOS 4.1** MIPRO     48
*                  IN SYSDAT                                 **MSOS 4.1** MIPRO     49

*       SYSCOP   SCHEDULES SYSTEM CHECKOUT PACKAGE LOADED    **MSOS 4.1** MIPRO     51
*                  UNDER ORDINAL NAME SYSCOP                 **MSOS 4.1** MIPRO     52
```

```
                *   DB          STARTS ON-LINE DEBUG PACKAGE, ODEBUG, LOADED**MSOS 4.1** MIPRO     54
                *                 UNDER ORDINAL NAME ODEBUG.                **MSOS 4.1** MIPRO     55
                *
                *   DX          STOPS ON-LINE DEBUG PACKAGE BY CLEARING     **MSOS 4.1** MIPRO     57
                *                 CHRSFG IN SYSDAT                          **MSOS 4.1** MIPRO     58
                *
                *   DATE        ALLOWS THE USER TO ENTER A NEW DATE AND     **MSOS 4.1** MIPRO     60
                *                 TIME.  ROUTINE IS A SUB-FUNCTION OF TDFUNC**MSOS 4.1** MIPRO     61
                *                 LOADED UNDER ORDINAL NAME TDFUNC.         **MSOS 4.1** MIPRO     62
                *
                *   TIME        CAUSES THE CURRENT DATE AND TIME TO BE      **MSOS 4.1** MIPRO     64
                *                 PRINTED ON THE COMMENT UNIT.  ROUTINE IS A**MSOS 4.1** MIPRO     65
                *                 SUB-FUNCTION OF TDFUNC LOADED UNDER       **MSOS 4.1** MIPRO     66
                *                 ORDINAL NAME TDFUNC.                      **MSOS 4.1** MIPRO     67
                *
                *   VERIFY      SCHEDULES THE MSOS VERIFICATION PACKAGE LOADED          MIPRO     69
                *                 UNDER ORDINAL NAME VERIFY.                            MIPRO     70
                *
                *   TSUT        SCHEDULES THE TIMESHARE UTILITY PACKAGE     **MSOS 4.1** MIPRO     72
                *                 LOADED UNDER ORDINAL NAME TSUTIL.  THIS IS**MSOS 4.1** MIPRO     73
                *                 A PART OF THE TIMESHARE 1.0 PRODUCT.      **MSOS 4.1** MIPRO     74
                *
                *   DACS        SCHEDULES THE DATA ACQUISITION AND CONTROL  **MSOS 4.1** MIPRO     76
                *                 SUBSYSTEM LOADED UNDER ORDINAL NAME INDACS**MSOS 4.1** MIPRO     77
                *                 THIS IS A PART OF THE AUTRAN 2.0 PRODUCT. **MSOS 4.1** MIPRO     78
                *
                *   WRON,LU     ENABLE THE WRITE RING FEATURE ON THE MAG TAPE           MIPRO     80
                *                 SIMULATOR SPECIFIED BY LU.                            MIPRO     81
                *
                *   WROF,LU     DISABLE THE WRITE RING FEATURE ON THE MAG TAPE          MIPRO     83
                *                 SIMULATOR SPECIFIED BY LU.                            MIPRO     84
                *
                *   QUESTION MARK----- SCHEDULES CORE RESIDENT PROGRAM CRIMPT          MIPRO     86
                *                      TO INITATE IMPORT PACKAGE THIS IS A           MIPRO     87
                *                      PART OF THE IMPORT PRODUCT                    MIPRO     88
```

```
*  THE TABLE -FUNCTN- CONTAINS A 6-WORD DATA BLOCK FOR EACH **MSOS 4.1** MIPRO     90
*    PARAMETERIZED INPUT MNEMONIC.  THE DATA BLOCK IS       **MSOS 4.1** MIPRO     91
*    DEFINED AS FOLLOWS...                                  **MSOS 4.1** MIPRO     92

*          WORDS 0-1      A MNEMONIC CODE WHICH MAY CONTAIN **MSOS 4.1** MIPRO     94
*                         2-4 CHARACTERS. UNUSED CHARACTERS **MSOS 4.1** MIPRO     95
*                         MUST BE SPACES. ANY LEGAL ASCII   **MSOS 4.1** MIPRO     96
*                         CODE MAY BE USED BUT A SPACE.     **MSOS 4.1** MIPRO     97

*          WORD 2         THE RELATIVE DISTANCE BETWEEN THE **MSOS 4.1** MIPRO     99
*                         LABEL JMP AND ANY DESIRED FUNCTION**MSOS 4.1** MIPRO    100
*                         PRE-PROCESSOR. IF A DATA STRING   **MSOS 4.1** MIPRO    101
*                         FOLLOWS THE MNEMONIC, THE PRE-    **MSOS 4.1** MIPRO    102
*                         PROCESSOR MAY BE USED FOR ITS     **MSOS 4.1** MIPRO    103
*                         ANALYSIS. IN THIS CASE, THE       **MSOS 4.1** MIPRO    104
*                         ADDRESS OF THE INPUT BUFFER IS    **MSOS 4.1** MIPRO    105
*                         CONTAINED IN LOCATION, QSAVE. IF  **MSOS 4.1** MIPRO    106
*                         NO PRE-PROCESSING IS REQUIRED,    **MSOS 4.1** MIPRO    107
*                         CONTROL SHOULD BE PASSED TO LABEL,**MSOS 4.1** MIPRO    108
*                         GETIND.                           **MSOS 4.1** MIPRO    109

*          WORD 3         A SCHEDULER CALL (SYSCHD TYPE) FOR THE         MIPRO    111
*                         DESIRED PROCESSOR                              MIPRO    112

*          WORD 4         AN INDEX TO THE ORDINAL TABLE (ORDTBL)         MIPRO    114
*                         SET TO $FFFF IF NO ORDINAL                     MIPRO    115

*          WORD 5         THE PARAMETER TO BE PASSED TO THE **MSOS 4.1** MIPRO    117
*                         PROCESSOR PROGRAM IN THE Q-       **MSOS 4.1** MIPRO    118
*                         REGISTER.                         **MSOS 4.1** MIPRO    119

*  EACH ENTRY IN THIS TABLE MUST CONTAIN SIX WORDS EVEN IF  **MSOS 4.1** MIPRO    121
*    LESS ARE USED.  A SAMPLE ENTRY FOLLOWS...              **MSOS 4.1** MIPRO    122

*       ALF  2,SAMPLE     MNEMONIC NAME                     **MSOS 4.1** MIPRO    124
*       ADC  PREPRO-JMP   INCREMENT FROM PRE-PROCESSOR TO   **MSOS 4.1** MIPRO    125
*                           JMP LABEL                       **MSOS 4.1** MIPRO    126
*       NUM  $240X        SYSTEM SCHEDULER CALL AT PRIORITY            MIPRO    127
*                           X.                              **MSOS 4.1** MIPRO    128
*       NUM  X OR $FFFF   WHERE X IS THE INDEX TO TABLE ORDTBL         MIPRO    129
*                         $FFFF IS USED IF NO ORDINAL REQUIRED         MIPRO    130
*       NUM  XXXX         PARAMETER TO BE PASSED IN THE Q-  **MSOS 4.1** MIPRO    131
*                         REGISTER.                         **MSOS 4.1** MIPRO    132
```

```
                        *  PROGRAM ENTRY POINTS                                  **MSOS 4.1** MIPRO     134
                        0000 P      ENT  MIPROC      TRANSFER ADDRESS             **MSOS 4.1** MIPRO     135

                        *  PROGRAM EXTERNAL POINTS                               **MSOS 4.1** MIPRO     137
                            EXT  LOG1A       TABLE OF P.D.T. ADDRESSES          **MSOS 4.1** MIPRO     138
                            EXT  MIBX        MANUAL INTERRUPT BUSY FLAG         **MSOS 4.1** MIPRO     139
                            EXT  CHRSFG      ODEBUG ACTIVE FLAG                 **MSOS 4.1** MIPRO     140
                            EXT  SCMMLC      SCMM-17 ACTIVE FLAG                          MIPRO     141
                            EXT  SYSCOP      SYSTEM CHECKOUT ORDINAL            **MSOS 4.1** MIPRO     142
                            EXT  ODEBUG      ON-LINE DEBUG ORDINAL              **MSOS 4.1** MIPRO     143
                            EXT  ODBSIZ      ON-LINE DEBUG OVERLAY SIZE                   MIPRO     144
                            EXT  EFLIST      ENGINEERING FILE LIST ORDINAL      **MSOS 4.1** MIPRO     145
                            EXT  TDFUNC      TIME/DATE FUNCTION ORDINAL         **MSOS 4.1** MIPRO     146
                            EXT  VERIFY      MSOS VERIFICATION ORDINAL                    MIPRO     147
                            EXT  TSUTIL      TIMESHARE UTILITIES ORDINAL        **MSOS 4.1** MIPRO     148
                            EXT  INDACS      DACS ORDINAL                       **MSOS 4.1** MIPRO     149
                            EXT  SCMM17      SCMM ORDINAL NAME                  **MSOS 4.1** MIPRO     150
                            EXT  TMRTYP      TIMER TYPE DESIGNATOR              **MSOS 4.1** MIPRO     151
                            EXT  TMCODE      TIMER TYPE CODE                    **MSOS 4.1** MIPRO     152
                            EXT  H15721      1572-1 HISTORY WORD                **MSOS 4.1** MIPRO     153
                            EXT  E1572       1572 BASIC W,E,S WORD              **MSOS 4.1** MIPRO     154
                            EXT  E1572F      FUNCTION CODE TO ENABLE 1572       **MSOS 4.1** MIPRO     155
                            EXT  01572       1572 OSCILLATOR FREQ./CLOCK FREQ.  **MSOS 4.1** MIPRO     156
                            EXT  E1573       1573 BASIC W,E,S WORD              **MSOS 4.1** MIPRO     157
                            EXT  E15721      1572-1 BASIC W,E,S WORD - FUNCTION**MSOS 4.1** MIPRO     158
                            EXT  D15721      1572-1 BASIC W,E,S WORD - DATA     **MSOS 4.1** MIPRO     159
                            EXT  015721      SRG TIME BASE/CLOCK FREQ.          **MSOS 4.1** MIPRO     160
                            EXT  EQ3644      FUNCTION CODE FOR COMM. MUX        **MSOS 4.1** MIPRO     161
                            EXT  E10336      10336-1 BASIC W,E,S WORD                     MIPRO     162
                            EXT  010336      10336-1 CLOCK REGISTER VALUE                 MIPRO     163
                            EXT  F10336      ENABLE 10336-1                               MIPRO     164
                            EXT  CRIMPT      IMPORT INPUT ENTRY                           MIPRO     165

                        *  PROGRAM EQUIVALENCES                                  **MSOS 4.1** MIPRO     167
                        0002        EQU  LPMSK($2)   RIGHT JUSTIFIED MASKS         **MSOS 4.1** MIPRO     168
                        0012        EQU  NZERO($12)  LEFT JUSTIFIED MASKS          **MSOS 4.1** MIPRO     169
                        0023        EQU  ONEBIT($23) SINGLE BIT MASKS              **MSOS 4.1** MIPRO     170
                        0022        EQU  ZERO($22)   CELL CONTAINING ZERO          **MSOS 4.1** MIPRO     171
                        0025        EQU  FOUR($25)   CELL CONTAINING FOUR          **MSOS 4.1** MIPRO     172
                        0044        EQU  SIX($44)    CELL CONTAINING SIX           **MSOS 4.1** MIPRO     173
                        00EA        EQU  ADISP($EA)  ADDRESS OF DISPATCHER         **MSOS 4.1** MIPRO     174
                        00F4        EQU  AMONI($F4)  ADDRESS OF MONITOR            **MSOS 4.1** MIPRO     175
```

```
                P0000  0A00          MIPRO  ENA  0           INITIALIZE INDEX                **MSOS 4.1** MIPRO   177
                P0001  60FF                 STA- I                                         **MSOS 4.1** MIPRO   178
                P0002  684B                 STA* ISAVE                                     **MSOS 4.1** MIPRO   179
                P0003  4849                 STQ* QSAVE      SAVE LOCATION OF INPUT CHAR BUFFER**MSOS 4.1** MIPRO 180
                P0004  4800  00A2           STQ  QDACS      SAVE INPUT BUFFER LOC IF DACS ENT **MSOS 4.1** MIPRO 181

                                            *    CHECK FOR QUESTION MARK ENTRY FOR IMPORT                  MIPRO   183
                P0006  C622                 LDA- (ZERO),Q   LOOK AT FIRST CHARACTER                   MIPRO   184
                P0007  A01A                 AND- NZERO+8                                              MIPRO   185
                P0008  B000  3F00           EOR  =N$3F00    CHECK FOR QUESTION MARK                   MIPRO   186
                P000A  0119                 SAN  REPEAT     SKIP IF NOT                               MIPRO   187
                P000B  C806                 LDA* IMPT       CHECK IF IMPORT HANDLER LINKED            MIPRO   188
                P000C  B011                 EOR- LPMSK+15                                             MIPRO   189
                P000D  0111                 SAN  QSKED                                                MIPRO   190
                P000E  1829                 JMP* JMP        NOT LINKED-ERROR                          MIPRO   191
                P000F  54F4          QSKED  RTJ- (AMONI)    SCHEDULE IMPORT HANDLER                   MIPRO   192
                P0010  5206                 NUM  $5206      PASS BUFFER ADDRESS IN Q-REG.             MIPRO   193
                P0011  7FFF X        IMPT   ADC  CRIMPT                                               MIPRO   194
                P0012  1800  0111           JMP  MIDONE     EXIT MIPRO                                MIPRO   195

                P0014  E838          REPEAT LDQ* QSAVE                                     **MSOS 4.1** MIPRO   197
                P0015  C622                 LDA- (ZERO),Q   PICKUP FIRST 2 CHAR INPUT      **MSOS 4.1** MIPRO   198
                P0016  9938                 SUB* FUNCTN,I   DO THEY MATCH                  **MSOS 4.1** MIPRO   199
                P0017  0101                 SAZ  CHAR2      YES                            **MSOS 4.1** MIPRO   200
                P0018  1821                 JMP* NEXT       NO, TRY AGAIN                  **MSOS 4.1** MIPRO   201

                P0019  C936          CHAR2  LDA* FUNCTN+1,I                                **MSOS 4.1** MIPRO   203
                P001A  9000  2020           SUB  =A         IS THIS A 2 CHARACTER INPUT    **MSOS 4.1** MIPRO   204
                P001C  0113                 SAN  NOT2       NO                             **MSOS 4.1** MIPRO   205
                P001D  C0FF                 LDA- I          SAVE INDEX TO 2 CHAR INPUT MATCH **MSOS 4.1** MIPRO 206
                P001E  682D                 STA* FOUND2                                    **MSOS 4.1** MIPRO   207
                P001F  181A                 JMP* NEXT       CONTINUE TO SEE IF 3 OR 4 CHAR **MSOS 4.1** MIPRO   208
                P0020  C92F          NOT2   LDA* FUNCTN+1,I                                **MSOS 4.1** MIPRO   209
                P0021  A00A                 AND- LPMSK+8    NO, IS IT 3 CHARACTERS         **MSOS 4.1** MIPRO   210
                P0022  09DF                 INA  -$20                                      **MSOS 4.1** MIPRO   211
                P0023  011D                 SAN  CHAR4      NO, IT IS 4 CHAR.              **MSOS 4.1** MIPRO   212
                P0024  C201                 LDA- 1,Q        3 CHARACTER INPUT              **MSOS 4.1** MIPRO   213
                P0025  0FC8                 ALS  8          MERGE THE 4TH CHAR OF THE INPUT **MSOS 4.1** MIPRO   214
                P0026  E929                 LDQ* FUNCTN+1,I WITH THE 3RD CHAR OF THE FUNCTION **MSOS 4.1** MIPRO 215
                P0027  0F28                 QRS  8                                         **MSOS 4.1** MIPRO   216
                P0028  0F68                 LRS  8                                         **MSOS 4.1** MIPRO   217
                P0029  6926                 STA* FUNCTN+1,I                                **MSOS 4.1** MIPRO   218
                P002A  E822                 LDQ* QSAVE                                     **MSOS 4.1** MIPRO   219
                P002B  C924                 LDA* FUNCTN+1,I SEE IF THREE CHAR MATCH        **MSOS 4.1** MIPRO   220
                P002C  9201                 SUB- 1,Q                                       **MSOS 4.1** MIPRO   221
                P002D  011B                 SAN  NEXT       SKIP IF NO MATCH               **MSOS 4.1** MIPRO   222
                P002E  C0FF                 LDA- I          SAVE INDEX TO 3 CHAR MATCH     **MSOS 4.1** MIPRO   223
                P002F  681B                 STA* FOUND3                                    **MSOS 4.1** MIPRO   224
                P0030  1809                 JMP* NEXT       SEE IF SIMILAR 4 CHAR MATCH    **MSOS 4.1** MIPRO   225
                P0031  C91E          CHAR4  LDA* FUNCTN+1,I                                **MSOS 4.1** MIPRO   226
                P0032  9201                 SUB- 1,Q        DO THE SECOND SET OF CHAR MATCH **MSOS 4.1** MIPRO   227
                P0033  0115                 SAN  NEXT       NO                             **MSOS 4.1** MIPRO   228

                P0034  C91C          FOUND  LDA* FUNCTN+2,I YES, PROCESS THE REQUEST       **MSOS 4.1** MIPRO   230
                P0035  09FE                 INA  -1                                        **MSOS 4.1** MIPRO   231
```

```
P0036   6802              STA* JMP+1                    **MSOS 4.1** MIPRO    232
P0037   1800  0164   JMP   JMP  ERROR                   **MSOS 4.1** MIPRO    233
```

```
                P0039  D814          NEXT   RAO* ISAVE                          **MSOS 4.1** MIPRO   236
                P003A  C813                 LDA* ISAVE                          **MSOS 4.1** MIPRO   237
                P003B  2044                 MUI- SIX     SET UP FOR NEXT GROUP  **MSOS 4.1** MIPRO   238
                P003C  60FF                 STA- I                              **MSOS 4.1** MIPRO   239
                P003D  9877                 SUB* MAX     ARE WE THROUGH         **MSOS 4.1** MIPRO   240
                P003E  0121                 SAP  FINI    YES                    **MSOS 4.1** MIPRO   241
                P003F  18D4                 JMP* REPEAT  NO, TRY AGAIN          **MSOS 4.1** MIPRO   242

                P0040  E80C          FINI   LDQ* QSAVE                          **MSOS 4.1** MIPRO   244
                P0041  C809                 LDA* FOUND3  SEE IF 3 CHAR MATCH FOUND **MSOS 4.1** MIPRO 245
                P0042  0132                 SAM  TRY2    SKIP IF NOT            **MSOS 4.1** MIPRO   246
                P0043  60FF          SMALL  STA- I       SETUP MATCH INDEX      **MSOS 4.1** MIPRO   247
                P0044  18EF                 JMP* FOUND   PROCESS INPUT          **MSOS 4.1** MIPRO   248
                P0045  C806          TRY2   LDA* FOUND2  SEE IF 2 CHAR MATCH    **MSOS 4.1** MIPRO   249
                P0046  0131                 SAM  GERROR  SKIP IF NO             **MSOS 4.1** MIPRO   250
                P0047  18FB                 JMP* SMALL   PROCESS INPUT          **MSOS 4.1** MIPRO   251
                P0048  1800  0153      GERROR JMP  ERROR   ILLEGAL REQUEST       **MSOS 4.1** MIPRO   252

                P004A  FFFE          FOUND3 NUM  -1                             **MSOS 4.1** MIPRO   254
                P004B  FFFE          FOUND2 NUM  -1                             **MSOS 4.1** MIPRO   255
                P004C  0000          QSAVE  NUM  0                              **MSOS 4.1** MIPRO   256
                P004D  0000          ISAVE  NUM  0                              **MSOS 4.1** MIPRO   257
```

```
                P004E  3D53          FUNCTN ALF  2,=S        =S SCHEDULE ORDINAL            **MSOS 4.1** MIPRO    259
 5              P004F  2020
                P0050  019F                 ADC  EQUALS-JMP                                 **MSOS 4.1** MIPRO    260
                P0051  2404                 NUM  $2404                                                    MIPRO    261
                P0052  FFFF                 NUM  $FFFF                                      **MSOS 4.1** MIPRO    262
                P0053  0000                 NUM  0                                          **MSOS 4.1** MIPRO    263
10
                P0054  5343                 ALF  2,SCMM     SMALL COMPUTER MAINTENANCE MONITOR**MSOS 4.1** MIPRO    265
                P0055  4D4D
                P0056  0185                 ADC  SCMM-JMP                                   **MSOS 4.1** MIPRO    266
15              P0057  2404                 NUM  $2404                                                    MIPRO    267
                P0058  0000                 NUM  0          SCMM17                                        MIPRO    268
                P0059  0000                 NUM  0                                          **MSOS 4.1** MIPRO    269

20              P005A  4546                 ALF  2,EF       EF LIST ALL UNITS              **MSOS 4.1** MIPRO    271
                P005B  2020
                P005C  00D4                 ADC  GETIND-JMP                                 **MSOS 4.1** MIPRO    272
                P005D  2404                 NUM  $2404                                                    MIPRO    273
                P005E  0001                 NUM  1          EFLIST                                        MIPRO    274
25              P005F  0000                 NUM  0                                          **MSOS 4.1** MIPRO    275

                P0060  4546                 ALF  2,EFMM     EF LIST MASS MEMORY            **MSOS 4.1** MIPRO    277
                P0061  4D4D
30              P0062  00D4                 ADC  GETIND-JMP                                 **MSOS 4.1** MIPRO    278
                P0063  2404                 NUM  $2404                                                    MIPRO    279
                P0064  0001                 NUM  1          EFLIST                                        MIPRO    280
                P0065  0002                 NUM  2                                          **MSOS 4.1** MIPRO    281
35
                P0066  4546                 ALF  2,EFLU     EF LIST SPECIFIED LU           **MSOS 4.1** MIPRO    283
                P0067  4C55
                P0068  00D4                 ADC  GETIND-JMP                                 **MSOS 4.1** MIPRO    284
                P0069  2404                 NUM  $2404                                                    MIPRO    285
40              P006A  0001                 NUM  1          EFLIST                                        MIPRO    286
                P006B  0001                 NUM  1                                          **MSOS 4.1** MIPRO    287

                P006C  544F                 ALF  2,TON      START TIMER                    **MSOS 4.1** MIPRO    289
45              P006D  4E20
                P006E  0086                 ADC  TIMER-JMP                                  **MSOS 4.1** MIPRO    290
                P006F  2404                 NUM  $2404                                                    MIPRO    291
                P0070  FFFF                 NUM  $FFFF                                      **MSOS 4.1** MIPRO    292
                P0071  0000                 NUM  0                                          **MSOS 4.1** MIPRO    293
50
                P0072  544F                 ALF  2,TOFF     STOP TIMER                     **MSOS 4.1** MIPRO    295
                P0073  4646
                P0074  00FA                 ADC  MOTIME-JMP                                 **MSOS 4.1** MIPRO    296
55              P0075  2404                 NUM  $2404                                                    MIPRO    297
                P0076  FFFF                 NUM  $FFFF                                      **MSOS 4.1** MIPRO    298
                P0077  0000                 NUM  0                                          **MSOS 4.1** MIPRO    299
```

```
                P0078  5359          ALF  2,SYSCOP      SYSTEM CHECKOUT          **MSOS 4.1** MIPRO   301
                P0079  5343
              5 P007A  00D4          ADC  GETIND-JMP                           **MSOS 4.1** MIPRO   302
                P007B  2404          NUM  $2404                                             MIPRO   303
                P007C  0002          NUM  2           SYSCOP                                MIPRO   304
                P007D  0000          NUM  0                                    **MSOS 4.1** MIPRO   305

             10
                P007E  4442          ALF  2,DB        START ODEBUG             **MSOS 4.1** MIPRO   307
                P007F  2020
                P0080  018F          ADC  DB-JMP                               **MSOS 4.1** MIPRO   308
                P0081  2404          NUM  $2404                                             MIPRO   309
             15 P0082  0003          NUM  3           ODEBUG                                MIPRO   310
                P0083  0000          NUM  0                                    **MSOS 4.1** MIPRO   311


                P0084  4458          ALF  2,DX        STOP ODEBUG              **MSOS 4.1** MIPRO   313
             20 P0085  2020
                P0086  019A          ADC  DX-JMP                               **MSOS 4.1** MIPRO   314
                P0087  2404          NUM  $2404                                             MIPRO   315
                P0088  FFFF          NUM  $FFFF                                **MSOS 4.1** MIPRO   316
                P0089  0000          NUM  0                                    **MSOS 4.1** MIPRO   317
             25

                P008A  4441          ALF  2,DATE      ENTER DATE/TIME          **MSOS 4.1** MIPRO   319
                P008B  5445
                P008C  00D4          ADC  GETIND-JMP                           **MSOS 4.1** MIPRO   320
             30 P008D  2404          NUM  $2404                                             MIPRO   321
                P008E  0004          NUM  4           TDFUNC                                MIPRO   322
                P008F  0001          NUM  1                                    **MSOS 4.1** MIPRO   323


             35
                P0090  5645          ALF  2,VERIFY    MSOS VERIFICATION                     MIPRO   325
                P0091  5249
                P0092  00D4          ADC  GETIND-JMP                                       MIPRO   326
                P0093  2404          NUM  $2404                                            MIPRO   327
             40 P0094  0005          NUM  5           VERIFY                               MIPRO   328
                P0095  0000          NUM  0                                                MIPRO   329


                P0096  5449          ALF  2,TIME      PRINT CURRENT DATE AND TIME **MSOS 4.1** MIPRO   331
             45 P0097  4D45
                P0098  00D4          ADC  GETIND-JMP                           **MSOS 4.1** MIPRO   332
                P0099  2404          NUM  $2404                                             MIPRO   333
                P009A  0004          NUM  4           TDFUNC                                MIPRO   334
                P009B  0002          NUM  2                                    **MSOS 4.1** MIPRO   335
             50

                P009C  5453          ALF  2,TSUT      TIMESHARE UTILITIES      **MSOS 4.1** MIPRO   337
                P009D  5554
                P009E  00D4          ADC  GETIND-JMP                           **MSOS 4.1** MIPRO   338
             55 P009F  2404          NUM  $2404                                             MIPRO   339
                P00A0  0006          NUM  6           TSUTIL                                MIPRO   340
                P00A1  0000          NUM  0                                    **MSOS 4.1** MIPRO   341
```

```
                P00A2  4441                ALF  2,DACS      DACS                      **MSOS 4.1** MIPRO   343
                P00A3  4353
            5   P00A4  00D4                ADC  GETIND-JMP                           **MSOS 4.1** MIPRO   344
                P00A5  2407                NUM  $2407                                             MIPRO   345
                P00A6  0007                NUM  7           INDACS                                MIPRO   346
                P00A7  0000          QDACS NUM  0                                   **MSOS 4.1** MIPRO   347
           10
                P00A8  5752                ALF  2,WRON      ENABLE WRITE RING                     MIPRO   349
                P00A9  4F4E
                P00AA  0130                ADC  WRNGON-JMP                                        MIPRO   350
                P00AB  2402                NUM  $2402                                             MIPRO   351
           15   P00AC  FFFF                NUM  $FFFF                                             MIPRO   352
                P00AD  0000                NUM  0                                                 MIPRO   353

                P00AE  5752                ALF  2,WROF      DISABLE WRITE RING                    MIPRO   355
           20   P00AF  4F46
                P00B0  0132                ADC  WRNGOF-JMP                                        MIPRO   356
                P00B1  2402                NUM  $2402                                             MIPRO   357
                P00B2  FFFF                NUM  $FFFF                                             MIPRO   358
                P00B3  0000                NUM  0                                                 MIPRO   359
           25
                P00B4  0066          MAX   ADC  *-FUNCTN    FUNCTION TABLE SIZE       **MSOS 4.1** MIPRO   361
                P00B5  7FFF X        ORDTBL ADC SCMM17      ORDINAL TABLE FOR MNEMONICS           MIPRO   362
                P00B6  7FFF X               ADC EFLIST                                            MIPRO   363
           30   P00B7  7FFF X               ADC SYSCOP                                            MIPRO   364
                P00B8  7FFF X               ADC ODEBUG                                            MIPRO   365
                P00B9  7FFF X               ADC TDFUNC                                            MIPRO   366
                P00BA  7FFF X               ADC VERIFY                                            MIPRO   367
                P00BB  7FFF X               ADC TSUTIL                                            MIPRO   368
           35   P00BC  7FFF X               ADC INDACS                                            MIPRO   369
```

```
                                *      TIMER INITIATION CODING                                  **MSOS 4.1** MIPRO    371
                                *                                                               **MSOS 4.1** MIPRO    372
                                *        TIMER STARTING SEQUENCE IS BASED ON THE TIMER TYPE     **MSOS 4.1** MIPRO    373
                                *             TYPE                CODE                        **MSOS 4.1** MIPRO    374
                                *             NONE                  0                         **MSOS 4.1** MIPRO    375
                                *             1572                  1                         **MSOS 4.1** MIPRO    376
                                *             1573                  2                         **MSOS 4.1** MIPRO    377
                                *             1572-1 LST            3                         **MSOS 4.1** MIPRO    378
                                *             1572-1 SRG            4                         **MSOS 4.1** MIPRO    379
                                *             364-4 COMM. MUX.      5                         **MSOS 4.1** MIPRO    380
                                *             PSEUDO                6                         **MSOS 4.1** MIPRO    381
                                *             10336-1               7                                       MIPRO    382
                                *                                                               **MSOS 4.1** MIPRO    383
                                *                                                               **MSOS 4.1** MIPRO    384
P00BD  E000  7FFF X   TIMER  LDQ  =XLOG1A                                                       **MSOS 4.1** MIPRO    385
P00BF  E201                  LDQ- 1,Q                                                           **MSOS 4.1** MIPRO    386
P00C0  C20D                  LDA- 13,Q                                                          **MSOS 4.1** MIPRO    387
P00C1  0901                  INA  1              IS THERE A SWAP TIME DEFINED                   **MSOS 4.1** MIPRO    388
P00C2  0103                  SAZ  TIMER1         NO                                             **MSOS 4.1** MIPRO    389
P00C3  C20D                  LDA- 13,Q                                                          **MSOS 4.1** MIPRO    390
P00C4  A011                  AND- LPMSK+15       RE-ENABLE CORE SWAP DELAYS                     **MSOS 4.1** MIPRO    391
P00C5  620D                  STA- 13,Q                                                          **MSOS 4.1** MIPRO    392
P00C6  E000  7FFF X   TIMER1 LDQ  =XTMCODE                                                      **MSOS 4.1** MIPRO    393
P00C8  4400  7FFF X          STQ+ TMRTYP         RESTORE THE TIMER TYPE CODE                    **MSOS 4.1** MIPRO    394
P00CA  1A01                  JMP* TIMVCT,Q       GO TO VECTOR FOR JUMP                          **MSOS 4.1** MIPRO    395
                                *                                                               **MSOS 4.1** MIPRO    396
                                *      TIMER PROCESSOR VECTOR TABLE                             **MSOS 4.1** MIPRO    397
                                *                                                               **MSOS 4.1** MIPRO    398
P00CB  1873                  TIMVCT JMP* VCTTIM         0 = NO TIMER                         **MSOS 4.1** MIPRO    399
P00CC  1807                  JMP* T1572          1 = 1572                                       **MSOS 4.1** MIPRO    400
P00CD  1810                  JMP* T1573          2 = 1573                                       **MSOS 4.1** MIPRO    401
P00CE  1814                  JMP* T72LST         3 = 1572-1 LST                                 **MSOS 4.1** MIPRO    402
P00CF  181E                  JMP* T72SRG         4 = 1572-1 SRG                                 **MSOS 4.1** MIPRO    403
P00D0  182D                  JMP* T3644          5 = 364-4 COMM. MUX.                           **MSOS 4.1** MIPRO    404
P00D1  1830                  JMP* PSEUDO         6 = PSEUDO TIMER                               **MSOS 4.1** MIPRO    405
P00D2  1830                  JMP* T10336         7 = 10336-1                                             MIPRO    406
                                *                                                               **MSOS 4.1** MIPRO    407
                                *      1572 TIMER STARTING CODE                                 **MSOS 4.1** MIPRO    408
                                *                                                               **MSOS 4.1** MIPRO    409
P00D3  E400  7FFF X   T1572  LDQ+ E1572          FUNCTION CODE                                  **MSOS 4.1** MIPRO    410
P00D5  C400  7FFF X          LDA+ E1572F         ENABLE 1572                                    **MSOS 4.1** MIPRO    411
P00D7  0353                  OUT  REJ-*                                                         **MSOS 4.1** MIPRO    412
P00D8  0DFE                  INQ  -1             DATA CODE                                      **MSOS 4.1** MIPRO    413
P00D9  C400  7FFF X          LDA+ 01572          REGISTER COUNTS                                **MSOS 4.1** MIPRO    414
P00DB  034F                  TOUT OUT  REJ-*                                                    **MSOS 4.1** MIPRO    415
P00DC  1848                  JMP* MIDONE         EXIT                                                    MIPRO    416
                                *                                                               **MSOS 4.1** MIPRO    417
                                *      1573 TIMER STARTING CODE                                 **MSOS 4.1** MIPRO    418
                                *                                                               **MSOS 4.1** MIPRO    419
P00DD  E400  7FFF X   T1573  LDQ+ E1573          FUNCTION CODE                                  **MSOS 4.1** MIPRO    420
P00DF  0DFE                  INQ  -1                                                                 MIPRO    421
P00E0  C032                  LDA- ONEBIT+15      $8000 = ENABLE                                 **MSOS 4.1** MIPRO    422
P00E1  18F9                  JMP* TOUT           GO TO OUTPUT                                   **MSOS 4.1** MIPRO    423
                                *                                                               **MSOS 4.1** MIPRO    424
                                *      1572-1 LST STARTING CODE                                 **MSOS 4.1** MIPRO    425
                                *                                                               **MSOS 4.1** MIPRO    426
```

```
                P00E2  E400  7FFF X  T72LST LDQ+ E15721        FUNCTION CODE                  **MSOS 4.1** MIPRO   427
                P00E4  0A3C                 ENA  $3C          AND MASK FOR SRG FUNCTION BITS                MIPRO   428
      5         P00E5  0500                 IIN  0                                           **MSOS 4.1** MIPRO   429
                P00E6  A400  7FFF X         AND+ H15721                                      **MSOS 4.1** MIPRO   430
                P00E8  0902                 INA  2            2 = ENABLE INTERRUPT           **MSOS 4.1** MIPRO   431
                P00E9  6400  00E7 X         STA+ H15721       RESTORE HISTORY WORD           **MSOS 4.1** MIPRO   432
                P00EB  0400                 EIN  0                                           **MSOS 4.1** MIPRO   433
     10         P00EC  18EE                 JMP* TOUT         GO TO OUTPUT                   **MSOS 4.1** MIPRO   434
                                       *                                                      **MSOS 4.1** MIPRO   435
                                       *     1572-1 SRG STARTING CODE                         **MSOS 4.1** MIPRO   436
                                       *                                                      **MSOS 4.1** MIPRO   437
                P00ED  E400  00E3 X    T72SRG LDQ+ E15721        FUNCTION CODE                  **MSOS 4.1** MIPRO   438
     15         P00EF  0A27                 ENA  $27          AND MASK FOR LST FUNCTION BITS                MIPRO   439
                P00F0  0500                 IIN  0                                           **MSOS 4.1** MIPRO   440
                P00F1  A400  00EA X         AND+ H15721                                      **MSOS 4.1** MIPRO   441
                P00F3  0910                 INA  $10          $10 = ENABLE INTERRUPT         **MSOS 4.1** MIPRO   442
                P00F4  6400  00F2 X         STA+ H15721       RESTORE HISTORY WORD           **MSOS 4.1** MIPRO   443
     20         P00F6  0400                 EIN  0                                           **MSOS 4.1** MIPRO   444
                P00F7  0333                 OUT  REJ-*                                       **MSOS 4.1** MIPRO   445
                P00F8  E400  7FFF X         LDQ+ D15721       DATA CODE                      **MSOS 4.1** MIPRO   446
                P00FA  C400  7FFF X         LDA+ 015721       REGISTER COUNTS                **MSOS 4.1** MIPRO   447
                P00FC  18DE                 JMP* TOUT         GO TO OUTPUT                   **MSOS 4.1** MIPRO   448
     25                                *                                                                  MIPRO   449
                                       *     364-4 COMMUNICATIONS MUX. TIMER                              MIPRO   450
                                       *                                                                  MIPRO   451
                P00FD  E400  7FFF X    T3644  LDQ+ EQ3644        FUNCTION CODE                  **MSOS 4.1** MIPRO   452
                P00FF  0A06                 ENA  6            6 = ENABLE INTERRUPT           **MSOS 4.1** MIPRO   453
     30         P0100  18DA                 JMP* TOUT         GO TO OUTPUT                   **MSOS 4.1** MIPRO   454
                                       *                                                      **MSOS 4.1** MIPRO   455
                                       *     PSEUDO TIMER                                     **MSOS 4.1** MIPRO   456
                                       *                                                      **MSOS 4.1** MIPRO   457
                P0101  182D            PSEUDO JMP* REJ1                                       **MSOS 4.1** MIPRO   458
     35                                *                                                                  MIPRO   459
                                       *      10336-1 TIMER START CODE                                    MIPRO   460
                                       *                                                                  MIPRO   461
                P0102  E400  7FFF X    T10336 LDQ+ E10336        FUNCTION CODE                                MIPRO   462
                P0104  C400  7FFF X         LDA+ F10336       ENABLE                                       MIPRO   463
     40         P0106  0324                 OUT  REJ-*                                                     MIPRO   464
                P0107  0DFE                 INQ  -1           DATA CODE                                    MIPRO   465
                P0108  C400  7FFF X         LDA+ 010336       CLOCK REGISTER VALUE                         MIPRO   466
                P010A  18D0                 JMP* TOUT                                                      MIPRO   467
```

```
                                *       MAKE SYSTEM DIRECTORY SCHEDULER CALL IF PROGRAM SUPPLIED          MIPRO   469
5
        P010B   E900  FF45      GETIND LDQ  FUNCTN+4,I    GET ORDINAL INDEX                             MIPRO   471
        P010D   CA00  FFA6             LDA  ORDTBL,Q      GET ORDINAL                                   MIPRO   472
10      P010F   B011                   EOR- LPMSK+15                                                    MIPRO   473
        P0110   0112                   SAN  GET1          SKIP IF ENTRY PRESENT                         MIPRO   474
        P0111   1800  008A             JMP  ERROR                                                       MIPRO   475
        P0113   CA00  FFA0      GET1   LDA  ORDTBL,Q      GET ORDINAL                                   MIPRO   476
        P0115   680E                   STA* CALL+1        STORE ORDINAL IN SCHEDULER CALL               MIPRO   477
15      P0116   0822                   TRA  Q                                                           MIPRO   478
        P0117   F0EB                   ADQ- $EB                                                         MIPRO   479
        P0118   C204                   LDA- 4,Q           HAS THE ORDINAL BEEN LOADED                   MIPRO   480
        P0119   0112                   SAN  GET2          YES                                           MIPRO   481
        P011A   1800  0081      GETERR JMP  ERROR         PROGRAM IS UNLINKED OR NOT LOADED             MIPRO   482
20      P011C   C900  FF33      GET2   LDA  FUNCTN+3,I                                                  MIPRO   483
        P011E   6804                   STA* CALL          SET THE LEVEL OF THE PROGRAM  **MSOS 4.1**    MIPRO   484
        P011F   E900  FF32             LDQ  FUNCTN+5,I    OBTAIN THE PARAMETER TO PASS  **MSOS 4.1**    MIPRO   485
        P0121   54F4           SCHDRP RTJ- (AMONI)     SCHEDULE REQUESTED PROGRAM     *MSOS V4.0    MIPRO   486
        P0122   5204           CALL   NUM  $5204                                                        MIPRO   487
25      P0123   0000                   ADC  0                                  **MSOS 4.1**            MIPRO   488


                                *       EXIT PATH FROM MIPRO                                             MIPRO   490
30

        P0124   0A00           MIDONE ENA  0                                                            MIPRO   492
        P0125   6400  7FFF X          STA+ MIBX          CLEAR BUSY FLAG IN MANINT PROGRAM             MIPRO   493
35      P0127   54F4                   RTJ- (AMONI)       RELEASE CORE AND EXIT                         MIPRO   494
        P0128   1901           LIST   NUM  $1901                                                        MIPRO   495
        P0129   FED7                   ADC  (MIPRO-LIST)                                                MIPRO   496
                                *       REJECT EXIT                                                      MIPRO   497
        P012A   0B00           REJ    NOP  0                                                           MIPRO   498
40      P012B   0A00                   ENA  0                                                           MIPRO   499
        P012C   6400  00C9 X           STA+ TMRTYP        INDICATE NO TIMER                             MIPRO   500
        P012E   C000  000E     REJ1   LDA  =XMSG2-REF     TO PRINT -TIMER REJECT-                       MIPRO   501
        P0130   186E                   JMP* STORIT                                                      MIPRO   502
```

```
                                *      TIMER TERMINATION CODING                                  **MSOS 4.1** MIPRO     505
                                *                                                                **MSOS 4.1** MIPRO     506
                                *      TIMER TERMINATION SEQUENCE IS BASED ON TIMER TYPE          **MSOS 4.1** MIPRO     507
                                *        AS DEFINED ABOVE                                        **MSOS 4.1** MIPRO     508
                                *                                                                **MSOS 4.1** MIPRO     509
 P0131  E000  00BE X    MOTIME LDQ  =XLOG1A                                                      **MSOS 4.1** MIPRO     510
 P0133  E201                    LDQ- 1,Q                                                         **MSOS 4.1** MIPRO     511
 P0134  C20D                    LDA- 13,Q                                                        **MSOS 4.1** MIPRO     512
 P0135  A011                    AND- LPMSK+15                                                    **MSOS 4.1** MIPRO     513
 P0136  B032                    EOR- ONEBIT+15      DISABLE DELAYED CORE SWAPS                   **MSOS 4.1** MIPRO     514
 P0137  620D                    STA- 13,Q                                                        **MSOS 4.1** MIPRO     515
 P0138  E000  00C7 X            LDQ  =XTMCODE                                                    **MSOS 4.1** MIPRO     516
 P013A  0A00                    ENA  0                                                           **MSOS 4.1** MIPRO     517
 P013B  6400  012D X            STA+ TMRTYP         INDICATE NO TIMER                            **MSOS 4.1** MIPRO     518
 P013D  1A01                    JMP* VCTTIM,Q       GO TO VECTOR FOR JUMP                        **MSOS 4.1** MIPRO     519
                                *                                                                **MSOS 4.1** MIPRO     520
                                *      STOP TIMER PROCESSOR VECTOR TABLE                         **MSOS 4.1** MIPRO     521
                                *                                                                **MSOS 4.1** MIPRO     522
 P013E  18EB            VCTTIM JMP* REJ            0 = NO TIMER                                 **MSOS 4.1** MIPRO     523
 P013F  1807                    JMP* N1572          1 = 1572                                     **MSOS 4.1** MIPRO     524
 P0140  180A                    JMP* N1573          2 = 1573                                     **MSOS 4.1** MIPRO     525
 P0141  180E                    JMP* N72LST         3 = 1572-1 LST                               **MSOS 4.1** MIPRO     526
 P0142  1817                    JMP* N72SRG         4 = 1572-1 SRG                               **MSOS 4.1** MIPRO     527
 P0143  181F                    JMP* N3644          5 = 364-4 COMM. MUX.                         **MSOS 4.1** MIPRO     528
 P0144  18BC                    JMP* PSEUDO         6 = PSEUDO TIMER                             **MSOS 4.1** MIPRO     529
 P0145  1818                    JMP* N10336         7 = 10336-1                                                 MIPRO     530
                                *                                                                **MSOS 4.1** MIPRO     531
                                *      1572 TIMER STOP CODE                                      **MSOS 4.1** MIPRO     532
                                *                                                                **MSOS 4.1** MIPRO     533
 P0146  E400  00D4 X    N1572   LDQ+ E1572          FUNCTION CODE                                **MSOS 4.1** MIPRO     534
 P0148  C031                    LDA- ONEBIT+14      $4000 = DISABLE                              **MSOS 4.1** MIPRO     535
 P0149  1891                    JMP* TOUT           GO TO OUTPUT                                 **MSOS 4.1** MIPRO     536
                                *                                                                **MSOS 4.1** MIPRO     537
                                *      1573 TIMER STOP CODE                                      **MSOS 4.1** MIPRO     538
                                *                                                                **MSOS 4.1** MIPRO     539
 P014A  E400  00DE X    N1573   LDQ+ E1573          FUNCTION CODE                                **MSOS 4.1** MIPRO     540
 P014C  0DFE                    INQ  -1                                                                     MIPRO     541
 P014D  C031                    LDA- ONEBIT+14      $4000 = DISABLE                              **MSOS 4.1** MIPRO     542
 P014E  188C                    JMP* TOUT           GO TO OUTPUT                                 **MSOS 4.1** MIPRO     543
                                *                                                                **MSOS 4.1** MIPRO     544
                                *      1572-1 LST STOP CODE                                      **MSOS 4.1** MIPRO     545
                                *                                                                **MSOS 4.1** MIPRO     546
 P014F  E400  00EE X    N72LST  LDQ+ E15721         FUNCTION CODE                                **MSOS 4.1** MIPRO     547
 P0151  0A38                    ENA  $38            AND MASK FOR SRG FUNCTION BITS               **MSOS 4.1** MIPRO     548
 P0152  0500            NOUT    IIN  0                                                           **MSOS 4.1** MIPRO     549
 P0153  A400  00F5 X            AND+ H15721                                                      **MSOS 4.1** MIPRO     550
 P0155  6400  0154 X            STA+ H15721         RESTORE HISTORY                              **MSOS 4.1** MIPRO     551
 P0157  0400                    EIN  0                                                           **MSOS 4.1** MIPRO     552
 P0158  1882                    JMP* TOUT           GO TO OUTPUT                                 **MSOS 4.1** MIPRO     553
                                *                                                                **MSOS 4.1** MIPRO     554
                                *      1572-1 SRG STOP CODE                                      **MSOS 4.1** MIPRO     555
                                *                                                                **MSOS 4.1** MIPRO     556
 P0159  E400  0150 X    N72SRG  LDQ+ E15721         FUNCTION CODE                                **MSOS 4.1** MIPRO     557
 P015B  0A07                    ENA  7              AND MASK FOR LST FUNCTION BITS               **MSOS 4.1** MIPRO     558
 P015C  18F5                    JMP* NOUT           GO TO OUTPUT                                 **MSOS 4.1** MIPRO     559
                                *                                                                            MIPRO     560
```

```
                                    *       10336-1 TIMER STOP CODE                                          MIPRO   561
                                    *                                                                        MIPRO   562
 5  P015D   E400  0103 X  N10336 LDQ+ E10336        FUNCTION CODE                                          MIPRO   563
    P015F   C031           LDA- ONEBIT+14         $4000 = DISALBE                                        MIPRO   564
    P0160   1800  FF79     JMP  TOUT                                                                     MIPRO   565
                                    *                                                                        MIPRO   566
                                    *       364-4 COMMUNICATION MUX. TIMER                                   MIPRO   567
10                                  *                                                                        MIPRO   568
    P0162   E400  00FE X   N3644  LDQ+ EQ3644       FUNCTION CODE                  **MSOS 4.1**  MIPRO   569
    P0164   0A02           ENA  2                 2 = DISABLE INTERRUPT          **MSOS 4.1**  MIPRO   570
    P0165   1800  FF74     JMP  TOUT              GO TO OUTPUT                                           MIPRO   571
```

```
                                *      MAG TAPE SIMULATOR WRITE RING PROCESSOR                          MIPRO   573
                                *        THIS ROUTINE ENABLES OR DISABLES THE WRITE RING ON THE         MIPRO   574
                                *        SPECIFIED MAG TAPE SIMULATOR UNIT.                             MIPRO   575
                                *                                                                       MIPRO   576
                                *        THE LOGICAL UNIT SPECIFIED MUST CONTAIN 2 DIGITS               MIPRO   577
                                *          EXAMPLE...  WRON,09                                          MIPRO   578
                                *                      WROF,28                                          MIPRO   579

P0167 C032          WRNGON LDA- ONEBIT+15     SET ON FLAG                                              MIPRO   581
P0168 1802                 JMP* TAPSIM                                                                 MIPRO   582
P0169 0A00          WRNGOF ENA  0             SET OFF FLAG                                             MIPRO   583
P016A 6831          TAPSIM STA* FLAGPS                                                                  MIPRO   584
P016B E800    FEDF         LDQ  QSAVE                                                                   MIPRO   585
P016D C202                 LDA- 2,Q             ISOLATE FIELD SEPARATOR                                 MIPRO   586
P016E 0FC8                 ALS  8                                                                       MIPRO   587
P016F A00A                 AND- LPMSK+8                                                                MIPRO   588
P0170 09D3                 INA  -$2C            IS IT A COMMA                                           MIPRO   589
P0171 0101                 SAZ  NOERR                                                                   MIPRO   590
P0172 1812                 JMP* TAPERR                                                                  MIPRO   591
P0173 C202          NOERR  LDA- 2,Q             GET FIRST DIGIT                                         MIPRO   592
P0174 5800    00A5         RTJ  CK                                                                      MIPRO   593
P0176 0FC4                 ALS  4               CONVERT TO HEX                                          MIPRO   594
P0177 6800    00A1         STA  HOLD                                                                    MIPRO   595
P0179 C203                 LDA- 3,Q             GET SECOND DIGIT                                        MIPRO   596
P017A 0FC8                 ALS  8                                                                       MIPRO   597
P017B 5800    009E         RTJ  CK              CONVERT TO HEX                                          MIPRO   598
P017D 8800    009B         ADD  HOLD                                                                    MIPRO   599
P017F 5800    00A8         RTJ  DEOCT                                                                   MIPRO   600
P0181 0822                 TRA  Q                                                                       MIPRO   601
P0182 09FE                 INA  -1              IS THE LU NEGATIVE                                      MIPRO   602
P0183 0123                 SAP  OKTAP1                                                                  MIPRO   603
P0184 C000    0015 TAPERR  LDA  =XMSG3-REF      TO PRINT -TAPE SIM ERROR-                               MIPRO   604
P0186 1818                 JMP* STORIT                                                                  MIPRO   605
P0187 9400    0132 X OKTAP1 SUB+ LOG1A          IS THE LU TOO LARGE                                     MIPRO   606
P0189 0131                 SAM  OKTAP2                                                                  MIPRO   607
P018A 18F9                 JMP* TAPERR          YES, ERROR                                              MIPRO   608
P018B E600    0188 X OKTAP2 LDQ+ LOG1A,Q                                                                MIPRO   609
P018D 40FF                 STQ- I               SAVE THE PHYSTAB ADDRESS                                MIPRO   610
P018E C108                 LDA- 8,I             ISOLATE THE EQUIPMENT TYPE CODE                         MIPRO   611
P018F 0F44                 ARS  4                                                                       MIPRO   612
P0190 A009                 AND- LPMSK+7                                                                MIPRO   613
P0191 09C3                 INA  -60             IS IT A MAG TAPE SIMULATOR                              MIPRO   614
P0192 0101                 SAZ  OKTAP3                                                                  MIPRO   615
P0193 18F0                 JMP* TAPERR          NO, ERROR                                               MIPRO   616
P0194 0500          OKTAP3 IIN  0                                                                       MIPRO   617
P0195 C10C                 LDA- 12,I            GET THE HARDWARE STATUS WORD                            MIPRO   618
P0196 A011                 AND- LPMSK+15        CLEAR THE WRITE RING BIT                                MIPRO   619
P0197 B804                 EOR* FLAGPS          SET/CLEAR THE BIT                                       MIPRO   620
P0198 610C                 STA- 12,I            RESTORE THE STATUS WORD                                 MIPRO   621
P0199 0400                 EIN  0                                                                       MIPRO   622
P019A 1889                 JMP* MIDONE          EXIT                                                    MIPRO   623
                                *                                                                      MIPRO   624
P019B 0000          FLAGPS NUM  0                                                                       MIPRO   625
```

* 6 CARDS DELETED MIPRO 627

```
                                    *       ERROR EXIT                                                      MIPRO    630
 5
          P019C  C000  0007         ERROR   LDA  =XMSG1-REF    TO PRINT -MI INPUT ERROR-      **MSOS 4.1** MIPRO    632
          P019E  6807               STORIT  STA* MSGLOC                                        **MSOS 4.1** MIPRO    633
10        P019F  54F4                       RTJ- (AMONI)                                                    MIPRO    634
          P01A0  0D33               REF     NUM  $D33                                                       MIPRO    635
          P01A1  7F83                       ADC  MIDONE-REF                                                 MIPRO    636
          P01A2  0000                       ADC  0                                                          MIPRO    637
          P01A3  18FC                       ADC  $18FC                                                      MIPRO    638
15        P01A4  0007                       ADC  7                                         **MSOS 4.1** MIPRO    639
          P01A5  0000               MSGLOC  ADC  0                                         **MSOS 4.1** MIPRO    640
          P01A6  14EA                       JMP- ($EA)                                                      MIPRO    641

20        P01A7  4D49               MSG1    ALF  7,MI INPUT ERROR                          **MSOS 4.1** MIPRO    643
          P01A8  2049
          P01A9  4E50
          P01AA  5554
          P01AB  2045
25        P01AC  5252
          P01AD  4F52
          P01AE  5449               MSG2    ALF  7,TIMER REJECT                            **MSOS 4.1** MIPRO    644
          P01AF  4D45
          P01B0  5220
30        P01B1  5245
          P01B2  4A45
          P01B3  4354
          P01B4  2020
          P01B5  5441               MSG3    ALF  7,TAPE SIM ERROR                                           MIPRO    645
35        P01B6  5045
          P01B7  2053
          P01B8  494D
          P01B9  2045
          P01BA  5252
40        P01BB  4F52

45
                                    *       ON-LINE SCMM-17 HANDLER                        **MSOS 4.1** MIPRO    647
          P01BC  C400  7FFF X       SCMM    LDA+ SCMMLC       CHECK FLAG IN SYSDAT                          MIPRO    648
          P01BE  0112               R1      SAN  R1           SKIP IF SCMM NOW IN CORE     **MSOS 4.1** MIPRO    649
          P01BF  1800  FF4A                 JMP  GETIND       FIRST TIME, SCHEDULE SCMM                     MIPRO    650
50        P01C1  6800  FF60         R1      STA  CALL+1                                                     MIPRO    651
          P01C3  1800  FF5C                 JMP  SCHDRP                                                     MIPRO    652

                                    *       INITIATE DEBUG PACKAGE                                          MIPRO    654
55
          P01C5  00B8 X             DBSYSD  ADC  ODEBUG       REL. INCREMENT TO DEBUG ENTRY IN SYS. DIR.    MIPRO    656
          P01C6  E0EB               DB      LDQ- $EB          STORE CORRECT LENGTH                          MIPRO    657
          P01C7  F8FD                       ADQ* DBSYSD        IN SYS. DIR. ENTRY                           MIPRO    658
          P01C8  C000  7FFF X               LDA  =XODBSIZ     CHANGE DIR. LENGTH                            MIPRO    659
```

```
                P01CA   6625                    STA- (FOUR),Q                                   MIPRO   660
                P01CB   C400   7FFF X  DBCKIT  LDA+ CHRSFG        IS DEBUG IN                   MIPRO   661
              5 P01CD   0101                    SAZ  DBRQIT-*-1    SKIP NO                       MIPRO   662
                P01CE   18CD                    JMP* ERROR         PRINT ERROR MSG.              MIPRO   663
                P01CF   1800   FF3A     DBRQIT JMP  GETIND       SCHEDULE OBEDUG               MIPRO   664
                                       *       TURN OFF DEBUG PKG.                              MIPRO   665
                P01D1   0A00                    DX   ENA  0                                     MIPRO   666
             10 P01D2   6400   01CC X          STA+ CHRSFG                                       MIPRO   667
                P01D4   1800   FF4E           JMP  MIDONE                                       MIPRO   668
```

```
                                *       EQUAL S ROUTINE TO START SYSTEM DIRECTORY PROGRAMS.                MIPRO   671
 5
 
 
          P01D6   C201          EQUALS LDA- 1,Q          PICKUP TWO DIGITS OF DIRECTORY NUMBER           MIPRO   673
          P01D7   40FF                 STQ- I            SAVE BUFFER ADDRESS                            MIPRO   674
 10       P01D8   5842                 RTJ* CK           CHECK AND CONVERT TO HEX                       MIPRO   675
          P01D9   6840                 STA* HOLD         SAVE SECOND DIGIT                              MIPRO   676
          P01DA   C201                 LDA- 1,Q                                                         MIPRO   677
          P01DB   0FC8                 ALS  8            DO SECOND DIGIT FIRST                          MIPRO   678
          P01DC   583E                 RTJ* CK           NOW FIRST DIGIT                                MIPRO   679
 15       P01DD   0FC4                 ALS  4            X 16                                           MIPRO   680
          P01DE   883B                 ADD* HOLD         FORM COMPLETE DIRECTORY NUMBER                 MIPRO   681
          P01DF   0FC4                 ALS  4                                                           MIPRO   682
          P01E0   6839                 STA* HOLD                                                        MIPRO   683
          P01E1   C202                 LDA- 2,Q                                                         MIPRO   684
 20       P01E2   0FC8                 ALS  8            RIGHT JUSTIFY 3RD DIGIT                        MIPRO   685
          P01E3   5837                 RTJ* CK                                                          MIPRO   686
          P01E4   8835                 ADD* HOLD                                                        MIPRO   687
          P01E5   5843                 RTJ* DEOCT        CONVERT FROM DECIMAL TO HEX                    MIPRO   688
          P01E6   09FE                 INA  -1           REFERENCE TO ZERO                              MIPRO   689
 25       P01E7   2005                 MUI- $5           X 7                                            MIPRO   690
          P01E8   80E7                 ADD- $E7          ADDRESS OF 1ST MASS STORAGE ENTRY              MIPRO   691
          P01E9   6800  FF38           STA  CALL+1       STORE SCHEDULER CALL                           MIPRO   692
          P01EB   A042                 AND- $42          REMOVE BIT 15                                  MIPRO   693
          P01EC   E0EB                 LDQ- $EB                                  53*1069                MIPRO   694
 30       P01ED   0832                 AAQ  Q                                    53*1069                MIPRO   695
          P01EE   E204                 LDQ- 4,Q       CHECK FOR ZERO LENGTH ORDINAL                     MIPRO   696
          P01EF   0151                 SQN  SPIC1     SKIP IF OK                 53*1069                MIPRO   697
          P01F0   18AB                 JMP* ERROR                           **MSOS 4.1**                MIPRO   698
          P01F1   90E6          SPIC1  SUB- $E6       CHECK IF WITHIN LIMITS     53*1069                MIPRO   699
 35       P01F2   0131                 SAM  SPIC2        SK-P IF WITHIN LIMITS                          MIPRO   700
          P01F3   18A8                 JMP* ERROR        TO ERROR ROUTINE       **MSOS 4.1**            MIPRO   701
 
                                *       SET PRIORITY LEVEL                                               MIPRO   703
 
 40       P01F4   C103          SPIC2  LDA- 3,I                                                         MIPRO   705
          P01F5   0FC8                 ALS  8                                                           MIPRO   706
          P01F6   5824                 RTJ* CK                                                          MIPRO   707
          P01F7   A006                 AND- LPMSK+4   SCHEDULE  PRIORITY/                 **MSOS 4.1**  MIPRO   708
          P01F8   8000  2400           ADD  =N$2400                                                     MIPRO   709
 45       P01FA   6800  FF26           STA  CALL                                          **MSOS 4.1**  MIPRO   710
 
                                *       CHECK FOR A PARAMETER TO PASS                                    MIPRO   712
 
          P01FC   C103                 LDA- 3,I                                                         MIPRO   714
 50       P01FD   A00A                 AND- $A           FFMASK                                         MIPRO   715
          P01FE   B000  002C           EOR =N$2C         ,                                              MIPRO   716
          P0200   0102                 SAZ  SPIC3        SKIP IF NEXT CHARACTER COMMA                   MIPRO   717
          P0201   1800  FF1E           JMP  SCHDRP    SCHEDL. REQSED. PROGR.                            MIPRO   718
          P0203   C104          SPIC3  LDA- 4,I                                                         MIPRO   719
 55       P0204   0FC8                 ALS 8                                                            MIPRO   720
          P0205   5815                 RTJ* CK                                                          MIPRO   721
          P0206   0FC4                 ALS  4                                                           MIPRO   722
          P0207   6812                 STA* HOLD         SAVE DIGIT 1                                   MIPRO   723
          P0208   C104                 LDA- 4,I                                                         MIPRO   724
```

```
                P0209 5811           RTJ* CK                                                    MIPRO 725
                P020A 880F           ADD* HOLD                                                  MIPRO 726
              5 P020B 0FC4           ALS  4                                                     MIPRO 727
                P020C 680D           STA* HOLD          SAVE DIGITS 1 AND 2                     MIPRO 728
                P020D C105           LDA- 5,I                                                   MIPRO 729
                P020E 0FC8           ALS  8                                                     MIPRO 730
                P020F 580B           RTJ* CK                                                    MIPRO 731
             10 P0210 8809           ADD* HOLD                                                  MIPRO 732
                P0211 0FC4           ALS  4                                                     MIPRO 733
                P0212 6807           STA* HOLD          SAVE DIGITS 1,2 AND 3                   MIPRO 734
                P0213 C105           LDA- 5,I                                                   MIPRO 735
                P0214 5806           RTJ* CK                                                    MIPRO 736
             15                    *  THIS INSTRUCTION ORS IN CASE OF NEGATIVE ZERO IS PASSED    MIPRO 737
                P0215 B804           EOR* HOLD FORM COMPLETE PARAMETER                  *629    MIPRO 738
                P0216 0822           TRA  Q             PUT IN Q TO PASS                        MIPRO 739

                                     *    SCHEDULE THE PROGRAM                                  MIPRO 741
             20
                P0217 1800 FF08      HOLD JMP  SCHDRP   SCHEDL. REQSED. PROGR.                  MIPRO 743
                P0219 0000           HOLD 0    0        TEMPORARY STORAGE CELL                  MIPRO 744

                                     *    INPUT DATA CHECK AND CONVERSION ROUTINE               MIPRO 746
             25
                P021A 0000           CK   0    0                                               MIPRO 748
                P021B A00A           AND- $A            FF MASK                                 MIPRO 749
                P021C 09CF           INA  -$30                                                  MIPRO 750
                P021D 0138           SAM  ER-*-1        SKIP IF LESS THAN $30                   MIPRO 751
             30 P021E 09E8           INA  -$17                                          *629    MIPRO 752
                P021F 0126           SAP  ER  NOT 0 THRU $F                             *629    MIPRO 753
                P0220 0906           INA 6                                              *629    MIPRO 754
                P0221 0122           SAP  ATHRUF        DO NOT ALLOW ASCII                      MIPRO 755
                P0222 0907           INA  7             CODES *3A THRU *40                      MIPRO 756
             35 P0223 0122           SAP  ER            TO PASS THRU THIS                       MIPRO 757
                P0224 090A           ATHRUF INA 10      ROUTINE                                 MIPRO 758
                P0225 1CF4           JMP* (CK)                                                  MIPRO 759
                P0226 1800 FF74      ER   JMP  ERROR    ILLEGAL CHARACTER INPUT                 MIPRO 760
                P0228 0000           DEOCT 0   0                                               MIPRO 761
             40 P0229 E01E           LDQ- $1E                    SET ALL THRU FLAG             MIPRO 762
                P022A 0FF4           LLS  20                     FIRST DIGIT TO A, REST TO Q   MIPRO 763
                P022B 481D           STQ* BAKER                  SAVE REST                     MIPRO 764
                P022C B81A           EOR* MINUS                  CHECK FOR MINUS SIGN          MIPRO 765
                P022D 681A           STA* ABLE                   SET INDICATOR FOR LATER       MIPRO 766
             45 P022E 0105           SAZ  ADEOCT-*-1             START TO CONVERT              MIPRO 767
                P022F B817           EOR* MINUS                  SET FIRST DIGIT BACK IF NOT - MIPRO 768
                P0230 09F5           INA  -10           DO NOT ALLOW INPUT OF                   MIPRO 769
                P0231 0131           SAM  DDEOCT        A THRU F TO THIS DECIMAL/HEX            MIPRO 770
                P0232 18F3           JMP* ER            CONVERSION ROUTINE                      MIPRO 771
             50 P0233 090A           DDEOCT INA 10                                             MIPRO 772
                P0234 2046           ADEOCT MUI- $46             CONVERT THIS PART (TIMES 10)  MIPRO 773
                P0235 6814           STA* CHARLE                 PUT NEW VALUE TO TEMP         MIPRO 774
                P0236 0844           CLR  A                      CLEAR A                       MIPRO 775
                P0237 E811           LDQ* BAKER                  GET SAVED NEXT PORTION        MIPRO 776
             55 P0238 0FE4           LLS  4                      NEXT FOUR TO A                MIPRO 777
                P0239 09F5           INA  -10           DO NOT ALLOW INPUT OF                   MIPRO 778
                P023A 0131           SAM  EDEOCT        A THRU F TO THIS DECIMAL/HEX            MIPRO 779
                P023B 18EA           JMP* ER            CONVERSION ROUTINE                      MIPRO 780
                P023C 090A           EDEOCT INA 10                                             MIPRO 781
```

```
      P023D  880C              ADD* CHARLE    ADD THE PREVIOUS          MIPRO  782
      P023E  480A              STQ* BAKER     SAVE THE REST             MIPRO  783
    5 P023F  F00E              ADQ- $E        CHECK FOR DONE            MIPRO  784
      P0240  0141              SQZ  BDEOCT-*-1 ZERO MEANS DONE           MIPRO  785
      P0241  18F2              JMP* ADEOCT    GO BACK FOR ANOTHER TRY   MIPRO  786
      P0242  E805          BDEOCT LDQ* ABLE   CHECK FOR MINUS SIGN      MIPRO  787
      P0243  0151              SQN  CDEOCT-*-1 ZERO IS MINUS             MIPRO  788
   10 P0244  0864              TCA  A         COMPLEMENT THE ANSWER     MIPRO  789
      P0245  1CE2          CDEOCT JMP* (DEOCT) GO BACK HOME             MIPRO  790
      P0246  000D          MINUS  NUM  $D     MINUS SIGN                MIPRO  791
      P0247  0000          ABLE   0    0                                MIPRO  792
      P0248  0000          BAKER  0    0                                MIPRO  793
   15 P0249  0000          CHARLE 0    0                                MIPRO  794
                0000 P    MIPROC EQU MIPROC(MIPRO)                     MIPRO  795
      P024A                    END  MIPROC                             MIPRO  796

          67772B STORAGE USED          795 STATEMENTS      130 SYMBOLS
                 6400 ASSEMBLY       4.898 SECONDS         427 REFERENCES
```

COMPLETE REFERENCE MAP.

ABLE	0247		22/44	23/08	23/13 L				
ADEOCT	0234		22/45	22/51 L	23/07				
ADISP	00EA	ABSOLUTE	5/46 Q						
AMONI	00F4	ABSOLUTE	5/47 Q	6/20	14/23	14/35	19/10		
ATIRUF	0224		22/33	22/36 L					
BAKER	0248		22/42	22/54	23/04	23/14 L			
BDEOCT	0242		23/06	23/08 L					
CALL	0122		14/14	14/21	14/24 L	19/50	21/27	21/45	
CDEOCT	0245		23/09	23/11 L					
CHARLE	0249		22/52	22/60	23/15 L				
CHAR2	0019		6/28	6/31 L					
CHAR4	0031		6/40	6/54 L					
CHRSFG	01D3	*EXTERNAL*	5/11 X	20/04	20/10				
CK	021A		17/25	21/10	21/21	21/56	22/09	22/26 L	
			17/30	21/14	21/42	21/60	22/14	22/37	
CRIMPT	0011	*EXTERNAL*	5/36 X	6/22					
DB	01C6		10/13	19/57 L					
DBCKIT	01CB		20/04 L						
DBRQIT	01CF		20/05	20/07 L					
DBSYSD	01C5		19/56 L	19/58					
DDEOCT	0233		22/48	22/50 L					
DEOCT	0228		17/32	21/23	22/39 L	23/11			
DX	01D1		10/21	20/09 L					
D15721	00F9	*EXTERNAL*	5/30 X	13/22					
EDEOCT	023C		22/57	22/59 L					
EFLIST	00B6	*EXTERNAL*	5/16 X	11/29					
EQUALS	01D6		9/06	21/08 L					
EQ3644	0163	*EXTERNAL*	5/32 X	13/28	16/11				
ER	0226		22/29	22/31	22/35	22/38 L	22/49	22/58	
ERROR	019C		7/04	14/12	19/08 L	21/33	22/38		
			8/20	14/19	20/06	21/36			
E10336	015E	*EXTERNAL*	5/33 X	13/38	16/05				
E1572	0147	*EXTERNAL*	5/25 X	12/43	15/33				
E1572F	00D6	*EXTERNAL*	5/26 X	12/44					
E15721	015A	*EXTERNAL*	5/29 X	12/60	13/14	15/46	15/56		
E1573	014B	*EXTERNAL*	5/28 X	12/53	15/39				
FINI	0040		8/09	8/12 L					
FLAGPS	019B		17/16	17/52	17/57 L				
FOUND	0034		6/58 L	8/16					
FOUND2	004B		6/35	8/17	8/23 L				
FOUND3	004A		6/52	8/13	8/22 L				
FOUR	0025	ABSOLUTE	5/44 Q	19/60					
FUNCTN	004E		6/27	6/37	6/46	6/54	9/04 L	14/08	14/22
			6/31	6/43	6/48	6/58	11/27	14/20	
F10336	0105	*EXTERNAL*	5/35 X	13/39					
GERROR	0048		8/18	8/20 L					
GETERR	011A		14/19 L						
GETIND	010B		9/22	9/38	10/29	10/46	11/05	19/49	
			9/30	10/05	10/38	10/54	14/08 L	20/07	
GET1	0113		14/11	14/13 L					
GET2	011C		14/18	14/20 L					
HOLD	0219		17/27	21/11	21/18	21/58	22/06	22/12	22/22 L
			17/31	21/16	21/22	22/04	22/10	22/16	
H15721	0156	*EXTERNAL*	5/24 X	13/06	13/08	13/17	13/19	15/49	15/50
I	00FF	-SYSTEM-	6/05	6/34	6/51	8/07	8/15	17/42	21/09
IMPT	0011		6/16	6/22 L					
INDACS	00BC	*EXTERNAL*	5/20 X	11/35					

COMPLETE REFERENCE MAP.

ISAVE	004D		6/06	8/04	8/05	8/25 L			
JMP	0037		6/19	9/06	9/30	9/54	10/21	10/46	11/13
			6/60	9/14	9/38	10/05	10/29	10/54	11/21
			7/04 L	9/22	9/46	10/13	10/38	11/05	
LIST	0128		14/36 L	14/37					
LOG1A	018C	*EXTERNAL*	5/09 X	12/18	15/09	17/38	17/41		
LPMSK	0002	ABSOLUTE	5/40 Q	6/38	14/10	17/20	17/51		
			6/17	12/24	15/12	17/45	21/43		
MAX	00B4		8/08	11/27 L					
MIBX	0126	*EXTERNAL*	5/10 X	14/34					
MIDONE	0124		6/23	12/49	14/33 L	17/55	19/12	20/11	
MINUS	0246		22/43	22/46	23/12 L				
MIPRO	0000		6/04 L	14/37	23/16				
MIPROC	0000		5/05 E	23/16 Q					
MOTIME	0131		9/54	15/09 L					
MSGLOC	01A5		19/09	19/16 L					
MSG1	01A7		19/08	19/20 L					
MSG2	01AE		14/42	19/27 L					
MSG3	01B5		17/36	19/34 L					
NEXT	0039		6/29	6/36	6/50	6/53	6/56	8/04 L	
NOERR	0173		17/22	17/24 L					
NOT2	0020		6/33	6/37 L					
NOUT	0152		15/48 L	15/58					
NZERO	0012	ABSOLUTE	5/41 Q	6/13					
N10336	015D		15/29	16/05 L					
N1572	0146		15/23	15/33 L					
N1573	014A		15/24	15/39 L					
N3644	0162		15/27	16/11 L					
N72LST	014F		15/25	15/46 L					
N72SRG	0159		15/26	15/56 L					
ODBSIZ	01C9	*EXTERNAL*	5/15 X	19/59					
ODEBUG	01C5	*EXTERNAL*	5/14 X	11/31	19/56				
OKTAP1	0187		17/35	17/38 L					
OKTAP2	018B		17/39	17/41 L					
OKTAP3	0194		17/47	17/49 L					
ONEBIT	0023	ABSOLUTE	5/42 Q	12/55	15/13	15/34	15/41	16/06	17/13
ORDTBL	00B5		11/28 L	14/09	14/13				
O10336	0109	*EXTERNAL*	5/34 X	13/42					
O1572	00DA	*EXTERNAL*	5/27 X	12/47					
O15721	00FB	*EXTERNAL*	5/31 X	13/23					
PSEUDO	0101		12/38	13/34 L	15/28				
QDACS	00A7		6/08	11/08 L					
QSAVE	004C		6/07	6/25	6/47	8/12	8/24 L	17/17	
QSKED	000F		6/18	6/20 L					
REF	01A0		14/42	17/36	19/08	19/11 L	19/12		
REJ	012A		12/45	12/48	13/21	13/40	14/39 L	15/22	
REJ1	012E		13/34	14/42 L					
REPEAT	0014		6/15	6/25 L	8/10				
R1	01C1		19/48	19/50 L					
SCHDRP	0121		14/23 L	19/51	21/53	22/21			
SCMM	01BC		9/14	19/47 L					
SCMMLC	01BD	*EXTERNAL*	5/12 X	19/47					
SCMM17	00B5	*EXTERNAL*	5/21 X	11/28					
SIX	0044	ABSOLUTE	5/45 Q	8/06					
SMALL	0043		8/15 L	8/19					
SPIC1	01F1		21/32	21/34 L					
SPIC2	01F4		21/35	21/40 L					

SPIC3	0203		21/52		21/54	L				
STORIT	019E		14/43		17/37		19/09	L		
SYSCOP	00B7	*EXTERNAL*	5/13	X	11/30					
TAPERR	0184		17/23		17/36	L	17/40	17/48		
TAPSIM	016A		17/14		17/16	L				
TDFUNC	00B9	*EXTERNAL*	5/17	X	11/32					
TIMER	00BD		9/46		12/18	L				
TIMER1	00C6		12/22		12/26	L				
TIMVCT	00CB		12/28		12/32	L				
TMCODE	0139	*EXTERNAL*	5/23	X	12/26		15/15			
TMRTYP	013C	*EXTERNAL*	5/22	X	12/27		14/41	15/17		
TOUT	00DB		12/48	L	13/10		13/30	15/35	15/52	16/13
			12/56		13/24		13/43	15/42	16/07	
TRY2	0045		8/14		8/17	L				
TSUTIL	00BB	*EXTERNAL*	5/19	X	11/34					
T10336	0102		12/39		13/38	L				
T1572	00D3		12/33		12/43	L				
T1573	00DD		12/34		12/53	L				
T3644	00FD		12/37		13/28	L				
T72LST	00E2		12/35		12/60	L				
T72SRG	00ED		12/36		13/14	L				
VCTTIM	013E		12/32		15/18		15/22	L		
VERIFY	00BA	*EXTERNAL*	5/18	X	11/33					
WRNGOF	0169		11/21		17/15	L				
WRNGON	0167		11/13		17/13	L				
ZERO	0022	ABSOLUTE	5/43	Q	6/12		6/26			

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

```
0000    0092        NAM    TMINT        DECK-ID M06  MSOS 5.0          SUMMAR
0092                END
```

ENTRY POINT NAMES AND ADDRESSES.

```
TIMEUP -- 0045    TMRTHD -- 008E    T8    -- 0000
TMINT  -- 0000    T15    -- 0000
```

EXTERNAL SYMBOLS.

NSCHED SYFAIL TIMEC

```
                                        NAM  TMINT        DECK-ID M06  MSOS 5.0                SUMMARY-116 TMINT132    1
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                            TMINT      3
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                        TMINT      4
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                             TMINT      5


                                    *   MONITOR TIMER REQUEST PROCESSOR                                     TMINT      7
                          0000 P        ENT   TMINT                                                        TMINT      8
                          0000 P        EQU   TMINT(*)                                                     TMINT      9


                          0045 P        ENT  TIMEUP       ENTRY FOLLOWING TIMER INT. ACK.    **MSOS 4.1*  TMINT     11
                          0000 P        ENT  T8           TIMER REQUEST PROCESSOR                         TMINT     12
                          0000 P        ENT  T15          PART 1 TIMER REQUEST               **MSOS 4.0   TMINT     13
                          00BE P        ENT  TMRTHD       TOP OF TIMER THREAD                  116*4373   TMINT132   2
                                        EXT  NSCHED       NO. OF SCHEDULE CALLS DURING A TIMER INTERRUPT  TMINT     14
                                        EXT  TIMEC        NO. OF TIMER INTERRUPTS * 1/10 - 1               TMINT     15
                                        EXT  SYFAIL       SITE FAIL LOCATED IN SYSDAT ($18FF)              TMINT     16

                          00E8          EQU  CLOCK($E8)                                                    TMINT     18
                          0001          EQU  PC(1),PT(2),PTIME(3)                                          TMINT     19
                          0002
                          0003
                          0009          EQU  RCSCHD(9)       REQUEST CODE FOR SCHEDULER                    TMINT     20
                          0003          EQU  VR(3),VPTR(5),VTPE(6),VTMP(7)                                 TMINT     21
                          0005
                          0006
                          0007
                          00EA          EQU  ADISP($EA),ONEBIT($23),LPMSK($2)                              TMINT     22
                          0023
                          0002
                          00F4          EQU  AMONI($F4)                                                    TMINT     23
                          00B4          EQU  TOMPT($B4)    TOP OF EMPTY STACK                              TMINT     24
                          0022          EQU  ZERO($22),ACABS($BE),AREQXT($B9)                              TMINT     25
                          00BE
                          00B9
                          0003          EQU  T8SIZE(3)     LENGTH OF TIMER REQUEST                         TMINT     26
                          000F          EQU  P1TIME(15)                                                    TMINT     27
                          0000 P        EQU  T15(*)                                                        TMINT     28
                                    *                                                                      TMINT     29
                                    *                                                                      TMINT     30
                                    *                                                                      TMINT     31
P0000     0822                    T8    TRA  Q            TIMER REQUEST PROCESSOR                         TMINT     32
P0001     C108                         LDA- 8,I          SKIP IF INDIRECT REQUEST           ***MSOS4.0   TMINT     33
P0002     0133                         SAM  TR1X                                            ***MSOS4.0   TMINT     34
P0003     0A03                         ENA  T8SIZE       LENGTH OF CALLING SEQUENCE.                     TMINT     35
P0004     8103                         ADD- VR,I                                                         TMINT     36
P0005     6103                         STA- VR,I                                                         TMINT     37
P0006     C622                   TR1X  LDA- (ZERO),Q     CHECK FOR PART 1 TIMER REQUEST     ***MSOS4.0   TMINT     38
P0007     0F49                         ARS  9                                               ***MSOS4.0   TMINT     39
P0008     A007                         AND- LPMSK+5                                         ***MSOS4.0   TMINT     40
P0009     09F0                         INA  -P1TIME                                         ***MSOS4.0   TMINT     41
P000A     0114                         SAN  TR1C         SKIP IF NOT PART 1 TIMER REQ       **MSOS 4.0   TMINT     42
P000B     C201                         LDA- PC,Q                                            ***MSOS4.0   TMINT     43
P000C     B032                         EOR- ONEBIT+15    SET BIT 15 OF COMPLETION IF RC=21  ***MSOS4.0   TMINT     44
P000D     0822                         TRA  Q            SYSTEM DIRECTORY PART 1            * *MSOS4.0   TMINT     45
```

```
                P000E  180A                JMP* TR1A+1                                  **MSOS 4.0 TMINT  46
                                     *      RC=8 GO TO PARAME AND ABSOLUTIZE                TMINT  47
              5 P000F  C622          TR1C  LDA- (ZERO),Q     CHECK FOR PART 0 DIRECTORY CALL **MSOS 4.0 TMINT  48
                P0010  A031                AND- ONEBIT+14   D BIT SET, NOT PART 0          **MSOS 4.0 TMINT  49
                P0011  0114                SAN  NOTDIR                                    **MSOS 4.0 TMINT  50
                P0012  C201                LDA- PC,Q                                      **MSOS 4.0 TMINT  51
                P0013  0122                SAP  NOTDIR      BIT 15 SET = DIRECTORY CALL   **MSOS 4.0 TMINT  52
             10 P0014  0822                TRA  Q           DON"T ABSOLUTIZE DIRECTORY CALL **MSOS 4.0 TMINT  53
                P0015  1803                JMP*  TR1A+1                                  **MSOS 4.0 TMINT  54
                P0016  C201          NOTDIR LDA- PC,Q       ABSOLUTIZE CONPLETION ADDRESS  **MSOS 4.0 TMINT  55
                P0017  54BE          TR1A  RTJ- (ACABS)     ABSOLUTIZE COMPLETION ADDRESS.               TMINT  56
                P0018  4107                STQ- VTMP,I                                                  TMINT  57
             15 P0019  E105                LDQ- VPTR,I                                                  TMINT  58
                P001A  C622                LDA- (ZERO),Q                                                TMINT  59
                P001B  A000  00C0          AND  =N$00C0     PICK UP USERS ORIGINAL "U" FIELD             TMINT  60
                P001D  0102                SAZ  CLRB15      NO ERROR "U" .LT. 4                         TMINT  61
                P001E  5400  7FFF X        RTJ+ SYFAIL      ERROR "U" .GE. 4 - HANG                     TMINT  62
             20 P0020  C4FF          CLRB15 LDA- (I)         CLEAR BIT 15 IN USERS Q-REG                 TMINT  63
                P0021  A011                AND- LPMSK+15                                                TMINT  64
                P0022  64FF                STA- (I)                                                     TMINT  65
                P0023  C622                LDA- (ZERO),Q                                                TMINT  66
                P0024  A000  400F          AND  =N$400F     SAVE PL AND D BIT            ***MSOS4.0 TMINT  67
             25 P0026  8000  1200          ADD  =XRCSCHD*$200                                           TMINT  68
                P0028  0500                IIN  0                                                       TMINT  69
                P0029  E0B4                LDQ- TOMPT                                                   TMINT  70
                P002A  0D00                INQ  0                                                       TMINT  71
                P002B  0152                SQN  TR1B-*-1    THREAD IS EMPTY, GO TO                      TMINT  72
             30 P002C  5400  001F X        RTJ+ SYFAIL      SCHEDULER STACK OVERFLOW -HANG              TMINT  73
                P002E  6622          TR1B  STA- (ZERO),Q                                                TMINT  74
                P002F  C202                LDA- PT,Q        REMOVE SLOT FROM EMPTY LIST                 TMINT  75
                P0030  60B4                STA- TOMPT                                                   TMINT  76
                P0031  4106                STQ- VTPE,I      SAVE ADDRESS OF EMPTY SLOT                  TMINT  77
             35 P0032  C107                LDA- VTMP,I                                                  TMINT  78
                P0033  6201                STA- PC,Q                                                    TMINT  79
                P0034  E105                LDQ- VPTR,I                                                  TMINT  80
                P0035  C622                LDA- (ZERO),Q                                                TMINT  81
                P0036  0F44                ARS  4                                                       TMINT  82
             40 P0037  A004                AND- LPMSK+2     USE ONLY LOWER 2 BITS                       TMINT  83
                P0038  0822                TRA  Q                                                       TMINT  84
                P0039  4107                STQ- VTMP,I                                                  TMINT  85
                P003A  CA54                LDA* THREAD,Q    THREAD TO THREAD(D)                         TMINT  86
                P003B  E106                LDQ- VTPE,I                                                  TMINT  87
             45 P003C  6202                STA- PT,Q                                                    TMINT  88
                P003D  0814                TRQ  A                                                       TMINT  89
                P003E  E107                LDQ- VTMP,I                                                  TMINT  90
                P003F  6A4F                STA* THREAD,Q                                                TMINT  91
                P0040  E105                LDQ- VPTR,I      GET USERS TIME                              TMINT  92
             50 P0041  C202                LDA- 2,Q         FROM USERS CALLING SEQUENCE                 TMINT  93
                P0042  E106                LDQ- VTPE,I                                                  TMINT  94
                P0043  6203                STA- PTIME,Q     PUT TIME INTO SLOT.                         TMINT  95
                                     *                      11 CARDS DELETED                            TMINT  96
                P0044  14B9                JMP- (AREQXT)    EXIT                                        TMINT  97
```

put 0 request

timecount/ UNIT FIELD

timer thread since timercounts down the order of the thread # matter

Inter + underscript when placing something on thread

Placing things on timer thread completely independent of timer interrupts

return timer

clock = $E8

How many things can get added to sched stack per interval = 5

```
                P0045  D0E8           TIMEUP RAO- CLOCK      INCREMENT CORE CLOCK              **MSOS 4.1**  TMINT   99
                P0046  C400  7FFF X           LDA  NSCHED                                                    TMINT  100
                P0048  683C                   STA* NUMSCH    SET NUMBER OF SCHEDULER CALLS ALLOWED/PERIOD    TMINT  101
                P0049  0C00                   ENQ  0                                                         TMINT  102
                                              *                                                              TMINT  103
                P004A  4839           NXTTIM STQ* TIMIDX     CHECK NEXT TIME COUNTER                         TMINT  104
                P004B  CA3E                   LDA* TIMCTR,Q                                                  TMINT  105
                P004C  0133                   SAM  EXIT-*-1  ALL DONE, EXIT                                  TMINT  106
                P004D  0103                   SAZ  RESET-*-1 TIME COUNTER COUNTED DOWN, RESET                TMINT  107
                P004E  09FE                   INA  -1                                                        TMINT  108
                P004F  6A3A                   STA* TIMCTR,Q  DECREMENT TIME COUNTER AND EXIT                 TMINT  109
                P0050  14EA           EXIT    JMP- (ADISP)                                                   TMINT  110

                P0051  CA34           RESET   LDA* RSTCTR,Q  RESET TIME COUNTER AND CHECK ITS THREAD         TMINT  112
                P0052  6A37                   STA* TIMCTR,Q                                                  TMINT  113
                P0053  F000  008C P           ADQ  =XTHREAD-2                                                TMINT  114
                                              *                                                              TMINT  115
                P0055  40FF           CHKTHR STQ- I          CHECK THREAD FOR TIME DELAY REQUESTS            TMINT  116
                P0056  E102           LOOP    LDQ- PT,I                                                      TMINT  117
                P0057  0D00                   INQ  0                                                         TMINT  118
                P0058  0153                   SQN  TDREQ-*-1 TIME DELAY REQUEST ENCOUNTERED                  TMINT  119
                P0059  E82A                   LDQ* TIMIDX                                                    TMINT  120
                P005A  0D01                   INQ  1         END OF THREAD, CHECK NEXT TIME COUNTER          TMINT  121
                P005B  18EE                   JMP* NXTTIM                                                    TMINT  122

                P005C  C203           TDREQ   LDA- PTIME,Q   TIME DELAY REQUEST                              TMINT  124
                P005D  0103                   SAZ  CHKSCH-*-1  TIME DELAY HAS EXPIRED                        TMINT  125
                P005E  09FE                   INA  -1                                                        TMINT  126
                P005F  6203                   STA- PTIME,Q   DECREMENT TIME DELAY REQUEST AND                TMINT  127
                P0060  18F4                   JMP* CHKTHR      CONTINUE TO CHECK THE THREAD.                 TMINT  128
                                              *                                                              TMINT  129
                P0061  C823           CHKSCH LDA* NUMSCH     HAS NO. SCHEDULER CALLS BEEN EXCEEDED           TMINT  130
                P0062  0119                   SAN  SCHEDU-*-1  FOR THIS PERIOD.                              TMINT  131
                P0063  C820           LOP1    LDA* TIMIDX    YES, CHECK IF ON COUNTS THREAD                  TMINT  132
                P0064  0111                   SAN  PUTCNT-*-1                                                TMINT  133
                P0065  18EF                   JMP* CHKTHR    YES, CONTINUE TO CHECK THE THREAD               TMINT  134
                                              *                                                              TMINT  135
                P0066  C202           PUTCNT LDA- PT,Q       NO, PUT THE REQUEST ON THE COUNTS THREAD SO     TMINT  136
                P0067  6102                   STA- PT,I      REQUEST WULL BE SCHEDULED AS SOON AS POSSIBLE.  TMINT  137
                P0068  C826                   LDA* THREAD                                                    TMINT  138
                P0069  6202                   STA- PT,Q                                                      TMINT  139
                P006A  4824                   STQ* THREAD    COUNTINUE TO CHECK THE THREAD                   TMINT  140
                P006B  18EA                   JMP* LOOP                                                      TMINT  141
                                              *                                                              TMINT  142
                P006C  C201           SCHEDU LDA- PC,Q                                                      TMINT  143
                P006D  6807                   STA* CALL+1                                                    TMINT  144
                P006E  C622                   LDA- (ZERO),Q  MOVE CALL FROM TIMER THREAD                     TMINT  145
                P006F  6804                   STA* CALL                                                      TMINT  146
                P0070  0FF0                   LLS  16        PUT Q IN A TO SAVE THROUGH MONITOR              TMINT  147
                P0071  E0E8                   LDQ- CLOCK     PASS THE CORE CLOCK IN Q                        TMINT  148
                P0072  54F4                   RTJ- (AMONI)                                                   TMINT  149
                P0073  0000           CALL    ADC  0,0       SCHEDULE THE REQUESTED COMPLETION ADDRESS       TMINT  150
                P0074  0000
                P0075  0FF0                   LLS  16        RESTORE POINTER TO LIST                         TMINT  151
```

```
                P0076  0121              SAP  GOGO                                          TMINT  152
                P0077  18EB              JMP* LOP1      BACK TO RETHREADING SECTION IF REJECT TMINT  153
          5     P0078  C80C      GOGO    LDA* NUMSCH    DECREMENT NUMSCH                    TMINT  154
                P0079  09FE              INA  -1                                           TMINT  155
                P007A  680A              STA* NUMSCH      TIMER DELAY HAS EXPIRED.         TMINT  156
                P007B  C202              LDA- PT,Q                                         TMINT  157
                P007C  6102              STA- PT,I                                         TMINT  158
         10                       *                                                        TMINT  159
                P007D  0500              IIN  0                                            TMINT  160
                P007E  C0B4              LDA- TOMPT     RETURN SLOT TO EMPTY THREAD        TMINT  161
                P007F  6202              STA- PT,Q                                         TMINT  162
                P0080  40B4              STQ- TOMPT                                        TMINT  163
         15                       *                                                        TMINT  164
                P0081  0400              EIN  0                                            TMINT  165
                P0082  18D3              JMP* LOOP      CONTINUE TO CHECK THE THREAD       TMINT  166

         20     P0083  0000      TIMIDX  NUM  0          TIME COUNTER INDEX                 TMINT  168
                P0084  0000      NUMSCH  NUM  0          NO SCHEDUER CALLS PER TIME PERIOD  TMINT  169

                                 *          TIMER UNITS MAY BE 0 = COUNTS                  TMINT  171
         25                      *                             OR 1 = 0.1 SECONDS           TMINT  172
                                 *                             OR 2 = SECONDS               TMINT  173
                                 *                             OR 3 = MINUTUES              TMINT  174
                                 *                                                          TMINT  175
                P0085  0000      RSTCTR  ADC  1-1        NUMBER OF INTERRUPTS PER COUNT     TMINT  176
         30     P0086  7FFF X            ADC  TIMEC      NUMBER OF COUNTS PER .1 SECOND     TMINT  177
                P0087  0009              ADC  10-1       NUMBER OF .1 SECONDS PER SECOND    TMINT  178
                P0088  003B              ADC  60-1       NUMBER OF SECONDS PER MINUTE       TMINT  179
                                 *                                                          TMINT  180
                P0089  0000      TIMCTR  ADC  0          TIME COUNTER FOR COUNTS            TMINT  181
         35     P008A  0000              ADC  0          TIME COUNTER FOR .1 SECONDS        TMINT  182
                P008B  0000              ADC  0          TIME COUNTER FOR SECONDS           TMINT  183
                P008C  0000              ADC  0          TIME COUNTER FOR MINUTES           TMINT  184
                P008D  FFFF              NUM  -0         END OF TIME COUNTER TABLE          TMINT  185
                                 *                                                          TMINT  186
         40     P008E  FFFF      THREAD  NUM  -0         THREAD FOR COUNT DELAYS            TMINT  187
                P008F  FFFF              NUM  -0         THREAD FOR .1 SECONDS DELAYS       TMINT  188
                P0090  FFFF              NUM  -0         THREAD FOR SECOND DELAYS           TMINT  189
                P0091  FFFF              NUM  -0         THREAD FOR MINUTE DELAYS           TMINT  190

         45                 008E P       EQU  TMRTHD(THREAD)                 116*4373 TMINT132    4
                P0092                    END                                           TMINT  191
```

61031B STORAGE USED 193 STATEMENTS 50 SYMBOLS
6400 ASSEMBLY 1.263 SECONDS 156 REFERENCES

COMPLETE REFERENCE MAP.

ACABS	00BE	ABSOLUTE	2/37 Q	3/13						
ADISP	00EA	ABSOLUTE	2/32 Q	4/15						
AMONI	00F4	ABSOLUTE	2/35 Q	4/56						
AREQXT	00B9	ABSOLUTE	2/38 Q	3/54						
CALL	0073		4/51	4/53	4/57 L					
CHKSCH	0061		4/32	4/37 L						
CHKTHR	0055		4/22 L	4/35	4/41					
CLOCK	00E8	ABSOLUTE	2/23 Q	4/04	4/55					
CLRB15	0020		3/18	3/20 L						
EXIT	0050		4/11	4/15 L						
GOGO	0078		4/60	5/05 L						
I	00FF	-SYSTEM-	3/20	3/22	4/22					
LOOP	0056		4/23 L	4/48	5/17					
LOP1	0063		4/39 L	5/04						
LPMSK	0002	ABSOLUTE	2/33 Q	2/54	3/21	3/40				
NOTDIR	0016		3/07	3/09	3/12 L					
NSCHED	0047	*EXTERNAL*	2/19 X	4/05						
NUMSCH	0084		4/06	4/37	5/05	5/07	5/21 L			
NXTTIM	004A		4/09 L	4/28						
ONEBIT	0023	ABSOLUTE	2/32 Q	2/58	3/06					
PC	0001	ABSOLUTE	2/24 Q	2/57	3/08	3/12	3/36	4/50		
PT	0002	ABSOLUTE	2/24 Q	3/45	4/43	4/46	5/09			
			3/32	4/23	4/44	5/08	5/13			
PTIME	0003	ABSOLUTE	2/25 Q	3/52	4/31	4/34				
PUTCNT	0066		4/40	4/43 L						
P1TIME	000F	ABSOLUTE	2/41 Q	2/55						
RCSCHD	0009	ABSOLUTE	2/27 Q	3/25						
RESET	0051		4/12	4/18 L						
RSTCTR	0085		4/18	5/29 L						
SCHEDU	006C		4/38	4/50 L						
SYFAIL	002D	*EXTERNAL*	2/21 X	3/19	3/30					
TDREQ	005C		4/25	4/31 L						
THREAD	008E		3/43	3/48	4/20	4/45	4/47	5/40 L	5/45	
TIMCTR	0089		4/10	4/14	4/19	5/34 L				
TIMEC	0086	*EXTERNAL*	2/20 X	5/30						
TIMEUP	0045		2/15 E	4/04 L						
TIMIDX	0083		4/09	4/26	4/39	5/20 L				
TMINT	0000		2/10 E	2/11 Q						
TMRTHD	008E		2/18 E	5/45 Q						
TOMPT	00B4	ABSOLUTE	2/36 Q	3/27	3/33	5/12	5/14			
TR1A	0017		2/60	3/11	3/13 L					
TR1B	002E		3/29	3/31 L						
TR1C	000F		2/56	3/05 L						
TR1X	0006		2/48	2/52 L						
T15	0000		2/17 E	2/42 Q						
T8	0000		2/16 E	2/46 L						
T8SIZE	0003	ABSOLUTE	2/40 Q	2/49						
VPTR	0005	ABSOLUTE	2/28 Q	3/15	3/37	3/49				
VR	0003	ABSOLUTE	2/28 Q	2/50	2/51					
VTMP	0007	ABSOLUTE	2/30 Q	3/14	3/35	3/42	3/47			
VTPE	0006	ABSOLUTE	2/29 Q	3/34	3/44	3/51				
ZERO	0022	ABSOLUTE	2/37 Q	2/52	3/05	3/16	3/23	3/31	3/38	4/52

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

0000	004C	NAM	NMONI	DECK-ID M10	MSOS 5.0	-	SUMMARY
004C		END					

ENTRY POINT NAMES AND ADDRESSES.

ASC	-- 001B	NMONI	-- 0000	REQXT	-- 0042
MONI	-- 0000	RCTV	-- 002E		

EXTERNAL SYMBOLS.

CCP	T1	T14	T17	T2	T8
CPSET	T10	T15	T18	T4	T9
T0	T12	T16	T19	T6	

```
                                        NAM  NMONI        DECK-ID M10  MSOS 5.0          SUMMARY-122 NMONI132   1
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                      NMONI      3
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                  NMONI      4
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                       NMONI      5


                                    *   MONITOR ENTRY FOR REQUESTS                                    NMONI      7
                                    *   SPEC  ID  REFER TO  IMS                                       NMONI      8
                                    *   PROGRAMMING SYSTEMS, A/D SYSTEMS DIVISION, CDC                NMONI      9
                          0000 P        ENT   NMONI                                                   NMONI     10
                          0000 P        EQU   NMONI(*)                                                NMONI     11

                                    *   PART NO.    E00610A0030S                                      NMONI     13

                          002E P        ENT  RCTV,MONI,REQXT                                          NMONI     15
                          0000 P
                          0042 P
                          001B P        ENT  ASC                                                      NMONI     16
                          00BB          EQU  AVOLA($BB),AVOLR($BA)                                    NMONI     17
                          00BA
                          0022          EQU  ZERO($22),ONEBIT($23),LPMSK(2)                           NMONI     18
                          0023
                          0002
                          0003          EQU  VR(3),VPTR(5),VTDS(6),VTMP(7),VID(8)      **MSOS 4.0 NMONI     19
                          0005
                          0006
                          0007
                          0008
                          0004          EQU  VPL(4)                                   **MSOS 4.1** NMONI     20
                          000A          EQU  V(10)          NUMBER OF WORDS OF VOLATILE.      122*4823 NMONI132   2
                          0009          EQU  VCCP(9)        REQUESTOR"S CONTROL POINT NUMBER. 122*4823 NMONI132   3
                                        EXT  CCP            LOCATION CONTAINING CURRENT CNTRL POIN122*4823 NMONI132   4
                                        EXT  CPSET          ROUTINE TO SET A CONTROL POINT.   122*4823 NMONI132   5
                                        EXT  T0,T1,T2                                                 NMONI     22
                                        EXT  T4,T6                                                    NMONI     23
                                        EXT  T8,T9,T10                                                NMONI     24
                                        EXT  T12,T14,T15                                              NMONI     25
                                        EXT  T16,T17,T18,T19                                          NMONI     26
                          0001          EQU  PC(1)                                                    NMONI     27
                          0009          EQU  RCSCHD(9)        SCHEDULE REQUEST CODE                   NMONI     28
                                    *                                                                 NMONI     29
                                    *  ENTRY POINT FROM ALL PROGRAMS IS AT MONI                       NMONI     30
                                    *   UNPROTECTED MONITOR REQUESTS WILL BE TRAPPED                  NMONI     31
                                    *   AT MONI+2. THIS PROGRAM RUNS WITH INTERRUPTS                  NMONI     32
                                    *   INHIBITED FOR LESS THAN 25 MICRO SECONDS.                     NMONI     33
                                    *   ALL LOCATIONS ARE PROTECTED UNLESS OTHERWISE                  NMONI     34
                                    *   INDICATED.                                                    NMONI     35
                                    *                                                                 NMONI     36
                                    *                                                                 NMONI     37
                P0000     0000      MONI  0    0              UNPROTECTED                             NMONI     38
                P0001     0500            IIN  0                                                      NMONI     39
                P0002     54BB            RTJ- (AVOLA)       ALLOCATE VOLATILE FOR THIS REQEST        NMONI     40
                P0003     000A            ADC  V             NO. OF WDS TO ALLOCATE                   NMONI     41
                P0004     E8FB            LDQ* MONI          REENTRANT PAST HERE                      NMONI     42
                                    *                                                                 NMONI     43
                                    *  SAVE RETRN ADDRESS AND POINTER IN VOLATILE                     NMONI     44
                                    *                                                                 NMONI     45
```

```
                P0005  4103                 STQ- VR,I                                                          NMONI     46
                P0006  4105                 STQ- VPTR,I          SAVE POINTER TO VOLATILE                      NMONI     47
              5 P0007  0A01                 ENA  1                                                             NMONI     48
                P0008  68F7                 STA* MONI                                                          NMONI     49
                P0009  C201                 LDA- PC,Q                                          **MSOS 4.0      NMONI     50
                P000A  6106                 STA- VTDS,I                                                        NMONI     51
                P000B  0400                 EIN  0                                                             NMONI     52
             10 P000C  C400  7FFF X         LDA+ CCP             SAVE REQUESTOR"S CONTROL POINT NUMBER 122*4823 NMONI132  6
                P000E  6109                 STA- VCCP,I          IN VOLATILE.                       122*4823 NMONI132  7
                P000F  0842                 CLR  Q                                                  122*4823 NMONI132  8
                P0010  5C3B                 RTJ* (ACPSET)        PUT THE MACHINE INTO ABSOLUTE MODE. 122*4823 NMONI132  9
                P0011  E103                 LDQ- VR,I            SET Q = PARAMETER LIST ADDRESS.    122*4823 NMONI132 10
             15 P0012  C622                 LDA- (ZERO),Q          FIRST WORD AFTER RETRN                      NMONI     53
                                          *                                 JMP TO MONI.                       NMONI     54
                P0013  6104                 STA- VPL,I           SAVE FIRST WORD OF CALL          **MSOS 4.1** NMONI     55
                P0014  0131                 SAM  REPA1           IS INDIRECT CALL                 **MSOS 4.1** NMONI     56
                P0015  1810                 JMP* REPA            DIRECT CALL                      **MSOS 4.1** NMONI     57
             20 P0016  A011         REPA1   AND- LPMSK+15        MASK 15 LSB, ADDRESS OF CALL     **MSOS 4.1** NMONI     58
                P0017  0802                 SET  Q                                                  **MSOS 4.0 NMONI     59
                P0018  4108                 STQ- VID,I                                              **MSOS 4.0 NMONI     60
                P0019  6105                 STA- VPTR,I            PDATE PTR TO PAR. LIST                      NMONI     61
                P001A  D103                 RAO- VR,I              PDATE RETRN ADDRESS                         NMONI     62
             25 P001B  0822         ASC     TRA  Q-                IF THIS IS A                                NMONI     63
                P001C  C201                 LDA- 1,Q                                                *MSOS V4.0 NMONI     64
                P001D  6106                 STA- VTDS,I      SAVE 2ND WORD OF PARAMETER LIST        *MSOS V4.0 NMONI     65
                                          *                    FOR RELEASE REQ. PROCESSOR            *MSOS V4.0 NMONI     66
                P001E  C622                 LDA- (ZERO),Q          SECONDARY CALL,                             NMONI     67
             30 P001F  6104                 STA- VPL,I           NEW FIRST WORD OF CALL           **MSOS 4.1** NMONI     68
                P0020  0127                 SAP  REP1            NOT SECONDARY SCHED CALL                    NMONI     69
                                          *                      IS SECONDARY FAKE SCHED CALL    -**MSOS 4.1** NMONI     70
                                          *                      1 CARD DELETED                              NMONI     71
                P0021  B032                 EOR- ONEBIT+15                                                     NMONI     72
             35 P0022  6622                 STA- (ZERO),Q          RESET PL(0)15 TO 0.                         NMONI     73
                P0023  0A09                 ENA  RCSCHD                                                        NMONI     74
                P0024  1806                 JMP* MSECA                                                         NMONI     75
                P0025  0A00         REPA    ENA  0               CLEAR INDIRECT INDICATOR          **MSOS 4.0 NMONI     76
                P0026  6108                 STA- VID,I           WHEN FIRST WORD AFTER RTRN TO MONI IS +    4.0 NMONI     77
             40 P0027  C104                 LDA- VPL,I           GET REQUEST CODE WORD 0                       NMONI     78
                                          *                                                                    NMONI     79
                                          *      EXTRACT REQEST CODE FROM PARAMETER LIST (0).                  NMONI     80
                                          *      REQEST CODE=RC IN BITS 14 THR 9. 6BITS.                       NMONI     81

             45 P0028  0F49         REP1    ARS  9                                                            NMONI     83
                P0029  A007                 AND- LPMSK+5                                           **MSOS 4.0 NMONI     84
                P002A  0FF0         MSECA   LLS  16                                                            NMONI     85
                P002B  4107                 STQ- VTMP,I                                                        NMONI     86
                P002C  EA02                 LDQ* RCTV,Q            PICK P REQ. CODE ADDRESS                    NMONI     87
             50                           *                                 ROTINE.                            NMONI     88
                P002D  1622                 JMP- (ZERO),Q                                                      NMONI     89
                                          *                                                                    NMONI     90
                                          *      A CONTAINS THE POINTER TO THE PARAMETER LIST                  NMONI     91
                                          *      IF A IS NEGATIVE, CALL IS INDIRECT.                           NMONI     92
             55                           *           I CONTAINS THE ADDRESS OF VOLATILE                       NMONI     93
                                          *                                                                    NMONI     94
                P002E  7FFF X       RCTV    ADC  T0                SYSTEM DIRECTORY FORM READ                  NMONI     95
                P002F  7FFF X               ADC  T1                          READ                              NMONI     96
                P0030  7FFF X               ADC  T2                -         WRITE                             NMONI     97
```

```
      P0031  0000              ADC  0          STATS                                                  NMONI    98
      P0032  7FFF X            ADC  T4                    READ FORMAT                                  NMONI    99
      P0033  0000              ADC  0          EXIT                                                   NMONI   100
      P0034  7FFF X            ADC  T6                    WRITE FORMAT                                 NMONI   101
      P0035  0000              ADC  0          LOADER                                                 NMONI   102
      P0036  7FFF X            ADC  T8                    TIMER                                        NMONI   103
      P0037  7FFF X            ADC  T9                    SCHEDLER                                     NMONI   104
      P0038  7FFF X            ADC  T10                   CORE ALLOCATOR                               NMONI   105
      P0039  0000              ADC  0          CORE REQUEST                                           NMONI   106
      P003A  7FFF X            ADC  T12           RELEASE REQEST                                      NMONI   107
      P003B  0000              ADC  0          GET FILE                                               NMONI   108
      P003C  7FFF X            ADC  T14                                                               NMONI   109
      P003D  7FFF X            ADC  T15                                                               NMONI   110
      P003E  7FFF X            ADC  T16        INDIRECT REQUEST WITH 16 BIT ADDRESS**MSOS 4.0         NMONI   111
      P003F  7FFF X            ADC  T17                                             **MSOS 4.0        NMONI   112
      P0040  7FFF X            ADC  T18                                             **MSOS 4.0        NMONI   113
      P0041  7FFF X            ADC  T19                                                               NMONI   114
                         **         COMMON EXIT FOR MONITOR REQESTS                                    NMONI   115
      P0042  E109        REQXT LDQ- VCCP,I       SET Q = REQUESTOR"S CONTROL POINT NO. 122*4823      NMONI132  11
      P0043  5C08              RTJ* (ACPSET)     RESET REQUESTOR"S CONTROL POINT.      122*4823      NMONI132  12
      P0044  0500              IIN  0                                                   122*4823      NMONI132  13
      P0045  E103              LDQ- VR,I                    GET P FROM VOLATILE.                      NMONI   117
      P0046  4804              STQ* RJMP                                                              NMONI   118
                         *          THIS TABLE IS INDEXED VIA A NUMBER LOCATED IN                      NMONI   119
      P0047  54BA              RTJ- (AVOLR)                                                           NMONI   120
      P0048  0400              EIN  0                                                                 NMONI   121
      P0049  1C01              JMP* (RJMP)                                                            NMONI   122
      P004A  0000        RJMP  ADC  0                                                                 NMONI   123
      P004B  7FFF X      ACPSET ADC  CPSET       ADDR OF ROUTINE THAT SETS CNTRL POINTS122*4823      NMONI132  14
      P004C                    END                                                                    NMONI   124


      60176B STORAGE USED          134 STATEMENTS       43 SYMBOLS
             6400 ASSEMBLY       0.894 SECONDS         104 REFERENCES
```

COMPLETE REFERENCE MAP.

ACPSET	004B		3/13	4/22	4/31 L		
ASC	001B		2/20 E	3/25 L			
AVOLA	00BB	ABSOLUTE	2/21 Q	2/54			
AVOLR	00BA	ABSOLUTE	2/21 Q	4/27			
CCP	000D	*EXTERNAL*	2/34 X	3/10			
CPSET	004B	*EXTERNAL*	2/35 X	4/31			
LPMSK	0002	ABSOLUTE	2/24 Q	3/20	3/46		
MONI	0000		2/17 E	2/52 L	2/56	3/06	
MSECA	002A		3/37	3/47 L			
NMONI	0000		2/12 E	2/13 Q			
ONEBIT	0023	ABSOLUTE	2/23 Q	3/34			
PC	0001	ABSOLUTE	2/41 Q	3/07			
RCSCHD	0009	ABSOLUTE	2/42 Q	3/36			
RCTV	002E		2/17 E	3/49	3/57 L		
REPA	0025		3/19	3/38 L			
REPA1	0016		3/18	3/20 L			
REP1	0028		3/31	3/45 L			
REQXT	0042		2/18 E	4/21 L			
RJMP	004A		4/25	4/29	4/30 L		
T0	002E	*EXTERNAL*	2/36 X	3/57			
T1	002F	*EXTERNAL*	2/36 X	3/58			
T10	0038	*EXTERNAL*	2/38 X	4/10			
T12	003A	*EXTERNAL*	2/39 X	4/12			
T14	003C	*EXTERNAL*	2/39 X	4/14			
T15	003D	*EXTERNAL*	2/39 X	4/15			
T16	003E	*EXTERNAL*	2/40 X	4/16			
T17	003F	*EXTERNAL*	2/40 X	4/17			
T18	0040	*EXTERNAL*	2/40 X	4/18			
T19	0041	*EXTERNAL*	2/40 X	4/19			
T2	0030	*EXTERNAL*	2/36 X	3/59			
T4	0032	*EXTERNAL*	2/37 X	4/04			
T6	0034	*EXTERNAL*	2/37 X	4/06			
T8	0036	*EXTERNAL*	2/38 X	4/08			
T9	0037	*EXTERNAL*	2/38 X	4/09			
V	000A	ABSOLUTE	2/32 Q	2/55			
VCCP	0009	ABSOLUTE	2/33 Q	3/11	4/21		
VID	0008	ABSOLUTE	2/29 Q	3/22	3/39		
VPL	0004	ABSOLUTE	2/31 Q	3/17	3/30	3/40	
VPTR	0005	ABSOLUTE	2/26 Q	3/04	3/23		
VR	0003	ABSOLUTE	2/26 Q	2/60	3/14	3/24	4/24
VTDS	0006	ABSOLUTE	2/27 Q	3/08	3/27		
VTMP	0007	ABSOLUTE	2/28 Q	3/48			
ZERO	0022	ABSOLUTE	2/23 Q	3/15	3/29	3/35	3/51

STORAGE ALLOCATION.

ADDRESS	LENGTH	BINARY CONTROL CARDS.
0000	000B	NAM T16 DECK-ID M04 MSOS 5.0 SUMMARY
000B		END

ENTRY POINT NAMES AND ADDRESSES.

T16 -- 0000

EXTERNAL SYMBOLS.

ASC

```
                                        NAM  T16          DECK-ID M04  MSOS 5.0              SUMMARY-110 T16      2
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                       T16      3
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                   T16      4
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                        T16      5


                          0000 P        ENT  T16                                                       T16      7
                                        EXT  ASC                                                       T16      8
                                    *   THIS ROUTINE HANDLES INDIRECT REQUESTS FOR PART 1              T16      9
                                    *   REQUESTS.  IT IS ENTERED WITH THE FOLLOWING PARAMETERS         T16     10
                                    *   A=   PARAMETER LIST                                            T16     11
                                    *                                                                  T16     12
                                    *   I=   VOLITALE STORAGE                                          T16     13
                                    *                                                                  T16     14


                          0003          EQU  VR(3),VPTR(5),VID(8)                                      T16     16
                          0005
                          0008
                          0006          EQU  VTDS(6)                                                   T16     17
                          0001          EQU  PL1(1)                                                    T16     18


                P0000     0822      T16 TRA  Q              SAVE PARAMETER LIST ADDRESS IN Q           T16     20
                P0001     C108          LDA- VID,I          CHECK IF THIS IS THE FIRST INDIRECT REQUEST T16     21
                P0002     0134          SAM  T16A-*-1       SKIP IF SECOND INDIRECT REQUEST            T16     22
                P0003     D103          RAO- VR,I           FIRST INDIRECT REQUEST                     T16     23
                P0004     D103          RAO- VR,I           UPDATE RETURN ADDRESS BY 2                 T16     24
                P0005     0804          SET  A                                                         T16     25
                P0006     6108          STA- VID,I          SET WORD 8 OF VOLITALE TO INDICATE IND. REQ. T16    26
                P0007     C106      T16A LDA- VTDS,I            GET PARAMETER LIST ADDRESS FOR THE IND REQ T16  27
                P0008     6105          STA- VPTR,I         SAVE IN WORD 5 OF VOLITILE                 T16     28
                P0009     1400  7FFF X  JMP  ASC            GO PROCESS NEW REQUEST - GO BACK TO MONI   T16     29
                P000B                   END                                                            T16     30


                                56342B STORAGE USED          29 STATEMENTS       8 SYMBOLS
                                6400 ASSEMBLY              0.439 SECONDS        17 REFERENCES
```

COMPLETE REFERENCE MAP.

ASC	000A	*EXTERNAL*	2/10 X	2/41	
PL1	0001	ABSOLUTE	2/26 Q		
T16	0000		2/09 E	2/32 L	
T16A	0007		2/34	2/39 L	
VID	0008	ABSOLUTE	2/23 Q	2/33	2/38
VPTR	0005	ABSOLUTE	2/22 Q	2/40	
VR	0003	ABSOLUTE	2/22 Q	2/35	2/36
VTDS	0006	ABSOLUTE	2/25 Q	2/39	

STORAGE ALLOCATION.

```
ADDRESS   LENGTH          BINARY CONTROL CARDS.

   0000     001D          NAM    ALVOL       DECK-ID M16  MSOS 5.0          SUMMARY
   001D                   END

ENTRY POINT NAMES AND ADDRESSES.

        ALVOL  -- 0000     VOLA   -- 0000     VOLR   -- 0015

EXTERNAL SYMBOLS.

        OVFVOL    VOLEND
```

```
                                        NAM  ALVOL        DECK-ID M16  MSOS 5.0          SUMMARY-110 ALVOL     2
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                     ALVOL     3
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                 ALVOL     4
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                       ALVOL     5


                                    *   VOLATILE STORAGE ALLOCATION AND RETURN                        ALVOL     7
                          0000 P        ENT   ALVOL                                                  ALVOL     8
                          0000 P        EQU   ALVOL(*)                                               ALVOL     9


                          0000 P        ENT  VOLA,VOLR                                               ALVOL    12
                          0015 P
                                        EXT  VOLEND                                 **MSOS 4.1**  ALVOL    13
                                        EXT. OVFVOL                                                  ALVOL    14
                          00F0          EQU  VOLATL($F0),ZERO($22)                                   ALVOL    15
                          0022
                                    *                                                              ALVOL    16
                                    *                VOLATILE STORAGE ALLOCATION                   ALVOL    17
                                    *                                                              ALVOL    18
 P0000    0000                      VOLA   000 0                                                    ALVOL    19
 P0001    44F0                             STQ- (VOLATL)          SAVE Q IN VOLATILE 0           ALVOL    20
 P0002    E000   7FFF X                    LDQ  =XVOLEND                                          ALVOL    21
 P0004    0852                             TCQ  Q                                                 ALVOL    22
 P0005    F0F0                             ADQ- VOLATL                                            ALVOL    23
 P0006    FCF9                             ADQ* (VOLA)                                            ALVOL    24
 P0007    0172                             SQM  VOLA1-*-1          TEST FOR OVERFLOW              ALVOL    25
 P0008    1400   7FFF X                    JMP+ OVFVOL                                            ALVOL    26
 P000A    E0F0                      VOLA1  LDQ- VOLATL                                            ALVOL    27
 P000B    6201                             STA- VA,Q              SAVE A IN (VA)                 ALVOL    28
 P000C    C0FF                             LDA- I                                                 ALVOL    29
 P000D    6202                             STA- VI,Q              SAVE I IN (VI)                 ALVOL    30
 P000E    40FF                             STQ- I                 ADDRESS OF VOL. IN I           ALVOL    31
                                    *                                                              ALVOL    32
                                    *          UPDATE ENTRY POINT TO VOLATILE STORAGE              ALVOL    33
                                    *                                                              ALVOL    34
 P000F    FCF0                             ADQ* (VOLA)                                            ALVOL    35
 P0010    40F0                             STQ- VOLATL            SET ENTRY POINT TO START       ALVOL    36
                                    *                           OF NEXT VOL BLOCK                  ALVOL    37
 P0011    D8EE                             RAO* VOLA                                              ALVOL    38
 P0012    E4FF                             LDQ- (1)           RESTORE A,Q CONTENTS                ALVOL    39
 P0013    C101                             LDA- 1,I                                               ALVOL    40
 P0014    1CEB                             JMP* (VOLA)                                            ALVOL    41
                                    *                                                              ALVOL    42
 P0015    0000                      VOLR   000 0                  RETURN VOLATILE                 ALVOL    43
 P0016    E0FF                             LDQ- I                LOC. OF VOL. RETURNED IN I      ALVOL    44
 P0017    C202                             LDA- VI,Q                                              ALVOL    45
 P0018    60FF                             STA- I                          RESTORE I              ALVOL    46
 P0019    C201                             LDA- VA,Q                       RESTORE A              ALVOL    47
 P001A    40F0                             STQ- VOLATL           RESTORE POINTER TO VOL.        ALVOL    48
 P001B    E622                             LDQ- (ZERO),Q                   RESTORE Q              ALVOL    49
 P001C    1CF8                             JMP* (VOLR)                                            ALVOL    50
                                    *                                                              ALVOL    51
                                    *                VOLATILE STORAGE ASSIGNMENT.                  ALVOL    52
                                    *             ADDRESS OF VOLATILE ASSUMED IN I.                ALVOL    53
                                    *                                                              ALVOL    54
                          0001          EQU  VA(1)             USERS A SAVED AT VA                 ALVOL    55
```

```
                0002        EQU  VI(2)        USERS I SAVED AT VI                ALVOL    56
P00JD                       END                                                 ALVOL    57
```

56745B STORAGE USED 56 STATEMENTS 10 SYMBOLS
6400 ASSEMBLY 0.559 SECONDS 36 REFERENCES

COMPLETE REFERENCE MAP.

ALVOL	0000		2/10 E	2/11 Q				
I	00FF	-SYSTEM-	2/33	2/35	2/43	2/48	2/50	
OVFVOL	0009	*EXTERNAL*	2/17 X	2/30				
VA	0001	ABSOLUTE	2/32	2/51	2/59 Q			
VI	0002	ABSOLUTE	2/34	2/49	2/60 Q			
VOLA	0000		2/14 E	2/23 L	2/28	2/39	2/42	2/45
VOLATL	00F0	ABSOLUTE	2/18 Q	2/24	2/27	2/31	2/40	2/52
VOLA1	000A		2/29	2/31 L				
VOLEND	0003	*EXTERNAL*	2/16 X	2/25				
VOLR	0015		2/14 E	2/47 L	2/54			
ZERO	0022	ABSOLUTE	2/18 Q	2/53				

STORAGE ALLOCATION.

```
        ADDRESS   LENGTH          BINARY CONTROL CARDS.

           0000      000D         NAM    OFVOL       DECK-ID M15  MSOS 5.0          SUMMARY
           000D                   END

        ENTRY POINT NAMES AND ADDRESSES.

                OFVOL  -- 0000      OVFVOL -- 0000


        EXTERNAL SYMBOLS.

                SYFAIL
```

```
                                        NAM  OFVOL        DECK-ID M15  MSOS 5.0          SUMMARY-110 OFVOL     2
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                     OFVOL     3
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                 OFVOL     4
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                      OFVOL     5


                                    *   VOLATILE STORAGE OVERFLOW                                    OFVOL     7
                          0000 P        ENT   OFVOL                                                  OFVOL     8
                          0000 P        EQU   OFVOL(*)                                              OFVOL     9


                                    *  THIS PROGRAM IS ENTERRED WHEN VOLATILE STORAGE                OFVOL    12
                                    *  IS OVER SUBSCRIBED.                                          OFVOL    13


                          0000 P        ENT  OVFVOL                                                 OFVOL    15
                                        EXT  SYFAIL       SITE FAIL LOCATED IN SYSDAT ($18FF)       OFVOL    16


 P0000  0841              OVFVOL CLR  M                                                             OFVOL    18
 P0001  E000  0091              LDQ  =N$91                                                          OFVOL    19
 P0003  C02B                    LDA- $2B                                                            OFVOL    20
 P0004  03FE                    OUT  -1                                                             OFVOL    21
 P0005  E000  0090              LDQ  =N$90                                                          OFVOL    22
 P0007  0A4F                    ENA  $4F  O                                                         OFVOL    23
 P0008  03FE                    OUT  -1                                                             OFVOL    24
 P0009  0A56                    ENA  $56  V                                                         OFVOL    25
 P000A  03FE                    OUT  -1                                                             OFVOL    26
 P000B  5400  7FFF X            RTJ+ SYFAIL       VOLATILE OVERFLOW - HANG                          OFVOL    27
 P000D                          END                                                                 OFVOL    28
```

IO TTO Bomb could mean for what 2B??

56340B STORAGE USED 27 STATEMENTS 3 SYMBOLS
6400 ASSEMBLY 0.419 SECONDS 6 REFERENCES

COMPLETE REFERENCE MAP.

OFVOL	0000		2/10 E	2/11 Q
OVFVOL	0000		2/18 E	2/22 L
SYFAIL	000C	*EXTERNAL*	2/19 X	2/31

STORAGE ALLOCATION.

ADDRESS	LENGTH	BINARY CONTROL CARDS.			
0000	0128	NAM	NDISP	DECK-ID M24 MSOS 5.0	SUMMARY
0128		END			

ENTRY POINT NAMES AND ADDRESSES.

DISPXX	-- 0001	SCHEDU	-- 004B	T18	-- 004B	T9	-- 004B
NDISP	-- 0000	SCHTOP	-- 0000	T19	-- 00E1		

EXTERNAL SYMBOLS.

CKTHRD	K65COR	SAVLU	SCHERR	SCHLNG	SCHSTK	SYFAIL

```
                                NAM  NDISP        DECK-ID M24  MSOS 5.0          SUMMARY-110 NDISP      2
                          *     NON-FORTRAN SCHEDULER/DISPATCHER                            NDISP      3
                          *     MASS STORAGE OPERATING SYSTEM VERSION 5.0                   NDISP      4
                          *     SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                NDISP      5
                          *     COPYRIGHT CONTROL DATA CORPORATION 1976                     NDISP      6

                    004B P      ENT   SCHEDU,NDISP                                **MSOS 4.1** NDISP      8
                    0000 P

                    004B P      ENT  T9,DISPXX,SCHTOP                             **MSOS 4.1** NDISP     10
                    0001 P
                    0000 P
                    004B P      ENT  T18                                           ***MSOS4.0 NDISP     11
                    00E1 P      ENT  T19                                           ***MSOS4.0 NDISP     12
                                EXT  K65COR        ENTRY IN PARTITION CORE DRIVER  ***MSOS4.0 NDISP     13
                                EXT  SCHERR        SCHEDULER ERROR ENTRY IN TRVEC   **MSOS 4.0 NDISP     14
                                EXT  SYFAIL        SITE FAIL LOCATED IN SYSDAT ($18FF)           NDISP     15
                                EXT  SAVLU,CKTHRD,SCHSTK,SCHLNG                    **MSOS 4.1** NDISP     16
                    00EF        EQU  PRLVL($EF),TOMPT($B4),AREQXT($B9)                      NDISP     17
                    00B4
                    00B9
                    00B8        EQU  CONT($B8),COMEXT($104)                        **MSOS 4.1** NDISP     18
                    0104
                    0009        EQU  RCSCHD(9)                                              NDISP     19
                          *                                                         ***MSOS4.0 NDISP     20
                    0012        EQU  P1SCHD(18)    SYS DIR REQ FROM PART 1         ***MSOS4.0 NDISP     21
                          *                                                         ***MSOS4.0 NDISP     22
                    00EB        EQU  ASYSDR($EB)                                            NDISP     23
                    00B8        EQU  COUNT($B8),AMASKT($B7)                                 NDISP     24
                    00B7
                    0002        EQU  LPMSK($2),NZERO($12),ZERO($22)                         NDISP     25
                    0012
                    0022
                    0023        EQU  ONEBIT($23),ZROBIT($33)                                NDISP     26
                    0033
                    0003        EQU  VR(3),VPL(4),VPTR(5)                                   NDISP     27
                    0004
                    0005
                    0006        EQU  VTPE(6),VTMP(7)                                        NDISP     28
                    0007
                    0001        EQU  PC(1),PT(2),PQ(3)                                      NDISP     29
                    0002
                    0003
                    0001        EQU  XA(1),XI(2),XR(3),XPL(4),XL(5)                         NDISP     30
                    0002
                    0003
                    0004
                    0005
```

```
                                ************************************************************MSOS 4.1** NDISP     32
                                *      DISPATCHER SECTION                                  **MSOS 4.1** NDISP     33
                                ************************************************************MSOS 4.1** NDISP     34


                                *      UPON COMPLETION OF A PROGRAM, THE DISPATCHER                        NDISP     36
                                *       DETERMINES THE PROGRAM OF HIGHEST PRIORITY                         NDISP     37
                                *            WAITING FOR EXECUTION. IT MAY EITHER BE IN THE                NDISP     38
                                *            INTERRUPT STACK OR THE SCHEDULER STACK.                       NDISP     39
                                *                                                                         NDISP     40
                                *                                                                         NDISP     41
                      0000 P          EQU  NDISP(*)                                    **MSOS 4.1** NDISP     42
P0000  FFFF             SCHTOP NUM  $FFFF          SCHEDULE STACK TOP                                     NDISP     43
P0001  E0B8             DISPXX LDQ- CONT                                                      ***** NDISP     44
P0002  0DFA                    INQ  -XL                      ADJST STACK                                NDISP     45
P0003  0500                    IIN  0                                                                   NDISP     46
P0004  C204                    LDA- XPL,Q                                                               NDISP     47
P0005  0FC1                    ALS  1                                                                   NDISP     48
P0006  0F41                    ARS  1             REMOVE BIT 15                                         NDISP     49
P0007  60EF                    STA- PRLVL                                                               NDISP     50
P0008  C8F7                    LDA* SCHTOP           IF SCHEDLER STACK IS                               NDISP     51
P0009  0900                    INA  0                                                                   NDISP     52
P000A  0107                    SAZ  RESINT-*-1       EMPTY, CHECK INT. STACK                            NDISP     53
P000B  CCF4                    LDA* (SCHTOP)         LOAD FIRST WORD                                    NDISP     54
P000C  A006                    AND- LPMSK+4          ISOLATE PRIORITY                                   NDISP     55
P000D  0821                    TRA  M                SAVE TEMP. IN M                                    NDISP     56
P000E  90EF                    SUB- PRLVL                                                               NDISP     57
P000F  0102                    SAZ  RESINT-*-1       GO TO INTERRUPT STACK                              NDISP     58
P0010  0131                    SAM  RESINT                                                 **MSOS 4.0 NDISP     59
P0011  1812                    JMP* SCHSTC        GO TO SCHEDULE STACK                     **MSOS 4.0 NDISP     60
                                *                                                                        NDISP     61
                                *   HIGHEST PROGRAM IS IN THE INTERRUPT STACK.                           NDISP     62
                                *                                                                        NDISP     63
P0012  C203             RESINT LDA- XR,Q                      SET RETRN LOCATION                       NDISP     64
P0013  6C35                    STA* (ACOMEX)                                                            NDISP     65
P0014  C202                    LDA- XI,Q                      RESTORE I                                 NDISP     66
P0015  60FF                    STA- I                                                                   NDISP     67
                                *                          7-CARDS DELETED                               NDISP     68
P0016  C204                    LDA- XPL,Q          GET PL + OVF                             **MSOS 4.0 NDISP     69
P0017  A032                    AND- ONEBIT+15                                               **MSOS 4.0 NDISP     70
P0018  01A0                    SOV  0              CLEAR OVERFLOW FAULT                     **MSOS 4.0 NDISP     71
P0019  0102                    SAZ  RESA                                                    **MSOS 4.0 NDISP     72
P001A  0A10                    ENA  16                                                      **MSOS 4.0 NDISP     73
P001B  8011                    ADD- LPMSK+15                                                **MSOS 4.0 NDISP     74
P001C  40B8             RESA   STQ- CONT          RESTORE TOP OF INTERRUPT STACK           **MSOS 4.0 NDISP     75
P001D  C201                    LDA- XA,Q           RESTORE VALUE OF A                       **MSOS 4.0 NDISP     76
P001E  E0EF                    LDQ- PRLVL          SET NEW PRIORITY LEVEL                             NDISP     77
P001F  E6B7                    LDQ- (AMASKT),Q        RESTORE MASK                                    NDISP     78
P0020  0811                    TRQ  M                                                                   NDISP     79
P0021  E4B8                    LDQ- (CONT)           RESTORE Q                                          NDISP     80
P0022  0E04                    EXI  COMEXT-256                                                          NDISP     81
                                *                                                                        NDISP     82
                                *   HIGHEST PROGRAM IS IN THE SCEDULER THREAD.                           NDISP     83
                                *                                                                        NDISP     84
P0023  080A             SCHSTC TRM  Q                 PRIORITY TO Q                                    NDISP     85
P0024  40EF                    STQ- PRLVL             SET NEW PRIORITY                                   NDISP     86
```

```
                P0025  C6B7              LDA- (AMASKT),Q          AND MASK                          NDISP  87
                P0026  0821              TRA  M                                                     NDISP  88
              5 P0027  E8D8              LDQ* SCHTOP               STORE NEW POINTER                NDISP  89
                P0028  C202              LDA- PT,Q                 TOP OF SCHEDLER                  NDISP  90
                P0029  68D6              STA* SCHTOP                       THREAD                   NDISP  91
                P002A  0814              TRQ  A                   TEST IF PRIMARY SCHEDULER         NDISP  92
                P002B  981E              SUB* ASCHD               CALL WAS MADE.                    NDISP  93
             10 P002C  0138              SAM  SCHSEC-*-1                                            NDISP  94
                P002D  981D              SUB* ASCLNG                                                NDISP  95
                P002E  0126              SAP  SCHSEC-*-1                                            NDISP  96
                P002F  C0B4              LDA- TOMPT                IF PRIMARY CALL RELEASE          NDISP  97
                P0030  6202              STA- PT,Q                 STACK POSITION AND PLACE         NDISP  98
             15 P0031  40B4              STQ- TOMPT               ON EMPTY THREAD.                  NDISP  99
                P0032  C201              LDA- PC,Q                 LOAD ABSOLTE ADDRESS             NDISP 100
                P0033  6C15              STA* (ACOMEX)            STORE INTO COMEXT                 NDISP 101
                P0034  1811              JMP* SCHXIT                                                NDISP 102
                P0035  C622    SCHSEC    LDA- (ZERO),Q             TEST IF ABSOLTE OR               NDISP 103
             20 P0036  A031              AND- ONEBIT+14           CHECK THE D BIT          ***MSOS4.0 NDISP 104
                P0037  0102              SAZ  SCHA                                          ***MSOS4.0 NDISP 105
                P0038  C201              LDA- PC,Q                MUST BE ABSOLUTE          ***MSOS4.0 NDISP 106
                P0039  1809              JMP* SCH1A                                         ***MSOS4.0 NDISP 107
                P003A  C622    SCHA      LDA- (ZERO),Q                                      ***MSOS4.0 NDISP 108
             25 P003B  A02B              AND- ONEBIT+8                    RELATIVE                  NDISP 109
                P003C  0101              SAZ  SCH1-*-1           CALL. SKIP IF ABSOLUTE             NDISP 110
                P003D  0814              TRQ  A                   ADDRESS 1ST WD OF CALL            NDISP 111
                P003E  A011    SCH1      AND- LPMSK+15                                              NDISP 112
                P003F  8032              ADD- ONEBIT+15                                             NDISP 113
             30 P0040  8201              ADD- PC,Q                ADD REL. ADDRESS OR IF            NDISP 114
                P0041  A011              AND- LPMSK+15                                              NDISP 115
                P0042  6C06    SCH1A     STA* (ACOMEX)          A=0, ABS ADDR(SS AND STORE  ***MSOS4.0 NDISP 116
                P0043  0844              CLR  A                   ZERO INTO THREAD                  NDISP 117
                P0044  6202              STA- PT,Q                COMPLETION INDICATION             NDISP 118
             35 P0045  0814    SCHXIT    TRQ  A                   PASS POINTER TO CALL IN A         NDISP 119
                P0046  E203              LDQ- PQ,Q                        PASS,Q                    NDISP 120
                P0047  0E04              EXI  COMEXT-256                                            NDISP 121
                P0048  0104    ACOMEX    ADC  COMEXT                                                NDISP 122
                P0049  7FFF X  ASCHD     ADC  SCHSTK              SCHED. STACK LOCATION             NDISP 123
             40 P004A  7FFF X  ASCLNG    ADC  SCHLNG              SCHED. STACK LENGTH LOC.          NDISP 124
```

```
                                                                    ********************************************************************MSOS 4.1** NDISP   126
                                                                    *     SCHEDULER SECTION                                           **MSOS 4.1** NDISP   127
                                                                    ********************************************************************MSOS 4.1** NDISP   128


                                                                    *                                                                          NDISP   130
                                                                    *                 SCHDLE REQUEST PROCESSOR  (T9)                           NDISP   131
                                                                    *                                                                          NDISP   132
                                                                    *                                                                          NDISP   133
                                                                    *                 ON ENTRY A POINTER TO THE PARAMETER                      NDISP   134
                                                                    *                 LIST MUST BE IN THE A REGISTER                           NDISP   135
                                                                    *                                                                          NDISP   136
                                                                    *                 IF THE SIGN BIT OF THE POINTER                           NDISP   137
                                                                    *                 IS ONE, THE REFERENCE IS INDIRECT.                       NDISP   138
                                                                    *                                                                          NDISP   139
                                                                    *                                                                          NDISP   140
                                                 004B P             T18     EQU   T18(*)                                  ***MSOS4.0 NDISP   141
                                                 004B P             SCHEDU  EQU   SCHEDU(*)                                         NDISP   142
                                                                    *                                                               NDISP   143
                                P004B   0822                       T9      TRA   Q                                                 NDISP   144
                                P004C   C108                               LDA-  8,I                                     ***MSOS4.0 NDISP   145
                                P004D   0132                               SAM   SCH1X     *INTERRUPTED*  Skip if indirect
                                                                           RAO-  VR,I
                                                                           RAO-  VR,I
                                                                    SCH1X  LDA-  VTPE,I    6th word Vol. Get 2nd Param
                                                                           STA-  VTMP,I
                                                                           LDA-  VR,I      Get 1st parameter
                                                                           STA-  VTPE,I
                                                                           AND-  LPMASK+4  remove comp. priority
                                                                           STA-  VPL,I
                                                                           LDA-  VTPE,I
                                                                           ARS   9
                                                                           AND-  LPMASK+5  get request code
                                                                           INA   -P1SCHD
                                                                           SAZ   SP1       skip if request code=18
                                                                           LDA-  VTMP,I                  — this is an address being sched
                                                                           SAP   S1
                                                                           LDA-  VTPE
                                                                           AND-  ONEBIT+14 check if D BITSET
                                                                           SAN   S1        skip if SET                  —
                                                                    SP1    LDA-  VTMP,I
                                                                           JMPX  DIRCAL    JUMP IF directory call
                                                                    S1     LDA-  PRLVL
                                                                           SUB-  VPL,I     is what your scheduling a 9 priority?
                                                                           SAP   S2        IF Req. priority > current priority then
                                                                           JMP   HILVL     Go TO HIGH LEVEL
```

```
S2  LDA-  VPTE,I   if not
    ARS   9
    AND-  LPMASK+5
    INA   -RCSCHD
    SAZ   SCH2      pick up the next 'freelist' entry
    IIN   0
    JMPX  SCHED2    go thread onto sched. stack
```

* Primary sch call implies request code = 9

```
                        *                ABSOLUTIZE AND TRANSFER TO STACK                          NDISP  181
                        *                                                                          NDISP  182
 5  P006E  C106         SCH2   LDA-  VTPE,I                                  **MSOS 4.1**       NDISP  183
    P006F  A031                AND-  ONEBIT+14     CHECK D BIT                ***MSOS4.0       NDISP  184
    P0070  011B                SAN   ABS-*-1                T                 ***MSOS4.0       NDISP  185
    P0071  C106                LDA-  VTPE,I                                  **MSOS 4.1**       NDISP  186
    P0072  A02B                AND-  ONEBIT+8                                                   NDISP  187
10  P0073  0108                SAZ   ABS-*-1          SKIP ON ABS CALL                          NDISP  188
    P0074  B106                EOR-  VTPE,I                                  **MSOS 4.1**       NDISP  189
    P0075  6106                STA-  VTPE,I                                                     NDISP  190
    P0076  0814                TRQ   A                                                          NDISP  191
    P0077  A011                AND-  LPMSK+15                                                   NDISP  192
15  P0078  8032                ADD-  ONEBIT+15                                                  NDISP  193
    P0079  8107                ADD-  VTMP,I                                  **MSOS 4.1**       NDISP  194
    P007A  A011                AND-  LPMSK+15                                                   NDISP  195
    P007B  6107                STA-  VTMP,I                                                     NDISP  196
    P007C  0500                ABS    IIN   0                                                   NDISP  197
20  P007D  E0B4                LDQ-  TOMPT           FIND EMPTY IN STACK                       NDISP  198
    P007E  0D00                INQ   0                                                          NDISP  199
    P007F  0152                SQN   S3-*-1                                                     NDISP  200
    P0080  5400  7FFF X        RTJ+  SYFAIL          SCHEDULER STACK HAS OVERFLOWED - HANG      NDISP  201
    P0082  C202                S3     LDA-  PT,Q                                               NDISP  202
25  P0083  60B4                STA-  TOMPT                                                      NDISP  203
    P0084  4105                STQ-  VPTR,I          STORE NEW POINTER TO                       NDISP  204
    P0085  C106                LDA-  VTPE,I          PARAMETER LIST                             NDISP  205
    P0086  6622                STA-  (ZERO),Q                                                   NDISP  206
    P0087  C107                LDA-  VTMP,I                                                     NDISP  207
30  P0088  6201                STA-  PC,Q                                                       NDISP  208
    P0089  C4FF                SCHED2 LDA-  (1)                    STORE Q                      NDISP  209
    P008A  6203                STA-  PQ,Q                                                       NDISP  210
                        *                                                                        NDISP  211
                        *          SEARCH FOR STACK POSITION ACCORDING                           NDISP  212
35                      *          TO PRIORITY OF THE REQUEST.                                   NDISP  213
                        *                                                                        NDISP  214
    P008B  0500                IIN   0                                                          NDISP  215
    P008C  E000  0000 P        LDQ   =XSCHTOP        POINTER TO SCHTOP IN Q                     NDISP  216
    P008E  0DFD                INQ   -2                                                         NDISP  217
40  P008F  0400                THRED1 EIN   0         ALLOW  INTERRUPT              *465       NDISP  218
    P0090  4106                STQ-  VTPE,I                                        *465       NDISP  219
    P0091  0B00                NOP   0                                             *465       NDISP  220
    P0092  0500                IIN   0                                             *465       NDISP  221
    P0093  C202                LDA-  PT,Q            POINTER TO NEXT ENTRY                      NDISP  222
45  P0094  0900                INA   0                                                          NDISP  223
    P0095  0106                SAZ   THREAD                                                     NDISP  224
                        *                            THREAD INTO Q                             NDISP  225
    P0096  0822                TRA   Q                                                          NDISP  226
                        *                           1 CARD DELETED                             NDISP  227
50  P0097  C622                LDA-  (ZERO),Q        SKIP TO THREAD NEW ENTRY                   NDISP  228
    P0098  A006                AND-  LPMSK+4         IF ITS PRIORITY HIGHER                     NDISP  229
    P0099  9104                SUB-  VPL,I                                                      NDISP  230
    P009A  0131                SAM   THREAD-*-1                                                 NDISP  231
    P009B  18F3                JMP*  THRED1                                                     NDISP  232
55                      *                                                                        NDISP  233
                        *          THREAD NEW ENTRY                                              NDISP  234
                        *                                                                        NDISP  235
                        *                           1 CARD DELETED                             NDISP  236
    P009C  E106                THREAD LDQ-  VTPE,I    POINTER TO PRECEDING ENTRY                NDISP  237
```

```
                P009D  C202                    LDA- PT,Q           POINTER TO NEXT ENTRY                    NDISP  238
                P009E  E105                    LDQ- VPTR,I         STORE INTO NEW ENTRY                     NDISP  239
                                       *                          ALLOW 16 BIT ADDRESSING  ***MSOS4.0 NDISP  240
                P009F  6202                    STA- PT,Q                                                    NDISP  241
                P00A0  0814                    TRQ  A                                                       NDISP  242
                P00A1  E106                    LDQ- VTPE,I         STORE NEW POINTER                        NDISP  243
                P00A2  6202                    STA- PT,Q           IN PRECEDING ENTRY                       NDISP  244
                P00A3  C4FF                    LDA- (1)            PICK-UP USERS Q REGISTER                 NDISP  245
                P00A4  A011                    AND- LPMSK+15       REMOVE THE SIGN BIT                      NDISP  246
                P00A5  64FF                    STA- (1)            PUT IT BACK                              NDISP  247
                P00A6  14B9                    JMP- (AREQXT)                                                NDISP  248
                                       *                                                                    NDISP  249
                                       **         PROCESS DIRECTORY CALLS                                   NDISP  250
                                       *                                                                    NDISP  251
                                       *                                                                    NDISP  252
                P00A7  A011            DIRCAL  AND- LPMSK+15          GET SYSDIR ADDRESS                    NDISP  253
                P00A8  80EB                    ADD- ASYSDR                                                  NDISP  254
                P00A9  0500                    IIN  0                                                       NDISP  255
                P00AA  6105                    STA- VPTR,I                                                  NDISP  256
                P00AB  C622                    LDA- (ZERO),Q       PICK UP REQUEST CODE                     NDISP  257
                P00AC  0F49                    ARS  9                                                       NDISP  258
                P00AD  A007                    AND- LPMSK+5                             ***MSOS4.0 NDISP  259
                P00AE  09F6                    INA  -RCSCHD                                                 NDISP  260
                P00AF  0104                    SAZ  DIR2-*-1       IF NOT SCHEDULE REQUEST CODE             NDISP  261
                P00B0  09F6                    INA  -P1SCHD+RCSCHD                      ***MSOS4.0 NDISP  262
                P00B1  0102                    SAZ  DIR2           SKIP IF REQ CODE 18  ***MSOS4.0 NDISP  263
                P00B2  0A00                    ENA  0              MUST BE A SECONDARY CALL                 NDISP  264
                P00B3  6202                    STA- PT,Q           CLEAR THREAD IN USERS REQUEST            NDISP  265
                P00B4  E105            DIR2    LDQ- VPTR,I         Q = SYSTEM DIRECTORY ADR.                NDISP  266
                P00B5  C202                    LDA- 2,Q                                                     NDISP  267
                P00B6  0102                    SAZ  DIR1-*-1                                                NDISP  268
                P00B7  1400  7FFF X            JMP  SCHERR                              **MSOS 4.0 NDISP  269
                P00B9  C622            DIR1    LDA- (ZERO),Q       CHECK IF OK TO SCHEDULE  ***MSOS4.0 NDISP  270
                P00BA  0122                    SAP  DIR1A          OK, CONTINUE         ***MSOS4.0 NDISP  271
                P00BB  1400  00B8 X            JMP  SCHERR                              **MSOS 4.0 NDISP  272
                                       *                                                                    NDISP  273
                                       *                          REPLACE PRIORITY         ***MSOS4.0 NDISP  274
                P00BD  A016            DIR1A   AND- NZERO+4        IN DIRECTORY WITH        ***MSOS4.0 NDISP  275
                P00BE  8104                    ADD- VPL,I             CALL PRIORITY                         NDISP  276
                P00BF  6622                    STA- (ZERO),Q                                                NDISP  277
                P00C0  0F49                    ARS  9                 IF MASS MEMMORY CALL                  NDISP  278
                P00C1  A007                    AND- LPMSK+5                             ***MSOS4.0 NDISP  279
                P00C2  010C                    SAZ  MASCAL-*-1        GO TO DIRECTORY CALL                  NDISP  280
                                       *                                                                    NDISP  281
                                       *                                                                    NDISP  282
                                       **         CORE RESIDENT DIRECTORY CALL                              NDISP  283
                                       *                                                                    NDISP  284
                P00C3  0804                    SET  A                                                       NDISP  285
                P00C4  6202                    STA- PT,Q                                                    NDISP  286
                P00C5  0400                    EIN  0                                                       NDISP  287
                P00C6  C0EF                    LDA- PRLVL                                                   NDISP  288
                P00C7  9104                    SUB- VPL,I                                                   NDISP  289
                P00C8  0125                    SAP  S5-*-1                                                  NDISP  290
                P00C9  C622                    LDA- (ZERO),Q       SAVE WORD 0 OF DIRECTORY ENTRY           NDISP  291
                P00CA  6106                    STA- VTPE,I                                                  NDISP  292
                P00CB  C201                    LDA- PC,Q           SAVE SCHEDULED ADDRESS                   NDISP  293
                P00CC  6107                    STA- VTMP,I                                                  NDISP  294
```

```
                P00CD  182B                JMP* HILVL                                                    NDISP  295
                P00CE  18BA          S5    JMP* SCHED2                                                   NDISP  296
                                     *                                                                   NDISP  297
5                                    **          MASS MEMORY DIRECTORY CALL.                              NDISP  298
                                     *                                                                   NDISP  299
                P00CF  C4FF          MASCAL LDA- (I)                                      *433***        NDISP  300
                P00D0  6104                 STA- VPL,I          SAVE Q TEMP IN VOLATILE   *433****       NDISP  301
10              P00D1  5400  7FFF X         RTJ  CKTHRD         CHECK THREAD - BUSY, REJECT REQUEST(Q15=1)*** NDISP  302
                P00D3  C104                 LDA- VPL,I                                    *433****       NDISP  303
                P00D4  6203                 STA- 3,Q            MOVE PARAM TO DIRECTORY SLOT 3 *433****  NDISP  304
                P00D5  C622                 LDA- (ZERO),Q                                 *433****       NDISP  305
                P00D6  A000  00F0           AND  =N$F0          SAVE REQ PRIORITY         *433****       NDISP  306
15              P00D8  6104                 STA- VPL,I          SET UP REQUEST PRIORITY IN VOLATILE *433**** NDISP 307
                P00D9  C622                 LDA- (ZERO),Q       CHECK THE D BIT           ***MSOS4.0     NDISP  308
                P00DA  A031                 AND- ONEBIT+14                                ***MSOS4.0     NDISP  309
                P00DB  0102                 SAZ  MASCO                                    ***MSOS4.0     NDISP  310
                P00DC  1400  7FFF X         JMP  K65COR         EXIT TO PARTITION CORE DRIVER ***MSOS4.0     NDISP  311
20              P00DE  0C01          MASCO  ENQ  1              LU OF CORE ALLOCATOR      ***MSOS4.0     NDISP  312
                P00DF  1400  7FFF X         JMP  SAVLU          SET UP THREAD TO CORE ALLOCATOR  *43>***  NDISP  313
                                     *                        THREAD REQUEST TO LOGICAL UNIT 1 *433****  NDISP  314
```

```
                                        *                                                   ***MSOS4.0 NDISP    316
                                        *          PROCESS ENABLE SCHDULE CALL              ***MSOS4.0 NDISP    317
                                        *                                                   ***MSOS4.0 NDISP    318
                                00E1 P          EQU  T19(*)                                ***MSOS4./ NDISP    319
                    P00E1       0822            TRA  Q                                              NDISP    320
                    P00E2       C108            LDA- 8,I            PICK UP INDIRECT FLAG           NDISP    321
                    P00E3       0132            SAM  ENSCH          SKIP IF INDIRECT                NDISP    322
                    P00E4       D103            RAO- VR,I                                           NDISP    323
                    P00E5       D103            RAO- VR,I           UPDATE RETURN ADDRESS           NDISP    324
                    P00E6       C622        ENSCH LDA- (ZERO),Q                                     NDISP    325
                    P00E7       A00A            AND- LPMSK+8                               *MSOS 4.0  NDISP    326
                    P00E8       0116            SAN  DISCH          DISABLE REQUEST        *MSOS 4.0  NDISP    327
                    P00E9       E201            LDQ- PC,Q           GET SYS DIR INDEX      ***MSOS4.0 NDISP    328
                    P00EA       F0EB            ADQ- ASYSDR         CALCULATE ADDRESS      ***MSOS4.0 NDISP    329
                    P00EB       C622            LDA- (ZERO),Q                              ***MSOS4.0 NDISP    330
                    P00EC       A011            AND- LPMSK+15       CLEAR DISABLE BIT IN DIRECTORY ***MSOS4.0 NDISP 331
                    P00ED       6622            STA- (ZERO),Q                              ***MSOS4.0 NDISP    332
                    P00EE       14B9            JMP- (AREQXT)                              ***MSOS4.0 NDISP    333
                                        *                                                   ***MSOS4.0 NDISP    334
                                        *          PROCESS DISABLE SCHEDULE CALL            ***MSOS4.0 NDISP    335
                                        *                                                   ***MSOS4.0 NDISP    336
                    P00EF       E201        DISCH LDQ- PC,Q           GET DIRECTORY INDEX    *MSOS 4.0  NDISP    337
                    P00F0       F0EB            ADQ- ASYSDR         CALCULATE ADDRESS      ***MSOS4.0 NDISP    338
                    P00F1       C622            LDA- (ZERO),Q                              ***MSOS4.0 NDISP    339
                    P00F2       0500            IIN  0                                      69*1566   NDISP    340
                    P00F3       A011            AND- LPMSK+15                               69*1566   NDISP    341
                    P00F4       0400            EIN  0                                      69*1566   NDISP    342
                    P00F5       B032            EOR- ONEBIT+15      SET DISABLE BIT IN DIRECTORY ***MSOS4.0 NDISP 343
                    P00F6       6622            STA- (ZERO),Q                              ***MSOS4.0 NDISP    344
                    P00F7       14B9            JMP- (AREQXT)                              ***MSOS4.0 NDISP    345
```

```
                                *                                                                NDISP  347
                                *                                                                NDISP  348
                                *       SCHDLE REQUEST IS OF HIGHER PRIORITY                     NDISP  349
                                *       THAN CURRENT LEVEL.                                      NDISP  350
                                *                                                                NDISP  351
P00F8  E105          HILVL  LDQ- VPTR,I        GET POINTER                                       NDISP  352
P00F9  0500                 IIN  0                                                               NDISP  353
P00FA  C622                 LDA- (ZERO),Q       REQUEST CODE/LEVEL                               NDISP  354
P00FB  0F49                 ARS  9              EXTRACT REQUEST CODE                  ***MSOS4.0 NDISP  355
P00FC  A007                 AND- LPMSK+5                                                         NDISP  356
P00FD  09F6                 INA  -RCSCHD        IF SECONDARY CALL,(RC.NE.9)                      NDISP  357
P00FE  0102                 SAZ  PRIMRY-*-1                                                      NDISP  358
P00FF  0844                 CLR  A              CLEAR THREAD IN CALL                             NDISP  359
P0100  6202                 STA- PT,Q                                                            NDISP  360
P0101  C106          PRIMRY LDA- VTPE,I         FIND PLACE TO GO                      **MSOS 4.1** NDISP  361
P0102  A031                 AND- ONEBIT+14      PART 1 REQUEST "                        ***MSOS4.0 NDISP  362
P0103  0102                 SAZ  S6A                                                    ***MSOS4.0 NDISP  363
P0104  C107                 LDA- VTMP,I                                             **MSOS 4.1** NDISP  364
P0105  1809                 JMP* S6B1                                                   ***MSOS4.0 NDISP  365
P0106  C106          S6A    LDA- VTPE,I                                             **MSOS 4.1** NDISP  366
P0107  A02B                 AND- ONEBIT+8          FOR REL AND ABS MODE                          NDISP  367
P0108  0101                 SAZ  S6-*-1                                                          NDISP  368
P0109  0814                 TRQ  A                                                               NDISP  369
P010A  A011          S6     AND- LPMSK+15          15 BIT ARITHMETIC                             NDISP  370
P010B  8032                 ADD- ONEBIT+15                                                       NDISP  371
P010C  8107                 ADD- VTMP,I                                             **MSOS 4.1** NDISP  372
P010D  A011                 AND- LPMSK+15                                                        NDISP  373
P010E  0500          S6B1   IIN  0                                                   ***MSOS4.0 NDISP  374
P010F  6817                 STA* JMP+1                                                           NDISP  375
                                *                          1 CARD DELETED                        NDISP  376
P0110  4817                 STQ* PASSA             LOC OF PARAMETER LIST                         NDISP  377
                                *                                                                NDISP  378
                                *       PUT RQUESTOR ON INTERRUPT STACK                          NDISP  379
                                *                                                                NDISP  380
P0111  E0B8                 LDQ- COUNT                                                           NDISP  381
P0112  C0EF                 LDA- PRLVL                                                           NDISP  382
P0113  6204                 STA- XPL,Q             SAVE PRESENT LEVEL                            NDISP  383
P0114  C0B9                 LDA- AREQXT                                                          NDISP  384
P0115  6203                 STA- XR,Q                                                            NDISP  385
P0116  C0FF                 LDA- I                                                               NDISP  386
P0117  6202                 STA- XI,Q                        SAVE I                              NDISP  387
P0118  0D05                 INQ  XL                                                              NDISP  388
P0119  40B8                 STQ- COUNT             SET NEW BASE                                  NDISP  389
P011A  E104                 LDQ- VPL,I                                                           NDISP  390
P011B  40EF                 STQ- PRLVL                                                           NDISP  391
P011C  C6B7                 LDA- (AMASKT),Q        SET NEW LEVEL AND                             NDISP  392
P011D  0821                 TRA  M                           MASK                                NDISP  393
P011E  E4FF                 LDQ- (I)                      625                                    NDISP  394
P011F  0814                 TRQ  A                        625                                    NDISP  395
P0120  A011                 AND- LPMSK+15         MASK OFF UPPER BIT                    624      NDISP  396
P0121  64FF                 STA- (I)                      624                                    NDISP  397
P0122  C805                 LDA* PASSA                    624                                    NDISP  398
P0123  01A0                 SOV  0                TURN OFF OVERFLOW IND.                         NDISP  399
P0124  0400                 EIN  0                                                               NDISP  400
P0125  1400  0000    JMP    JMP+ 0                           GO                                  NDISP  401
P0127  0000          PASSA  NUM  0                                                               NDISP  402
P0128                       END                                                                  NDISP  403
```

64635B STORAGE USED 401 STATEMENTS 79 SYMBOLS
6400 ASSEMBLY 2.226 SECONDS 317 REFERENCES

COMPLETE REFERENCE MAP.

ABS	007C		6/07	6/10	6/19 L					
ACOMEX	0048		3/38	4/17	4/32	4/38 L				
AMASKT	00B7	ABSOLUTE	2/32 Q	3/51	3/60	10/48				
AREQXT	00B9	ABSOLUTE	2/23 Q	7/13	9/21	9/33	10/40			
ASCHD	0049		4/09	4/39 L						
ASCLNG	004A		4/11	4/40 L						
ASYSDR	00EB	ABSOLUTE	2/31 Q	7/19	9/17	9/26				
CKTHRD	00D2	*EXTERNAL*	2/21 X	8/10						
COMEXT	0104	ABSOLUTE	2/25 Q	3/54	4/37	4/38				
CONT	00B8	ABSOLUTE	2/25 Q	3/17	3/48	3/53				
COUNT	00B8	ABSOLUTE	2/32 Q	10/37	10/45					
DIRCAL	00A7		5/45	7/18 L						
DIR1	00B9		7/33	7/35 L						
DIR1A	00BD		7/36	7/40 L						
DIR2	00B4		7/26	7/28	7/31 L					
DISCH	00EF		9/15	9/25 L						
DISPXX	0001		2/13 E	3/17 L						
ENSCH	00E6		9/10	9/13 L						
HILVL	00F8		5/49	7/60	10/08 L					
I	00FF	-SYSTEM-	3/40	6/31	7/10	7/12	8/08	10/42	10/50	10/53
JMP	0125		10/31	10/57 L						
K65COR	00DD	*EXTERNAL*	2/18 X	8/19						
LPMSK	0002	ABSOLUTE	2/34 Q	4/28	5/36	6/17	7/18	9/14	10/12	10/52
			3/28	4/31	5/52	6/51	7/24	9/19	10/26	
			3/47	5/32	6/14	7/11	7/44	9/29	10/29	
MASCAL	00CF		7/45	8/08 L						
MASCO	00DE		8/18	8/20 L						
NDISP	0000		2/10 E	3/15 Q						
NZERO	0012	ABSOLUTE	2/34 Q	7/40						
ONEBIT	0023	ABSOLUTE	2/37 Q	4/20	4/29	6/06	6/15	9/31	10/23	
			3/43	4/25	5/42	6/09	8/17	10/18	10/27	
PASSA	0127		10/33	10/54	10/58 L					
PC	0001	ABSOLUTE	2/44 Q	4/16	4/22	4/30	6/30	7/58	9/16	9/25
PQ	0003	ABSOLUTE	2/45 Q	4/36	6/32					
PRIMRY	0101		10/14	10/17 L						
PRLVL	00EF	ABSOLUTE	2/22 Q	3/30	3/59	7/53	10/47			
			3/23	3/50	5/46	10/38				
PT	0002	ABSOLUTE	2/44 Q	4/14	6/24	6/60	7/09	7/51		
			4/06	4/34	6/44	7/06	7/30	10/16		
P1SCHD	0012	ABSOLUTE	2/29 Q	5/37	7/27					
RCSCHD	0009	ABSOLUTE	2/27 Q	5/53	7/25	7/27	10/13			
RESA	001C		3/45	3/48 L						
RESINT	0012		3/26	3/31	3/32	3/37 L				
SAVLU	00E0	*EXTERNAL*	2/21 X	8/21						
SCHA	003A		4/21	4/24 L						
SCHEDU	004B		2/10 E	5/21 Q						
SCHED2	0089		5/56	6/31 L	8/04					
SCHERR	00BC	*EXTERNAL*	2/19 X	7/34	7/37					
SCHLNG	004A	*EXTERNAL*	2/21 X	4/40						
SCHSEC	0035		4/10	4/12	4/19 L					
SCHSTC	0023		3/33	3/58 L						
SCHSTK	0049	*EXTERNAL*	2/21 X	4/39						
SCHTOP	0000		2/14 E	3/16 L	3/24	3/27	4/05	4/07	6/38	
SCHXIT	0045		4/18	4/35 L						
SCH1	003E		4/26	4/28 L						
SCH1A	0042		4/23	4/32 L						
SCH1X	0050		5/25	5/28 L						

SCH2	006E		5/54	6/05 L				
SP1	0060		5/38	5/44 L				
SYFAIL	0081	*EXTERNAL*	2/20 X	6/23				
S1	0062		5/40	5/43	5/46 L			
S2	0067		5/48	5/50 L				
S3	0082		6/22	6/24 L				
S5	00CE		7/55	8/04 L				
S6	010A		10/24	10/26 L				
S6A	0106		10/19	10/22 L				
S6B1	010E		10/21	10/30 L				
THREAD	009C		6/46	6/53	6/59 L			
THRED1	008F		6/40 L	6/54				
TOMPT	00B4	ABSOLUTE	2/22 Q	4/13	4/15	6/20	6/25	
T18	004B		2/16 E	5/20 Q				
T19	00E1		2/17 E	9/07 Q				
T9	004B		2/13 E	5/23 L				
VPL	0004	ABSOLUTE	2/39 Q	5/33	6/52	7/54	8/11	10/46
			5/30	5/47	7/41	8/09	8/15	
VPTR	0005	ABSOLUTE	2/40 Q	6/26	7/04	7/21	7/31	10/08
VR	0003	ABSOLUTE	2/39 Q	5/26	5/27	9/11	9/12	
VTMP	0007	ABSOLUTE	2/42 Q	5/39	6/16	6/29	10/20	
			5/29	5/44	6/18	7/59	10/28	
VTPE	0006	ABSOLUTE	2/42 Q	5/34	6/05	6/12	6/59	10/17
			5/28	5/41	6/08	6/27	7/08	10/22
			5/31	5/50	6/11	6/41	7/57	
XA	0001	ABSOLUTE	2/47 Q	3/49				
XI	0002	ABSOLUTE	2/47 Q	3/39	10/43			
XL	0005	ABSOLUTE	2/50 Q	3/18	10/44			
XPL	0004	ABSOLUTE	2/49 Q	3/20	3/42	10/39		
XR	0003	ABSOLUTE	2/48 Q	3/37	10/41			
ZERO	0022	ABSOLUTE	2/35 Q	6/28	7/35	8/13	9/18	9/32
			4/19	6/50	7/42	8/16	9/20	10/10
			4/24	7/22	7/56	9/13	9/27	
ZROBIT	0033	ABSOLUTE	2/37 Q					

1

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

0000	00AE	NAM	RW	DECK-ID M09	MSOS 5.0	SUMMARY
00AE		END				

ENTRY POINT NAMES AND ADDRESSES.

CKTHRD	-- 008E	SAVLU	-- 0012	T2	-- 0000
RPMASK	-- 0088	T0	-- 0000	T4	-- 0000
RW	-- 0000	T1	-- 0000	T6	-- 0000

EXTERNAL SYMBOLS.

ALTSUB	CONVER	LOG1	LOG1A	LOG2

```
                                        NAM  RW          DECK-ID M09  MSOS 5.0          SUMMARY-110 RW        2
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                      RW        3
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                  RW        4
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                       RW        5


                                    *        READ WRITE REQUEST PROCESSOR                             RW        7
                          0000 P        ENT   RW                                                     RW        8
                          0000 P        EQU   RW(*)                                                  RW        9


                          0000 P        ENT   T0,T1,T2,T4,T6                                         RW       12
                          0000 P
                          0000 P
                          0000 P
                          0000 P
                          0012 P        ENT   SAVLU,CKTHRD,RPMASK                                    RW       13
                          008E P
                          0088 P
                                        EXT   LOG2,LOG1,LOG1A                                      RW       14
                                        EXT   ALTSUB        SUB. TO SET Q=ALT. IF LU IN Q IS DOWN   RW       15
                                        EXT   CONVER                                               RW       16
                          002F          EQU   H1000($2F)                                             RW       17
                          0003          EQU   VR(3),VPL(4),VPTR(5)                                   RW       18
                          0004
                          0005
                          0006          EQU   VTPE(6),VTMP(7)                                        RW       19
                          0007
                          0008          EQU   VID(8)                                  **MSOS 4.0     RW       20
                          00C2          EQU   LIBLU($C2)                                             RW       21
                          00BC          EQU   ALUABS($BC),AREQXT($B9)                                RW       22
                          00B9
                          0002          EQU   PT(2),PS(5)                                            RW       23
                          0005
                          00F4          EQU   AMONI($F4)                                             RW       24
                          0005          EQU   ELU(5),EREQST(8)                                       RW       25
                          0008
                          0012          EQU   NZERO($12)                                             RW       26
                          0022          EQU   ZERO($22)                                              RW       27
                          0002          EQU   LPMSK(2),ONEBIT($23)                                   RW       28
                          0023
                          0002          EQU   MMCODE(2)     M.M. CLASS CODE                          RW       29
                                    *        ON ENTRY A, Q, AND I CONTAIN THE FOLLOWING               RW       30
                                    *        A,    PARAMETER LIST LOCATION                            RW       31
                                    *        Q,    PARAMETER GIVING                                   RW       32
                                    *              ADDRESS OF PROCESSOR                               RW       33
                                    *        I,    ADDRESS OF VOLATILE                                RW       34
                                    *                                                                 RW       35
P0000  0822                         T1    TRA  Q      PARAMETER LIST TO Q                            RW       36
P0001  C108                               LDA- 8,I                                    **MSOS 4.0     RW       37
P0002  0133                               SAM  R1-*-1       SKIP IF INDIRECT REQUEST  **MSOS 4.0     RW       38
                                    *                           INCREMENT RETURN ADDRESS               RW       39
P0003  0A06                               ENA  6                                                       RW       40
P0004  8103                               ADD- VR,I                                                    RW       41
P0005  6103                               STA- VR,I                                                    RW       42
                                    *        SET UP PRIORITY LEVEL OF THE REQUEST                     RW       43
P0006  C622                         R1    LDA- (ZERO),Q                                              RW       44
```

```
                P0007  A800  0080          AND  RPMASK                                          RW   45
                P0009  6104                STA- VPL,I                                           RW   46
     5
                                     *          GET LOGICAL UNIT NUMBER IN Q                      RW   48

                P000A  C107                LDA- VTMP,I          IF THIS IS SYS DIR              RW   50
                P000B  0400                EIN  0                                               RW   51
    10          P000C  0112                SAN  RWUSER-*-1                                      RW   52
                P000D  E0C2                LDQ- LIBLU                                           RW   53
                P000E  1804                JMP* SAVLU                                           RW   54
                P000F  5800  007E    RWUSER RTJ  CKTHRD       CHECK THREAD LOC FOR 0    *436     RW   55
                P0011  54BC                RTJ- (ALUABS)                                        RW   56
    15          P0012  4107          SAVLU STQ- VTMP,I          SAVE LOGICAL UNIT NUMBER.       RW   57
                                     *                                                           RW   58
                                     *          Q CONTAINS THE ACTUAL LOGICAL UNIT NUMBER.       RW   59
                                     *                IF CALL WAS DIRECT.                        RW   60

    20          P0013  EE34                LDQ* (ALOG1A),Q                                      RW   62
                P0014  C208                LDA-  8,Q            IF CALL IS TO MASS              RW   63
                                     *                          MEMMORY AND S15 IS ZERO         RW   64
                                     *                          AND IF REQ. IS NOT              RW   65
                                     *                         INDIRECT, THEN ADD 2             RW   66
    25                               *                          TO THE RETURN                   RW   67
                P0015  E108                LDQ- VID,I                                **MSOS 4.0 RW   68
                P0016  0FC5                ALS  5                                               RW   69
                P0017  A005                AND- LPMSK+3       MASK OFF CLASS CODE               RW   70
                P0018  09FD                INA  -MMCODE       IS THIS A MASS STORAGE DEVICE     RW   71
    30          P0019  0119                SAN   THDSTR-*-1   SKIP IF NOT                       RW   72
                P001A  0178                SQM  THDSTR-*-1                                      RW   73
                P001B  E105                LDQ- VPTR,I                               **MSOS 4.0 RW   74
                P001C  C622                LDA- (ZERO),Q                             **MSOS 4.0 RW   75
                P001D  A031                AND- ONEBIT+14                            **MSOS 4.0 RW   76
    35          P001E  0112                SAN  R2-*-1                               **MSOS 4.0 RW   77
                P001F  C205                LDA- PS,Q                                 **MSOS 4.0 RW   78
                P0020  0132                SAM  THDSTR-*-1                           **MSOS 4.0 RW   79
                P0021  D103          R2    RAO- VR,I                                 **MSOS 4.0 RW   80
                P0022  D103                RAO- VR,I                                            RW   81
    40          P0023  E107          THDSTR LDQ- VTMP,I                                         RW   82
                P0024  F000  7FFF X        ADQ  =XLOG2                                          RW   83
                P0026  0DFD                INQ  -2                                              RW   84
                P0027  0500                IIN                                                  RW   85
                                     *                         1-CARD DELETED                   RW   86
    45                               *                                                           RW   87
                                     *          GET NEXT ENTRY FROM THREAD                       RW   88
                                     *                                                           RW   89
                P0028  4106          THDNXT STQ- VTPE,I          PRECEDING ENTRY SAVED          RW   90
                                     *                         10-CARDS DELETED                 RW   91
    50          P0029  E202                LDQ- PT,Q             NEXT ENTRY ON THREAD           RW   92
                P002A  0D00                INQ  0                                               RW   93
                P002B  0151                SQN  THD1-*-1                                        RW   94
                P002C  1808                JMP* RCTHD            THREAD END. GO THREAD          RW   95
                P002D  C622          THD1  LDA- (ZERO),Q       IF ENTRYS PRIORITY IS          RW   96
    55          P002E  A85A                AND* RPMASK           REQUESTS PRIORITY              RW   97
                P002F  9104                SUB- VPL,I            THEN GO THREAD REQ.            RW   98
                P0030  0133                SAM  RCTHD-*-1                                       RW   99
                P0031  E106                LDQ- VTPE,I                                          RW  100
                P0032  E202                LDQ- PT,Q                                            RW  101
```

```
P0033 18F4          JMP* THDNXT                                                  RW  102
                    *                                                            RW  103
                    *       THREAD NEXT ENTRY                                    RW  104
                    *                                                            RW  105
P0034 E106          RCTHD LDQ- VTPE,I        POINTER TO PREVIOUS ENTRY           RW  106
P0035 C202            LDA- PT,Q                                                  RW  107
P0036 E105            LDQ- VPTR,I            POINTER TO NEW LIST                 RW  108
P0037 6202            STA- PT,Q                                                  RW  109
P0038 0814            TRQ  A                                                     RW  110
P0039 E106            LDQ- VTPE,I                                                RW  111
P003A 6202            STA- PT,Q                                                  RW  112
P003B 0400            EIN                                                        RW  113
                    *             END OF THREADING                             RW  114
                    *           IF DEVICE BUSY, RELEASE VOLATILE                 RW  115
                    *                                                            RW  116
P003C E107            LDQ- VTMP,I            ACTUAL LU IN Q                      RW  117
                    *                                                            RW  118
                    *        IN CASE ALT. TO BE USED, THE                        RW  119
                    *          FOLLOWING CODE SUBSTITUTES IT.                    RW  120
                    *       IF NO ALT. AVAILABLE, REQ. REJECTED.                 RW  121
                    *                                                            RW  122
                    *                        1 CARD DELETED          62*1174     RW  123
P003D 5400 7FFF X     RTJ  ALTSUB                                                RW  124
P003F 0148            SQZ  ALT1-*-1                                              RW  125
P0040 1839            JMP* ALT3                                                  RW  126


                    *                                                            RW  128
P0041 4C2C          DWNMSG ALF  5,L,   DOWN                                      RW  129
P0042 2020
P0043 2044
P0044 4F57
P0045 4E20
P0046 7FFF X        ALOG1  ADC  LOG1                                             RW  130
P0047 7FFF X        ALOG1A ADC  LOG1A                              *465          RW  131
                    *                      1-CARD DELETED                        RW  132
                    *                      3 CARDS DELETED         62*1174       RW  133
                    *                                                            RW  134
P0048 0500          ALT1   IIN                                                   RW  135
P0049 E107            LDQ- VTMP,I          REQUESTED LOGICAL UNIT  62*1174       RW  136
P004A 0AFF            ENA  -0                                30*534              RW  137
P004B 6E3E            STA* (ALOG2),Q       CLEAR THREAD IN LOG2    30*534        RW  138
P004C CEF9            LDA* (ALOG1),Q                                             RW  139
P004D A02F            AND- H1000           CHECK BIT 12 OF LOG1 ENTRY            RW  140
P004E 0101            SAZ  1                  CHECK MSG. FLAG BIT                RW  141
P004F 1817            JMP* G01                                                   RW  142
P0050 C107            LDA- VTMP,I                                    62*1174     RW  143
P0051 5400 7FFF X     RTJ  CONVER                                                RW  144
P0053 E80B            LDQ* THREAD          IF REQUEST CURRENTLY BUSY COMPLETE  62*1174  RW  145
P0054 0141            SQZ  TODWNM          CURRENT REQUEST WITH ERROR AND OUTPUT RW  146
P0055 1811            JMP* G01             MESSAGE NEXT TIME LU REQUESTED        RW  147
P0056 68EB          TODWNM STA* DWNMSG+1   PUT LU IN MESSAGE                      RW  148
                    *                                                            RW  149
P0057 C000 4C20       LDA  =N$4C20         SET UP CP PRIORITY  30*531  ***MSOS4.0 RW  150
P0059 B0EF            EOR- $EF             SET UP CURRENT REQUEST PRIORITY       RW  151
P005A 6802            STA* DWN                                                   RW  152
P005B 54F4            RTJ- (AMONI)            OUTPUT LU DOWN MESSAGE             RW  153
```

```
P005C 0000          DWN    NUM  0          UPDATED WITH REQ CODE AND CURRENT PRIORITY     RW  154
P005D 0000                 ADC  0                                   30*531                RW  155
P005E 0000          THREAD NUM  0                                          62*1174       RW  156
P005F 18FC                 NUM  $18FC                                                    RW  157
P0060 0005                 NUM  5                                                        RW  158
P0061 0041 P               ADC  DWNMSG                                  ***MSOS4.0 RW  159
                    *                                                                    RW  160
P0062 E107          COMP   LDQ- VTMP,I                                     62*1174       RW  161
P0063 CEE2                 LDA* (ALOG1),Q                                                RW  162
P0064 B02F                 EOR- H1000       SET MESSAGE FLAG BIT                         RW  163
P0065 6EE0                 STA* (ALOG1),Q                                                RW  164
                    *                                                                    RW  165
P0066 E105          G01    LDQ- VPTR,I                                     62*1174       RW  166
P0067 C203                 LDA- 3,Q                                                      RW  167
P0068 A00F                 AND- LPMSK+13                                                 RW  168
P0069 B01F                 EOR- NZERO+13                                                 RW  169
P006A 6203                 STA- 3,Q         SET ERROR CODE IN REQUEST                    RW  170
P006B C201                 LDA- 1,Q                                     *MSOS V4.0 RW  171
P006C 0112                 SAN  ALT2     SKIP IF NONZERO COMP. ADDRESS  *MSOS V4.0 RW  172
P006D 6202                 STA- 2,Q      CLEAR REQUEST THREAD           *MSOS V4.0 RW  173
P006E 1E0A                 JMP* OUT      COMPLETE REQUEST               *MSOS V4.0 RW  174
P006F C622          ALT2   LDA- (ZERO),Q                                  **MSOS 4.0 RW  175
P0070 B032                 EOR- ONEBIT+15                                **MSOS 4.0 RW  176
P0071 6622                 STA- (ZERO),Q                                 **MSOS 4.0 RW  177
P0072 0500                 IIN  0                                                        RW  178
P0073 4804                 STQ* ESCHD                                                    RW  179
P0074 E203                 LDQ- 3,Q         ERROR WORD                                   RW  180
P0075 54F4                 RTJ- ($F4)                                                    RW  181
P0076 2000                 NUM  $2000       INDIRECT REQUEST(PART 1 TYPE)  **MSOS 4.0 RW  182
P0077 0000          ESCHD  NUM  0                                                        RW  183
P0078 14B9          OUT    JMP- (AREQXT)                                                 RW  184

P0079 EECD          ALT3   LDQ* (ALOG1A),Q      PHYSTB ADDRESS                          RW  186
P007A 0500                 IIN  0                                                        RW  187
P007B C205                 LDA- ELU,Q          GET LU ASSIGNED                         RW  188
P007C 011A                 SAN  RELESV-*-1  IF LU .NE. ZERO, EXIT VIA RELESV           RW  189
                    *                                                                    RW  190
                    *          PUT LU NUMBER IN EQUIPMENT TABLE                          RW  191
                    *                                                                    RW  192
P007D C107                 LDA- VTMP,I      REQUESTED LU                                RW  193
P007E 0400                 EIN  0                                                        RW  194
P007F 6205                 STA- ELU,Q                                                    RW  195
                    *                                                                    RW  196
                    *        SCHEDULE DRIVER                                             RW  197
                    *                                                                    RW  198
                    *                                                  **********  RW  199
P0080 0500                 IIN 0                                                         RW  200
P0081 4803                 STQ* RSCHD                                                    RW  201
                    *                                                  **********  RW  202
P0082 54F4                 RTJ- (AMONI)        INDIRECT SCHDLE REQUEST                 RW  203
P0083 2000                 NUM  $2000                                   ***MSOS4.0 RW  204
P0084 0000          RSCHD  ADC  0                                                        RW  205
P0085 0500                 IIN  0                                        *436       RW  206
P0086 0173                 SQM  GSK1A                                    *436       RW  207
P0087 14B9          RELESV JMP- (AREQXT)                                              RW  208
P0088 00F0          RPMASK NUM  $F0          REQUEST PRIORITY MASK                    RW  209
```

```
                P0089  0025 X          ALOG2  ADC  LOG2                                  30*534          RW      210
                                        *                                                                 RW      211
                                        *          CHECK THREAD FOR NON-ZERO ENTRY.                       RW      212
                                        *                                                                 RW      213
                P008A  F011             GSK1A  ADQ- LPMSK+15                                  **MSOS 4.0  RW      214
                P008B  0A00                    ENA  0                                          *436      RW      215
                P008C  6205                    STA- ELU,Q          CLEAR LU WORD OF PHYSTAB    *436      RW      216
                P008D  1B1D                    JMP* THD                                    **MSOS 4.0  RW      217
                P008E  0000             CKTHRD 000  0                 LOC. OF VOLATILE IN I             RW      218
                P008F  0500                    IIN  0                 PARAMETER LOC. IN Q               RW      219
                P0090  C4FF                    LDA- (I)                                                 RW      220
                P0091  A011                    AND- LPMSK+15       CLEAR BIT 15 OF Q FOR RETURN         RW      221
                P0092  64FF                    STA- (I)                                                 RW      222
                P0093  C202                    LDA- PT,Q                                                RW      223
                P0094  0114                    SAN  THDUSE-*-1        PARAMETERS                        RW      224
                P0095  0804                    SET  A              MARK THREAD IN USE        LJ         RW      225
                P0096  6202                    STA- PT,Q                                                RW      226
                P0097  0400                    EIN                                                      RW      227
                P0098  1CF5                    JMP* (CKTHRD)          RETURN IF THREAD LOC.=0           RW      228
                P0099  54BC             THDUSE RTJ- (ALUABS)                                 **MSOS 4.0  RW      229
                P009A  EEAC                    LDQ* (ALOG1A),Q     CHECK IF RETURN MUST BE INCREMENTED  RW      230
                P009B  C208                    LDA- 8,Q                                                 RW      231
                P009C  E108                    LDQ- VID,I                                  **MSOS 4.0  RW      232
                P009D  0FC5                    ALS  5                                                   RW      233
                P009E  A005                    AND- LPMSK+3                                             RW      234
                P009F  09FD                    INA  -MMCODE                                             RW      235
                P00A0  0119                    SAN  THD                                                 RW      236
                P00A1  0178                    SQM  THD                                                 RW      237
                P00A2  E105                    LDQ- VPTR,I                                 **MSOS 4.0  RW      238
                P00A3  C622                    LDA- (ZERO),Q       CHECK FOR D BIT SET      77*1922    RW      239
                P00A4  A031                    AND- ONEBIT+14                              **MSOS 4.0  RW      240
                P00A5  0112                    SAN  THDA-*-1                               **MSOS 4.0  RW      241
                P00A6  C205                    LDA- PS,Q                                   **MSOS 4.0  RW      242
                P00A7  0132                    SAM  THD-*-1                                **MSOS 4.0  RW      243
                P00A8  D103             THDA   RAO- VR,I                                   **MSOS 4.0  RW      244
                P00A9  D103                    RAO- VR,I                                                RW      245
                P00AA  C4FF             THD    LDA- (I)             SET CALLER Q -         **MSOS 4.0  RW      246
                P00AB  B032                    EOR- ONEBIT+15       AND EXIT               **MSOS 4.0  RW      247
                P00AC  64FF                    STA- (I)                                    **MSOS 4.0  RW      248
                P00AD  14B9                    JMP- (AREQXT)                               **MSOS 4.0  RW      249
                              0000 P           EQU  T2(T1),T4(T1),T6(T1),T0(T1)                         RW      250
                              0000 P
                              0000 P
                              0000 P
                P00AE                          END                                                      RW      251

                        61646B STORAGE USED          250 STATEMENTS      61 SYMBOLS
                             6400 ASSEMBLY         1.415 SECONDS       193 REFERENCES
```

COMPLETE REFERENCE MAP.

ALOG1	0046		4/36 L	4/45	5/11	5/13				
ALOG1A	0047		3/20	4/37 L	5/36	6/23				
ALOG2	0089		4/44	5/60 L						
ALTSUB	003E	*EXTERNAL*	2/23 X	4/25						
ALT1	0048		4/26	4/41 L						
ALT2	006F		5/21	5/24 L						
ALT3	0079		4/27	5/36 L						
ALUABS	00BC	ABSOLUTE	2/33 Q	3/14	6/22					
AMONI	00F4	ABSOLUTE	2/37 Q	4/59	5/53					
AREQXT	00B9	ABSOLUTE	2/33 Q	5/33	5/58	6/42				
CKTHRD	008E		2/19 E	3/13	6/11 L	6/21				
COMP	0062		5/10 L							
CONVER	0052	*EXTERNAL*	2/24 X	4/50						
DWN	005C		4/58	4/60 L						
DWNMSG	0041		4/31 L	4/54	5/08					
ELU	0005	ABSOLUTE	2/38 Q	5/38	5/45	6/09				
EREQST	0008	ABSOLUTE	2/38 Q							
ESCHD	0077		5/28	5/32 L						
GOI	0066		4/48	4/53	5/15 L					
GSK1A	008A		5/57	6/07 L						
H1000	002F	ABSOLUTE	2/25 Q	4/46	5/12					
I	00FF	-SYSTEM-	6/13	6/15	6/39	6/41				
LIBLU	00C2	ABSOLUTE	2/32 Q	3/11						
LOG1	0046	*EXTERNAL*	2/22 X	4/36						
LOG1A	0047	*EXTERNAL*	2/22 X	4/37						
LOG2	0089	*EXTERNAL*	2/22 X	3/41	5/60					
LPMSK	0002	ABSOLUTE	2/42 Q	3/28	5/17	6/07	6/14	6/27		
MMCODE	0002	ABSOLUTE	2/44 Q	3/29	6/28					
NZERO	0012	ABSOLUTE	2/40 Q	5/18						
ONEBIT	0023	ABSOLUTE	2/42 Q	3/34	5/25	6/33	6/40			
OUT	0078		5/23	5/33 L						
PS	0005	ABSOLUTE	2/35 Q	3/36	6/35					
PT	0002	ABSOLUTE	2/35 Q	3/50	3/59	4/08	4/10	4/13	6/16	6/19
RCTHD	0034		3/53	3/57	4/07 L					
RELESV	0087		5/39	5/58 L						
RPMASK	0088		2/20 E	2/60	3/55	5/59 L				
RSCHD	0084		5/51	5/55 L						
RW	0000		2/10 E	2/11 Q						
RWUSER	000F		3/10	3/13 L						
R1	0006		2/53	2/59 L						
R2	0021		3/35	3/38 L						
SAVLU	0012		2/19 E	3/12	3/15 L					
THD	00AA		6/10	6/29	6/30	6/36	6/39 L			
THDA	00A8		6/34	6/37 L						
THDNXT	0028		3/48 L	3/60						
THDSTR	0023		3/30	3/31	3/37	3/40 L				
THDUSE	0099		6/17	6/22 L						
THD1	002D		3/52	3/54 L						
THREAD	005E		4/51	5/05 L						
TODWNM	0056		4/52	4/54 L						
T0	0000		2/14 E	6/45 Q						
T1	0000		2/14 E	2/51 L	6/43	6/43	6/44	6/45		
T2	0000		2/15 E	6/43 Q						
T4	0000		2/16 E	6/43 Q						
T6	0000		2/17 E	6/44 Q						
VID	0008	ABSOLUTE	2/31 Q	3/26	6/25					
VPL	0004	ABSOLUTE	2/26 Q	3/04	3/56					

COMPLETE REFERENCE MAP.

VPTR	0005	ABSOLUTE	2/27 Q	3/32	4/09	5/15	6/31		
VR	0003	ABSOLUTE	2/26 Q	2/56	2/57	3/38	3/39	6/37	6/38
VTMP	0007	ABSOLUTE	2/29 Q	3/15	4/18	4/49	5/43		
			3/08	3/40	4/42	5/10			
VTPE	0006	ABSOLUTE	2/29 Q	3/48	3/58	4/07	4/12		
ZERO	0022	ABSOLUTE	2/41 Q	2/59	3/33	3/54	5/24	5/26	6/32

STORAGE ALLOCATION.

```
ADDRESS   LENGTH          BINARY CONTROL CARDS.

   0000     0071          NAM    PARAME      DECK-ID M03  MSOS 5.0          SUMMAR
   0071                   END

ENTRY POINT NAMES AND ADDRESSES.

        CABS   -- 0058     NABS   -- 0040     SABS   -- 0018
        LUABS  -- 0000     PARAME -- 0000
```

```
                                        NAM  PARAME       DECK-ID M03  MSOS 5.0          SUMMARY-110 PARAME     2
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                     PARAME     3
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                 PARAME     4
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                       PARAME     5


                                    *   PARAMETER CONVERSION ROUTINES                                PARAME     7
                          0000 P        ENT   PARAME                                                 PARAME     8
                          0000 P        EQU   PARAME(*)                                              PARAME     9


                          0000 P        ENT  LUABS,SABS,NABS,CABS                                    PARAME    12
                          0018 P
                          0040 P
                          0058 P
                          0001          EQU  PC(1),PS(5)                                             PARAME    13
                          0005
                          0003          EQU  PLU(3)                                                  PARAME    14
                          0002          EQU  LPMSK($2),NZERO($12),ZERO($22)                          PARAME    15
                          0012
                          0022
                          0023          EQU  ONEBIT($23)                                             PARAME    16
                          0004          EQU  PN(4)                                                   PARAME    17
                          00EB          EQU  ASYSDR($EB)                                             PARAME    18
                                    *                                                                PARAME    19
                                    *                                                                PARAME    20
                                    *        ALL ROUTINES ARE ENTERED WITH                           PARAME    21
                                    *        PARAMETER LIST LOCATION IN Q.                           PARAME    22
                                    *                                                                PARAME    23
                                    *        ALL ROUTINES EXIT WITH THE TRANSLATED                   PARAME    24
                                    *        PARAMETER IN Q.                                         PARAME    25
                                    *        IN ADDITION, SABS EXITS WITH THE LOCATION               PARAME    26
                                    *        OF S IN THE A REGISTER.                                 PARAME    27
                                    *                                                                PARAME    28
                                    *                          **********                            PARAME    29
                                    *                                                                PARAME    30
                                    *        LOGICAL UNIT TO ABSOLUTE                                PARAME    31
                                    *                                                                PARAME    32
                P0000     0000      LUABS NUM  0                                                     PARAME    33
                P0001     0500            IIN  0                                                     PARAME    34
                P0002     4815            STQ* TLUABS          PARAMETER LOC TO TEMP                 PARAME    35
                P0003     C203            LDA- PLU,Q                                                 PARAME    36
                P0004     A00E            AND- LPMSK+12                                              PARAME    37
                P0005     0C00            ENQ  0                                                     PARAME    38
                P0006     0FE6            LLS  6               A PARAMETER TO Q                      PARAME    39
                P0007     0F46            ARS  6                         LU IN A9-0                  PARAME    40
                P0008     1A01            JMP* LUTV,Q                                                PARAME    41
                P0009     1809      LUTV  JMP* A0                                                    PARAME    42
                P000A     1802            JMP* LUA1                                                  PARAME    43
                P000B     1804            JMP* LUA2                                                  PARAME    44
                P000C     E80B      LUA1  LDQ* TLUABS                    FIX                         PARAME    45
                                    *       BIT 15 OF A SET, ALWAYS DO 16 BIT ADDRESSING      ***MSOS4.0 PARAME    46
                P000D     0834      LU2   AAQ  A                                                    PARAME    47
                P000E     1802            JMP* LU1A                                 *4.0/77*1887     PARAME    48
                                    *                                                                PARAME    49
                                    *   PARAMETER A=2, PICK UP CONTENTS OF LOC A9-0                  PARAME    50
                                    *                                                                PARAME    51
```

```
                P000F  A00C          LUA2  AND- $C          MASK OFF ALL EXCEPT $3FF      *4.0/77*1887  PARAME   52
                P0010  0822          LU1A  TRA  Q                                       *4.0/77*1887  PARAME   53
              5 P0011  C622                LDA- (ZERO),Q                                               PARAME   54
                P0012  0822          A0    TRA  Q             A=0, A9-0 IS ACTUAL UNIT                 PARAME   55
                P0013  0161                SQP  LU3-*-1                                                PARAME   56
                P0014  F011                ADQ- LPMSK+15                                               PARAME   57
                P0015  0400          LU3   EIN  0                                                      PARAME   58
             10 P0016  1CE9                JMP* (LUABS)                                                PARAME   59
                P0017  0000          TLUABS 0   0                                                      PARAME   60
                                     *                                                                 PARAME   61
                                     *                                                                 PARAME   62
                                     ***          STARTING ADDRESS TO ABSOLUTE                         PARAME   63
             15                      **                                                                PARAME   64
                P0018  0000          SABS  0    0                                                      PARAME   65
                P0019  0500                IIN  0                                                      PARAME   66
                P001A  48FC                STQ* SL                                                     PARAME   67
                P001B  C622                LDA- (ZERO),Q     CHECK D BIT                 ***MSOS4.0 PARAME   68
             20 P001C  A031                AND- ONEBIT+14                                ***MSOS4.0 PARAME   69
                P001D  0106                SAZ  S01          SKIP IF NO D BIT            ***MSOS4.0 PARAME   70
                P001E  0814                TRQ  A            S IS ABSOLUTE               ***MSOS4.0 PARAME   71
                P001F  0905                INA  5                                        ***MSOS4.0 PARAME   72
                P0020  6800  FFF5          STA  SL           SL=ADDRESS OF S PARAM       ***MSOS4.0 PARAME   73
             25 P0022  ECF4                LDQ* (SL)         Q=S PARAM                   ***MSOS4.0 PARAME   74
                P0023  1819                JMP* S7                                       ***MSOS4.0 PARAME   75
                P0024  C622          S01   LDA- (ZERO),Q     CHECK X PARAMETER           ***MSOS4.0 PARAME   76
                P0025  A02B                AND- ONEBIT+B                 IF X=1,                     PARAME   77
                P0026  0101                SAZ  S1-*-1                                                 PARAME   78
             30 P0027  0814                TRQ  A                        THEN L=P                      PARAME   79
                P0028  6817          S1    STA* L                        OTHERWISE L=0                 PARAME   80
                P0029  0121                SAP  S2-*-1                   15 BIT                        PARAME   81
                P002A  B032                EOR- ONEBIT+15                ARITHMETIC                    PARAME   82
                P002B  E205          S2    LDQ- PS,Q            GET STARTING ADDRESS                 PARAME   83
             35 P002C  0162                SQP  S3-*-1          IF S15 = 1                           PARAME   84
                P002D  0834                AAQ  A               THEN (A)=L+(P+5)                     PARAME   85
                P002E  1803                JMP* S4                                                   PARAME   86
                P002F  C8E7          S3    LDA* SL              OTHERWISE S15=0, (A)=P+5             PARAME   87
                P0030  0905                INA  5                                                    PARAME   88
             40 P0031  A011          S4    AND- LPMSK+15                                             PARAME   89
                P0032  68E4                STA* SL              THE REST INVOLVES                    PARAME   90
                P0033  CCE3                LDA* (SL)            15 BIT ARITHMETIC                    PARAME   91
                P0034  0131                SAM  S5-*-1                                               PARAME   92
                P0035  8032                ADD- ONEBIT+15                                            PARAME   93
             45 P0036  E809          S5    LDQ* L                                                    PARAME   94
                P0037  0161                SQP  S6-*-1                                               PARAME   95
                P0038  F011                ADQ- LPMSK+15                                             PARAME   96
                P0039  0832          S6    AAQ  Q                                                    PARAME   97
                P003A  0161                SQP  S7-*-1                                               PARAME   98
             50 P003B  F011                ADQ- LPMSK+15                                             PARAME   99
                P003C  C8DA          S7    LDA* SL                                                   PARAME  100
                                     *                          EXIT - A = ADDR OF S PARAMETER         PARAME  101
                                     *                                 Q=S PARAMETER                   PARAME  102
                P003D  0400                EIN  0                                                    PARAME  103
             55 P003E  1CD9                JMP* (SABS)                                               PARAME  104
                P003F  0000          L     0    0                                                    PARAME  105
                                     *                                                                 PARAME  106
                                     *                                                                 PARAME  107
                                     **           NUMBER OF WORDS TO ABSOLUTE                          PARAME  108
```

```
                                **                                                                  PARAME  109
         P0040  0000            NABS    0    0                                                     PARAME  110
    5    P0041  0500                    IIN  0                                                     PARAME  111
         P0042  48D4                    STQ* TNABS          SAVE PARAMETER LIST LOC                PARAME  112
         P0043  C622                    LDA- (ZERO),Q       CHECK D BIT                ***MSOS4.0 PARAME  113
         P0044  A031                    AND- ONEBIT+14                                 ***MSOS4.0 PARAME  114
         P0045  0102                    SAZ  N1             SKIP IF NO D BIT           ***MSOS4.0 PARAME  115
   10    P0046  E204                    LDQ- PN,Q           Q=N PARAMETER              ***MSOS4.0 PARAME  116
         P0047  180F                    JMP* N2                                        ***MSOS4.0 PARAME  117
         P0048  C622            N1      LDA- (ZERO),Q       GET FIRST WORD             ***MSOS4.0 PARAME  118
         P0049  E204                    LDQ- PN,Q                       GET PARMETER N             PARAME  119
         P004A  0169                    SQP  NOWXT-*-1                  +N=NO. OF WDS              PARAME  120
   15    P004B  A02B                    AND- ONEBIT+8                   CHECK FOR X SET            PARAME  121
         P004C  0103                    SAZ  NOW1-*-1                   ZERO=IN. ABS.              PARAME  122
         P004D  C8C9                    LDA* TNABS                                                 PARAME  123
         P004E  0121                    SAP  NOW1-*-1                   15 BIT                     PARAME  124
         P004F  B021                    EOR- NZERO+15                   ARITHMETIC                 PARAME  125
   20    P0050  0832            NOW1    AAQ  Q                                                     PARAME  126
         P0051  0161                    SQP  1                                         **MSOS 4.0 PARAME  127
         P0052  F011                    ADQ- LPMSK+15                                  **MSOS 4.0 PARAME  128
         P0053  E622                    LDQ- (ZERO),Q                   GET IT                     PARAME  129
         P0054  0161            NOWXT   SQP  N2-*-1                                                PARAME  130
   25    P0055  F011                    ADQ- LPMSK+15                                              PARAME  131
         P0056  0400            N2      EIN  0                                                     PARAME  132
         P0057  1CE8                    JMP* (NABS)         EXIT - Q= N PARAMETER                  PARAME  133
                                *                                                                  PARAME  134
                                ***                                                                PARAME  135
   30                           **          COMPLETION ADDRESS TO ABSOLUTE                         PARAME  136
                                **                                                                 PARAME  137
         P0058  0000            CABS    0    0                                                     PARAME  138
         P0059  0500                    IIN  0                                                     PARAME  139
         P005A  48BC                    STQ* TCABS                      SAVE PARAM LOC             PARAME  140
   35    P005B  C622                    LDA- (ZERO),Q       CHECK D BIT                ***MSOS4.0 PARAME  141
         P005C  A031                    AND- ONEBIT+14                                 ***MSOS4.0 PARAME  142
         P005D  0102                    SAZ  C01                                       ***MSOS4.0 PARAME  143
         P005E  E201                    LDQ- PC,Q           Q=C PARAMETER              ***MSOS4.0 PARAME  144
         P005F  1810                    JMP* C2                                        ***MSOS4.0 PARAME  145
   40    P0060  C201            C01     LDA- PC,Q           GET C PARAMETER            ***MSOS4.0 PARAME  146
         P0061  0139                    SAM  CA1-*-1                    -C=SYS DIR REF             PARAME  147
         P0062  C622                    LDA- (ZERO),Q                   GET FIRST WORD             PARAME  148
         P0063  A02B                    AND- ONEBIT+8                   CHECK X                    PARAME  149
         P0064  E201                    LDQ- PC,Q                       GET C                      PARAME  150
   45    P0065  0107                    SAZ  CAXT-*-1                   EXIT                       PARAME  151
         P0066  C8B0                    LDA* TCABS                      GET ADDRESS                PARAME  152
         P0067  0131                    SAM  C1-*-1                                                PARAME  153
         P0068  8032                    ADD- ONEBIT+15                  15 BIT ARITH.              PARAME  154
         P0069  0832            C1      AAQ  Q                                                     PARAME  155
   50    P006A  1803                    JMP* CAXT                                                  PARAME  156
         P006B  80EB            CA1     ADD- ASYSDR                     SYS DIR INDEX              PARAME  157
         P006C  0822                    TRA  Q                                                     PARAME  158
         P006D  0161            CAXT    SQP  C2-*-1                                                PARAME  159
         P006E  F011                    ADQ- LPMSK+15                                              PARAME  160
   55    P006F  0400            C2      EIN  0                                                     PARAME  161
         P0070  1CE7                    JMP* (CABS)                     BACK TO SENDER             PARAME  162
                                *                          Q= COMPLETION ADDRESS                   PARAME  163
                     0017 P             EQU  TCABS(TLUABS) TNABS(TLUABS),SL(TLUABS)                PARAME  164
                     0017 P
```

```
                    0017 P
P0071                       END                                    PARAME   165

      60202B STORAGE USED          164 STATEMENTS       43 SYMBOLS
             6400 ASSEMBLY       0.960 SECONDS        132 REFERENCES
```

COMPLETE REFERENCE MAP.

ASYSDR	00EB	ABSOLUTE	2/26 Q	4/51						
A0	0012		2/50	3/06 L						
CABS	0058		2/16 E	4/32 L	4/56					
CAXT	006D		4/45	4/50	4/53 L					
CA1	006B		4/41	4/51 L						
C01	0060		4/37	4/40 L						
C1	0069		4/47	4/49 L						
C2	006F		4/39	4/53	4/55 L					
L	003F		3/31	3/45	3/56 L					
LPMSK	0002	ABSOLUTE	2/21 Q	3/08	3/47	4/22	4/54			
			2/45	3/40	3/50	4/25				
LUABS	0000		2/14 E	2/41 L	3/10					
LUA1	000C		2/51	2/53 L						
LUA2	000F		2/52	2/60 L						
LUTV	0009		2/49	2/50 L						
LU1A	0010		2/56	3/04 L						
LU2	000D		2/55 L							
LU3	0015		3/07	3/09 L						
NABS	0040		2/15 E	4/04 L	4/27					
NOWXT	0054		4/14	4/24 L						
NOW1	0050		4/16	4/18	4/20 L					
NZERO	0012	ABSOLUTE	2/21 Q	4/19						
N1	0048		4/09	4/12 L						
N2	0056		4/11	4/24	4/26 L					
ONEBIT	0023	ABSOLUTE	2/24 Q	3/28	3/44	4/15	4/43			
			3/20	3/33	4/08	4/36	4/48			
PARAME	0000		2/10 E	2/11 Q						
PC	0001	ABSOLUTE	2/18 Q	4/38	4/40	4/44				
PLU	0003	ABSOLUTE	2/20 Q	2/44						
PN	0004	ABSOLUTE	2/25 Q	4/10	4/13					
PS	0005	ABSOLUTE	2/18 Q	3/34						
SABS	0018		2/14 E	3/16 L	3/55					
SL	0017		3/18	3/24	3/25	3/38	3/41	3/42	3/51	4/59 Q
S01	0024		3/21	3/27 L						
S1	0028		3/29	3/31 L						
S2	002B		3/32	3/34 L						
S3	002F		3/35	3/38 L						
S4	0031		3/37	3/40 L						
S5	0036		3/43	3/45 L						
S6	0039		3/46	3/48 L						
S7	003C		3/26	3/49	3/51 L					
TCABS	0017		4/34	4/46	4/58 Q					
TLUABS	0017		2/43	2/53	3/11 L	4/58	4/58	4/59		
TNABS	0017		4/06	4/17	4/58 Q					
ZERO	0022	ABSOLUTE	2/22 Q	3/19	4/07	4/23	4/42			
			3/05	3/27	4/12	4/35				

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

0000 04D1 NAM SPACE DECK-ID M29 MSOS 5.0 SUMMARY
04D1 END

BLOCKS	TYPE	ADDRESS	LENGTH
SPACE	PROGRAM*	0000	04D1
MMBUFF	LOCAL	0351	0003
BUF2A	LOCAL	045C	0060

ENTRY POINT NAMES AND ADDRESSES.

ALCLGH -- 04BC SPACE -- 0000 T10 -- 0000
AREAC -- 001A STMSV4 -- 04CD T17 -- 0000

EXTERNAL SYMBOLS.

ADRFMS	CKTHRD	E17811	LOBDTB	NUMFS7	N8	P18MXP	SYSYER
AUTFA	DMICOD	FSLIST	LOG1A	NUMFS8	N9	P18PGA	TBLADR
AUTFB	DTIMER	F10336	LSIZV4	N1	OUTPUT	RDPTV4	TDFUNC
AUTF9	D15721	F17811	LVLSTR	N10	OUTPV4	REL	TMRTYP
BEGLU1	EFLOCK	H15721	MIBX	N11	O10336	RPMASK	UBPROT
BEGLU2	EMPSRT	IDLE	MPFLAG	N12	O1572	SAVLU	UPBDTB
BEGLU3	ENDOV4	INPTV4	NOG30A	N13	O15721	SCH	UPTOD
BEGLU4	EQ3644	IUP	NUMFS0	N14	PCORE	SPACE4	
BEGLU5	E10336	JBFLV4	NUMFS1	N15	PROTEC	SPCEV4	
BEGLU6	E1572	JOBENT	NUMFS2	N2	PSIZV4	SYFAIL	
BEGLU7	E1572F	K65T10	NUMFS3	N4	PTNALC	SYSDAY	
BEGLU8	E15721	LBPROT	NUMFS4	N5	PTNREL	SYSID	
CALTHD	E1573	LEND	NUMFS5	N6	P18ADD	SYSLVL	
CCP	E15761	LIBEDT	NUMFS6	N7	P18ECM	SYSMON	

```
                        NAM  SPACE        DECK-ID M29  MSOS 5.0            SUMMARY-122 SPACE132    1
                    *   SPACE REQUEST PROCESSOR, ALLOCATABLE SPACE AND RESTART          SPACE      3
                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                       SPACE      4
                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                    SPACE      5
                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                         SPACE      6


0000 P              ENT   SPACE                                                         SPACE      8
0000 P              EQU   SPACE(*)                                                     SPACE      9


                    ************************************************************************ SPACE     12
                    *                        ENTRY POINTS                                    SPACE     13
                    ************************************************************************ SPACE     14
0000 P              ENT  T10          SPACE REQUEST PROCESSOR                               SPACE     15
04CD P              ENT  STMSV4       START OF SPACE PROGRAM                                SPACE     16
0000 P              ENT  T17          PARTITION CORE REQUEST PROCESSOR                      SPACE     17
001A P              ENT  AREAC        TOTAL LENGTH OF ALLOCATABLE                           SPACE     18
04BC P              ENT  ALCLGH       ALLOCATABLE CORE LENGTH TABLE                         SPACE     19
                    ************************************************************************ SPACE     20
                    *                        EXTERNALS                                       SPACE     21
                    ************************************************************************ SPACE     22
                        EXT  UBPROT       CONTAINS UPPER BOUND REGISTER DATA    116*4381 SPACE132    2
                        EXT  LBPROT       CONTAINS LOWER BOUND REGISTER DATA    116*4381 SPACE132    3
                        EXT  UPBDTB       UPPER BOUND REGISTER DATA TABLE BASE  116*4381 SPACE132    4
                        EXT  LOBDTB       LOWER BOUND REGISTER DATA TABLE BASE  116*4381 SPACE132    5
                        EXT  CCP          CURRENT CONTROL POINT                 116*4381 SPACE132    6
                        EXT  SYFAIL       SYSTEM FAILURE ROUTINE                122*4381 SPACE132    7
                        EXT  ENDOV4       ADDRESS OF LAST LOCATION IN PART 0    122*4381 SPACE132    8
                        EXT  CKTHRD       CHECK THREAD FOR NON-ZERO ENTRY(RW SUB.)       SPACE     23
                        EXT  SAVLU        ENTRY IN RW PROGRAM FOR SPACE PROCESSOR       SPACE     24
                        EXT  RPMASK       REQUEST PRIORITY MASK                         SPACE     25
                        EXT  LVLSTR       LEVEL START TABLE                             SPACE     26
                        EXT  LEND         LOCATION CONTAINING END OF ALLOCATABLE        SPACE     27
                        EXT  CALTHD       LOCATION CONTAINING NO. OF AVAIL ALLOCATABLE  SPACE     28
                        EXT  DTIMER       DIAGNOSTIC TIMER PROGRAM                      SPACE     29
                        EXT  IDLE         IDLE PROGRAM                                  SPACE     30
                        EXT  MPFLAG       POINTER TO EXTENDED INTRPT STACK    MP MSOS   SPACE     31
                        EXT  DMICOD       DEFINE MICRO-INTRPT CODE            MP MSOS   SPACE     32
                        EXT  TBLADR       ADT TABLE ADDRESS                   MP MSOS   SPACE     33
                        EXT  EMPSRT       RESET/START FUNCTION CODE           MP MSOS   SPACE     34
                        EXT  UPTOD        TIME OF DAY PROGRAM              **MSOS 4.1** SPACE     35
                        EXT  E15761       1576-1 BASIC W,E,S WORD - FUNCTION             SPACE     36
                        EXT  H15721       1572-1 HISTORY TABLE             **MSOS 4.1** SPACE     37
                        EXT  D15721       1572-1 BASIC W,E,S WORD - DATA   **MSOS 4.1** SPACE     38
                        EXT  E15721       1572-1 BASIC W,E,S WORD - FUNCTION**MSOS 4.1** SPACE   39
                        EXT  E1573        1573 BASIC W,E,S WORD            **MSOS 4.1** SPACE     40
                        EXT  01572        1572 OSCILLATOR FREQ./CLOCK FREQ. **MSOS 4.1** SPACE   41
                        EXT  E1572F       FUNCTION CODE TO ENABLE 1572     **MSOS 4.1** SPACE     42
                        EXT  E1572        1572 BASIC W,E,S WORD            **MSOS 4.1** SPACE     43
                        EXT  EQ3644       FUNCTION CODE FOR COMM. MUX      **MSOS 4.1** SPACE     44
                        EXT  E10336       10336-1 W,E,S WORD                            SPACE     45
                        EXT  O10336       10336-1 CLOCK REGISTER VALUE                  SPACE     46
                        EXT  F10336       ENABLE 10336-1                                SPACE     47
                        EXT  TMRTYP       TIMER TYPE DESIGNATOR            **MSOS 4.1** SPACE     48
                        EXT  LOG1A        TABLE OF P.D.T. ADDRESSES        **MSOS 4.1** SPACE     49
                        EXT  E17811       1781-1 W.E.S.                                 SPACE     50
```

```
                EXT  F17811          1781-1 INITIAL FUNCTION                                SPACE     51
                EXT  JOBENT          INDEX TO JOBENT DIRECTORY ENTRY                        SPACE     52
                EXT  LIBEDT          INDEX TO LIBEDT DIRECTORY ENTRY                        SPACE     53
                EXT  PROTEC          INDEX TO PROTEC DIRECTORY ENTRY                        SPACE     54
                EXT  SYSLVL          SYSTEM LEVEL (*S STATEMENT)                            SPACE     55
                EXT  K65T10          ENTRY TO PARTITION CORE DRIVER (PRTCDR)                SPACE     56
                EXT  IUP             STANDARD INPUT (TRVEC)                                 SPACE     57
                EXT  INPTV4          INPUT UNIT FOR JOB PROCESSOR (TRVEC)                   SPACE     58
                EXT  AUTF9           AUTOLOAD STD INPUT (TRVEC)                             SPACE     59
                EXT  AUTFA           AUTOLOAD STD PUNCH (TRVEC)                             SPACE     60
                EXT  AUTFB           AUTOLOAD STD LIST  (TRVEC)                             SPACE     61
                EXT  N1,N2,N4,N5,N6,N7,N8,N9,N10,N11,N12,N13,N14,N15 **MSOS 4.1**           SPACE     62
                EXT  LSIZV4          OVERLAY LENGTH OF LIBEDT              **MSOS 4.0       SPACE     63
                EXT  PSIZV4          OVERLAY LENGTH OF PROTECT PROCESSOR **MSOS 4.0          SPACE     64
                EXT  JBFLV4                                                                 SPACE     65
                EXT  EFLOCK          LOCK OUT LOGGER FLAG                **MSOS 4.1**       SPACE     66
                EXT  MIBX            LOCK OUT MIPRO                                         SPACE     67
                EXT  TDFUNC          TIME/DATE FUNCTION ORDINAL          **MSOS 4.1**       SPACE     68
                EXT  SYSMON          MONTH SYSTEM WAS LAST BUILT         **MSOS 4.1**       SPACE     69
                EXT  SYSDAY          DAY   SYSTEM WAS LAST BUILT         **MSOS 4.1**       SPACE     70
                EXT  SYSYER          YEAR  SYSTEM WAS LAST BUILT         **MSOS 4.1**       SPACE     71
                EXT  SYSID           SYSTEM IDENTIFICATION BUFFER        **MSOS 4.1**       SPACE     72
                EXT  FSLIST          START OF FILE SPACE LIST            **MSOS 4.1**       SPACE     73
                EXT  ADRFMS          BEGINNING OF FILE SPACE-LIB. UNIT **MSOS 4.1**         SPACE     74
                EXT  BEGLU1          BEGINNING OF FILE SPACE-UNIT 1      **MSOS 4.1**       SPACE     75
                EXT  BEGLU2          BEGINNING OF FILE SPACE-UNIT 2      **MSOS 4.1**       SPACE     76
                EXT  BEGLU3          BEGINNING OF FILE SPACE-UNIT 3      **MSOS 4.1**       SPACE     77
                EXT  BEGLU4          BEGINNING OF FILE SPACE-UNIT 4      **MSOS 4.1**       SPACE     78
                EXT  BEGLU5          BEGINNING OF FILE SPACE-UNIT 5      **MSOS 4.1**       SPACE     79
                EXT  BEGLU6          BEGINNING OF FILE SPACE-UNIT 6      **MSOS 4.1**       SPACE     80
                EXT  BEGLU7          BEGINNING OF FILE SPACE-UNIT 7      **MSOS 4.1**       SPACE     81
                EXT  BEGLU8          BEGINNING OF FILE SPACE-UNIT 8      **MSOS 4.1**       SPACE     82
                EXT  NUMFS0          LENGTH    OF FILE SPACE-LIB. UNIT **MSOS 4.1**         SPACE     83
                EXT  NUMFS1          LENGTH    OF FILE SPACE-UNIT 1      **MSOS 4.1**       SPACE     84
                EXT  NUMFS2          LENGTH    OF FILE SPACE-UNIT 2      **MSOS 4.1**       SPACE     85
                EXT  NUMFS3          LENGTH    OF FILE SPACE-UNIT 3      **MSOS 4.1**       SPACE     86
                EXT  NUMFS4          LENGTH    OF FILE SPACE-UNIT 4      **MSOS 4.1**       SPACE     87
                EXT  NUMFS5          LENGTH    OF FILE SPACE-UNIT 5      **MSOS 4.1**       SPACE     88
                EXT  NUMFS6          LENGTH    OF FILE SPACE-UNIT 6      **MSOS 4.1**       SPACE     89
                EXT  NUMFS7          LENGTH    OF FILE SPACE-UNIT 7      **MSOS 4.1**       SPACE     90
                EXT  NUMFS8          LENGTH    OF FILE SPACE-UNIT 8      **MSOS 4.1**       SPACE     91
                EXT  OUTPUT          SWAP ROUTINE WRITE REQUEST (DCORE)                     SPACE     92
                EXT  SPACE4          SPACE REQUEST TO UNSWAP    (DCORE)                     SPACE     93
                EXT  NOG30A          SWAP ROUTINE READ REQUEST  (DCORE)                     SPACE     94
                EXT  REL             RELEASE ROUTINE            (DCORE)                     SPACE     95
                EXT  SCH             SCHEDULE ROUTINE           (DCORE)                     SPACE     96
                EXT  PTNALC          SCHEDULE PRTCDR            (PRTCDR)                    SPACE     97
                EXT  PTNREL          RELEASE PRTCDR             (PRTCDR)                    SPACE     98
                EXT  SPCEV4          PRT 16 PARTITION CORE REQ. (PRTCDR)                    SPACE     99
                EXT  RDPTV4          PRT 16 SWAP AREA READ REQ. (PRTCDR)                    SPACE    100
                EXT  OUTPV4          PRT 16 SWAP AREA WRITE REQ.(PRTCDR)                    SPACE    101
                EXT  PCORE           PHYSTAB FOR CORE DRIVER    (SYSDAT)                    SPACE    102
                EXT  P18ECM          POINTER TO ECM DRIVER  (SYSDAT)                        SPACE    103
                EXT  P18PGA          PAGE FILE ADDRESS                                      SPACE    104
                EXT  P18ADD          PAGE MEMORY ADDRESS                                    SPACE    105
00F7            EQU  LOCORE($F7)     SYSTEM LOW CORE DATA                  116*4381 SPACE132    9
00F6            EQU  HICORE($F6)     SYSTEM HIGH CORE DATA                 116*4381 SPACE132   10
```

```
                        EXT  P18MXP      MAXIMUM PAGE                                    SPACE   106
5                       ********************************************************************* SPACE   108
                        *                EQUIVALENCES                                     SPACE   109
                        ********************************************************************* SPACE   110
                0001    LUCORE  EQU  LUCORE(1)    LOGICAL UNIT OF CORE ALLOCATOR          SPACE   111
                0003    VR      EQU  VR(3)        RETURN IN VOLATILE                      SPACE   112
10              0004    VPL     EQU  VPL(4)       PRIORITY IN VOLATILE                    SPACE   113
                0022    ZERO    EQU  ZERO($22)    ZERO                                    SPACE   114
                0023    ONEBIT  EQU  ONEBIT($23)                                          SPACE   115
                0007    VTMP    EQU  VTMP(7)      TEMP IN VOLATILE                        SPACE   116
                0002    LPMSK   EQU  LPMSK(2)                                             SPACE   117
15              00F4    AMONI   EQU  AMONI($F4)                                          SPACE   118
                0025    FOUR    EQU  FOUR($25)                                          SPACE   119
                00EB    SYDIR   EQU  SYDIR($EB)                                         SPACE   120
```

```
                                *                                                    SPACE   122
                                *       RW REQUEST PROCESSOR MUST BE PRESENT         SPACE   123
                                *       FOR OPERATION OF THIS MODULE.                SPACE   124
                                *                                                    SPACE   125
                                *       LUCORE MUST BE EQUATED TO THE LOGICAL        SPACE   126
                                *       UNIT ASSIGNED TO THE CORE ALLOCATOR.         SPACE   127
                                                                                     SPACE   128
                     0000 P     T17     EQU  T17(*)   Part. core req.=17/SPACE=10 **MSOS 4.0 SPACE 129
P0000 0822                      T10     TRA  Q        from Volatile block in MONI    SPACE   130
P0001 C108                              LDA- 8,I                     **MSOS 4.0 SPACE 131
P0002 0133                              SAM  COR1     SKIP IF INDIRECT REQ **MSOS 4.0 SPACE 132
P0003 0A05                              ENA  5          INCREMENT RETURN ADDRESS     SPACE   133
                                *                             FOR DIRECT             SPACE   134
P0004 8103                              ADD- VR,I                CALL                SPACE   135
P0005 6103                              STA- VR,I                                    SPACE   136
P0006 C622                      COR1    LDA- (ZERO),Q   GET REQUEST PRIORITY         SPACE   137
P0007 A400 7FFF X                       AND  RPMASK                                  SPACE   138
P0009 6104                              STA- VPL,I    Req. Priority                  SPACE   139
P000A 5400 7FFF X                       RTJ  CKTHRD     CHK FOR ZERO THREAD LOC.     SPACE   140
P000C C107                              LDA- VTMP,I   CHECK REQ CODE      **MSOS 4.0 SPACE 141
P000D 09F5                              INA  -10                         **MSOS 4.0 SPACE 142
P000E 0102                              SAZ  CORZ     SPACE REQUEST (core request) **MSOS 4.0 SPACE 143
P000F 1400 7FFF X                       JMP  K65T10   A PARTITIONED REQ  **MSOS 4.0 SPACE 144
P0011 0C01                      CORZ    ENQ  LUCORE                      **MSOS 4.0 SPACE 145
P0012 1400 7FFF X                       JMP  SAVLU      SET UP LU FOR ALLOCATOR      SPACE   146

P0014 0C01                      TOIDLE  ENQ  1        ENTER TIME/DATE Q CODE **MSOS 4.1** SPACE 148
                                        SCHDLE (TDFUNC),4                      **MSOS 4.1** SPACE 149
P0015 54F4
P0016 1204
P0017 FFFF X
P0018 1400 7FFF X                       JMP+ IDLE     GO TO IDLE LOOP          **MSOS 4.1** SPACE 150

                                *************************************************************** SPACE 152
P001A 0000                      AREAC   ADC  0        TOTAL LENGTH OF ALLOCATABLE CORE        SPACE 153
P001B FFFF                              ADC  ($7FFF)  THREAD                                  SPACE 154
                                *************************************************************** SPACE 155
```

Req 10 = space req
17 Part. core

SAVLU back in R/W processor

Referenced by Sysdat?

```
                                *     THIS IS THE RESTART ROUTINE.    ITS PURPOSE IS -                    SPACE   157
                                *                                                                       SPACE   158
                                *     1.  SET UP THE CORE ALLOCATION TABLE                              SPACE   159
                                *     2.  PROTECT AND UNPROTECT APPROPRIATE CORE LOCATIONS              SPACE   160
                                *     3.  SET UP THE SYSTEM DIRECTORY ENTRY OF CERTAIN JOB              SPACE   161
                                *         PROCESSOR MODULES                                             SPACE   162
                                *     4.  START THE SYSTEM TIMER, AND INITIATE THE DIAGNOSTIC           SPACE   163
                                *         TIMER AND TIME-OF-DAY PROGRAMS                                SPACE   164
                                *     5.  PRINT THE SYSTEM PSR LEVEL MESSAGE                            SPACE   165
                                *     6.  REQUEST THAT THE PROGRAM PROTECT SWITCH BE ENABLED            SPACE   166
                                *         IF IT IS NOT                                                  SPACE   167
                                *     7.  PRINT THE SYSTEM IDENTIFICATION                               SPACE   168
                                *     8.  PRINT THE SYSTEM CORE SIZE MODE                               SPACE   169
                                *     9.  PERFORM A VALIDITY CHECK ON THE SYSTEM FILES (IF ANY)         SPACE   170
                                *     10. INITIATE A REQUEST FOR THE TIME AND DATE                      SPACE   171
                                *     11. TRANSFER CONTROL TO THE SYSTEM IDLE LOOP                      SPACE   172

                                *     SET UP THE CORE ALLOCATION TABLE                                  SPACE   174
                                *                                                                       SPACE   175
P001C  C800  049F   RESTRT LDA  ALCLGH                                          122*4381 SPACE132  11
P001E  0902        RST1   INA  2          ALLOW ROOM FOR THREAD BETWEEN AREA 0-1 SPACE   178
P001F  6800  049C         STA  ALCLGH                                           SPACE   179
P0021  0C0F        SETTBL ENQ  15                                   122*4381 SPACE132  12
P0022  C000  001A P       LDA  =XAREAC                                          SPACE   180
P0024  0DFE               INQ  -1       SETUP ALLOCATION TABLE (LVLSTR)       SPACE   181
P0025  60FF               STA- I                                              SPACE   182
P0026  CA00  0495         LDA  ALCLGH,Q                                       SPACE   183
P0028  0101               SAZ  CHKEND   NO ALLOCATION, SEE IF DONE            SPACE   184
P0029  0902               INA  2                                              SPACE   185
P002A  80FF        CHKEND ADD- I                                              SPACE   186
P002B  0143               SQZ  SETEND                                         SPACE   187
P002C  6600  7FFF X       STA  LVLSTR,Q                                       SPACE   188
P002E  18F5               JMP* SETTBL                                         SPACE   189
```

This is last routine before allocatable. When new daemon comes along, allocatable can be here.

```
                P002F  0901             SETEND INA  1          SETUP END OF PROTECTED ALLOCATABLE AREA        SPACE   191
                P0030  6400  7FFF X             STA  LEND                                                     SPACE   192
```



```
                P0032  0C0A                     ENQ  10                                  **MSOS 4.1**  SPACE   194
                P0033  E6E9                     LDQ- ($E9),Q     IS UNPROTECTED IN PART 1 **MSOS 4.1**  SPACE   195
                P0034  0151                     SQN  FIX4        YES                          122*4381  SPACE132  14
                P0035  180F                     JMP* FIX4Y       NO                           122*4381  SPACE132  15
                P0036  0862             FIX4    TCA  Q          -(END OF ALLOCATABLE) TO Q   122*4381  SPACE132  16
                P0037  C000  7FFF X             LDA  =XENDOV4    ADDR OF LAST LOCATION IN PART 0 TO A 122*4381  SPACE132  17
                P0039  0834                     AAQ  A           COMPUTE ; EXTRA LOCATIONS    122*4381  SPACE132  18
                P003A  0121                     SAP  FIX4A       SKIP IF EXTRA.GE.ZERO        122*4381  SPACE132  19
                P003B  1819                     JMP* NTENUF      GO AWAY IF NOT ENOUGH ROOM   122*4381  SPACE132  20
                P003C  0105             FIX4A   SAZ  FIX4X       SKIP IF ZERO EXTRA MEMORY    122*4381  SPACE132  21
                P003D  E000  04BC P             LDQ  =XALCLGH    START OF LENGTH TABLE TO A   122*4381  SPACE132  22
                P003F  8203                     ADD- 3,Q         ADD EXTRA TO REQUESTED AREA 4 122*4381  SPACE132  23
                P0040  6203                     STA- 3,Q         STORE BACK IN TABLE          122*4381  SPACE132  24
                P0041  180F                     JMP* RST1        SET UP ALLOCATABLE WITH NEW AREA 4 122*4381  SPACE132  25
                P0042  0854             FIX4X   TCQ  A           SET A TO END OF ALLOCATABLE  122*4381  SPACE132  26
                P0043  1807                     JMP* SKIPIT                                   122*4381  SPACE132  27
                P0044  0822             FIX4Y   TRA  Q           IS THE SIZE OF ALLOCATABLE GREATER 122*4381  SPACE132  28
                P0045  90F7                     SUB- $F7         THAN SPECIFIED BY THE INITIALIZER            SPACE   198
                P0046  0132                     SAM  SKIPIT-1    NO                                           SPACE   199
                P0047  40F7                     STQ- $F7         YES, SPECIFY THE NEW SIZE                    SPACE   200
                P0048  40ED                     STQ- $ED                                                      SPACE   201
                P0049  0814                     TRQ  A                                                        SPACE   202
                P004A  9000  0019 P     SKIPIT  SUB  =XAREAC-1                                                SPACE   203
                P004C  68CD                     STA* AREAC       SETUP TOTAL AVAILABLE PROTECTED ALLOCATABLE   SPACE   204
                P004D  6400  7FFF X             STA  CALTHD                                                   SPACE   205
                P004F  6400  7FFF X             STA  MIBX        LOCK OUT MIPRO               **MSOS 4.1**  SPACE   206
                P0051  6400  7FFF X             STA  EFLOCK      LOCK OUT LOGGER                  122*4381  SPACE132  29
                P0053  181D                     JMP* INIT
```

```
0202 P0032 0C0A          ENQ  10                                          **MSOS 4.1**M2900193
0203 P0033 E6E9          LDQ- (SE9),Q       IS UNPROTECTED IN PART 1      **MSOS 4.1**M2900194
0204 P0034 0151          SQN  FIX4          YES                                122*4381********
0205 P0035 180F          JMP* FIX4Y         NO                                 122*4381********
0206 P0036 0862   FIX4   TCA  Q             -(END OF ALLOCATABLE) TO Q         122*4381********
0207 P0037 C000 X        LDA  =XENDOV4      ADDR OF LAST LOCATION IN PART 0 TO A 122*4381********
     P0038 7FFF X
0208 P0039 0834          AAQ  A             COMPUTE # EXTRA LOCATIONS          122*4381********
0209 P003A 0121          SAP  FIX4A         SKIP IF EXTRA.GE.ZERO              122*4381********
0210 P003B 1819          JMP* NTENUF        GO AWAY IF NOT ENOUGH ROOM         122*4381********
0211 P003C 0105   FIX4A  SAZ  FIX4X         SKIP IF ZERO EXTRA MEMORY          122*4381********
0212 P003D E000          LDQ  =XALCLGH      START OF LENGTH TABLE TO A         122*4381********
     P003E 040C P
0213 P003F 8203          ADD- 3,Q           ADD EXTRA TO REQUESTED AREA 4      122*4381********
0214 P0040 6203          STA- 3,Q           STORE BACK IN TABLE                122*4381********
0215 P0041 180F          JMP* RST1          SET UP ALLOCATABLE WITH NEW AREA 4  122*4381********
0216 P0042 0854   FIX4X  TCQ  A             SET A TO END OF ALLOCATABLE        122*4381********
0217 P0043 1807          JMP* SKIPIT                                           122*4381********
0218 P0044 0822   FIX4Y  TRA  Q             IS THE SIZE OF ALLOCATABLE GREATER 122*4381********
0219 P0045 90F7          SUB- $F7           THAN SPECIFIED BY THE INITIALIZER            M2900197
0220 P0046 0132          SAM  SKIPIT-1      NO                                           M2900198
0221 P0047 40F7          STQ- $F7           YES, SPECIFY THE NEW SIZE                    M2900199
0222 P0048 40ED          STQ- $ED                                                        M2900200
0223 P0049 0814          TRQ  A                                                          M2900201
0224 P004A 9000   SKIPIT SUB  =XAREAC-1                                                 M2900202
     P004B 0019 P
0225 P004C 68C0          STA* AREAC         SETUP TOTAL AVAILABLE PROTECTED ALLOCATABLE M2900203
0226 P004D 6400 X        STA  CALTHD                                                     M2900204
     P004E 7FFF X
0227 P004F 6400 X        STA  MIBX          LOCK OUT MIPRO                               M2900205
     P0050 7FFF X
0228 P0051 6400 X        STA  EFLOCK        LOCK OUT LOGGER                  **MSOS 4.1**M2900206
     P0052 7FFF X
0229 P0053 1810          JMP* INIT                                             122*4381********
```

```
                P0054  54F4           NTENUF RTJ- (AMONI)      PRINT INSUFFICIENT MEMORY MESSAGE    122*4381 SPACE132  31
     5          P0055  0C00                  ADC  $0C00                                           122*4381 SPACE132  32
                P0056  0000                  ADC  0                                               122*4381 SPACE132  33
                P0057  0000           NTETHD ADC  0                                               122*4381 SPACE132  34
                P0058  18FC                  NUM  $18FC                                           122*4381 SPACE132  35
                P0059  0010                  ADC  NTEMSL                                          122*4381 SPACE132  36
    10          P005A  0060 P                ADC  NTEMSG                                          122*4381 SPACE132  37

                P005B  C8FB           NTEWAT LDA* NTETHD                                          122*4381 SPACE132  39
                P005C  0101                  SAZ  1                                               122*4381 SPACE132  40
    15          P005D  18FD                  JMP* NTEWAT      WAIT FOR COMPLETION                 122*4381 SPACE132  41
                P005E  5400   7FFF X         RTJ  SYFAIL      KILL SYSTEM                         122*4381 SPACE132  42

                P0060  494E           NTEMSG ALF  *,INSUFFICIENT ALLOCATABLE MEMORY*              122*4381 SPACE132  44
    20          P0061  5355
                P0062  4646
                P0063  4943
                P0064  4945
                P0065  4E54
    25          P0066  2041
                P0067  4C4C
                P0068  4F43
                P0069  4154
                P006A  4142
    30          P006B  4C45
                P006C  204D
                P006D  454D
                P006E  4F52
                P006F  5920
    35                 0010   NTEMSL EQU  NTEMSL(*-NTEMSG)                                       122*4381 SPACE132  45
```

```
                                *                                                                    116*4381 SPACE132  47
                                *     INITIALIZE ALL LOCATIONS ABOVE PHYSICAL LOCATION $FFFF         116*4381 SPACE132  48
                                *                IF TIMESHARE SYSTEM                                 116*4381 SPACE132  49
                                *                                                                    116*4381 SPACE132  50
                                *                                                                    116*4381 SPACE132  51
                                *     1. SET PAGE REGS 0-15 TO 0-15   BECAUSE                        116*4381 SPACE132  52
                                *     THIS CODE IS IN THE LOWEST 32K OF MEMORY    .                  116*4381 SPACE132  53
                                *                          ----------                                116*4381 SPACE132  54
                                *     2. GO TO PAGE MODE 0                                           116*4381 SPACE132  55
                                *     3. USE PAGE REG 16 TO INDEX PAGE (2K) TO WORK ON               116*4381 SPACE132  56
                                *        START WITH PAGE 127 (POSSIBLE LAST PAGE IN MACHINE)         116*4381 SPACE132  57
                                *     4. WRITE $18FF TO ALL LOCATIONS IN CURRENT PAGE                116*4381 SPACE132  58
                                *        AND SET PROTECT BIT ON                                      116*4381 SPACE132  59
                                *     5. DECREMENT PAGE NUMBER UNTIL ALL PAGES ABOVE $FFFF           116*4381 SPACE132  60
                                *                          IN BOTH CPUS HAVE BEEN COVERED.           116*4381 SPACE132  61
                                *        IF A PAGE DOES NOT EXIST, THE WRITE OPERATION WILL          116*4381 SPACE132  62
                                *        BE ABORTED  AND PARITY ERROR SET                            116*4381 SPACE132  63
                                *     6. GO TO ABSOLUTE MODE                                         116*4381 SPACE132  64
                                *     7. SET UP PAGE REGS 16-31 TO CONTAIN 16-31. THUS               116*4381 SPACE132  65
                                *        PHYSICAL ADDRESS = LOGICAL ADDRESS FOR THE LOWEST 65K.      116*4381 SPACE132  66
                                *                                                                    116*4381 SPACE132  67
P0070  C000  7FFF X  INIT   LDA  =XCCP        CURRENT CONTROL POINT                                  116*4381 SPACE132  68
             0071 P         EQU  ACCP(*-1)                                                         116*4381 SPACE132  69
P0072  B011                 EOR- LPMSK+15                                                          116*4381 SPACE132  70
P0073  0111                 SAN  SETUPO       SKIP IF PATCHED                                      116*4381 SPACE132  71
P0074  1827                 JMP* SPBLPO                                                            116*4381 SPACE132  72
             0075 P    SETUPO EQU  SETUPO(*)                                                       116*4381 SPACE132  73
                            APM  0            GO TO ABSOLUTE MODE                                  116*4381 SPACE132  74
P0075  0B0B
P0076  0844                 CLR  A            ASSUME THIS CODE IS IN THE LOWEST 32K                116*4381 SPACE132  75
P0077  0C0F                 ENQ  15           OF MACHINE    THUS                                   116*4381 SPACE132  76
                       SETUP WPR  A           FILL PAGE REGS 0-15 WITH 0-15                        116*4381 SPACE132  77
P0078  0BC3
                            *                 WRITE IN PAGE REG                                    116*4381 SPACE132  78
P0079  8000  0801           ADD  =N$0801      INCREMENT PAGE REG AND ITS CONTENT                   116*4381 SPACE132  79
                            DQP  *-SETUP                                                           116*4381 SPACE132  80
P007B  06A3
                            *                                                                      116*4381 SPACE132  81
P007C  0500                 IIN  0            INHIBIT INTERRUPT FROM PARITY ERROR                  116*4381 SPACE132  82
                            PMO  0            GO TO PAGE MODE 0                                    116*4381 SPACE132  83
P007D  0B0C
P007E  0A10                 ENA  $10                                                               116*4381 SPACE132  84
P007F  0FCB                 ALS  11           USE PAGE REG $10 TO INDEX EACH PAGE                  116*4381 SPACE132  85
P0080  60FF                 STA- I            CURRENTLY BEING WRITTEN                              116*4381 SPACE132  86
P0081  097F                 INA  $7F          MAX PAGE IN MACHINE                                  116*4381 SPACE132  87
                            XFA  1            REG 1 CONTAINS CURRENT PAGE (BITS 0-8)               116*4381 SPACE132  88
P0082  07C1
P0083                       *                 AND PAGE REG (BITS 10-15)                            116*4381 SPACE132  89
P0083  0A5F                 ENA  $5F          TOTAL NO. OF PAGES = 96  ($60)                       116*4381 SPACE132  90
                            *                 FROM PAGE 127 TO 31 (ALL LOCATIONS                   116*4381 SPACE132  91
                            *                 ABOVE PHYSICAL $FFFF)                                116*4381 SPACE132  92
                            XFA  2                                                                 116*4381 SPACE132  93
P0084  07C2
P0085  C864                 LDA* LOC0         DATA TO WRITE IN REG A     ($18FF)                   116*4381 SPACE132  94
             0086 P    NXTPGE EQU  NXTPGE(*)   REPEAT                                             116*4381 SPACE132  95
                            WPR  1              WRITE CURRENT PAGE IN PAGE REG $10                 116*4381 SPACE132  96
```

```
                P0086   0B23
                                        LR3* H7FF       TOTAL NO. OF LOCATIONS IN ONE       116*4381 SPACE132  97
 5              P0087   0483
                P0088   C062
                                *                       PAGE = $800 (2K)                    116*4381 SPACE132  98
                P0089   E0FF            LDQ- I                                              116*4381 SPACE132  99
                P008A   F00D            ADQ- LPMSK+11     REG Q CONTAINS THE LOGICAL ADDRESS 116*4381 SPACE132 100
10                              *       OF LOCATIONS IN PAGE, LAST LOC=$7FF                 116*4381 SPACE132 101
                        008B P  NXTLOC  EQU  NXTLOC(*)    REPEAT                            116*4381 SPACE132 102
                P008B   6622            STA- (ZERO),Q       WRITE 16 BIT DATA               116*4381 SPACE132 103
                P008C   0600            SPB  0              SET PROTECT BIT TO ONE          116*4381 SPACE132 104
                P008D   0DFE            INQ  -1             DECREMENT LOGICAL ADDRESS BY ONE 116*4381 SPACE132 105
15                      D3P  *-NXTLOC   UNTIL ALL LOCATIONS IN A PAGE WERE                  116*4381 SPACE132 106
                P008E   0663
                                *                       WRITTEN ENDREPEAT                   116*4381 SPACE132 107
                                        SB1- LPMSK+1      DECREMENT PAGE NUMBER BY ONE      116*4381 SPACE132 108
                P008F   0401
20              P0090   9003
                                        D2P  *-NXTPGE   UNTIL ALL 96 PAGES HAS BEEN WRITTEN 116*4381 SPACE132 109
                P0091   064B
                                *                       ENDREPEAT                           116*4381 SPACE132 110
                P0092   01C0            SPE  0          CLEAR PARITY ERRORS WHICH MIGHT BE  116*4381 SPACE132 111
25                              *       CAUSED BY WRITING INTO NON-EXISTING                 116*4381 SPACE132 112
                                *       MEMORY                                              116*4381 SPACE132 113



30

                                *                                                           116*4381 SPACE132 115
                                *   FILL PAGE REGS 16-31  WITH 16-31   SUCH THAT PHYSICAL   116*4381 SPACE132 116
                                *   ADDRESS = LOGICAL ADDRESS F3R LOWEST 65K OF MEMORY      116*4381 SPACE132 117
35                              *                                                           116*4381 SPACE132 118
                                        APM  0                                              116*4381 SPACE132 119
                P0093   0B0B
                P0094   0C0F            ENQ  15                                             116*4381 SPACE132 120
                P0095   C000    8010    LDA  =N$8010                                        116*4381 SPACE132 121
40                      SETUP1  WPR  A                                                      116*4381 SPACE132 122
                P0097   0BC3
                P0098   8000    0801    ADD  =N$0801                                        116*4381 SPACE132 123
                                        DQP  *-SETUP1                                       116*4381 SPACE132 124
                P009A   06A3
```

```
                                *       PROTECT AND UNPROTECT APPROPRIATE CORE LOCATIONS                 SPACE     209
 5
                                                                                                                  $F5 = MSIZV4
                        009B P  SPBLPO EQU  SPBLPO(*)                                    116*4381 SPACE132  125
        P009B   E0F5            LDQ-  $F5                                          **MSOS 4.1** SPACE     211
        P009C   0600            SPBLOP SPB  0           PROTECT ALL OF AVAILABLE CORE   **MSOS 4.0 SPACE     212
10      P009D   0142            SQZ   CLRPB      SKIP IF ALL UNPROTECTED            **MSOS 4.0 SPACE     213
        P009E   0DFE            INQ   -1                                           **MSOS 4.0 SPACE     214
        P009F   18FC            JMP*  SPBLOP                                       **MSOS4.0* SPACE     215
        P00A0   C400    7FFF X  CLRPB LDA+  MPFLAG      NON-ZERO IF AN MP SYSTEM                  SPACE     216
        P00A2   E0F7            LDQ-  $F7       BOTTOM OF AREA - 1                   MP MSOS SPACE     217
15      P00A3   0111            SAN   CLRPB1    SKIP IF AN MP                     116*4381 SPACE132  126
        P00A4   1822            JMP*  NOTMP                                       116*4381 SPACE132  127
                        00A5 P  CLRPB1 EQU  CLRPB1(*)                             116*4381 SPACE132  128
        P00A5   C8CB            LDA*  ACCP      CURRENT CONTROL POINT             116*4381 SPACE132  129
        P00A6   B011            EOR-  LPMSK+15                                    116*4381 SPACE132  130
20      P00A7   0111            SAN   CLRPBT    SKIP IF TIMESHARE SYSTEM          116*4381 SPACE132  131
        P00A8   181A            JMP*  NOTTS                                       116*4381 SPACE132  132
                                *                                                 116*4381 SPACE132  133
                                *-----          SPECIAL INSTRUCTION ON SETTING UPPER AND  116*4381 SPACE132  134
                                *-----          LOWER BOUND REGISTERS             116*4381 SPACE132  135
25                              *               (1) SET UPPER BOUND REGISTER TO ZERO --  116*4381 SPACE132  136
                                *                     TURN OFF BOUNDS             116*4381 SPACE132  137
                                *               (2) SET LOWER BOUND REGISTER,   AND  116*4381 SPACE132  138
                                *               (3) SET UPPER BOUND REGISTER.     116*4381 SPACE132  139
                                *                                                 116*4381 SPACE132  140
30      P00A9   0500            CLRPBT IIN  0           DISABLE INTERRUPT         116*4381 SPACE132  141
        P00AA   0A00            ENA   0                                           116*4381 SPACE132  142
        P00AB   0BC0            NUM   $0BC0                                       116*4381 SPACE132  143
        P00AC   C0F7            LDA-  LOCORE                                      116*4381 SPACE132  144
        P00AD   6400    7FFF X  STA   LBPROT                                      116*4381 SPACE132  145
35      P00AF   0BC1            NUM   $0BC1                                       116*4381 SPACE132  146
        P00B0   C0F6            LDA-  HICORE                                      116*4381 SPACE132  147
        P00B1   6400    7FFF X  STA   UBPROT                                      116*4381 SPACE132  148
        P00B3   0BC0            NUM   $0BC0                                       116*4381 SPACE132  149
        P00B4   C0F7            LDA-  LOCORE    GET LOW CORE DATA AND SET FOR LOWER  116*4381 SPACE132  150
40      P00B5   0C01            ENQ   1             BOUND REGISTER DATA FOR TABLE 116*4381 SPACE132  151
        P00B6   6600    7FFF X  STA   LOBDTB,Q  LEVEL -1, 0 AND 1 LOWER BOUND REGISTER116*4381 SPACE132  152
                        00B7 P  EQU   LOBDAD(*-1)   TABLE                         116*4381 SPACE132  153
        P00B8   6CFE            STA*  (LOBDAD)      INITIALIZATION               116*4381 SPACE132  154
        P00B9   0CFE            ENQ   -1                                          116*4381 SPACE132  155
45      P00BA   6EFC            STA*  (LOBDAD),Q                                  116*4381 SPACE132  156
        P00BB   C0F6            LDA-  HICORE    GET HI-CORE DATA                  116*4381 SPACE132  157
        P00BC   0C01            ENQ   1         INITIALIZE LEVEL -1, 0 AND 1 UPPER  116*4381 SPACE132  158
        P00BD   6600    7FFF X  STA   UPBDTB,Q      BOUND REGISTER DATA TABLE     116*4381 SPACE132  159
                        00BE P  EQU   UPBDAD(*-1)                                 116*4381 SPACE132  160
50      P00BF   6CFE            STA*  (UPBDAD)                                    116*4381 SPACE132  161
        P00C0   0CFE            ENQ   -1                                          116*4381 SPACE132  162
        P00C1   6EFC            STA*  (UPBDAD),Q                                  116*4381 SPACE132  163
                        00C2 P  NOTTS  EQU  NOTTS(*)                              116*4381 SPACE132  164
        P00C2   0BA1            NUM   $0BA1     LOAD LOWER BOUNDS REG(ENH INSTR LLB Q) MP MSOS SPACE     219
55      P00C3   E0F6    NOP     LDQ-  $F6       TOP OF AREA + 1                   MP MSOS SPACE     220
        P00C4   0BA0            NUM   $0BA0     LOAD UPPER BOUNDS REG(ENH INSTR LUB Q) MP MSOS SPACE     221
        P00C5   1808            JMP*  RSTRT2    SKIP OVER OLD CODE                MP MSOS SPACE     222
```

CYBER 18

```
                P00C6  0D01          NOTMP  INQ  1          DO IT THE OLD WAY                  MP MSOS SPACE     224
                P00C7  0700          RSTRT1 CPB  0          CLEAR JOB AREA PROTECT BITS               SPACE     225
     5          P00C8  0D01                 INQ  1                                                    SPACE     226
                P00C9  C0F6                 LDA- $F6          END OF AREA + 1                         SPACE     227
                P00CA  0874                 EAQ  A                                                    SPACE     228
                P00CB  0101                 SAZ  RSTRT2                                               SPACE     229
                P00CC  18FA                 JMP* RSTRT1                                               SPACE     230
    10
                P00CD  E000  00F3    RSTRT2 LDQ   =N$F3        CLEAR SPECIAL COMMUNICATION AREA        SPACE     232
                P00CF  0700                 CPB  0                                                    SPACE     233
                P00D0  0D0C                 INQ  $C                                                   SPACE     234
                P00D1  0700                 CPB  0                                                    SPACE     235
    15          P00D2  0DC5                 INQ  -$3A         UNPROTECT FORTRAN AREA ($C5-$E5)        SPACE     236
                P00D3  0700          RSTRT3 CPB  0                                                    SPACE     237
                P00D4  C000  00E5           LDA  =N$E5                                                SPACE     238
                P00D6  0874                 EAQ  A                                                    SPACE     239
                P00D7  0D01                 INQ  1                                                    SPACE     240
    20          P00D8  0101                 SAZ  1                                                    SPACE     241
                P00D9  18F9                 JMP* RSTRT3                                               SPACE     242
                P00DA  E0F4                 LDQ- $F4          UNPROTECTED REQUEST ENTRY               SPACE     243
                P00DB  0700                 CPB  0            POINT                                   SPACE     244

    25          P00DC  C0F2                 LDA- $F2          UNPROTECT PRESET LOCATIONS              SPACE     246
                P00DD  60FF                 STA- I                                                    SPACE     247
                P00DE  0C02                 ENQ  2                                                    SPACE     248
                P00DF  0854          RSTRT4 TCQ  A                                                    SPACE     249
                P00E0  80F1                 ADD- $F1          LENGTH OF TABLE OF PRESETS              SPACE     250
    30          P00E1  013C                 SAM  RSTRT6                                               SPACE     251
                P00E2  4806                 STQ* RSTRT5                                               SPACE     252
                P00E3  E301                 LDQ- 1,B                                                  SPACE     253
                P00E4  0700                 CPB  0                                                    SPACE     254
                P00E5  E803                 LDQ* RSTRT5                                               SPACE     255
    35          P00E6  0D04                 INQ  4                                                    SPACE     256
                P00E7  18F7                 JMP* RSTRT4                                               SPACE     257

                P00E8  0000          RSTRT5 NUM  0            COUNTER                                 SPACE     259
                P00E9  18FF          LOC0   ADC  $18FF                                 116*4381 SPACE132  165
    40          P00EA  07FF          H7FF   NUM  $7FF          CONSTANT                 116*4381 SPACE132  166
```

$F3 special location that loader uses

Preset Table

```
                                *       SET UP SYSTEM DIRECTORY FOR JOBENT, LIBEDT, AND PROTEC          SPACE   261
5
        P00EB   7FFF X          SDJOB   ADC   JOBENT                                                  SPACE   263
        P00EC   7FFF X          SDLIB   ADC   LIBEDT                                                  SPACE   264
        P00ED   7FFF X          SDPRO   ADC   PROTEC                                                  SPACE   265
10
        P00EE   E0EB            RSTRT6  LDQ-  SYDIR                                                   SPACE   267
        P00EF   F8FB                    ADQ*  SDJOB                                                   SPACE   268
        P00F0   0A10                    ENA   $10       SET PRIORITY OF JOBENT TO 1                   SPACE   269
15      P00F1   6622                    STA-  (ZERO),Q                                                SPACE   270
        P00F2   E0EB                    LDQ-  SYDIR                                                   SPACE   271
        P00F3   F8F8                    ADQ*  SDLIB     SET LIMITS FOR INITIAL LOAD                   SPACE   272
        P00F4   C000    7FFF X          LDA   =XLSIZV4  LIBEDT LOAD LENGTH          **MSOS 4.0 SPACE   273
        P00F6   6625                    STA-  (FOUR),Q                              **MSOS 4.1* SPACE   274
20      P00F7   E0EB                    LDQ-  SYDIR                                                   SPACE   275
        P00F8   F8F4                    ADQ*  SDPRO     SET LIMITS FOR INITIAL LOAD                   SPACE   276
        P00F9   C000    7FFF X          LDA   =XPSIZV4  PROTEC LOAD LENGTH          **MSOS 4.0 SPACE   277
        P00FB   6625                    STA-  (FOUR),Q                                                SPACE   278
        P00FC   C0FB                    LDA-  $FB       GET STANDARD LIST                             SPACE   279
25      P00FD   6400    7FFF X          STA+  AUTFB     SAVE IN TRVEC                                 SPACE   280
        P00FF   C0FA                    LDA-  $FA       GET STD PUNCH                                 SPACE   281
        P0100   6400    7FFF X          STA+  AUTFA     SAVE IN TRVEC                                 SPACE   282
        P0102   C0F9                    LDA-  $F9       GET STANDARD INPUT          **MSOS 4.0 SPACE   283
        P0103   6400    7FFF X          STA+  AUTF9     SAVE IN TRVEC                                 SPACE   284
30      P0105   802F                    ADD-  $2F       ADD ASCII MODE              **MSOS 4.0 SPACE   285
        P0106   6400    7FFF X          STA   IUP                                   **MSOS 4.0 SPACE   286
        P0108   6400    7FFF X          STA   INPTV4    SET UP FOR JOB PROCESSOR INPUT **MSOS 4.0 SPACE 287

35                              *       DISABLE THE 1576-1 STALL ALARM INTERRUPT, IF PRESENT          SPACE   289

        P010A   C000    7FFF X          LDA   =XE15761                                                SPACE   291
        P010C   B011                    EOR-  LPMSK+15  IS THE STALL PRESENT IN THE SYSTEM            SPACE   292
        P010D   0104                    SAZ   TIMSRT    NO                                            SPACE   293
40      P010E   E400    010B X          LDQ+  E15761    YES, DISABLE THE INTERRUPT                    SPACE   294
        P0110   0A05                    ENA   5                                                       SPACE   295
        P0111   035D                    OUT   SREJ-*                                                  SPACE   296
```

```
                                *      START THE SYSTEM TIMER                                    SPACE     298
                                *
                                *      TIMER INITIATION CODING                                   **MSOS 4.1** SPACE     300
                                *                                                                **MSOS 4.1** SPACE     301
                                *        TIMER STARTING SEQUENCE IS BASED ON THE TIMER TYPE      **MSOS 4.1** SPACE     302
                                *             TYPE                CODE                         **MSOS 4.1** SPACE     303
                                *             NONE                  0                          **MSOS 4.1** SPACE     304
                                *             1572                  1                          **MSOS 4.1** SPACE     305
                                *             1573                  2                          **MSOS 4.1** SPACE     306
                                *             1572-1 LST            3                          **MSOS 4.1** SPACE     307
                                *             1572-1 SRG            4                          **MSOS 4.1** SPACE     308
                                *             364-4 COMM. MUX.      5                          **MSOS 4.1** SPACE     309
                                *             PSEUDO                6                          **MSOS 4.1** SPACE     310
                                *             10336-1               7                                       SPACE     311
                                *             MP17 REAL-TIME CLOCK  8                                       SPACE     312
                                *                                                                **MSOS 4.1** SPACE     313
                                *                                                                **MSOS 4.1** SPACE     314
P0112  E400   7FFF X    TIMSRT LDQ+ TMRTYP        GET TIMER TYPE                                        SPACE     315
P0114  EA02            LDQ* TIMVCT,Q      GET VECTOR FOR JUMP                                **MSOS 4.1** SPACE     316
P0115  1622            JMP- (ZERO),Q      GO TO PROPER PROCESSOR                             **MSOS 4.1** SPACE     317
                                *                                                                **MSOS 4.1** SPACE     318
                                *      TIMER PROCESSOR VECTOR TABLE                              **MSOS 4.1** SPACE     319
                                *                                                                **MSOS 4.1** SPACE     320
P0116  0180 P          TIMVCT ADC  REJ           0 = NO TIMER                                     **MSOS 4.1** SPACE     321
P0117  011F P                 ADC  T1572         1 = 1572                                         **MSOS 4.1** SPACE     322
P0118  012A P                 ADC  T1573         2 = 1573                                         **MSOS 4.1** SPACE     323
P0119  012F P                 ADC  T72LST        3 = 1572-1 LST                                   **MSOS 4.1** SPACE     324
P011A  013A P                 ADC  T72SRG        4 = 1572-1 SRG                                   **MSOS 4.1** SPACE     325
P011B  014A P                 ADC  T3644         5 = 364-4 COMM. MUX.                             **MSOS 4.1** SPACE     326
P011C  015F P                 ADC  CHKTMR        6 = PSEUDO TIMER                                 **MSOS 4.1** SPACE     327
                                *                  PSR 85*2236 DELETED FOR PSR 93*3177                     SPACE     328
P011D  014E P                 ADC  T10336        7 = 10336-1                                               SPACE     329
P011E  0157 P                 ADC  MP17CK        8 = MP17 REAL-TIME CLOCK                                  SPACE     330
                                *                                                                **MSOS 4.1** SPACE     331
                                *      1572 TIMER STARTING CODE                                  **MSOS 4.1** SPACE     332
                                *                                                                **MSOS 4.1** SPACE     333
P011F  E400   7FFF X    T1572  LDQ+ E1572         FUNCTION CODE                                    **MSOS 4.1** SPACE     334
P0121  C400   7FFF X           LDA+ E1572F        ENABLE 1572                                      **MSOS 4.1** SPACE     335
P0123  035D            OUT  REJ-*                                                                 **MSOS 4.1** SPACE     336
P0124  0DFE            INQ  -1            DATA CODE                                              **MSOS 4.1** SPACE     337
P0125  C400   7FFF X           LDA+ 01572         REGISTER COUNTS                                  **MSOS 4.1** SPACE     338
P0127  0359            TOUT   OUT  REJ-*                                                          **MSOS 4.1** SPACE     339
P0128  0842                   CLR  Q             SET NO ACTION FLAG                               **MSOS 4.1** SPACE     340
P0129  1836                   JMP* CHKTMR        START DIAGNOSTIC TIMER                           **MSOS 4.1** SPACE     341
```

```
                                *       1573 TIMER STARTING CODE                                **MSOS 4.1** SPACE  343
                                *                                                               **MSOS 4.1** SPACE  344
P012A  E400  7FFF X  T1573 LDQ+ E1573           FUNCTION CODE                                  **MSOS 4.1** SPACE  345
P012C  0DFE                INQ  -1                                                             **MSOS 4.1** SPACE  346
P012D  C032                LDA- ONEBIT+15       $8000 = ENABLE                                 **MSOS 4.1** SPACE  347
P012E  18F8                JMP* TOUT            GO TO OUTPUT                                   **MSOS 4.1** SPACE  348
                                *                                                               **MSOS 4.1** SPACE  349
                                *       1572-1 LST STARTING CODE                                **MSOS 4.1** SPACE  350
                                *                                                               **MSOS 4.1** SPACE  351
P012F  E400  7FFF X  T72LST LDQ+ E15721          FUNCTION CODE                                  **MSOS 4.1** SPACE  352
P0131  0A3C                ENA  $3C             AND MASK FOR SRG FUNCTION BITS                                 SPACE  353
P0132  0500                IIN  0                                                              **MSOS 4.1** SPACE  354
P0133  A400  7FFF X        AND+ H15721                                                         **MSOS 4.1** SPACE  355
P0135  0902                INA  2               2 = ENABLE INTERRUPT                           **MSOS 4.1** SPACE  356
P0136  6400  0134 X        STA+ H15721          RESTORE HISTORY WORD                           **MSOS 4.1** SPACE  357
P0138  0400                EIN  0                                                              **MSOS 4.1** SPACE  358
P0139  18ED                JMP* TOUT            GO TO OUTPUT                                   **MSOS 4.1** SPACE  359
                                *                                                               **MSOS 4.1** SPACE  360
                                *       1572-1 SRG STARTING CODE                                **MSOS 4.1** SPACE  361
                                *                                                               **MSOS 4.1** SPACE  362
P013A  E400  0130 X  T72SRG LDQ+ E15721          FUNCTION CODE                                  **MSOS 4.1** SPACE  363
P013C  0A27                ENA  $27             AND MASK FOR LST FUNCTION BITS                                 SPACE  364
P013D  0500                IIN  0                                                              **MSOS 4.1** SPACE  365
P013E  A400  0137 X        AND+ H15721                                                         **MSOS 4.1** SPACE  366
P0140  0910                INA  $10             $10 = ENABLE INTERRUPT                         **MSOS 4.1** SPACE  367
P0141  6400  013F X        STA+ H15721          RESTORE HISTORY WORD                           **MSOS 4.1** SPACE  368
P0143  0400                EIN  0                                                              **MSOS 4.1** SPACE  369
P0144  033C                OUT  REJ-*                                                          **MSOS 4.1** SPACE  370
P0145  E400  7FFF X        LDQ+ D15721          DATA CODE                                      **MSOS 4.1** SPACE  371
P0147  C400  7FFF X        LDA+ O15721          REGISTER COUNTS                                **MSOS 4.1** SPACE  372
                           EXT  O15721          SRG TIME BASE/CLOCK FREQ.                      **MSOS 4.1** SPACE  373
P0149  18DD                JMP* TOUT            GO TO OUTPUT                                   **MSOS 4.1** SPACE  374
                                *                                                                             SPACE  375
                                *       364-4 COMMUNICATIONS MUX. TIMER                         **MSOS 4.1** SPACE  376
                                *                                                                             SPACE  377
P014A  E400  7FFF X  T3644 LDQ+ EQ3644          FUNCTION CODE                                  **MSOS 4.1** SPACE  378
P014C  0A06                ENA  6               6 = ENABLE CLOCK                               **MSOS 4.1** SPACE  379
P014D  18D9                JMP* TOUT            GO TO OUTPUT                                   **MSOS 4.1** SPACE  380
                                *                    PSR 85*2236 DELETED FOR PSR 93*3177                   SPACE  381
                                *                                                                          SPACE  382
                                *        10336-1 STARTING CODE                                             SPACE  383
                                *                                                                          SPACE  384
P014E  E400  7FFF X  T10336 LDQ+ E10336          FUNCTION CODE                                             SPACE  385
P0150  C400  7FFF X        LDA+ F10336          ENABLE CODE                                               SPACE  386
P0152  032E                OUT  REJ-*                                                                     SPACE  387
P0153  0DFE                INQ  -1              DATA CODE                                                 SPACE  388
P0154  C400  7FFF X        LDA+ O10336          CLCOK REGISTER VALUE                                      SPACE  389
P0156  18D0                JMP* TOUT                                                                      SPACE  390
                                *                    PSR 85*2236 DELETED FOR PSR 93*3177                   SPACE  391
                                *                                                                 MP MSOS SPACE  392
                                *       MP17 REAL-TIME ADT CLOCK                                  MP MSOS SPACE  393
                                *                                                                 MP MSOS SPACE  394
P0157  E400  7FFF X  MP17CK LDQ+ DMICOD          ENABLE ADT/MICRO-INT NUMBER                    MP MSOS SPACE  395
P0159  C400  7FFF X        LDA+ TBLADR          ADT TABLE ADDRESS                              MP MSOS SPACE  396
P015B  0B06                NUM  $B06            DEFINE MICRO-INTRPT (ENH INSTR DMI)            MP MSOS SPACE  397
P015C  E400  7FFF X        LDQ+ EMPSRT          RESET AND START FUNCTION CODE                  MP MSOS SPACE  398
```

```
         P015E  18C8            JMP* TOUT        "A" REG NOT USED                  MP MSOS SPACE   399
 5                        *     INITIATE THE DIAGNOSTIC TIMER AND TIME-OF-DAY PROGRAMS          SPACE   401

         P015F  C806    CHKTMR LDA* RSTRTA                                             SPACE   403
         P0160  B011           EOR- LPMSK+15                                           SPACE   404
10       P0161  0111           SAN  1                                                  SPACE   405
         P0162  1804           JMP* RSTRTT      SKIP IF DTIMER NOT PRESENT    **MSOS 4.1** SPACE   406

         P0163  54F4           RTJ- (AMONI)     START DIAG TIMER                       SPACE   408
         P0164  5206           NUM  $5206                                ***MSOS4.0 SPACE   409
15       P0165  7FFF X  RSTRTA ADC  DTIMER                                             SPACE   410

         P0166  C806    RSTRTT LDA* TTRSTR                                 **MSOS 4.1** SPACE   412
         P0167  B011           EOR- LPMSK+15                               **MSOS 4.1** SPACE   413
         P0168  0111           SAN  1           SKIP IF TOD PRESENT        **MSOS 4.1** SPACE   414
20       P0169  1833           JMP* RSTRT9                                 **MSOS 4.1** SPACE   415

         P016A  54F4           RTJ- (AMONI)     START TOD PROGRAM          **MSOS 4.1** SPACE   417
         P016B  5206           NUM  $5206                                  **MSOS 4.1** SPACE   418
         P016C  7FFF X  TTRSTR ADC  UPTOD                                  **MSOS 4.1** SPACE   419
25       P016D  182F           JMP* RSTRT9                                 **MSOS 4.1** SPACE   420

                        *     STALL ALARM REJECT MESSAGE                              SPACE   422

30       P016E  0B00    SREJ   NOP  0                                                 SPACE   424
         P016F  54F4           RTJ- (AMONI)     PRINT STALL REJECT MESSAGE             SPACE   425
         P0170  0C00           ADC  $0C00                                              SPACE   426
         P0171  0000           ADC  0                                                  SPACE   427
         P0172  0000    SRJTH  ADC  0                                                  SPACE   428
35       P0173  18FC           ADC  $18FC                                              SPACE   429
         P0174  0006           ADC  6                                                  SPACE   430
         P0175  017A P         ADC  SRJMSG                                             SPACE   431

         P0176  C8FB    SRJCK  LDA* SRJTH                                              SPACE   433
40       P0177  0101           SAZ  1                                                  SPACE   434
         P0178  18FD           JMP* SRJCK       WAIT FOR COMPLETION                    SPACE   435
         P0179  1898           JMP* TIMSRT                                             SPACE   436

45       P017A  5354    SRJMSG ALF  6,STALL REJECT                                     SPACE   438
         P017B  414C
         P017C  4C20
         P017D  5245
         P017E  4A45
50       P017F  4354
```

```
                                *       TIMER REJECT MESSAGE                                    SPACE   440
5
        P0180   0B00            REJ     NOP  0                                                  SPACE   442
        P0181   E000   7FFF X           LDQ  =XLOG1A                            **MSOS 4.1**  SPACE   443
        P0183   E201                    LDQ- 1,Q                                **MSOS 4.1**  SPACE   444
10      P0184   C20D                    LDA- 13,Q                               **MSOS 4.1**  SPACE   445
        P0185   A011                    AND- LPMSK+15                           **MSOS 4.1**  SPACE   446
        P0186   B032                    EOR- ONEBIT+15      DISABLE DELAYED CORE SWAPS          SPACE   447
        P0187   620D                    STA- 13,Q                               **MSOS 4.1**  SPACE   448
        P0188   0A00                    ENA  0              INDICATE NO TIMER   **MSOS 4.1**  SPACE   449
15      P0189   6400   0113 X           STA+ TMRTYP                             **MSOS 4.1**  SPACE   450

        P018B   54F4                    RTJ- (AMONI)        PRINT TIMER REJECT MSG              SPACE   452
        P018C   0C00                    ADC  $0C00                                              SPACE   453
        P018D   0000                    ADC  0                                                  SPACE   454
20      P018E   0000            REJTH   ADC  0                                                  SPACE   455
        P018F   18FC                    ADC  $18FC                                              SPACE   456
        P0190   0006                    ADC  6                                                  SPACE   457
        P0191   0196 P                  ADC  REJMSG                                             SPACE   458

25      P0192   C8FB            REJCK   LDA* REJTH                                             SPACE   460
        P0193   0101                    SAZ  1                                                  SPACE   461
        P0194   18FD                    JMP* REJCK          WAIT FOR COMPLETION                 SPACE   462
        P0195   1807                    JMP* RSTRT9                                             SPACE   463

30
        P0196   5449            REJMSG  ALF  6,TIMER REJECT                     **MSOS 4.1**  SPACE   465
        P0197   4D45
        P0198   5220
        P0199   5245
35      P019A   4A45
        P019B   4354
```

```
                                *       IF SYSTEM CONTAINS A 1781-1 HARDWARE FLOATING POINT UN          SPACE   467
 5                              *       CLEAR THE UNIT AND SET IT"S INITIAL OPERATING MODE              SPACE   468


      P019C   C400   7FFF X .  RSTRT9 LDA  E17811       PICKUP 1781-1 EQUIPMENT CODE                    SPACE   470
10    P019E   0822             RSTR9  TRA  Q            SAVE IN Q                                       SPACE   471
      P019F   B011             RSTR9A EOR- $11          ($7FFF) CHECK FOR UNPATCHED                     SPACE   472
      P01A0   0111             RSTR9A SAN  RSTR9A       SKIP IF PATCHED                                 SPACE   473
      P01A1   1818             RSTR9A JMP* RSTR10       BYPASS STARTUP IF UNPATCHED                     SPACE   474
      P01A2   0DFC             RSTR9A INQ  -3           SET Q FOR 1781-1 FSR LOAD                       SPACE   475
15    P01A3   0A01             RSTR9A ENA  1                                                            SPACE   476
      P01A4   0305             RSTR9A OUT  HFPREJ-*     CLEAR 1781-1                                    SPACE   477
      P01A5   C400   7FFF X    RSTR9A LDA  F17811       PICK UP INITIAL OPERATING FUNCTION              SPACE   478
      P01A7   0302             RSTR9A OUT  HFPREJ-*     OUTPUT TO UNIT                                  SPACE   479
      P01A8   1811             RSTR9A JMP* RSTR10       CONTINUE                                        SPACE   480
20

      P01A9   0B00             HFPREJ NOP  0                                                            SPACE   482
                                       FWRITE  $FC,0,HFPRJM,HFPRJL,A,0,0,I                             SPACE   483
25    P01AA   54F4
      P01AB   0C00
      P01AC   0000
      P01AD   0000
      P01AE   18FC
30    P01AF   0007
      P01B0   01B2 P
      P01B1   1808                   JMP* RSTR10       CONTINUE                                        SPACE   484


35
      P01B2   3137             HFPRJM ALF  *,1781-1 REJECT*                                            SPACE   486
      P01B3   3831
      P01B4   2D31
      P01B5   2052
40    P01B6   454A
      P01B7   4543
      P01B8   5420
                      0007     HFPRJL EQU  HFPRJL(*-HFPRJM)                                            SPACE   487
```

```
                                *       PRINT THE SYSTEM PSR LEVEL AND DATE OF BUILD                    SPACE   489
5
                                                                                                        SPACE   491
P01B9  C800  0129   RSTR10 LDA  MONTH                                                                   SPACE   492
P01BB  B011                EOR- LPMSK+15      IS THE BUILD DATE PATCHED    **MSOS 4.1**            SPACE   493
P01BC  0111                SAN  1                                          **MSOS 4.1**            SPACE   494
10 P01BD  1817             JMP* PSRMSG        NO                           **MSOS 4.1**            SPACE   495
P01BE  C800  0124          LDA  MONTH                                      **MSOS 4.1**            SPACE   496
P01C0  0C20                ENQ  $20           ADD LEADING SPACE            **MSOS 4.1**            SPACE   497
P01C1  0FE8                LLS  8                                          **MSOS 4.1**            SPACE   498
P01C2  092F                INA  $2F           ADD TRAILING SLASH           **MSOS 4.1**            SPACE   499
15 P01C3  4800  00FF       STQ  DATE+1                                     **MSOS 4.1**            SPACE   500
P01C5  6800  00FE          STA  DATE+2        FORM SYSTEM BUILD DATE       **MSOS 4.1**            SPACE   501
P01C7  C800  011C          LDA  DAY                                        **MSOS 4.1**            SPACE   502
P01C9  6800  00FB          STA  DATE+3                                     **MSOS 4.1**            SPACE   503
P01CB  C800  0119          LDA  YEAR                                       **MSOS 4.1**            SPACE   504
20 P01CD  0C2F             ENQ  $2F           ADD LEADING SLASH            **MSOS 4.1**            SPACE   505
P01CE  0FE8                LLS  8                                          **MSOS 4.1**            SPACE   506
P01CF  0920                INA  $20           ADD TRAILING SPACE           **MSOS 4.1**            SPACE   507
P01D0  4800  00F5          STQ  DATE+4                                     **MSOS 4.1**            SPACE   508
P01D2  6800  00F4          STA  DATE+5                                     **MSOS 4.1**            SPACE   509
25
P01D4  54F4                PSRMSG RTJ- (AMONI)   PRINT THE MESSAGE       **MSOS 4.1**            SPACE   510
P01D5  0C01                ADC  $0C01                                                                  SPACE   511
P01D6  0000                ADC  0                                                                      SPACE   512
P01D7  0000                TX   ADC  0                                                                 SPACE   513
30 P01D8  18FC             ADC  $18FC                                                                  SPACE   514
P01D9  0014                ADC  LSUMLV                                                                 SPACE   515
P01DA  02B5 P              ADC  SUMLVL                                                                 SPACE   516

P01DB  C8FB                LTX  LDA* TX                                                                SPACE   518
35 P01DC  0101             SAZ  A101M                                                                  SPACE   519
P01DD  18FD                JMP* LTX           WAIT FOR COMPLETION                                      SPACE   520
```

```
                                *       DETERMINE THE POSITION OF THE PROGRAM PROTECT SWITCH                SPACE   522
5
        P01DE   0500            A101M   IIN   0                                          **MSOS 4.1**  SPACE   524
        P01DF   C400    0101    A101    LDA+  $101       SAVE THE CONTENTS OF THE TRAP      50*919     SPACE   525
        P01E1   681D            A101+1  STA*  S101+1                                      50*919     SPACE   526
10      P01E2   C400    0102    A102    LDA+  $102                                       50*919     SPACE   527
        P01E4   681D            A102+1  STA*  S102+1                                     50*919     SPACE   528
        P01E5   080C            SM      TRM   A           SAVE THE CONTENTS OF "M"        50*919     SPACE   529
        P01E6   681E            SM+1    STA*  SM+1                                      50*919     SPACE   530
        P01E7   C000    1400            LDA   =N$1400     SET UP RETURN                  50*919     SPACE   531
15      P01E9   6CF6            (A101+1)STA*  (A101+1)                                   50*919     SPACE   532
        P01EA   E000    01F2 P          LDQ   =XFAULT                                    50*919     SPACE   533
        P01EC   0700            *       CPB   0                                          50*919     SPACE   534
        P01ED   0A01            *       ENA   1                                          50*919     SPACE   535
        P01EE   0821            *       TRA   M           ALLOW ONLY A PP FAULT          50*919     SPACE   536
20      P01EF   0D06            *       INQ   6                                          **MSOS 4.1**  SPACE   537
        P01F0   4CF2            (A102+1)STQ*  (A102+1)                                   50*919     SPACE   538
        P01F1   0400            *       EIN   0                                          51*919     SPACE   539
        P01F2   4CF0            FAULT   STQ*  (A102+1)                                   50*919     SPACE   540
        P01F3   C800    00AF            LDA   PPFLAG      IS THIS THE FIRST PASS                    SPACE   541
25      P01F5   0103            *       SAZ   HANGIT      NO, HANG WAITING FOR PP SET    **MSOS 4.1**  SPACE   542
        P01F6   D800    00AD            RAO   FLAGIT      SET FLAG FOR SET PP MESSAGE               SPACE   543
        P01F8   1802            *       JMP*  GOPP        GO TO RESTORE PROTECT SETUP    **MSOS 4.1**  SPACE   544
        P01F9   18F8            HANGIT  JMP*  FAULT       WAIT FOR PP FAULT              **MSOS 4.1**  SPACE   545
        P01FA   01E0            GOPP    SPF   0           CLEAR PROTECT FAULT            **MSOS 4.1**  SPACE   546
30      P01FB   0DF9            *       INQ   -6                                         **MSOS 4.1**  SPACE   547
        P01FC   0600            *       SPB   0           RETURN TO PRIOR STATUS         50*919     SPACE   548
```

```
                P01FD  C000  0000   S101   LDA  =NO                                    50*919  SPACE  550
     5          P01FF  6CE0                STA* (A101+1)                               50*919  SPACE  551
                P0200  C000  0000   S102   LDA  =NO                                    50*919  SPACE  552
                P0202  6CE0                STA* (A102+1)                               50*919  SPACE  553
                P0203  C000  0000   SM     LDA  =NO                                    50*919  SPACE  554
                P0205  0821                TRA  M                                      50*919  SPACE  555
    10          P0206  0400                EIN  0                                      50*919  SPACE  556
                P0207  C800  009B          LDA  PPFLAG     IS THIS FIRST TIME THROUGH          SPACE  557
                P0209  0111                SAN  S103                                           SPACE  558
                P020A  1812                JMP* OUTID      SECOND PASS                         SPACE  559
                P020B  C800  0098  S103    LDA  FLAGIT     IS THIS FIRST TIME BUT NEED MSG     SPACE  560
    15          P020D  010E                SAZ  OUTID      SKIP IF NO MSG NEEDED  **MSOS 4.1** SPACE  561
                P020E  0844                CLR  A          NEED TO SET PP         **MSOS 4.1** SPACE  562
                P020F  6800  0093          STA  PPFLAG     SECOND TIME FLAG                    SPACE  563

                P0211  54F4                RTJ- (AMONI)    WRITE PP MESSAGE       **MSOS 4.1** SPACE  565
    20          P0212  0C01                ADC  $0C01                             **MSOS 4.1** SPACE  566
                P0213  0000                ADC  0                                 **MSOS 4.1** SPACE  567
                P0214  0000          PPTH  ADC  0                                 **MSOS 4.1** SPACE  568
                P0215  18FC                ADC  $18FC                             **MSOS 4.1** SPACE  569
                P0216  000C                ADC  12                                **MSOS 4.1** SPACE  570
    25          P0217  02C9 P              ADC  PP                                **MSOS 4.1** SPACE  571

                P0218  C8FB          PPWAIT LDA* PPTH                             **MSOS 4.1** SPACE  573
                P0219  0101                SAZ  OUTPP                             **MSOS 4.1** SPACE  574
                P021A  18FD                JMP* PPWAIT     WAIT FOR COMPLETION    **MSOS 4.1** SPACE  575
    30          P021B  18C2          OUTPP JMP* A101M      GO WAIT FOR PP SET     **MSOS 4.1** SPACE  576
```

```
                                *       PRINT THE SYSTEM IDENTIFICATION                 **MSOS 4.1** SPACE    578
5
         P021C  C000  7FFF X    OUTID   LDA  =XSYSID                                   **MSOS 4.1** SPACE    580
         P021E  B011                    EOR- LPMSK+15      IS THE IDENTIFICATION PATCHED **MSOS 4.1** SPACE  581
         P021F  0111                    SAN  ID1                                     **MSOS 4.1** SPACE    582
10       P0220  1822                    JMP* MODE          NO, DONT PRINT IT         **MSOS 4.1** SPACE    583
         P0221  C400  021D X    ID1     LDA+ SYSID                                   **MSOS 4.1** SPACE    584
         P0223  6800  0084              STA SAVID                                                 SPACE    585
         P0225  A009                    AND- LPMSK+7                                 **MSOS 4.1** SPACE    586
         P0226  B000  0D00              EOR  =N$0D00      ADD AN EXTRA CARRIAGE RETURN **MSOS 4.1** SPACE    587
15       P0228  6400  0222 X           STA+ SYSID                                   **MSOS 4.1** SPACE    588

         P022A  0C0F                    ENQ  15           FIND THE END OF THE TRAILING **MSOS 4.1** SPACE   590
         P022B  C600  0229 X    ID2     LDA+ SYSID,Q         BLANKS IN THE IDENTIFICATION **MSOS 4.1** SPACE 591
         P022D  9000  2020              SUB  =A                                      **MSOS 4.1** SPACE    592
20       P022F  0113                    SAN  ID3          FOUND THE END             **MSOS 4.1** SPACE    593
         P0230  0DFE                    INQ  -1                                      **MSOS 4.1** SPACE    594
         P0231  017D                    SQM  ID4          ALL BLANK, DONT PRINT     **MSOS 4.1** SPACE    595
         P0232  18F8                    JMP* ID2                                     **MSOS 4.1** SPACE    596
         P0233  0D01            ID3     INQ  1                                       **MSOS 4.1** SPACE    597
25       P0234  4806                    STQ* IDL          FORM THE MESSAGE LENGTH   **MSOS 4.1** SPACE    598

         P0235  54F4                    RTJ- (AMONI)      PRINT THE IDENTIFICATION  **MSOS 4.1** SPACE    600
         P0236  0C01                    ADC  $0C01                                   **MSOS 4.1** SPACE    601
         P0237  0000                    ADC  0                                       **MSOS 4.1** SPACE    602
30       P0238  0000            IDTH    ADC  0                                       **MSOS 4.1** SPACE    603
         P0239  18FC                    ADC  $18FC                                   **MSOS 4.1** SPACE    604
         P023A  0000            IDL     ADC  0                                       **MSOS 4.1** SPACE    605
         P023B  022C X                  ADC  SYSID                                   **MSOS 4.1** SPACE    606

35       P023C  C8FB            IDWAIT  LDA* IDTH                                    **MSOS 4.1** SPACE    608
         P023D  0101                    SAZ  ID4                                     **MSOS 4.1** SPACE    609
         P023E  18FD                    JMP* IDWAIT       WAIT FOR COMPLETION       **MSOS 4.1** SPACE    610

         P023F  C869            ID4     LDA* SAVID                                   **MSOS 4.1** SPACE    612
40       P0240  6400  023B X           STA+ SYSID        RESTORE LEADING BLANK IN THE ID **MSOS 4.1** SPACE 613
```

```
                                *       DETERMINE THE CORE SIZE MODE, AND PRINT IT                      SPACE   615
5
        P0242   CC63            MODE    LDA* (I1)       CHECK MULTI-LEVEL INDIRECT      **MSOS 4.1** SPACE   617
        P0243   B864                    EOR* I3             FOR MODE                    **MSOS 4.1** SPACE   618
        P0244   0101                    SAZ  M32K                                       **MSOS 4.1** SPACE   619
10      P0245   1804                    JMP* M65K                                       **MSOS 4.1** SPACE   620
        P0246   C000   02D5 P   M32K    LDA  =XX32K     SETUP 32K MODE                  **MSOS 4.1** SPACE   621
        P0248   1805                    JMP* STO                                        **MSOS 4.1** SPACE   622
        P0249   C000   02DC P   M65K    LDA  =XX65K     SETUP 65K MODE                  **MSOS 4.1** SPACE   623
        P024B   0C01                    ENQ  1                                          **MSOS 4.1** SPACE   624
15      P024C   44E9                    STO- ($E9)      SET MODE FLAG                   **MSOS 4.1** SPACE   625
        P024D   6807            STO     STA* MMODE                                      **MSOS 4.1** SPACE   626

        P024E   54F4                    RTJ- (AMONI)    WRITE MODE MESSAGE              **MSOS 4.1** SPACE   628
        P024F   0C01                    ADC  $0C01                                      **MSOS 4.1** SPACE   629
20      P0250   0000                    ADC  0                                          **MSOS 4.1** SPACE   630
        P0251   0000            MODETH  ADC  0                                          **MSOS 4.1** SPACE   631
        P0252   18FC                    ADC  $18FC                                      **MSOS 4.1** SPACE   632
        P0253   0007                    ADC  7                                          **MSOS 4.1** SPACE   633
        P0254   0000            MMODE   ADC  0                                          **MSOS 4.1** SPACE   634
25
        P0255   C8FB            MODWAT  LDA* MODETH                                     **MSOS 4.1** SPACE   636
        P0256   0101                    SAZ  FILCLS                                                  SPACE   637
        P0257   18FD                    JMP* MODWAT     WAIT FOR COMPLETION             **MSOS 4.1** SPACE   638
        P0258   C000   7FFF X   FILCLS  LDA  =XJBFLV4                                                SPACE   639
30      P025A   0102                    SAZ  FILCHK                                                  SPACE   640
        P025B   5800   01B3             RTJ  CLSFIL     GO CLOSE ALL JOB FILES                       SPACE   641

        P025D   5800   0088     FILCHK  RTJ  BONES      GO CHECK FOR FILE ERRORS                     SPACE   643
        P025F   0500                    IIN  0          INHIBIT WHILE SETTING PRIORITIES             SPACE   644
35      P0260   E849            T1      LDQ* ATC        LOAD Q WITH COUNT VALUE                      SPACE   645
        P0261   EA49                    LDQ* T,Q        GET ADDRESS FROM TABLE                       SPACE   646
        P0262   0814                    TRQ  A          DO NOT SET PRIORITY IF                       SPACE   647
        P0263   B011                    EOR- LPMSK+15   EXTERNAL IS UNPATCHED                        SPACE   648
        P0264   0107                    SAZ  T1B                                                     SPACE   649
40      P0265   C622                    LDA- (ZERO),Q   IF VALUE OF ADDRESS IS ZERO                  SPACE   650
        P0266   0107                    SAZ  SETPF      TABLE IS COMPLETED                           SPACE   651
        P0267   C400   7FFF X           LDA  PCORE      GET CORE DRIVER COMPLETION PRIORITY          SPACE   652
        P0269   A006                    AND- LPMSK+4                                                 SPACE   653
        P026A   B622                    EOR- (ZERO),Q   AND                                          SPACE   654
45      P026B   6622                    STA- (ZERO),Q   STORE BACK INTO REQUEST                      SPACE   655
        P026C   D83D            T1B     RAO* ATC        CONTINUE SETTING PRIORITIES                  SPACE   656
        P026D   18F2                    JMP* T1                                                      SPACE   657
```

```
                                        *       CHECK IF NEED TO SET UP PAGE FILE FOR EXTENDED CORE STORAGE      SPACE   659
                                        *                                                                       SPACE   660
     P026E   C000   7FFF X     SETPF   LDA   =XP18ECM       FETCH EXTENDED CORE POINTER                       SPACE   661
     P0270   B011                       EOR-  LPMSK+15                                                        SPACE   662
     P0271   0111                       SAN   SPF             SKIP IF ECM IN THE SYSTEM                       SPACE   663
     P0272   1829                       JMP*  T1AA                                                            SPACE   664
     P0273   0C1F                 SPF   ENQ   31              SET LAST PAGE FILE ADDRESS                      SPACE   665
     P0274   0814                 SPF1  TRQ   A                                                               SPACE   666
     P0275   0FCB                       ALS   11              PAGE FILE SELECTED. BITS 11-15                  SPACE   667
     P0276   0874                       EAQ   A               VALUE SET . BITS 0-8                            SPACE   668
                                        *       BITS 0-8 OF A GO INTO PAGE FILE SPECIFIED BY BITS 11-15 OF A     SPACE   669
                                        *       BIT 10 SPECIFIES FILE 0 OR 1      0 FOR PAGE FILE ZERO          SPACE   670
     P0277   0BC3                       NUM   $0BC3           HARD CODE ENHANCED INSTRUCTION                  SPACE   671
                                        *       WPR   A               SET UP THIS PAGE FILE                   SPACE   672
     P0278   0142                       SQZ   SPF5            SKIP IF ALL FILE ENTRIES SET                    SPACE   673
     P0279   0DFE                       INQ   -1                                                              SPACE   674
     P027A   18F9                       JMP*  SPF1            CONTINUE SETTING PAGE FILES                     SPACE   675
     P027B   0B0C                 SPF5  NUM   $0B0C           SET PAGE MODE TO ZERO                           SPACE   676
                                        *       WANT TO RESET UPPER CORE IN CASE OF PARITY IN MOS MEMORY.        SPACE   677
                                        *       FETCH AND RESTORE WILL CLEAR ANY PARITY AND NOT CHANGE UPPER CORE SPACE   678
     P027C   0A20                       ENA   $20             BIAS TO FIRST 65K OF UPPER CORE                 SPACE   679
     P027D   681D                       STA*  PFCNT                                                           SPACE   680
     P027F   0500                       IIN   0                                                               SPACE   681
     P027F   9400   7FFF X     RSET1   SUB   P18MXP          MINUS MAXIMUM PAGE IN SYSTEM                    SPACE   682
     P0281   0133                       SAM   RSET2           SKIP IF NOT END                                 SPACE   683
     P0282   0102                       SAZ   RSET2           SKIP IF NOT DONE                                SPACE   684
     P0283   01C0                       SPE   0               CLEAR PARITY INT AND STATUS                     SPACE   685
     P0284   1817                       JMP*  T1AA                                                            SPACE   686
     P0285   C815                 RSET2 LDA*  PFCNT                                                           SPACE   687
     P0286   B400   7FFF X             EOR   P18PGA          BRING IN ECM PAGE ADDRESS BITS 10-15            SPACE   688
     P0288   0BC3                       NUM   $0BC3           HARD CODE ENHANCED INSTRUCTION                  SPACE   689
                                        *       WPR   A               SET UP THIS PAGE FILE                   SPACE   690
     P0289   C00D                       LDA-  LPMSK+11        $7FF     LAST ADDRESS IN 2K BLOCK               SPACE   691
     P028A   B400   7FFF X     RSET4   EOR   P18ADD          OR IN BLOCK ADDRESS                             SPACE   692
     P028C   6803                       STA*  LRSET                                                           SPACE   693
     P028D   6804                       STA*  SRSET                                                           SPACE   694
     P028E   C400   0000               LDA+  0000                                                            SPACE   695
                    028F P     LRSET   EQU   LRSET(*-1)                                                      SPACE   696
     P0290   6400   0000               STA+  0000                                                            SPACE   697
                    0291 P     SRSET   EQU   SRSET(*-1)                                                      SPACE   698
     P0292   C8FE                       LDA*  SRSET                                                           SPACE   699
     P0293   A00D                       AND-  LPMSK+11        SAVE 2K ADDRESS ONLY                            SPACE   700
     P0294   0102                       SAZ   RSET6                                                           SPACE   701
     P0295   09FE                       INA   -1                                                              SPACE   702
     P0296   18F3                       JMP*  RSET4                                                           SPACE   703
     P0297   D803                 RSET6 RAO*  PFCNT                                                           SPACE   704
     P0298   C802                       LDA*  PFCNT                                                           SPACE   705
     P0299   18E5                       JMP*  RSET1                                                           SPACE   706
     P029A   0000                 PFCNT NUM   0                                                               SPACE   707
```

```
                P029B  0400           T1AA   EIN  0                                          SPACE   709
                P029C  0A00                   ENA  0                          **MSOS 4.1**  SPACE   710
                P029D  6400  0050 X          STA  MIBX      CLEAR MIPRO AND                 SPACE   711
                P029F  6400  0052 X          STA  EFLOCK    LOGGER LOCKOUT FLAGS  **MSOS 4.1**  SPACE   712
                P02A1  1800  FD71             JMP  TOIDLE    GO TO IDLE EXIT       **MSOS 4.1**  SPACE   713

                P02A3  0001           PPFLAG NUM  1                              **MSOS 4.1**  SPACE   715
                P02A4  0000           FLAGIT NUM  0                              **MSOS 4.1**  SPACE   716

                P02A5  82A6 P         I1     ADC  (I2)                          **MSOS 4.1**  SPACE   718
                P02A6  02A7 P         I2     ADC  I3                           **MSOS 4.1**  SPACE   719
                P02A7  7F9C           I3     NUM  $7F9C                        **MSOS 4.1**  SPACE   720
                P02A8  0000           SAVID  NUM  0                            **MSOS 4.1**  SPACE   721

                P02A9  0000           ATC    NUM  0          INDEX FOR TABLE                 SPACE   723
                P02AA  7FFF X         T      ADC  OUTPUT                                    SPACE   724
                P02AB  7FFF X                ADC  SPACE4                                    SPACE   725
                P02AC  7FFF X                ADC  NOG30A                                    SPACE   726
                P02AD  7FFF X                ADC  REL                                       SPACE   727
                P02AE  7FFF X                ADC  SCH                                       SPACE   728
                P02AF  7FFF X                ADC  PTNALC                                    SPACE   729
                P02B0  7FFF X                ADC  PTNREL                                    SPACE   730
                P02B1  7FFF X                ADC  SPCEV4                                    SPACE   731
                P02B2  7FFF X                ADC  RDPTV4                                    SPACE   732
                P02B3  7FFF X                ADC  OUTPV4                                    SPACE   733
                P02B4  0022                  ADC  ZERO      THIS IS USED TO INDICATE THE END SPACE   734
```

```
                P02B5  0D0A          SUMLVL NUM  $0D0A                                          SPACE    736
 5              P02B6  4D53                 ALF  10,MSOS 5.0--PSR LEVEL                       SPACE    737
                P02B7  4F53
                P02B8  2035
                P02B9  2E30
                P02BA  2D2D
10              P02BB  5053
                P02BC  5220
                P02BD  4C45
                P02BE  5645
                P02BF  4C20
15              P02C0  2031                 NUM  $2031        FOR PSR SUMMARIES OVER 100    SPACE    738
                P02C1  7FFF X               ADC  SYSLVL       SYSLVL ISC2 LEAST SIGNIFICANT DIGITS
                                                                                              SPACE    739
                P02C2  2020          DATE   ALF  6,                                **MSOS 4.1** SPACE    740
                P02C3  2020
                P02C4  2020
20              P02C5  2020
                P02C6  2020
                P02C7  2020
                P02C8  200D                 NUM  $200D                                        SPACE    741
                              0014          EQU  LSUMLV(*-SUMLVL)                  **MSOS 4.1** SPACE    742
25
                P02C9  200D          PP     NUM  $200D                                        SPACE    744
                P02CA  5345                 ALF  10,SET PROGRAM PROTECT            **MSOS 4.1** SPACE    745
                P02CB  5420
                P02CC  5052
30              P02CD  4F47
                P02CE  5241
                P02CF  4D20
                P02D0  5052
                P02D1  4F54
35              P02D2  4543
                P02D3  5420
                P02D4  200D                 NUM  $200D                             **MSOS 4.1** SPACE    746

                P02D5  0D0A          X32K   NUM  $0D0A                             **MSOS 4.1** SPACE    748
40              P02D6  3332                 ALF  4,32K MODE                        **MSOS 4.1** SPACE    749
                P02D7  4B20
                P02D8  4D4F
                P02D9  4445
                P02DA  0D0A                 NUM  $0D0A                             **MSOS 4.1** SPACE    750
45              P02DB  200D                 NUM  $200D                             **MSOS 4.1** SPACE    751

                P02DC  0D0A          X65K   NUM  $0D0A                             **MSOS 4.1** SPACE    753
                P02DD  3635                 ALF  4,65K MODE                        **MSOS 4.1** SPACE    754
                P02DE  4B20
50              P02DF  4D4F
                P02E0  4445
                P02E1  0D0A                 NUM  $0D0A                             **MSOS 4.1** SPACE    755
                P02E2  200D                 NUM  $200D                             **MSOS 4.1** SPACE    756

55              P02E3  7FFF X        MONTH  ADC  SYSMON                            **MSOS 4.1** SPACE    758
                P02E4  7FFF X        DAY    ADC  SYSDAY                            **MSOS 4.1** SPACE    759
                P02E5  7FFF X        YEAR   ADC  SYSYER                            **MSOS 4.1** SPACE    760
```

```
                                *     SUBROUTINE TO CHECK ALL FILE MANAGER SPACE THREADS                SPACE   762
 5
                                
          P02E6  0B00           BONES NOP  0                                                          SPACE   764
          P02E7  C861                 LDA* FSPNT                                                      SPACE   765
          P02E8  9011                 SUB- LPMSK+15     IS THERE A FILE MANAGER IN THIS SYSTEM         SPACE   766
10        P02E9  0111                 SAN  1            YES                                           SPACE   767
          P02EA  1CFB                 JMP* (BONES)      NO, RETURN                                    SPACE   768
                                
          P02EB  0C00                 ENQ  0                                                          SPACE   770
          P02EC  5800  00EC           RTJ  MESSAG       PRINT INITIAL MESSAGE                         SPACE   771
15        P02EE  C400  7FFF X         LDA+ ADRFMS                                                     SPACE   772
          P02F0  6864                 STA* SECTOR       INITIALIZE THE LIBRARY UNIT SPACE ADDRESS      SPACE   773
          P02F1  CC57           BONES0 LDA* (FSPNT)      GET FSLIST POINTER                            SPACE   774
          P02F2  0900                 INA  0            IS THIS THE END OF THE LIST                   SPACE   775
          P02F3  0114                 SAN  BONES1       NO                                            SPACE   776
20        P02F4  0C01                 ENQ  1            YES, PRINT FINAL MESSAGE                      SPACE   777
          P02F5  5800  00E3           RTJ  MESSAG                                                     SPACE   778
          P02F7  1CEE                 JMP* (BONES)      AND RETURN                                    SPACE   779
          P02F8  0842           BONES1 CLR  Q                                                         SPACE   780
          P02F9  4853                 STQ* ACCUM        CLEAR LU AVAILABLE ACCUMULATOR                SPACE   781
25        P02FA  0FE9                 LLS  9            SHIFT LU ENTRY LENGTH INTO Q                  SPACE   782
          P02FB  0FC7                 ALS  7            SHIFT LU NUMBER INTO A                        SPACE   783
          P02FC  484E                 STQ* LUENTL       SAVE LU ENTRY LENGTH                          SPACE   784
          P02FD  687A                 STA* MMLU         SET UP LU FOR READ                            SPACE   785
          P02FE  E84A                 LDQ* FSPNT        GET LIST POINTER INTO Q                       SPACE   786
30        P02FF  C201                 LDA- 1,Q          GET START OF FILE SPACE POOL                  SPACE   787
          P0300  684B                 STA* BGSCPL          AND SAVE IT                                SPACE   788
          P0301  C202                 LDA- 2,Q          GET NUMBER OF AVAILABLE SECTORS               SPACE   789
          P0302  684B                 STA* FSENTO          AND SAVE IT                                SPACE   790
          P0303  0D04                 INQ  4            INCREASE POINTER AROUND HEADER WORDS          SPACE   791
35        P0304  4845                 STQ* FSLUPT          AND SAVE AS LU ENTRY POINTER               SPACE   792
          P0305  0116                 SAN  BONES2       SKIP IF FSLIST HAS BEEN SET UP                SPACE   793
          P0306  C842                 LDA* FSPNT        GET POINTER TO CURRENT LU ENTRY               SPACE   794
          P0307  8843                 ADD* LUENTL          INCREMENT IT BY LENGTH OF THE ENTRY        SPACE   795
          P0308  6840                 STA* FSPNT        AND STORE IT AS THE CURRENT LU ENTRY POINTER   SPACE   796
40        P0309  0844                 CLR  A                                                          SPACE   797
          P030A  6842                 STA* ACCUM        CLEAR ACCUMULATOR                             SPACE   798
          P030B  1825                 JMP* BONES7       GO PROCESS NEXT LU                            SPACE   799
```

```
                P030C  C83F  BONES2 LDA* BGSCPL  GET POINTER TO NEXT FILE SPACE POOL HEADER      SPACE  801
 5              P030D  010F         SAZ  BONES3    IF IT IS ZERO WE ARE DONE WITH SPACE POOL   SPACE  802
                P030E  5858         RTJ* RDMASS  READ HEADER                                    SPACE  803
                P030F  C844         LDA* MMBUFF+2  GET BLOCK SIZE                               SPACE  804
                P0310  683F         STA* BLKSIZ    AND SAVE IT                                  SPACE  805
                P0311  883B         ADD* ACCUM   INCREMENT ACCUMULATOR                          SPACE  806
10              P0312  683A         STA* ACCUM     BY THE SIZE OF THIS BLOCK                    SPACE  807
                P0313  C83F         LDA* MMBUFF+1  GET POINTER TO NEXT HEADER                   SPACE  808
                P0314  9837         SUB* BGSCPL  DOES THE THREAD POINT TO ITSELF                SPACE  809
                P0315  0111         SAN  BONES6  NO                                             SPACE  810
                P0316  186F         JMP* ERROR   YES,ERROR                                      SPACE  811
15              P0317  C83B  BONES6 LDA* MMBUFF+1                                               SPACE  812
                P0318  6833         STA* BGSCPL  SAVE HEADER POINTER                            SPACE  813
                P0319  C838         LDA* MMBUFF  GET THREAD POINTER                             SPACE  814
                P031A  6834         STA* THDPNT    AND SET UP TO ANALIZE IT                     SPACE  815
                P031B  5817         RTJ* ANATHD  ANALIZE THREAD                                 SPACE  816
20              P031C  18EF         JMP* BONES2  GO GET NEXT HEADER AND SET IT UP FOR ANALYSIS  SPACE  817
                P031D  C82C  BONES3 LDA* FSLUPT  LOAD  LU POINTER                               SPACE  818
                P031E  982A         SUB* FSPNT     SUBTRACT POINTER TO FIRST WORD FOR THIS LU   SPACE  819
                P031F  982B         SUB* LUENTL       SUBTRACT LENGTH OF THIS LUS ENTRY         SPACE  820
                P0320  0137         SAM  BONES4  IF NEGATIVE SET UP TO ANALIZE NEXT CORE THREAD SPACE  821
25              P0321  C82B         LDA* ACCUM   GET OUR TOTAL                                  SPACE  822
                P0322  982B         SUB* FSENTO    SUBTRACT THEIR TOTAL                         SPACE  823
                P0323  0101         SAZ  BONES5  SHOULD BE EQUAL                                SPACE  824
                P0324  1861         JMP* ERROR   NOT EQUAL, ERROR EXIT                          SPACE  825
                P0325  C824  BONES5 LDA* FSLUPT  GET CURRENT LU POINTER                         SPACE  826
30              P0326  6822         STA* FSPNT     AND USE IT AS HEADER POINTER FOR NEXT ENTRY   SPACE  827
                P0327  1809         JMP* BONES7  GO ANALIZE NEXT LUS ENTRY                      SPACE  828
                P0328  CC21  BONES4 LDA* (FSLUPT)  GET THREAD POINTER                           SPACE  829
                P0329  6825         STA* THDPNT    AND STORE IT                                 SPACE  830
                P032A  D81F         RAO* FSLUPT  INCREMENT LU POINTER                           SPACE  831
35              P032B  CC1E         LDA* (FSLUPT)  GET THIS THREADS BLOCK SIZE                  SPACE  832
                P032C  6823         STA* BLKSIZ    AND SAVE IT                                  SPACE  833
                P032D  D81C         RAO* FSLUPT  INCREMENT LU POINTER                           SPACE  834
                P032E  5804         RTJ* ANATHD  GO ANALIZE THREAD                              SPACE  835
                P032F  18ED         JMP* BONES3  GO SEE IF WE ARE DONE                          SPACE  836
40              P0330  D820  BONES7 RAO* LUNO    INCREMENT THE LU COUNT                         SPACE  837
                P0331  18BF         JMP* BONES0    AND CONTINUE                                 SPACE  838
```

```
                                *                                                    SPACE   840
5                               *  ROUTINE TO ANALIZE THREADS                        SPACE   841
                                *                                                    SPACE   842
        P0332   0000    ANATHD NUM  0           ENTRY POINT                          SPACE   843
        P0333   C81B    ANATHO LDA* THDPNT      GET THREAD POINTER                   SPACE   844
        P0334   0111           SAN  ANATH1        IF NONZERO GO ANALIZE IT           SPACE   845
10      P0335   1CFC           JMP* (ANATHD)     FINISHED WITH THIS THREAD, EXIT      SPACE   846
        P0336   C819  ANATH1 LDA* BLKSIZ        GET BLOCK SIZE                       SPACE   847
        P0337   8815           ADD* ACCUM         INCREMENT ACCUMULATOR              SPACE   848
        P0338   6814           STA* ACCUM                                            SPACE   849
        P0339   9814           SUB* FSENTO       SUBTRACT THEIR AVAILABLE SPACE FOR THIS LU  SPACE   850
15      P033A   0132           SAM  ANATH2       SKIP IF NOT BEYOND IT              SPACE   851
        P033B   0101           SAZ  ANATH2       SKIP IF NOT BEYOND IT              SPACE   852
        P033C   1849           JMP* ERROR        ALREADY TO MUCH, ERROR EXIT        SPACE   853
        P033D   C811  ANATH2 LDA* THDPNT        GET SECTOR FOR READ                  SPACE   854
        P033E   5828           RTJ* RDMASS       READ UP NEXT ENTRY IN THREAD       SPACE   855
20      P033F   C812           LDA* MMBUFF       GET THREAD                         SPACE   856
        P0340   980E           SUB* THDPNT       DOES IT POINT TO ITSELF            SPACE   857
        P0341   0111           SAN  ANATH3       NO                                 SPACE   858
        P0342   1843           JMP* ERROR        YES, ERROR                         SPACE   859
        P0343   C80E  ANATH3 LDA* MMBUFF                                            SPACE   860
25      P0344   680A           STA* THDPNT       SAVE THE NEW THREAD                SPACE   861
        P0345   18ED           JMP* ANATHO       GO INCREMENT ACCUMULATOR           SPACE   862
```

```
                                *                                                                SPACE   864
 5                              *       DATA STORAGE                                             SPACE   865
                                *                                                                SPACE   866
      P0346  0000               NUMRD   NUM   0          ACCUMULATOR OF NUMBER PASSES THROUGH RDMASS SPACE   867
      P0347  7FFF               MAXRD   NUM   $7FFF      PASS CYCLE LIMIT                         SPACE   868
      P0348  7FFF X             FSPNT   ADC   FSLIST     FILE SPACE LIST POINTER                  SPACE   869
10    P0349  0000               FSLUPT  NUM   0          CURRENT LU POINTER                       SPACE   870
      P034A  0000               LUENTL  NUM   0          LENGTH OF THIS LUS ENTRY                 SPACE   871
      P034B  0000               BGSCPL  NUM   0          POINTER TO FILE SPACE POOL               SPACE   872
      P034C  0000               ACCUM   NUM   0          ANALYSIS ACCUMULATOR                     SPACE   873
      P034D  0000               FSENTO  NUM   0          WHAT THEY THINK TOTAL SHOULD BE          SPACE   874
15    P034E  0000               THDPNT  NUM   0          CURRENT THREAD POINTER                   SPACE   875
      P034F  0000               BLKSIZ  NUM   0          CURRENT BLOCK SIZE                       SPACE   876
      P0350  0000               LUNO    NUM   0          CURRENT UNIT NUMBER                      SPACE   877
      P0351        0003         MMBUFF  BZS   MMBUFF(3)  MASS MEMORY READ BUFFER                  SPACE   878

20    P0354  0000               SECTOR  ADC   0          TABLE OF SPACE POOL STARTING SECTORS     SPACE   880
      P0355  7FFF X                     ADC   BEGLU1                                             SPACE   881
      P0356  7FFF X                     ADC   BEGLU2                                             SPACE   882
      P0357  7FFF X                     ADC   BEGLU3                                             SPACE   883
      P0358  7FFF X                     ADC   BEGLU4                                             SPACE   884
25    P0359  7FFF X                     ADC   BEGLU5                                             SPACE   885
      P035A  7FFF X                     ADC   BEGLU6                                             SPACE   886
      P035B  7FFF X                     ADC   BEGLU7                                             SPACE   887
      P035C  7FFF X                     ADC   BEGLU8                                             SPACE   888
      P035D  7FFF X             LENGTH  ADC   NUMFS0     TABLE OF SPACE POOL LENGTHS              SPACE   889
30    P035E  7FFF X                     ADC   NUMFS1                                             SPACE   890
      P035F  7FFF X                     ADC   NUMFS2                                             SPACE   891
      P0360  7FFF X                     ADC   NUMFS3                                             SPACE   892
      P0361  7FFF X                     ADC   NUMFS4                                             SPACE   893
      P0362  7FFF X                     ADC   NUMFS5                                             SPACE   894
35    P0363  7FFF X                     ADC   NUMFS6                                             SPACE   895
      P0364  7FFF X                     ADC   NUMFS7                                             SPACE   896
      P0365  7FFF X                     ADC   NUMFS8                                             SPACE   897
```

```
                                *                                                    SPACE   899
                                *  ROUTINE TO READ THREE WORDS FROM MASS MEMORY      SPACE   900
                                *                                                    SPACE   901
P0366  0000   RDMASS NUM  0                                                          SPACE   902
P0367  6814          STA* SEC          SAVE THE CURRENT SECTOR                       SPACE   903
P0368  E8E7          LDQ* LUNO                                                       SPACE   904
P0369  CAEA          LDA* SECTOR,Q                                                   SPACE   905
P036A  9811          SUB* SEC          IS THE CURRENT SECTOR IN RANGE                SPACE   906
P036B  0101          SAZ  SAMOK        YES, SAME SECTOR                              SPACE   907
P036C  0125          SAP  RDMO         NO                                            SPACE   908
P036D  CAE6   SAMOK  LDA* SECTOR,Q     CALCULATE THE END SECTOR FOR THIS UNIT        SPACE   909
P036E  8AEE          ADD* LENGTH,Q                                                   SPACE   910
P036F  09FE          INA  -1                                                         SPACE   911
P0370  980B          SUB* SEC          IS THE CURRENT SECTOR IN RANGE                SPACE   912
P0371  0121          SAP  RDM1         YES                                           SPACE   913
P0372  1813   RDMO   JMP* ERROR        NO, ERROR                                     SPACE   914

P0373  54F4   RDM1   RTJ- (AMOM1)      READ THE THREAD                               SPACE   916
P0374  0801          ADC  $0801                                                      SPACE   917
P0375  0000          ADC  0                                                          SPACE   918
P0376  0000   RDTHD  ADC  0                                                          SPACE   919
P0377  0000   MMLU   ADC  0                                                          SPACE   920
P0378  0003          ADC  3                                                          SPACE   921
P0379  0351 P        ADC  MMBUFF                                                     SPACE   922
P037A  0000          ADC  0                                                          SPACE   923
P037B  0000   SEC    ADC  0                                                          SPACE   924

P037C  C8F9   RDWAIT LDA* RDTHD                                                      SPACE   926
P037D  0101          SAZ  RDMIN                                                      SPACE   927
P037E  18FD          JMP* RDWAIT       WAIT FOR COMPLETION                           SPACE   928

P037F  0175   RDMIN  SQM  ERROR        I/O ERROR                                     SPACE   930
P0380  D8C5          RAO* NUMRD                                                      SPACE   931
P0381  C8C4          LDA* NUMRD                                                      SPACE   932
P0382  98C4          SUB* MAXRD        HAS THE READ CYCLE BEEN EXCEEDED              SPACE   933
P0383  0121          SAP  ERROR        YES, ERROR                                    SPACE   934
P0384  1CE1          JMP* (RDMASS)                                                   SPACE   935
```

```
                                  *      ROUTINE TO PROCESS FILE THREAD ERRORS                    SPACE   937
5
        P0385   0C02              ERROR  ENQ  2                                                  SPACE   939
        P0386   5853                     RTJ* MESSAG       PRINT ERROR MESSAGE                 SPACE   940
10      P0387   54F4                     RTJ- (AMONI)      READ THE REPLY                      SPACE   942
        P0388   0801                     ADC  $0801                                            SPACE   943
        P0389   0000                     ADC  0                                                SPACE   944
        P038A   0000              ERTHD  ADC  0                                                SPACE   945
        P038B   18FD                     ADC  $18FD                                            SPACE   946
15      P038C   0003                     ADC  3                                                SPACE   947
        P038D   0351 P                   ADC  MMBUFF                                           SPACE   948

        P038E   C8FB              ERWAIT LDA* ERTHD                                            SPACE   950
        P038F   0101                     SAZ  ER1          INPUT IS COMPLETE                   SPACE   951
20      P0390   18FD                     JMP* ERWAIT                                           SPACE   952

        P0391   C8BF              ER1    LDA* MMBUFF                                           SPACE   954
        P0392   9000   5945              SUB  =AYE         IS THE ANSWER YES                   SPACE   955
        P0394   0109                     SAZ  CLJFIL       YES, CLEAR THE FILE TABLES          SPACE   956
25      P0395   C8BB                     LDA* MMBUFF                                           SPACE   957
        P0396   9000   4E4F              SUB  =ANO         IS THE ANSWER NO                    SPACE   958
        P0398   0101                     SAZ  ER2          YES, EXIT                           SPACE   959
        P0399   18EB                     JMP* ERROR        NEITHER, REPEAT THE REQUEST         SPACE   960
        P039A   0C03              ER2    ENQ  3                                                SPACE   961
30      P039B   583E                     RTJ* MESSAG       PRINT LF/CR                         SPACE   962
        P039C   1C00   FF48               JMP  (BONES)      EXIT                                SPACE   963


35


        P039F   E0E9              CLJFIL LDQ- $E9                                              SPACE   965
        P039F   0844                     CLR  A            CLEAR JOB TABLE INITIALIZATION FLAG SPACE   966
40      P03A0   6213                     STA- 19,Q         SO JOB FILES WILL BE CLEARED        SPACE   967
```

```
                                *       ROUTINE TO CLEAR ALL SYSTEM FILES                       SPACE   969
5
                                                                                                SPACE   971
P03A1  E000  0348 X  CLFILE LDQ  =XFSLIST                                                       SPACE   972
P03A3  00FC                 INQ  -3                                                             SPACE   973
P03A4  482B                 STQ* CLADR          SAVE THE BASE ADDRESS                       SPACE   974
10 P03A5  0A00              ENA  0                                                          SPACE   975
P03A6  6622                 STA- (ZERO),Q       CLEAR FIDSEC                                SPACE   976
P03A7  6201                 STA- 1,Q            CLEAR FIBLSA                                SPACE   977
P03A8  6202                 STA- 2,Q            CLEAR FIBNIX                                SPACE   978
P03A9  0003                 INQ  3                                                          SPACE   979
15 P03AA  40FF              STO- I              SET UP THE BASE ADDRESS OF FLIST            SPACE   980
P03AB  0C00                 ENQ  0                                                          SPACE   982
P03AC  CAA7          CLFIL1 LDA* SECTOR,Q                                                   SPACE   983
P03AD  6101                 STA- 1,I            INITIALIZE THE FILE MANAGER TABLE           SPACE   984
20 P03AE  0A00              ENA  0                                                          SPACE   985
P03AF  6102                 STA- 2,I                                                        SPACE   986
P03B0  CAAC                 LDA* LENGTH,Q                                                   SPACE   987
P03B1  6103                 STA- 3,I                                                        SPACE   988
P03B2  C4FF                 LDA- (I)                                                        SPACE   989
25 P03B3  0F47              ARS  7              LENGTH OF THIS UNIT                         SPACE   990
P03B4  80FF                 ADD- I                                                          SPACE   991
P03B5  60FF                 STA- I              POINT TO NEXT UNIT                          SPACE   992
P03B6  C4FF                 LDA- (I)                                                        SPACE   993
P03B7  0900                 INA  0              IS THE LIST COMPLETE                        SPACE   994
30 P03B8  0102              SAZ  CLFIL2         YES                                         SPACE   995
P03B9  0001                 INQ  1                                                          SPACE   996
P03BA  18F1                 JMP* CLFIL1         CONTINUE
```

```
                P03BB  0A60          CLFIL2 ENA  96          CALCULATE THE WORD ADDRESS OF          SPACE   998
      5         P03BC  0C04                 ENQ  4           THE CORE IMAGE                         SPACE   999
                P03BD  26E9                 MUI- ($E9),Q                                        SPACE  1000
                P03BE  0FE1                 LLS  1                                              SPACE  1001
                P03BF  0FCF                 ALS  15                                             SPACE  1002
                P03C0  880F                 ADD* CLADR       CALCULATE THE ADDRESS OF THE FILE TABL SPACE  1003
     10         P03C1  0122                 SAP  CLFIL3      IN THE CORE IMAGE                      SPACE  1004
                P03C2  0001                 INQ  1                                              SPACE  1005
                P03C3  A011                 AND- LPMSK+15                                       SPACE  1006
                P03C4  480C          CLFIL3 STQ* FLMSB                                          SPACE  1007

     15         P03C5  680C                 STA* FLLSB       SAVE FOR THE TRANSFER                  SPACE  1009
                P03C6  C0FF                 LDA- I                                              SPACE  1010
                P03C7  9808                 SUB* CLADR                                          SPACE  1011
                P03C8  6806                 STA* CLLEN       LENGTH OF THE TRANSFER                 SPACE  1012

     20         P03C9  54F4                 RTJ- (AMONI)                                        SPACE  1014
                P03CA  0401                 ADC  $0401       WRITE CLEARED TABLE TO CORE IMAGE      SPACE  1015
                P03CB  0000                 ADC  0                                              SPACE  1016
                P03CC  0000          CLTHD  ADC  0                                              SPACE  1017
                P03CD  08C2                 ADC  $08C2                                          SPACE  1018
     25         P03CE  0000          CLLEN  ADC  0                                              SPACE  1019
                P03CF  0000          CLADR  ADC  0                                              SPACE  1020
                P03D0  0000          FLMSB  ADC  0                                              SPACE  1021
                P03D1  0000          FLLSB  ADC  0                                              SPACE  1022

     30         P03D2  C8F9          CLFIL4 LDA* CLTHD                                          SPACE  1024
                P03D3  0101                 SAZ  CLFIL5      THE WRITE IS COMPLETE                  SPACE  1025
                P03D4  18FD                 JMP* CLFIL4                                         SPACE  1026

                P03D5  0C03          CLFIL5 ENQ  3                                              SPACE  1028
     35         P03D6  5803                 RTJ* MESSAG      PRINT LF/CR                            SPACE  1029
                P03D7  1C00  FF0D           JMP  (BONES)     RETURN                                 SPACE  1030
```

```
                                *       MESSAGE SUBROUTINE                                      SPACE   1032
5
P03D9   0B00            MESSAG  NOP   0                                                       SPACE   1034
P03DA   CA0F                    LDA*  MESSAD,Q                                               SPACE   1035
P03DB   6809                    STA*  MESADD          SET UP THE MESSAGE ADDRESS             SPACE   1036
10  P03DC   CA11                LDA*  MESSLN,Q                                               SPACE   1037
P03DD   6806                    STA*  MESLEN          SET UP THE MESSAGE LENGTH              SPACE   1038

P03DE   54F4                    RTJ-  (AMONI)          PRINT THE MESSAGE                      SPACE   1040
P03DF   0401                    ADC   $0401                                                   SPACE   1041
15  P03E0   0000                ADC   0                                                       SPACE   1042
P03E1   0000            MESTHD  ADC   0                                                       SPACE   1043
P03E2   18FC                    ADC   $18FC                                                   SPACE   1044
P03E3   0000            MESLEN  ADC   0                                                       SPACE   1045
P03E4   0000            MESADD  ADC   0                                                       SPACE   1046
20
P03E5   C8FB            MESCHK  LDA*  MESTHD                                                  SPACE   1048
P03E6   0101                    SAZ   MESDUN           OUTPUT COMPLETE                        SPACE   1049
P03E7   18FD                    JMP*  MESCHK                                                  SPACE   1050
P03E8   1CF0            MESDUN  JMP*  (MESSAG)         RETURN                                 SPACE   1051
25
P03E9   03F1 P          MESSAD  ADC   MESSG1           MESSAGE ADDRESS                        SPACE   1053
P03EA   03FA P                  ADC   MESSG2                                                  SPACE   1054
P03EB   03FC P                  ADC   MESSG3                                                  SPACE   1055
P03EC   040E P                  ADC   MESSG4                                                  SPACE   1056
30  P03ED   0009        MESSLN  ADC   LMESS1          MESSAGE LENGTH                         SPACE   1057
P03EE   0002                    ADC   LMESS2                                                  SPACE   1058
P03EF   0012                    ADC   LMESS3                                                  SPACE   1059
P03F0   0001                    ADC   LMESS4                                                  SPACE   1060
```

```
                                    *      FILE CHECK MESSAGES                                    SPACE    1062
 5
          P03F1    4348          MESSG1 ALF  $,CHECKING FILES - $                               SPACE    1064
          P03F2    4543
          P03F3    4B49
10        P03F4    4E47
          P03F5    2046
          P03F6    494C
          P03F7    4553
          P03F8    202D
15        P03F9    2020
                            0009        EQU  LMESS1(*-MESSG1)                                  SPACE    1065
          P03FA    4F4B     MESSG2 ALF  $,OK$                                                  SPACE    1066
          P03FB    0A0A               NUM  $0A0A                                             SPACE    1067
                            0002        EQU  LMESS2(*-MESSG2)                                  SPACE    1068
20        P03FC    4552     MESSG3 ALF  $,ERRORS$                                              SPACE    1069
          P03FD    524F
          P03FE    5253
          P03FF    0D0A               NUM  $0D0A                                             SPACE    1070
          P0400    434C               ALF  $,CLEAR ALL FILES< (YES/NO)  $                    SPACE    1071
25        P0401    4541
          P0402    5220
          P0403    414C
          P0404    4C20
          P0405    4649
30        P0406    4C45
          P0407    533C
          P0408    2028
          P0409    5945
          P040A    532F
35        P040B    4E4F
          P040C    2920
          P040D    2020
                            0012        EQU  LMESS3(*-MESSG3)                                  SPACE    1072
          P040E    0A0A     MESSG4 NUM  $0A0A                                                  SPACE    1073
40                          0001        EQU  LMESS4(*-MESSG4)                                  SPACE    1074
```

```
P040F 0000          CLSFIL NUM  0          SUBROUTINE TO CLOSE ALL JOB FILES          SPACE 1076
P0410 0844                 CLR  A                                                      SPACE 1077
P0411 681E                 STA* V20         INITIALIZE                                 SPACE 1078
P0412 681E                 STA* V22                                                    SPACE 1079
P0413 681E                 STA* V27                                                    SPACE 1080
P0414 E0E9                 LDQ- $E9                                                    SPACE 1081
P0415 C208                 LDA- 8,Q                                                    SPACE 1082
P0416 683D                 STA* FLS05D                                                 SPACE 1083
P0417 5830                 RTJ* FLS05                                                  SPACE 1084
P0418 4800                 NUM  $4800       FREAD JOB FILE DIRECTORY                   SPACE 1085
P0419 C622          FL0601 LDA- (ZERO),Q                                               SPACE 1086
P041A C206                 LDA- 6,Q                                                    SPACE 1087
P041B 0107                 SAZ  FL0610      SKIP IF NOT DEFINED                        SPACE 1088
P041C 0126                 SAP  FL0610      SKIP IF CLOSED                             SPACE 1089
P041D A011                 AND- LPMSK+15                                               SPACE 1090
P041E 6206                 STA- 6,Q         CLOSE FILE                                 SPACE 1091
P041F C207                 LDA- 7,Q                                                    SPACE 1092
P0420 A011                 AND- LPMSK+15                                               SPACE 1093
P0421 6207                 STA- 7,Q         SET TO READ MODE                           SPACE 1094
P0422 D80D                 RAO* V20         SET FILE CLOSED INDICATOR                  SPACE 1095
P0423 C80D          FL0610 LDA* V22                                                    SPACE 1096
P0424 09F6                 INA  -9                                                     SPACE 1097
P0425 0116                 SAN  FL0614                                                 SPACE 1098
P0426 C809                 LDA* V20                                                    SPACE 1099
P0427 0104                 SAZ  FL0614      SKIP IF NO FILES WERE CLOSED               SPACE 1100
P0428 581F                 RTJ* FLS05       REWRITE THE FILE BLOCK                     SPACE 1101
P0429 4C00                 NUM  $4C00       FWRITE                                     SPACE 1102
P042A 0844                 CLR  A                                                      SPACE 1103
P042B 6804                 STA* V20         CLEAR FILE CLOSED INDICATOR                SPACE 1104
P042C 5807          FL0614 RTJ* FLS06       GET NEXT FILE ENTRY IF ANY                 SPACE 1105
P042D 1CE1                 JMP* (CLSFIL)    FINISHED, RETURN                           SPACE 1106
P042E 18EA                 JMP* FL0601      PROCESS THE NEXT ENTRY                     SPACE 1107
                           *                                                           SPACE 1108
P042F 0000          V20    NUM  0           FILE CLOSED INDICATOR                      SPACE 1109
P0430 0000          V22    NUM  0           INDEX TO ENTRY IN FILE BLOCK               SPACE 1110
P0431 0000          V27    NUM  0           INDEX TO NUMBER OF FILES                   SPACE 1111
                           *                                                           SPACE 1112
P0432 1CDC          FILERR JMP* (CLSFIL)    ERROR, RETURN                              SPACE 1113
```

```
P0433 0000          FLS06  NUM  0           SECTION TO FIND NEXT FILE ENTRY            SPACE 1115
P0434 D8FB                 RAO* V22         IN THE FILE BLOCK                          SPACE 1116
P0435 D8FB                 RAO* V27                                                    SPACE 1117
P0436 C000  0259 X         LDA  =XJBFLV4                                               SPACE 1118
P0438 98F8                 SUB* V27                                                    SPACE 1119
P0439 0111                 SAN  FLS06A      NOT DONE, SKIP                             SPACE 1120
P043A 180C                 JMP* FLS069      JUMP IF ALL CHECKED                        SPACE 1121
P043B C8F4          FLS06A LDA* V22         CHECK IF ALL OF THIS BLOCK DONE            SPACE 1122
P043C 09F5                 INA  -10                                                    SPACE 1123
P043D 0102                 SAZ  FLS061      SKIP IF YES                                SPACE 1124
P043E 0009                 INO  9                                                      SPACE 1125
P043F 1806                 JMP* FLS067                                                 SPACE 1126
```

```
                P0440  D813          FLS061 RAO* FLS05D      UPDATE LSB OF SECTOR                    SPACE   1127
                P0441  5806                 RTJ* FLS05       READ THE NEXT SECTOR                    SPACE   1128
            5   P0442  4800                 NUM  $4800       FREAD                                   SPACE   1129
                P0443  0844                 CLR  A                                                   SPACE   1130
                P0444  68EB                 STA* V22         FIRST ENTRY IN FILE BLOCK               SPACE   1131
                P0445  D8ED          FLS067 RAO* FLS06                                               SPACE   1132
                P0446  1CEC          FLS069 JMP* (FLS06)                                             SPACE   1133
           10
           15
                P0447  0000          FLS05  NUM  0            SECTION TO READ/WRITE A FILE BLOCK      SPACE   1135
                P0448  CCFE                 LDA* (FLS05)                                             SPACE   1136
                P0449  6803                 STA* FLS051      SAVE THE REQUEST CODE                   SPACE   1137
                P044A  D8FC                 RAO* FLS05       UPDATE RETURN                           SPACE   1138
           20   P044B  54F4                 RTJ- (AMONI)                                             SPACE   1139
                P044C  0000          FLS051 NUM  0            +0 REQUEST CODE                         SPACE   1140
                P044D  0000                 ADC  0           +1 CA                                   SPACE   1141
                P044E  0000          FLS05A ADC  0           +2 T                                    SPACE   1142
                P044F  08C2          FLS05B NUM  $8C2         +3 LIBRARY UNIT                         SPACE   1143
           25   P0450  0060                 NUM  96          +4 NUMBER OF WORDS                      SPACE   1144
                P0451  045C P        FLS05C ADC  BUF2A        +5 START ADDRESS                        SPACE   1145
                P0452  0000                 NUM  0           +6 MSB                                  SPACE   1146
                P0453  0000          FLS05D NUM  0           +7 LSB                                  SPACE   1147
                                     *                                                                SPACE   1148
           30   P0454  C8F9          FLS052 LDA* FLS05A       CHECK REQUEST COMPLETED                 SPACE   1149
                P0455  0101                 SAZ  FLS053      COMPLETED, SKIP                         SPACE   1150
                P0456  18FD                 JMP* FLS052                                              SPACE   1151
                                     *                                                                SPACE   1152
                P0457  C8F7          FLS053 LDA* FLS05B                                              SPACE   1153
           35   P0458  0121                 SAP  FLS059      NO ERROR. SKIP                          SPACE   1154
                P0459  18D8                 JMP* FILERR      I/O ERROR                               SPACE   1155
                P045A  E8F6          FLS059 LDQ* FLS05C                                              SPACE   1156
                P045B  1CEB                 JMP* (FLS05)                                             SPACE   1157
                P045C        0060    BUF2A  BZS  BUF2A(96)                                           SPACE   1158
```

```
                                *          ALLOCATION LENGTHS                                          SPACE   1160
                                *                                                                      SPACE   1161
                                *     AREAS 1, 2, AND 3 ARE SETUP BY *S CONTROL CARDS IN   **MSOS 4.1** SPACE   1162
                                *     SYSTEM INSTALLATION FILE.  AREAS 4-15 ARE SETUP BY   **MSOS 4.1** SPACE   1163
                                *     EQUATES IN SYSDAT                                    **MSOS 4.1** SPACE   1164

     P04BC   7FFF X        ALCLGH ADC  N1          ALLOCATION LENGTH FOR AREA 1                          SPACE   1166
     P04BD   7FFF X               ADC  N2          ALLOCATION LENGTH FOR AREA 2                          SPACE   1167
     P04BE   00FA X               ADC  PSIZV4      ALLOCATION LENGTH FOR AREA 3   **MSOS 4.1**       SPACE   1168
     P04BF   7FFF X               ADC  N4          ALLOCATION LENGTH FOR AREA 4                          SPACE   1169
     P04C0   7FFF X               ADC  N5          ALLOCATION LENGTH FOR AREA 5                          SPACE   1170
     P04C1   7FFF X               ADC  N6          ALLOCATION LENGTH FOR AREA 6                          SPACE   1171
     P04C2   7FFF X               ADC  N7          ALLOCATION LENGTH FOR AREA 7                          SPACE   1172
     P04C3   7FFF X               ADC  N8          ALLOCATION LENGTH FOR AREA 8                          SPACE   1173
     P04C4   7FFF X               ADC  N9          ALLOCATION LENGTH FOR AREA 9                          SPACE   1174
     P04C5   7FFF X               ADC  N10         ALLOCATION LENGTH FOR AREA 10                         SPACE   1175
     P04C6   7FFF X               ADC  N11         ALLOCATION LENGTH FOR AREA 11                         SPACE   1176
     P04C7   7FFF X               ADC  N12         ALLOCATION LENGTH FOR AREA 12                         SPACE   1177
     P04C8   7FFF X               ADC  N13         ALLOCATION LENGTH FOR AREA 13                         SPACE   1178
     P04C9   7FFF X               ADC  N14         ALLOCATION LENGTH FOR AREA 14                         SPACE   1179
     P04CA   7FFF X               ADC  N15         ALLOCATION LENGTH FOR AREA 15                         SPACE   1180



     P04CB   1800  FB4F             JMP  RESTRT      MUST ALWAYS BE 2 WORD INSTRUCTION  **MSOS4.0*      SPACE   1182
                                *          AUTOLOAD PROGRAM MOVED TO HERE                                SPACE   1183
                                *                                                                    *  SPACE   1184
     P04CD   1800  FB4D     STMSV4 JMP  RESTRT      FIRST WORD OF AUTOLOAD PROGRAM     **MSOS4.0*      SPACE   1185



     P04CF         0002             BSS  (2)         RESERVE TWO WORD FOR THE ALLOCATABLE                  SPACE   1187
                                *                     CORE THREAD                                          SPACE   1188
     P04D1                            END                                                                 SPACE   1189
```

67774B STORAGE USED 1347 STATEMENTS 353 SYMBOLS
6400 ASSEMBLY 7.335 SECONDS 987 REFERENCES

COMPLETE REFERENCE MAP.

ACCP	0071		10/26 Q	12/18					
ACCUM	034C		28/24	28/41	29/09	29/10	29/25	30/12	30/13	31/13 L
ADRFMS	02EF	*EXTERNAL*	3/26 X	28/15					
ALCLGH	04BC		2/21 E	6/24	6/26	6/31	8/14	40/11 L	
AMONI	00F4	ABSOLUTE	4/15 Q	17/13	17/31	20/26	23/27	32/21	35/20	39/20
			9/04	17/22	18/17	22/19	24/18	33/10	36/13	
ANATHD	0332		29/19	29/38	30/07 L	30/10				
ANATH0	0333		30/08 L	30/26						
ANATH1	0336		30/09	30/11 L						
ANATH2	033D		30/15	30/16	30/18 L					
ANATH3	0343		30/22	30/24 L						
AREAC	001A		2/20 E	5/40 L	6/28	8/26	8/27			
ATC	02A9		24/35	24/46	26/20 L					
AUTFA	0101	*EXTERNAL*	3/12 X	14/27						
AUTFB	00FE	*EXTERNAL*	3/13 X	14/25						
AUTF9	0104	*EXTERNAL*	3/11 X	14/29						
A101	01DF		21/08 L	21/15	22/05					
A101M	01DE		20/35	21/07 L	22/30					
A102	01E2		21/10 L	21/21	21/23	22/07				
BEGLU1	0355	*EXTERNAL*	3/27 X	31/21						
BEGLU2	0356	*EXTERNAL*	3/28 X	31/22						
BEGLU3	0357	*EXTERNAL*	3/29 X	31/23						
BEGLU4	0358	*EXTERNAL*	3/30 X	31/24						
BEGLU5	0359	*EXTERNAL*	3/31 X	31/25						
BEGLU6	035A	*EXTERNAL*	3/32 X	31/26						
BEGLU7	035B	*EXTERNAL*	3/33 X	31/27						
BEGLU8	035C	*EXTERNAL*	3/34 X	31/28						
BGSCPL	034B		28/31	29/04	29/12	29/16	31/12 L			
BLKSIZ	034F		29/08	29/36	30/11	31/16 L				
BONES	02E6		24/33	28/07 L	28/11	28/22	33/31	35/36		
BONES0	02F1		28/17 L	29/41						
BONES1	02F8		28/19	28/23 L						
BONES2	030C		28/36	29/04 L	29/20					
BONES3	031D		29/05	29/21 L	29/39					
BONES4	0328		29/24	29/32 L						
BONES5	0325		29/27	29/29 L						
BONES6	0317		29/13	29/15 L						
BONES7	0330		28/42	29/31	29/40 L					
BUF2A	045C		39/26	39/39 B						
CALTHD	004E	*EXTERNAL*	2/37 X	8/28						
CCP	0071	*EXTERNAL*	2/29 X	10/25						
CHKEND	002A		6/32	6/34 L						
CHKTMR	015F		15/34	15/48	17/08 L					
CKTHRD	000B	*EXTERNAL*	2/32 X	5/22						
CLADR	03CF		34/09	35/09	35/17	35/26 L				
CLFILE	03A1		34/07 L							
CLFIL1	03AC		34/18 L	34/32						
CLFIL2	03BB		34/30	35/04 L						
CLFIL3	03C4		35/10	35/13 L						
CLFIL4	03D2		35/30 L	35/32						
CLFIL5	03D5		35/31	35/34 L						
CLJFIL	039E		33/24	33/38 L						
CLLEN	03CE		35/18	35/25 L						
CLRPB	00A0		12/10	12/13 L						
CLRPBT	00A9		12/20	12/30 L						
CLRPB1	00A5		12/15	12/17 Q						
CLSFIL	040F		24/31	38/04 L	38/34	38/41				

COMPLETE REFERENCE MAP.

CLTHD	03CC		35/23 L	35/30					
CORZ	0011		5/25	5/27 L					
COR1	0006		5/14	5/19 L					
DATE	02C2		20/15	20/16	20/18	20/23	20/24	27/17 L	
DAY	02E4		20/17	27/56 L					
DMICOD	0158	*EXTERNAL*	2/41 X	16/56					
DTIMER	0165	*EXTERNAL*	2/38 X	17/15					
D15721	0146	*EXTERNAL*	2/47 X	16/32					
EFLOCK	02A0	*EXTERNAL*	3/18 X	8/30	26/07				
EMPSRT	015D	*EXTERNAL*	2/43 X	16/59					
ENDOV4	0038	*EXTERNAL*	2/31 X	8/09					
EQ3644	014B	*EXTERNAL*	2/53 X	16/39					
ERROR	0385		29/14	30/17	32/19	32/39	33/28		
			29/28	30/23	32/35	33/07 L			
ERTHD	038A		33/13 L	33/18					
ERWAIT	038E		33/18 L	33/20					
ER1	0391		33/19	33/22 L					
ER2	039A		33/27	33/29 L					
E10336	014F	*EXTERNAL*	2/54 X	16/46					
E1572	0120	*EXTERNAL*	2/52 X	15/41					
E1572F	0122	*EXTERNAL*	2/51 X	15/42					
E15721	013B	*EXTERNAL*	2/48 X	16/13	16/24				
E1573	012B	*EXTERNAL*	2/49 X	16/06					
E15761	010F	*EXTERNAL*	2/45 X	14/37	14/40				
E17811	019D	*EXTERNAL*	2/59 X	19/09					
FAULT	01F2		21/16	21/23 L	21/28				
FILCHK	025D		24/30	24/33 L					
FILCLS	0258		24/27	24/29 L					
FILERR	0432		38/41 L	39/36					
FIX4	0036		8/06	8/08 L					
FIX4A	003C		8/11	8/13 L					
FIX4X	0042		8/13	8/18 L					
FIX4Y	0044		8/07	8/20 L					
FLAGIT	02A4		21/26	22/14	26/12 L				
FLLSB	03D1		35/15	35/28 L					
FLMSB	03D0		35/13	35/27 L					
FLS05	0447		38/12	38/29	39/04	39/16 L	39/17	39/19	39/38
FLS05A	044E		39/23 L	39/30					
FLS05B	044F		39/24 L	39/34					
FLS05C	0451		39/26 L	39/37					
FLS05D	0453		38/11	38/60	39/28 L				
FLS051	044C		39/18	39/21 L					
FLS052	0454		39/30 L	39/32					
FLS053	0457		39/31	39/34 L					
FLS059	045A		39/35	39/37 L					
FLS06	0433		38/33	38/48 L	39/08	39/09			
FLS06A	043B		38/53	38/55 L					
FLS061	0440		38/57	38/60 L					
FLS067	0445		38/59	39/08 L					
FLS069	0446		38/54	39/09 L					
FL0601	0419		38/14 L	38/35					
FL0610	0423		38/16	38/17	38/24 L				
FL0614	042C		38/26	38/28	38/33 L				
FOUR	0025	ABSOLUTE	4/16 Q	14/19	14/23				
FSENTO	034D		28/33	29/26	30/14	31/14 L			
FSLIST	03A2	*EXTERNAL*	3/25 X	31/09	34/07				
FSLUPT	0349		28/35	29/21	29/29	29/32	29/34	29/35	29/37	31/10 L

FSPNT	0348		28/08	28/17	28/29	28/37	28/39	29/22	29/30	31/09 L
F10336	0151	*EXTERNAL*	2/56 X	16/47						
F17811	01A6	*EXTERNAL*	2/60 X	19/17						
GOPP	01FA		21/27	21/29 L						
HANGIT	01F9		21/25	21/28 L						
HFPREJ	01A9		19/16	19/18	19/23 L					
HFPRJL	0007	ABSOLUTE	19/30	19/43 Q						
HFPRJM	01B2		19/30	19/36 L	19/43					
HICORE	00F6	ABSOLUTE	3/59 Q	12/36	12/46					
H15721	0142	*EXTERNAL*	2/46 X	16/16	16/18	16/27	16/29			
H7FF	00EA		11/06	11/06	11/06	13/40 L				
I	00FF	-SYSTEM-	6/30	10/47	13/26	34/24	34/27	35/16		
			6/34	11/08	34/15	34/26	34/28			
IDL	023A		23/25	23/32 L						
IDLE	0019	*EXTERNAL*	2/39 X	5/36						
IDTH	0238		23/30 L	23/35						
IDWAIT	023C		23/35 L	23/37						
ID1	0221		23/09	23/11 L						
ID2	022B		23/18 L	23/23						
ID3	0233		23/20	23/24 L						
ID4	023F		23/22	23/36	23/39 L					
INIT	0070		8/31	10/25 L						
INPTV4	0109	*EXTERNAL*	3/10 X	14/32						
IUP	0107	*EXTERNAL*	3/09 X	14/31						
I1	02A5		24/07	26/14 L						
I2	02A6		26/14	26/15 L						
I3	02A7		24/08	26/15	26/16 L					
JRFLV4	0437	*EXTERNAL*	3/17 X	24/29	38/51					
JOBENT	00EB	*EXTERNAL*	3/04 X	14/07						
K65T10	0010	*EXTERNAL*	3/08 X	5/26						
LBPROT	00AE	*EXTERNAL*	2/26 X	12/34						
LEND	0031	*EXTERNAL*	2/36 X	7/05						
LENGTH	035D		31/29 L	32/15	34/22					
LIBEDT	00EC	*EXTERNAL*	3/05 X	14/08						
LMESS1	0009	ABSOLUTE	36/30	37/16 Q						
LMESS2	0002	ABSOLUTE	36/31	37/19 Q						
LMESS3	0012	ABSOLUTE	36/32	37/38 Q						
LMESS4	0001	ABSOLUTE	36/33	37/40 Q						
LOBDAD	00B7		12/42 Q	12/43	12/45					
LOBDTB	00B7	*EXTERNAL*	2/28 X	12/41						
LOCORE	00F7	ABSOLUTE	3/58 Q	12/33	12/39					
LOCO	00E9		10/57	13/39 L						
LOGIA	0182	*EXTERNAL*	2/58 X	18/08						
LPMSK	0002	ABSOLUTE	4/14 Q	11/19	14/38	18/11	23/13	25/07	28/09	38/21
			10/27	11/20	17/09	20/08	24/38	25/36	35/12	
			11/09	12/19	17/18	23/08	24/43	25/45	38/18	
LRSET	028F		25/38	25/41 Q						
LSIZV4	00F5	*EXTERNAL*	3/15 X	14/18						
LSUMLV	0014	ABSOLUTE	20/31	27/24 Q						
LTX	01DB		20/34 L	20/36						
LUCORE	0001	ABSOLUTE	4/08 Q	5/27						
LUENTL	034A		28/27	28/38	29/23	31/11 L				
LUNO	0350		29/40	31/17 L	32/09					
LVLSTR	002D	*EXTERNAL*	2/35 X	6/36						
MAXRD	0347		31/08 L	32/38						
MESADD	03E4		36/09	36/19 L						
MESCHK	03E5		36/21 L	36/23						

MESDUN	03E8		36/22	36/24 L					
MESLEN	03E3		36/11	36/18 L					
MESSAD	03E9		36/08	36/26 L					
MESSAG	03D9		28/14	28/21	33/08	33/30	35/35	36/07 L	36/24
MESSG1	03F1		36/26	37/07 L	37/16				
MESSG2	03FA		36/27	37/17 L	37/19				
MESSG3	03FC		36/28	37/20 L	37/38				
MESSG4	040E		36/29	37/39 L	37/40				
MESSLN	03ED		36/10	36/30 L					
MESTHD	03E1		36/16 L	36/21					
MIBX	029E	*EXTERNAL*	3/19 X	8/29	26/06				
MMBUFF	0351		29/07	29/15	30/20	31/18 B	33/16	33/25	
			29/11	29/17	30/24	32/27	33/22		
MMLU	0377		28/28	32/25 L					
MMODE	0254		24/16	24/24 L					
MODE	0242		23/10	24/07 L					
MODETH	0251		24/21 L	24/26					
MODWAT	0255		24/26 L	24/28					
MONTH	02E3		20/07	20/11	27/55 L				
MPFLAG	00A1	*EXTERNAL*	2/40 X	12/13					
MP17CK	0157		15/37	16/56 L					
M32K	0246		24/09	24/11 L					
M65K	0249		24/10	24/13 L					
NOG30A	02AC	*EXTERNAL*	3/46 X	26/23					
NOTMP	00C6		12/16	12/60 L					
NOTTS	00C2		12/21	12/53 Q					
NTEMSG	0060		9/10	9/19 L	9/35				
NTEMSL	0010	ABSOLUTE	9/09	9/35 Q					
NTENUF	0054		8/12	9/04 L					
NTETHD	0057		9/07 L	9/13					
NTEWAT	005B		9/13 L	9/15					
NUMFS0	035D	*EXTERNAL*	3/35 X	31/29					
NUMFS1	035E	*EXTERNAL*	3/36 X	31/30					
NUMFS2	035F	*EXTERNAL*	3/37 X	31/31					
NUMFS3	0360	*EXTERNAL*	3/38 X	31/32					
NUMFS4	0361	*EXTERNAL*	3/39 X	31/33					
NUMFS5	0362	*EXTERNAL*	3/40 X	31/34					
NUMFS6	0363	*EXTERNAL*	3/41 X	31/35					
NUMFS7	0364	*EXTERNAL*	3/42 X	31/36					
NUMFSR	0365	*EXTERNAL*	3/43 X	31/37					
NUMRD	0346		31/07 L	32/36	32/37				
NXTLOC	008B		11/11 Q	11/16	11/16	11/16	11/16		
NXTPGE	0086		10/58 Q	11/22	11/22	11/22	11/22		
N1	04BC	*EXTERNAL*	3/14 X	40/11					
N10	04C5	*EXTERNAL*	3/14 X	40/20					
N11	04C6	*EXTERNAL*	3/14 X	40/21					
N12	04C7	*EXTERNAL*	3/14 X	40/22					
N13	04C8	*EXTERNAL*	3/14 X	40/23					
N14	04C9	*EXTERNAL*	3/14 X	40/24					
N15	04CA	*EXTERNAL*	3/14 X	40/25					
N2	04BD	*EXTERNAL*	3/14 X	40/12					
N4	04BF	*EXTERNAL*	3/14 X	40/14					
N5	04C0	*EXTERNAL*	3/14 X	40/15					
N6	04C1	*EXTERNAL*	3/14 X	40/16					
N7	04C2	*EXTERNAL*	3/14 X	40/17					
N8	04C3	*EXTERNAL*	3/14 X	40/18					
N9	04C4	*EXTERNAL*	3/14 X	40/19					

ONEBIT	0023	ABSOLUTE	4/12 Q	16/08	18/12			
OUTID	021C		22/13	22/15	23/07 L			
OUTPP	021B		22/28	22/30 L				
OUTPUT	02AA	*EXTERNAL*	3/44 X	26/21				
OUTPV4	02B3	*EXTERNAL*	3/53 X	26/30				
010336	0155	*EXTERNAL*	2/55 X	16/50				
01572	0126	*EXTERNAL*	2/50 X	15/45				
015721	0148	*EXTERNAL*	16/33	16/34 X				
PCORE	0268	*EXTERNAL*	3/54 X	24/42				
PFCNT	029A		25/25	25/32	25/49	25/50	25/52 L	
PP	02C9		22/25	27/26 L				
PPFLAG	02A3		21/24	22/11	22/17	26/11 L		
PPTH	0214		22/22 L	22/27				
PPWAIT	0218		22/27 L	22/29				
PROTEC	00ED	*EXTERNAL*	3/06 X	14/09				
PSIZV4	04BE	*EXTERNAL*	3/16 X	14/22	40/13			
PSRMSG	01D4		20/10	20/26 L				
PTNALC	02AF	*EXTERNAL*	3/49 X	26/26				
PTNREL	02B0	*EXTERNAL*	3/50 X	26/27				
P18ADD	028B	*EXTERNAL*	3/57 X	25/37				
P18ECM	026F	*EXTERNAL*	3/55 X	25/06				
P18MXP	0280	*EXTERNAL*	3/60 X	25/27				
P18PGA	0287	*EXTERNAL*	3/56 X	25/33				
RDMASS	0366		29/06	30/19	32/07 L	32/40		
RDMIN	037F		32/32	32/35 L				
RDM0	0372		32/13	32/19 L				
RDM1	0373		32/18	32/21 L				
RDPTV4	02B2	*EXTERNAL*	3/52 X	26/29				
RDTHD	0376		32/24 L	32/31				
RDWAIT	037C		32/31 L	32/33				
REJ	0180		15/28	15/43	15/46	16/31	16/48	18/07 L
REJCK	0192		18/25 L	18/27				
REJMSG	0196		18/23	18/31 L				
REJTH	018E		18/20 L	18/25				
REL	02AD	*EXTERNAL*	3/47 X	26/24				
RESTRT	001C		6/24 L	40/30	40/33			
RPMASK	0008	*EXTERNAL*	2/34 X	5/20				
RSET1	027F		25/27 L	25/51				
RSET2	0285		25/28	25/29	25/32 L			
RSET4	028A		25/37 L	25/48				
RSET6	0297		25/46	25/49 L				
RSTRTA	0165		17/08	17/15 L				
RSTRTT	0166		17/11	17/17 L				
RSTRT1	00C7		13/04 L	13/09				
RSTRT2	00CD		12/57	13/08	13/11 L			
RSTRT3	00D3		13/16 L	13/21				
RSTRT4	00DF		13/28 L	13/36				
RSTRT5	00E8		13/31	13/34	13/38 L			
RSTRT6	00EE		13/30	14/12 L				
RSTRT9	019C		17/20	17/25	18/28	19/09 L		
RSTR10	01B9		19/13	19/19	19/32	20/07 L		
RSTR9A	01A2		19/12	19/14 L				
RST1	0021		6/27 L	8/17				
SAMOK	036D		32/12	32/14 L				
SAVID	02A8		23/12	23/39	26/17 L			
SAVLU	0013	*EXTERNAL*	2/33 X	5/28				
SCH	02AE	*EXTERNAL*	3/48 X	26/25				

SDJOB	00EB		14/07 L	14/13					
SDLIB	00EC		14/08 L	14/17					
SDPRO	00ED		14/09 L	14/21					
SEC	037B		32/08	32/11	32/17	32/29 L			
SECTOR	0354		28/16	31/20 L	32/10	32/14	34/18		
SETEND	002F		6/35	7/04 L					
SETPF	026E		24/41	25/06 L					
SETTBL	0024		6/29 L	6/37					
SETUP	0078		10/35 L	10/40	10/40	10/40	10/40		
SETUP0	0075		10/28	10/30 Q					
SETUP1	0097		11/40 L	11/44	11/44	11/44	11/44		
SKIPIT	004A		8/19	8/22	8/26 L				
SM	0203		21/13	22/08 L					
SPACE	0000		2/10 E	2/11 Q					
SPACE4	02AB	*EXTERNAL*	3/45 X	26/22					
SPBLOP	009C		12/09 L	12/12					
SPBLP0	009B		10/29	12/07 Q					
SPCEV4	02B1	*EXTERNAL*	3/51 X	26/28					
SPF	0273		25/08	25/10 L					
SPF1	0274		25/11 L	25/20					
SPF5	027B		25/18	25/21 L					
SREJ	016E		14/42	17/30 L					
SRJCK	0176		17/39 L	17/41					
SRJMSG	017A		17/37	17/45 L					
SRJTH	0172		17/34 L	17/39					
SRSET	0291		25/39	25/43 Q	25/44				
STMSV4	04CD		2/18 E	40/33 L					
STO	024D		24/12	24/16 L					
SUMLVL	02B5		20/32	27/04 L	27/24				
SYDIR	00EB	ABSOLUTE	4/17 Q	14/12	14/16	14/20			
SYFAIL	005F	*EXTERNAL*	2/30 X	9/16					
SYSDAY	02E4	*EXTERNAL*	3/22 X	27/56					
SYSID	0241	*EXTERNAL*	3/24 X	23/07	23/11	23/15	23/18	23/33	23/40
SYSLVL	02C1	*EXTERNAL*	3/07 X	27/16					
SYSMON	02E3	*EXTERNAL*	3/21 X	27/55					
SYSYER	02E5	*EXTERNAL*	3/23 X	27/57					
S101	01FD		21/09	22/04 L					
S102	0200		21/11	22/06 L					
S103	020B		22/12	22/14 L					
T	02AA		24/36	26/21 L					
TBLADR	015A	*EXTERNAL*	2/42 X	16/57					
TDFUNC	0017	*EXTERNAL*	3/20 X	5/35					
THDPNT	034E		29/18	29/33	30/08	30/18	30/21	30/25	31/15 L
TIMSRT	0112		14/39	15/22 L	17/42				
TIMVCT	0116		15/23	15/28 L					
TMRTYP	018A	*EXTERNAL*	2/57 X	15/22	18/15				
TOIDLE	0014		5/31 L	26/08					
TOUT	0127		15/46 L	16/09	16/20	16/35	16/41	16/51	16/60
TTRSTR	016C		17/17	17/24 L					
TX	01D7		20/29 L	20/34					
T1	0260		24/35 L	24/47					
T1AA	029B		25/09	25/31	26/04 L				
T1B	026C		24/39	24/46 L					
T10	0000		2/17 E	5/12 L					
T10336	014E		15/36	16/46 L					
T1572	011F		15/29	15/41 L					
T1573	012A		15/30	16/06 L					

T17	0000		2/19 E	5/11 O				
T3644	014A		15/33	16/39 L				
T72LST	012F		15/31	16/13 L				
T72SRG	013A		15/32	16/24 L				
UBPROT	00B2	*EXTERNAL*	2/25 X	12/37				
UPBDAD	00BE		12/49 Q	12/50	12/52			
UPBDTB	00BE	*EXTERNAL*	2/27 X	12/48				
UPTOD	016C	*EXTERNAL*	2/44 X	17/24				
VPL	0004	ABSOLUTE	4/10 Q	5/21				
VR	0003	ABSOLUTE	4/09 Q	5/17	5/18			
VTMP	0007	ABSOLUTE	4/13 Q	5/23				
V20	042F		38/06	38/23	38/27	38/32	38/37 L	
V22	0430		38/07	38/24	38/38 L	38/49	38/55	39/07
V27	0431		38/08	38/39 L	38/50	38/52		
X32K	02D5		24/11	27/39 L				
X65K	02DC		24/13	27/47 L				
YEAR	02E5		20/19	27/57 L				
ZERO	0022	ABSOLUTE	4/11 Q	11/12	15/24	24/44	26/31	38/14
			5/19	14/15	24/40	24/45	34/11	

1

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

0000 0169 NAM DCORE DECK-ID M19 MSOS 5.0 SUMMAR
0169 END

	BLOCKS	TYPE	ADDRESS	LENGTH
	DCORE	PROGRAM*	0000	0169
	TEMPL	LOCAL	00BE	0001

ENTRY POINT NAMES AND ADDRESSES.

ECORE	-- 0123	NOG30A	-- 00CF	SPACE4	-- 00B5	T12	-- 00EB
ICORE	-- 0002	OUTPUT	-- 0081	STLPV4	-- 008B		
LEND	-- 00BD	REL	-- 011E	SWAPCK	-- 012C		
LOOP	-- 00C3	SCH	-- 0141	SWAPON	-- 00BC		

EXTERNAL SYMBOLS.

AREAC	LOG2	PCORE	PTNREL	RTNCOR	SPCEV4
IDLER	LVLSTR	PRTCDR	RDPTV4	SCHERR	SWAPAR
K65T12	OUTPV4	PTNALC	REQALC	SPASW	UNPIO

```
                        NAM  DCORE        DECK-ID M19  MSOS 5.0              SUMMARY-110 DCORE      2
                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                        DCORE      3
                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                     DCORE      4
                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                          DCORE      5

                    *   SPACE DRIVER, DRIVES CORE ALLOCATOR MODULE                       DCORE      7
                    *   1700 MASS STORAGE OPERATING SYSTEM VERSION 4.1                   DCORE      8
                    *   SMALL COMPUTER DEVELOPMENT DIVISION, LA JOLLA, CALIFORNIA        DCORE      9
                    *   COPYRIGHT CONTROL DATA CORPORATION 1973                          DCORE     10


                    * THIS MODULE DRIVES THE CORE ALLOCATOR IN ASSIGNING                 DCORE     14
                    * AND RELEASING SPACE. IT ALSO CONTROLS SWAPPING.                    DCORE     15

                    * REVISED TO PERMIT USE BY REQUESTS FROM ABOVE DRCORE PRIORITY LEVEL  DCORE     17
                    * TO AVOID DELAYING REQUESTS, ENTIRE DRIVER RUNS AT THE PRIORITY     DCORE     18
                    * LEVEL THAT"S IN THE PHSTAB.                                       DCORE     19

                    * DRCORE LOOPS AT LEVEL = PRI FOR 6 * KSIZE MILLISECS               DCORE     21
                    * DURING SET AND CLEAR OF SWAP AREA PROTECT BITS                    DCORE     22
                    * WHERE KSIZE IS THESIZE OF UNPROTECTED CORE / 1000                 DCORE     23

0002 P              ENT  ICORE,T12,ECORE,LEND                          **MSOS 4.1** DCORE     25
00EB P
0123 P
00BD P
00BC P              ENT  SWAPON                                                     DCORE     26
00BB P              ENT  STLPV4,LOOP                                    **MSOS 4.0 DCORE     27
00C3 P
0081 P              ENT  OUTPUT,SPACE4,NOG30A,REL,SCH                               DCORE     28
00B5 P
00CF P
011E P
0141 P
                    *                    1 CARD DELETED                             DCORE     29
                    EXT  RTNCOR,SWAPAR,PCORE                                        DCORE     30
                    EXT  UNPIO,SPASW,LOG2,REQALC,LVLSTR,AREAC                       DCORE     31
                    EXT  SCHERR          ENTRY POINT IN SCHEDULER          *434****  DCORE     32
                    EXT  PTNALC                                            **MSOS 4.0 DCORE     33
                    EXT  PTNREL                                            **MSOS 4.0 DCORE     34
                    EXT  K65T12                                            **MSOS 4.0 DCORE     35
                    EXT  SPCEV4,RDPTV4,OUTPV4                              **MSOS 4.0 DCORE     36
                    EXT  PRTCDR                                            **MSOS 4.0 DCORE     37
                    EXT  IDLER           IDLE LOOP IN SYSDAT               **MSOS 4.1** DCORE     38
0005                EQU  LU(5),ADISP($EA),ZERO($22),ACOMPR($B6)                     DCORE     39
00EA
0022
00B6
0002                EQU  LPMSK(2),NZERO($12),AFNR($B5),ANABS($BF)                   DCORE     40
0012
00B5
00BF
```

```
                    00BB            EQU  AVOLA($BB),AVOLR($BA)                                  DCORE   41
                    00BA
                    00F7            EQU  LOCORE($F7),HICORE($F6),TIME(4)                        DCORE   42
                    00F6
                    0004
                    0001            EQU  CORELU(1)      CORE ALLOCATOR LOGICAL UNIT             DCORE   43
                    0005            EQU  ELU(5)                                                 DCORE   44
                    0002            EQU  PT(2)                                                  DCORE   45
                                    *                   SWAPS. SET TO -1 WHEN                   DCORE   46
                                    *                   NO TIMER PACKAGE USED.                  DCORE   47
                    00B9            EQU  REQXT($B9)                                             DCORE   48
                    0023            EQU  ONEBIT($23)                                            DCORE   49

                                    * E N T R Y   FOR   A L L O C A T I O N                     DCORE   51

      P0000 FFFF    WAIT   NUM  -0          TOP OF WAIT THREAD              **MSOS 4.0 DCORE   53
      P0001 FFFF    BOTTOM NUM  -0                                          **MSOS 4.0 DCORE   54
      P0002 40FF    ICORE  STQ- I                                          **MSOS 4.1** DCORE   55
                    *                   38 CARDS DELETED                                    DCORE   56
      P0003 54B5    COR1   RTJ- (AFNR)  GET NEXT REQUEST FOR SPACE                          DCORE   57
      P0004 1849           JMP* WAIT2                                                       DCORE   58
      P0005 E106    TRY    LDQ- 6,I     GET LOC. OF REQUEST                                 DCORE   59
      P0006 C622           LDA- (ZERO),Q REQUEST                                            DCORE   60
      P0007 0F49           ARS  9                                                           DCORE   61
      P0008 A007           AND- LPMSK+5 ISOLATE CODE                                        DCORE   62
      P0009 09F1           INA  -14                                                         DCORE   63
      P000A 0113           SAN  NOTMOT  NO MOTION                                           DCORE   64
      P000B 610A           STA- 10,I    ZERO FIRST                                          DCORE   65
      P000C 610B           STA- 11,I    LAST                                                DCORE   66
      P000D 1832           JMP* ASWAPD-2 GO COMPLETE REQUEST                                DCORE   67
                    000E P NOTMOT EQU  NOTMOT(*)                                           DCORE   68
      P000E 4863           STQ* TEMP      AND GET NO. OF WORDS TO Q.                        DCORE   69
      P000F 54BF           RTJ- (ANABS)                                                     DCORE   70
      P0010 CC31           LDA* (ASWAPD)                                                    DCORE   71
      P0011 0104           SAZ  OK0-*-1  SKIP IF NOT SWAPPED                 **MSOS 4.0 DCORE   72
      P0012 CC5F           LDA* (TEMP)                                                      DCORE   73
      P0013 A006           AND- LPMSK+4                                                     DCORE   74
      P0014 09FC           INA  -3                                                          DCORE   75
      P0015 0131           SAM  NOTOK-*-1 SKIP IF COMPLETION PRIORITY LT 3   **MSOS 4.0 DCORE   76
      P0016 180D    OK0    JMP* OK1      GO ALLOCATE                         **MSOS 4.0 DCORE   77
      P0017 C85A    NOTOK  LDA* TEMP     POINTER TO NEW REQUEST              **MSOS 4.0 DCORE   78
      P0018 E8E8           LDQ* BOTTOM   POINTER TO LAST REQUEST ON THREAD    **MSOS 4.0 DCORE   79
      P0019 0D00           INQ  0                                            **MSOS 4.0 DCORE   80
      P001A 0141           SQZ  1        NOTHING ON THREAD                   **MSOS 4.0 DCORE   81
      P001B 6202           STA- PT,Q     POINTER TO NEW REQ. IN THD. OF LAST **MSOS 4.0 DCORE   82
      P001C 0151           SQN  1                                            **MSOS 4.0 DCORE   83
      P001D 68E2           STA* WAIT     ONLY ENTRY ON THREAD,SO BOTH TOP-   **MSOS 4.0 DCORE   84
      P001E 68E2           STA* BOTTOM   BOTTOM OF THREAD                    **MSOS 4.0 DCORE   85
      P001F 0822           TRA  Q                                            **MSOS 4.0 DCORE   86
      P0020 0804           SET  A        MARK END OF THREAD                  **MSOS 4.0 DCORE   87
      P0021 6202           STA- PT,Q     IN THREAD OF NEW REQ.               **MSOS 4.0 DCORE   88
      P0022 18E0           JMP* COR1     GO CHECK FOR ANOTHER REQUEST        **MSOS 4.0 DCORE   89
                    *                   3 CARDS DELETED                                     DCORE   90
      P0023 CC4E    OK1    LDA* (TEMP)   GET 1ST WORD OF PAR. LIST                         DCORE   91
```

```
                P0024  0F44                    ARS  4              AND UNPACK REQUEST PRIORITY                    DCORE    92
                P0025  A006                    AND- LPMSK+4                                                       DCORE    93
              5 P0026  0FF0                    LLS  16                                                            DCORE    94
                P0027  5400  7FFF X            RTJ  REQALC        GO TO ALLOCATE CORE SPACE                       DCORE    95
                                        *           Q = START OF ALLOCATED AREA, IF REQUEST WAS SUCCESSFUL         DCORE    96
                                        *           Q = 0  IF SUFFICIENT CORE CAN NEVER BE AVAILABLE               DCORE    97
                                        *           Q = -1 IF THE AVAILABLE CORE IS INSUFFICIENT AT PRESENT        DCORE    98
             10 P0029  0B00                    NOP  0             ********************************************** DCORE    99
                P002A  0177                    SQM  JNOGOT-*-1                                                    DCORE   100
                P002B  0158                    SQN  ONE-*-1       ALLOCATION WAS SUCCESSFUL                       DCORE   101
                P002C  E0E9                    LDQ- $E9           IF UNPROTECTED IN PART1                         DCORE   102
                P002D  C20A                    LDA- 10,Q          OR SWAPS INHIBITED                              DCORE   103
             15 P002E  820B                    ADD- 11,Q          IN PART0                                        DCORE   104
                P002F  0113                    SAN  JNOGOT+1      REQUEST IMPOSSIBLE                              DCORE   105
                P0030  CC11                    LDA* (ASWAPD)                                                      DCORE   106
                P0031  0111                    SAN  1             IF SWAP IS IN EFFECT,REQUEST IS IMPOSSIBLE      DCORE   107
                P0032  1827            JNOGOT  JMP* NOGOT         UNSUCCESSFUL ALLOCATION                         DCORE   108
             20 P0033  F032                    ADQ- ONEBIT+15     IF ALLOCATION IS IMPOSSIBLE, SET Q15 = 1        DCORE   109
                                        *                          AND COMPLETE REQUEST WITH ERROR FIELD SET       DCORE   110
                P0034  CC3D            ONE     LDA* (TEMP)                                                        DCORE   111
                P0035  A01B                    AND- NZERO+9                                                       DCORE   112
                P0036  010B                    SAZ  DIRCAL-*-1    SKIP IF DIRECTORY CALL                          DCORE   113
             25 P0037  0814                    TRQ  A                                                             DCORE   114
                P0038  E839                    LDQ* TEMP          STORE ORIGIN OF ALLOCATED                       DCORE   115
                P0039  6203                    STA- 3,Q             SPACE IN CALL                                 DCORE   116
                P003A  E800  0080              LDQ  XCORE                                                         DCORE   117
                P003C  A01F                    AND- NZERO+13                                                      DCORE   118
             30 P003D  6209                    STA- 9,Q           STORE ORIGIN IN PHYSTB FOR                      DCORE   119
                P003E  40FF                    STQ- I               USE BY COMPRQ                                 DCORE   120
                P003F  54B6                    RTJ- (ACOMPR)                                                      DCORE   121
                P0040  18C2                    JMP* COR1          GO GET NEXT REQUEST                             DCORE   122
                P0041  00B7 P          ASWAPD  ADC  SPACE4+2      ADDR. OF THREAD TO RETURN SWAPPED CORE          DCORE   123
             35
                P0042  0178            DIRCAL  SQM  DIR1+1-*-1    IF CORE NOT ALLOCATED, IGNORE REQUEST           DCORE   125
                P0043  0814                    TRQ  A                                                             DCORE   126
                P0044  E82D                    LDQ* TEMP                                                          DCORE   127
                P0045  6201                    STA- 1,Q           STORE ORIGIN AS COMP. ADDRESS                   DCORE   128
             40 P0046  F021                    ADQ- NZERO+15                                                      DCORE   129
                P0047  4803                    STQ* DIR1                                                          DCORE   130
                P0048  0822                    TRA  Q                                                             DCORE   131
                P0049  54F4                    RTJ- ($F4)         START I/O                                       DCORE   132
                P004A  0000            DIR1    NUM  0                                                             DCORE   133
             45 P004B  E870                    LDQ* XCORE         RESTORE PHYSTB ADDRESS                          DCORE   134
                P004C  18B5                    JMP* ICORE         GO GET NEXT ONE                **MSOS 4.1**     DCORE   135


                                        *                                                                          DCORE   137
             50 P004D  E8B2            WAIT2   LDQ* WAIT          MOVE THE WAIT THREAD BACK TO CORE LU THREAD     DCORE   138
                P004E  0D00                    INQ  0                                                             DCORE   139
                P004F  0153                    SQN  WAIT3                                                         DCORE   140
                P0050  0804                    SET  A             NOTHING LEFT ON THREAD         **MSOS 4.0 DCORE   141
                P0051  68AF                    STA* BOTTOM        SET BOTH THD POINTERS TO -0    **MSOS 4.0 DCORE   142
             55 P0052  14EA                    JMP- ($EA)         AND EXIT                       **MSOS 4.0 DCORE   143
                P0053  C202            WAIT3   LDA- PT,Q          POINTER TO NEXT ENTRY ON THD.  **MSOS 4.0 DCORE   144
                P0054  68AB                    STA* WAIT          UPDATE TOP OF THD.             **MSOS 4.0 DCORE   145
                P0055  0814                    TRQ  A                                            **MSOS 4.0 DCORE   146
                P0056  5C13                    RTJ* (GTHDIT)      MOVE TO CORE LU THD.           **MSOS 4.0 DCORE   147
```

```
                P0057  18F5            JMP* WAIT2     REPEAT UNTIL WAIT THREAD IS EMPTY          DCORE  148
                P0058  7FFF X      XLOG2 ADC  LOG2                                              DCORE  149
5
                                   *  THE FOLLOWING IS ENTERRED ON UN-SUCCESSFUL ALLOCATION      DCORE  151
10              P0059  C862        NOGOT LDA* XCORE                                            DCORE  153
                P005A  60FF              STA- I         RESTORE PHYSTB ADDRESS                DCORE  154
                P005B  CC16              LDA* (TEMP)    IF COMPLETION PRIORITY IS             DCORE  155
                P005C  A006              AND- LPMSK+4   NOT GREATER THAN 2,                    DCORE  156
                P005D  09FC              INA  -3        DONOT TRY TO SWAP.                    DCORE  157
15              P005E  0138              SAM  NOG1-*-1                                         DCORE  158
                P005F  E0E9              LDQ- $E9       IF SWAP INHIBITED, DO NOT  **MSOS 4.0 DCORE  159
                P0060  C20A              LDA- 10,Q         ATTEMPT SWAP, RE-THREAD **MSOS 4.0 DCORE  160
                P0061  820B              ADD- 11,Q                                             DCORE  161
                P0062  0101              SAZ  1               REQUEST            **MSOS 4.0 DCORE  162
20              P0063  1804              JMP* NOG1                                             DCORE  163
                P0064  C858              LDA* SWAPON                                           DCORE  164
                P0065  0111              SAN  1                                                DCORE  165
                P0066  180C              JMP* NOG2      GO TO NOG2 IF NOT SWAPPED              DCORE  166
                P0067  C80A        NOG1  LDA* TEMP                                             DCORE  167
25              P0068  5400  0149 P      RTJ+ THRDIT                              **MSOS 4.0 DCORE  168
                           0069 P  GTHDIT EQU  GTHDIT(*-1)                        **MSOS 4.0 DCORE  169
                P006A  0C01              ENQ  CORELU                                           DCORE  170
                P006B  CEEC              LDA* (XLOG2),Q                                        DCORE  171
                P006C  9805              SUB* TEMP                                             DCORE  172
30              P006D  0101              SAZ  1         IF TOP OF THREAD CHANGED               DCORE  173
                P006E  1894              JMP* COR1      TRY AGAIN                              DCORE  174
                P006F  6105              STA- ELU,I     CLEAR SPACDR BUSY FLAG                 DCORE  175
                P0070  14EA              JMP- (ADISP)                                          DCORE  176
                P0071  0000        TEMP  ADC  0         ADDRESS OF CURRENT REQUEST             DCORE  177
35

                P0072  C104        NOG2  LDA- TIME,I     IF INTERVAL SINCE LAST SWAP            DCORE  180
40              P0073  0131              SAM  NOG4-*-1     HAS PASSED, SKIP TO NOG4            DCORE  181
                P0074  18F2              JMP* NOG1                                             DCORE  182
                P0075  CC4A        NOG4  LDA* (XUNPIO)                                         DCORE  183
                P0076  0102              SAZ  NOG5-*-1  SKIP IF NO UNPROTECTED I/O             DCORE  184
                P0077  6C49              STA* (XSPASW)  SET WAITING TO SWAP SWITCH              DCORE  185
45              P0078  18EE              JMP* NOG1                                             DCORE  186

                P0079  C0F6        NOG5  LDA- HICORE     SET UP SWAP WRITE BLOCK                DCORE  188
                P007A  90F7              SUB- LOCORE       SIZE AND START                      DCORE  189
50              P007B  09FE              INA  -1                                               DCORE  190
                P007C  6809              STA* LENGTH                                           DCORE  191
                P007D  C0F7              LDA- LOCORE                                           DCORE  192
                P007E  0901              INA  1                                                DCORE  193
                P007F  6807              STA* START                                            DCORE  194
55              P0080  54F4              RTJ- ($F4)                                            DCORE  195
                P0081  4CF0        OUTPUT ADC  $4CF0      PART 1  FWRITE             **MSOS 4.0 DCORE  196
                P0082  0098 P            ADC  NOG20                                            DCORE  197
                P0083  0000              NUM  0,$8C2                                           DCORE  198
                P0084  08C2
```

When Background is swapped an idle loop executes at priority 2 and prevents Background from getting off the interrupt stack

Background will not be swapped until unprotected I/O is completed

```
P0085  0000          LENGTH NUM  0                                          DCORE  199
P0086  0000          START  NUM  0                                          DCORE  200
P0087  0000                 NUM  0                                          DCORE  201
P0088  7FFF X               ADC  SWAPAR                                     DCORE  202
P0089  5802                 RTJ* STLPV4                    **MSOS 4.0 DCORE  203
P008A  18DC                 JMP* NOG1                      **MSOS 4.0 DCORE  204
                            *                              **MSOS 4.0 DCORE  205
                            *                              **MSOS 4.0 DCORE  206
P008B  0B00          STLPV4 NOP  0                         **MSOS 4.0 DCORE  207
P008C  0A00                 ENA  0          TELL PROTECT PROCESSOR          DCORE  208
P008D  6C33                 STA* (XSPASW)   SWAP IS NOT WAITING              DCORE  209
P008E  C83A                 LDA* LOOP1                                      DCORE  210
P008F  6834                 STA* LOOP       SET UP AND SCHEDULE LEVEL       DCORE  211
P0090  C839                 LDA* LOOPFG     IF LOOP NEVER RAN               DCORE  212
P0091  0114                 SAN  TURNON-*-1 DO NOT RESCHEDULE IT            DCORE  213
P0092  D837                 RAO* LOOPFG     SET FLAG                        DCORE  214
P0093  54F4                 RTJ- ($F4)        2 LOOP SO AS TO LOCK OUT      DCORE  215
P0094  5202                 VFD  N1/0,N1/1,N5/9,N1/0,N4/0,N4/2  JOB PROCESSING  ***MSOS4.0 DCORE  216
P0095  00C1 P               ADC  LOOPEN                                     DCORE  217
P0096  D826          TURNON RAO* SWAPON     TURN ON SWAP INDICATOR          DCORE  218
P0097  1CF3                 JMP* (STLPV4)                  **MSOS 4.0 DCORE  219


                            * THIS ROUTINE IS ENTERRED ON COMPLETION OF SWAP I/O  DCORE  222

P0098  C0F6          NOG20  LDA- HICORE                                     DCORE  224
P0099  09FE                 INA  -1                                         DCORE  225
P009A  6823                 STA* LEND       UPDATE TOP OF ALLOCATABLE AREA  DCORE  226
P009B  E0F7                 LDQ- LOCORE                                     DCORE  227
P009C  0D01                 INQ  1                                          DCORE  228
P009D  C400  7FFF X  NOG6   LDA+ LVLSTR     UPDATE START OF LEVEL ZERO      DCORE  229
P009F  4CFE                 STQ* (NOG6+1)     PGMS IN LVLSTR TABLE          DCORE  230
P00A0  681E                 STA* TEMPL                                      DCORE  231
P00A1  0814                 TRQ  A                                          DCORE  232
P00A2  0902                 INA  2                                          DCORE  233
P00A3  6201                 STA-  1,Q                                       DCORE  234
P00A4  C8E0                 LDA* LENGTH     SET UP PSEUDO THREAD FOR ALLOCATOR  DCORE  235
P00A5  6622                 STA-  (ZERO),Q                                  DCORE  236
P00A6  5400  7FFF X         RTJ+ RTNCOR                                     DCORE  237
P00A8  E0F6                 LDQ- HICORE                                     DCORE  238
P00A9  C8DB                 LDA* LENGTH                                     DCORE  239
P00AA  0DFE          NOG21  INQ  -1         SET PROTECT BITS FOR THE AREA    DCORE  240
P00AB  0600                 SPB  0                                          DCORE  241
P00AC  09FE                 INA  -1                                         DCORE  242
P00AD  0101                 SAZ  NOG22-*-1                                  DCORE  243
P00AE  18FB                 JMP* NOG21                                      DCORE  244
P00AF  E80C          NOG22  LDQ* XCORE                                      DCORE  245
P00B0  40FF                 STQ- I                                          DCORE  246
P00B1  C8D3                 LDA* LENGTH     SET UP SPACE REQUEST TO         DCORE  247
P00B2  09FD                 INA  -2           GET CORE BACK + PUT           DCORE  248
P00B3  6806                 STA* SPACE1     IT ON WAIT THREAD               DCORE  249
P00B4  54F4                 RTJ- ($F4)      SPACE REQUEST                   DCORE  250
P00B5  5400          SPACE4 VFD  N1/0,N1/1,N5/10,N1/0,N8/0                  DCORE  251
P00B6  00CA P               ADC  NOG30,,                   ***MSOS4.0 DCORE  252
```

```
                P00B7  0000
                P00B8  0000
                P00B9  0000          SPACE1 NUM  0          SIZE                                                  DCORE  253
                P00BA  1869                 JMP* REL1       RESTART DRIVER IF NOT BUSY                            DCORE  254


                P00BB  7FFF X        XCORE  ADC  PCORE                                                            DCORE  256
                P00BC  0000          SWAPON NUM  0          ZERO WHEN NOT SWAPPED                                 DCORE  257
                P00BD  0000          LEND   ADC  0          LWA OF ALLOCATABLE - STUFFED BY SPACE                  DCORE  258
                P00BE       0001     TEMPL  BSS  TEMPL      TEMPORARY HOLD FOR LVLSTR                             DCORE  259
                P00BF  7FFF X        XUNPIO ADC  UNPIO      UNPROTECTED I/O REQUEST COUNT ADR                     DCORE  260
                P00C0  7FFF X        XSPASW ADC  SPASW      SWAP WAITING SWITCH ADR                               DCORE  261
                P00C1  0844          LOOPEN CLR  A                                                                DCORE  262
                P00C2  6807                 STA* LOOPFG                                                           DCORE  263
                P00C3  0B00          LOOP   NOP  0                                          **MSOS 4.1**  DCORE  264
                P00C4  0B00                 NOP  0          MATCH CYCLES IN LEVEL -1 LOOP  **MSOS 4.1**  DCORE  265
                P00C5  5400  7FFF X         RTJ+ IDLER      USE SYSDAT IDLE LOOP           **MSOS 4.1**  DCORE  266
                P00C7  18FB                 JMP* LOOP                                      **MSOS 4.1**  DCORE  267
                P00C8  0B00          LOOP1  NOP  0                                          **MSOS 4.1**  DCORE  268
                P00C9  0000          LOOPFG NUM  0          FLAG TO PREVENT MORE THAN ONE LEVEL 2 LOOP SCH        DCORE  269


                                     *           ENTER HERE WHEN SWAPPED                                           DCORE  271
                                     *           SPACE BECOMES AVAILABLE AGAIN                                     DCORE  272

                P00CA  C8BA          NOG30  LDA* LENGTH     STUFF PARAMTERS                ***MSOS4.0  DCORE  274
                P00CB  6808                 STA* LGTH                                      ***MSOS4.0  DCORE  275
                P00CC  C8B9                 LDA* START                                     ***MSOS4.0  DCORE  276
                P00CD  6807                 STA* STRT                                      ***MSOS4.0  DCORE  277
                                     *                                                     ***MSOS4.0  DCORE  278
                P00CE  54F4                 RTJ- ($F4)     READ SWAPPED AREA BACK IN      ***MSOS4.0  DCORE  279
                P00CF  4800          NOG30A VFD  N1/0,N1/1,N5/4,N1/0,N4/0,N4/0             ***MSOS4.0  DCORE  280
                P00D0  00D8 P               ADC  NOG33                                                         DCORE  281
                P00D1  0000                 NUM  0                                                             DCORE  282
                P00D2  08C2                 NUM  $8C2                                                          DCORE  283
                P00D3  0000          LGTH   ADC  0                                         ***MSOS4.0  DCORE  284
                P00D4  0000          STRT   ADC  0                                         ***MSOS4.0  DCORE  285
                P00D5  0000                 ADC  0          MSB                            ***MSOS4.0  DCORE  286
                P00D6  0088 X               ADC  SWAPAR     LSB                            ***MSOS4.0  DCORE  287
                P00D7  14EA          AJDISP JMP- (ADISP)                                                        DCORE  288
                P00D8  C8FE          NOG33  LDA* AJDISP                                                         DCORE  289
                P00D9  68E9                 STA* LOOP       TURN OFF LEVEL 2 LOOP                              DCORE  290
                P00DA  C8E3                 LDA* TEMPL                                                         DCORE  291
                P00DB  6CC2                 STA* (NOG6+1)   RESTORE LVLSTR                                     DCORE  292
                P00DC  C0F7                 LDA- LOCORE                                                        DCORE  293
                P00DD  68DF                 STA* LEND       RESTORE END OF ALLOCATABLE CORE                    DCORE  294
                P00DE  E8DC                 LDQ* XCORE                                                         DCORE  295
                P00DF  C20D                 LDA-  13,Q      DELAY TIME                                         DCORE  296
                P00E0  6204                 STA- TIME,Q     RESET TIME SINCE LAST SWAP                         DCORE  297
                P00E1  E0F6                 LDQ- HICORE                                                        DCORE  298
                P00E2  C8A2                 LDA* LENGTH                                                        DCORE  299
                P00E3  0DFE          NOG32  INQ  -1         CLEAR PROTECT BITS IN THE AREA                     DCORE  300
                P00E4  0700                 CPB  0                                                             DCORE  301
                P00E5  09FE                 INA  -1                                                            DCORE  302
                P00E6  0101                 SAZ  NOG35-*-1                                                     DCORE  303
```

```
P00E7  18FB          JMP* NOG32                                                    DCORE  304
P00E8  0500    NOG35 IIN  0                                                        DCORE  305
P00E9  68D2          STA* SWAPON     TURN OFF SWAP INDICATOR                       DCORE  306
P00EA  1839          JMP* REL1       IF DRIVER NOT RUNNING, RESTART IT             DCORE  307


*  THIS IS ENTERRED FROM RELEASE REQUESTS                                         DCORE  309

P00EB  C108    T12   LDA- 8,I                                                     DCORE  311
P00EC  0132          SAM  R1A-*-1    SKIP IF INDIRECT REQUEST          **MSOS 4.0 DCORE  312
P00ED  D103          RAO- 3,I        UPDATE RETURN FOR DIRECT CALL               DCORE  313
P00EE  D103          RAO- 3,I                                                    DCORE  314
P00EF  E105    R1A   LDQ- 5,I                                                    DCORE  315
P00F0  C622          LDA- (ZERO),Q   CHECK BIT 0 (R)                             DCORE  316
P00F1  A023          AND- $23        OF FIRST WORD OF REQUEST                    DCORE  317
P00F2  0102          SAZ  R1-*-1     CHECK RETURN INDICATOR                      DCORE  318
P00F3  C0EA          LDA- ADISP      IF NOT ZERO                                 DCORE  319
P00F4  6103          STA- 3,I        RETURN TO ADR OF DISPATCHER                 DCORE  320
P00F5  C622    R1    LDA- (ZERO),Q   CHECK THE D PARAMETER OF THE REQUEST**MSOS 4.0 DCORE  321
P00F6  A031          AND- ONEBIT+14  TO DETERMINE WHICH AREA TO RELEASE  **MSOS 4.0 DCORE  322
P00F7  0102          SAZ  R11-*-1    SKIP IF PART 0 RELEASE REQUEST      **MSOS 4.0 DCORE  323
P00F8  1400  7FFF X  JMP  K65T12     GO RELEASE PART 1 AREAS             **MSOS 4.0 DCORE  324
P00FA  C106    R11   LDA- 6,I        TRANSLATE RETURN PARAMETERS         **MSOS 4.0 DCORE  325
P00FB  012C          SAP  R29-*-1                                                DCORE  326
P00FC  C622          LDA- (ZERO),Q                                               DCORE  327
P00FD  A02B          AND- ZERO+9                                                 DCORE  328
P00FE  0115          SAN  R2-*-1                                                 DCORE  329
P00FF  E106          LDQ- 6,I                                          **MSOS 4.0 DCORE  330
P0100  C011          LDA- NZERO-1    MASK INDIRECT BIT FROM "S" PARAMETER        DCORE  331
P0101  08B2          LAQ  Q          SAVE IN Q-REG                               DCORE  332
P0102  C622          LDA- (ZERO),Q                                               DCORE  333
P0103  1805          JMP* R29                                                    DCORE  334
P0104  0814    R2    TRQ  A                                                      DCORE  335
P0105  A011          AND- NZERO-1                                                DCORE  336
P0106  8106          ADD- 6,I                                          **MSOS 4.0 DCORE  337
P0107  A011          AND- NZERO-1                                                DCORE  338
P0108  09FD    R29   INA  -2                                                     DCORE  339
P0109  0822          TRA  Q                                                      DCORE  340
P010A  9000  7FFF X  SUB  =XAREAC    AREA RETURNED BELOW AREAC IS IN ERROR*434****  DCORE  341
P010C  013E          SAM  ERROR                                        *434****  DCORE  342
P010D  0814          TRQ  A                                            *434****  DCORE  343
P010E  8622          ADD- (ZERO),Q                                     *434****  DCORE  344
P010F  0500          IIN  0                                            *434***** DCORE  345
P0110  9800  FFAB    SUB  LEND                                         *434****  DCORE  346
P0112  09FD          INA  -2         OK TO RETURN BLOCK THAT ENDS AT LEND 63*1213  DCORE  347
P0113  0127          SAP  ERROR      END OF AREA RETURNED ABOVE LEND IS AN ERROR**  DCORE  348
P0114  0814          TRQ  A                                            *434      DCORE  349
P0115  0902          INA  2                                            *434****  DCORE  350
P0116  9201          SUB- 1,Q                                          *434****  DCORE  351
P0117  0113          SAN  ERROR      HEADER WORD NOT POINTING TO 1ST WORD OF AREA   DCORE  352
P0118  C622          LDA- (ZERO),Q                                     *434****  DCORE  353
P0119  09FD          INA  -2                                           *434****  DCORE  354
P011A  0122          SAP  R41        LENGTH LESS THAN TWO IS AN ERROR  *434      DCORE  355
P011B  1400  7FFF X  ERROR JMP  SCNERR  SET BIT 15 OF Q AND RETURN TO REQUESTOR    DCORE  356
P011D  54F4          R41   RTJ- ($F4)                                            DCORE  357
```

```
                P011E  5200          REL    ADC  $5200      RELEASE AT DRIVER PRIORITY LEVEL    **MSOS 4.0 DCORE  358
                P011F  0121 P               ADC  RELEAS                                        **MSOS 4.0 DCORE  359
 5              P0120  14B9            R6     JMP- (REQXT)                                                  DCORE  360


                                      * ENTERRED AT LEVEL OF ALLOCATOR TO RELEASE SPACE                     DCORE  362
10
                P0121  5400  00A7 X   RELEAS RTJ+ RTNCOR                                                    DCORE  364
                P0123  E897            REL1   LDQ* XCORE       SET ALLOCATOR BUSY                         DCORE  365
                             0123 P           EQU  ECORE(REL1) ENTRY FROM DIAGNOSTIC TIMER        **MSOS 4.1** DCORE  366
                P0124  0500                   IIN  0           INHIBIT INTERRUPTS                         DCORE  367
15              P0125  C205                   LDA- LU,Q                                                   DCORE  368
                P0126  0101                   SAZ  REL2-*-1                                               DCORE  369
                P0127  14EA                   JMP- (ADISP)                                                DCORE  370
                P0128  0A01            REL2   ENA  CORELU                                                 DCORE  371
                P0129  6205                   STA- LU,Q                                                   DCORE  372
20              P012A  1800  FED6               JMP  ICORE       CHECK FOR WAITING REQUESTS         **MSOS 4.1** DCORE  373
                             0120 P           EQU  R5(R6)                                                 DCORE  374


                                      *          THE SWAPCK SUBROUTINE IS ENTERED TO DECREMENT UNPIO       DCORE  376
25                                    *          WHEN UNPROTECTED I/O IS COMPLETED, BY JOBPRO AND LIBEDT   DCORE  377
                                      *          IF UNPIO EQ 0 AND SPASW NE 0, DRCORE IS RESTARTED         DCORE  378


                             012C P           ENT  SWAPCK                                                 DCORE  380
30              P012C  0000            SWAPCK NUM  0           ENTERED WHEN UNPROTECTED I/O IS COMPLETED   DCORE  381
                P012D  0500                   IIN  0                                                      DCORE  382
                P012E  54BB                   RTJ- (AVOLA)     GET VOLATILE                               DCORE  383
                P012F  0004                   NUM  4                                                      DCORE  384
                P0130  C8FB                   LDA* SWAPCK                                                 DCORE  385
35              P0131  0400                   EIN  0                                                      DCORE  386
                P0132  6103                   STA- 3,I         SAVE RETURN ADDRESS                        DCORE  387
                P0133  CC8B                   LDA* (XUNPIO)    DECREMENT UNPIO BY 1                       DCORE  388
                P0134  010E                   SAZ  SWCKEX-*-1                                             DCORE  389
                P0135  09FE                   INA  -1                                                     DCORE  390
40              P0136  6C88                   STA* (XUNPIO)                                               DCORE  391
                P0137  011B                   SAN  SWCKEX      EXIT IF SWAP NOT POSSIBLE          63*1378  DCORE  392
                P0138  CC87                   LDA* (XSPASW)                                               DCORE  393
                P0139  0109                   SAZ  SWCKEX-*-1  SKIP IF NOT WAITING TO SWAP                 DCORE  394
                P013A  0C0A                   ENQ  10                                                     DCORE  395
45              P013B  C6E9                   LDA- ($E9),Q     GET RESIDENCY OF UNPROTECTED FROM          DCORE  396
                                      *                        EXTENDED CORE TABLE                        DCORE  397
                P013C  0103                   SAZ  SCHA        SCHEDULE PARTITION CORE            **MSOS 4.0 DCORE  398
                P013D  C000  7FFF X           LDA  =XPRTCDR      DRIVER IF UNPROTECTED            **MSOS 4.0 DCORE  399
                P013F  6803                   STA* SCH+1           IS IN PART 1                   **MSOS 4.0 DCORE  400
50              P0140  54F4            SCHA   RTJ- ($F4)                                          **MSOS 4.0 DCORE  401
                P0141  5200            SCH    VFD  N1/0,N1/1,N5/9,N1/0,N8/0     SCHEDULE DRIVER IF NOT BUSY*** DCORE  402
                P0142  0123 P                 ADC  REL1                                          ***MSOS4.0 DCORE  403
                P0143  0500            SWCKEX IIN  0                                                      DCORE  404
                P0144  C103                   LDA- 3,I                                                    DCORE  405
55              P0145  68E6                   STA* SWAPCK      RESTORE RETURN ADDRESS                     DCORE  406
                P0146  54BA                   RTJ- (AVOLR)     RELEASE VOLATILE                           DCORE  407
                P0147  0400                   EIN  0                                                      DCORE  408
                P0148  1CE3                   JMP* (SWAPCK)    RETURN TO USER                             DCORE  409
                                      *                        2 CARDS DELETED                            DCORE  410
```

```
                P0149  0000           THRDIT 0    0          THREAD REQUEST IN A TO CORE LU          DCORE  412
              5 P014A  681E                  STA* TEMP1                                            DCORE  413
                P014B  CC1D                  LDA* (TEMP1)                                          DCORE  414
                P014C  A811                  AND* RPMSK                                            DCORE  415
                P014D  6811                  STA* REQP                                             DCORE  416
                P014E  E800  FF08            LDQ  XLOG2                                            DCORE  417
             10 P0150  0DFE                  INQ  CORELU-2                                         DCORE  418
                P0151  0500                  IIN  0                                                DCORE  419
                P0152  480D           THDNXT STQ* THDX                                             DCORE  420
                P0153  E202                  LDQ- PT,Q          CHECK FOR END OF THREAD            DCORE  421
                P0154  0D00                  INQ  0                                                DCORE  422
             15 P0155  0151                  SQN  1                                                DCORE  423
                P0156  180A                  JMP* THDTHS                                           DCORE  424
                P0157  C622                  LDA- (ZERO),Q      SEARCH FOR LOWER RP                DCORE  425
                P0158  A805                  AND* RPMSK                                            DCORE  426
                P0159  9805                  SUB* REQP                                             DCORE  427
             20 P015A  0135                  SAM  THDTHS-*-1    THREAD ENTRY IF NEGATIVE           DCORE  428
                P015B  0104                  SAZ  THDTHS-*-1    THREAD ENTRY IF EQUAL RP           DCORE  429
                P015C  18F5                  JMP* THDNXT        GET NEXT ENTRY                     DCORE  430
                P015D  00F0           RPMSK  NUM  $F0                                              DCORE  431
                P015E  0000           REQP   NUM  0                                                DCORE  432
             25 P015F  0000           THDX   NUM  0                                                DCORE  433
                P0160  E8FE           THDTHS LDQ* THDX          POINTER TO PREVIOUS ENTRY          DCORE  434
                P0161  C202                  LDA- PT,Q                                             DCORE  435
                P0162  E806                  LDQ* TEMP1         POINTER TO ENTRY TO ADD            DCORE  436
                P0163  6202                  STA- PT,Q          POINTER TO NEXT ENTRY              DCORE  437
             30 P0164  0814                  TRQ  A                                                DCORE  438
                P0165  E8F9                  LDQ* THDX          POINTER TO PREVIOUS ENTRY          DCORE  439
                P0166  6202                  STA- PT,Q                                             DCORE  440
                P0167  1CE1                  JMP* (THRDIT)                                         DCORE  441
                P0168  0000           TEMP1  ADC  0                                                DCORE  442
             35
                P0169                        END                                                   DCORE  444

                        65677B STORAGE USED          443 STATEMENTS      115 SYMBOLS
                        6400 ASSEMBLY              2.839 SECONDS         345 REFERENCES
```

COMPLETE REFERENCE MAP.

ACOMPR	00B6	ABSOLUTE	2/54 Q	4/32					
ADISP	00EA	ABSOLUTE	2/52 Q	5/33	7/44	8/21	9/17		
AFNR	00B5	ABSOLUTE	2/57 Q	3/25					
AJDISP	00D7		7/44 L	7/45					
ANABS	00BF	ABSOLUTE	2/58 Q	3/38					
AREAC	010B	*EXTERNAL*	2/44 X	8/43					
ASWAPD	0041		3/35	3/39	4/17	4/34 L			
AVOLA	00BB	ABSOLUTE	2/60 Q	9/32					
AVOLR	00BA	ABSOLUTE	3/03 Q	9/56					
BOTTOM	0001		3/22 L	3/47	3/53	4/54			
CORELU	0001	ABSOLUTE	3/08 Q	5/27	9/18	10/10			
COR1	0003		3/25 L	3/57	4/33	5/31			
DIRCAL	0042		4/24	4/36 L					
DIR1	004A		4/36	4/41	4/44 L				
ECORE	0123		2/31 E	9/13 Q					
ELU	0005	ABSOLUTE	3/09 Q	5/32					
ERROR	011B		8/44	8/50	8/54	8/58 L			
GTHDIT	0069		4/59	5/26 Q					
HICORE	00F6	ABSOLUTE	3/05 Q	5/48	6/31	6/45	7/54		
I	00FF	-SYSTEM-	3/23	4/31	5/11	6/53			
ICORE	0002		2/30 E	3/23 L	4/46	9/20			
IDLER	00C6	*EXTERNAL*	2/51 X	7/20					
JNOGOT	0032		4/11	4/16	4/19 L				
K65T12	00F9	*EXTERNAL*	2/48 X	8/26					
LEND	00BD		2/32 E	6/33	7/12 L	7/50	8/48		
LENGTH	0085		5/51	5/60 L	6/42	6/46	6/54	7/30	7/55
LGTH	00D3		7/31	7/40 L					
LOCORE	00F7	ABSOLUTE	3/05 Q	5/49	5/52	6/34	7/49		
LOG2	0058	*EXTERNAL*	2/44 X	5/04					
LOOP	00C3		2/35 E	6/15	7/18 L	7/21	7/46		
LOOPEN	00C1		6/21	7/16 L					
LOOPFG	00C9		6/16	6/18	7/17	7/23 L			
LOOP1	00C8		6/14	7/22 L					
LPMSK	0002	ABSOLUTE	2/56 Q	3/30	3/42	4/04	5/13		
LU	0005	ABSOLUTE	2/52 Q	9/15	9/19				
LVLSTR	009E	*EXTERNAL*	2/44 X	6/36					
NOGOT	0059		4/19	5/10 L					
NOG1	0067		5/15	5/20	5/24 L	5/41	5/45	6/08	
NOG2	0072		5/23	5/39 L					
NOG20	0098		5/57	6/31 L					
NOG21	00AA		6/47 L	6/51					
NOG22	00AF		6/50	6/52 L					
NOG30	00CA		6/59	7/30 L					
NOG30A	00CF		2/38 E	7/36 L					
NOG32	00E3		7/56 L	7/60					
NOG33	00D8		7/37	7/45 L					
NOG35	00E8		7/59	8/04 L					
NOG4	0075		5/40	5/42 L					
NOG5	0079		5/43	5/48 L					
NOG6	009D		6/36 L	6/37	7/48				
NOTMOT	000E		3/32	3/36 Q					
NOTOK	0017		3/44	3/46 L					
NZERO	0012	ABSOLUTE	2/56 Q	4/23	4/29	4/40	8/33	8/38	8/40
OKO	0016		3/40	3/45 L					
OKJ	0023		3/45	3/59 L					
ONE	0034		4/12	4/22 L					
ONEBIT	0023	ABSOLUTE	3/14 Q	4/20	8/24				

OUTPUT	0081		2/37 E	5/56 L						
OUTPV4	7FFF	*EXTERNAL*	2/49 X							
PCORE	00BB	*EXTERNAL*	2/43 X	7/10						
PRTCDR	013E	*EXTERNAL*	2/50 X	9/48						
PT	0002	ABSOLUTE	3/10 Q	3/50	3/56	4/56	10/13	10/27	10/29	10/32
PTNALC	7FFF	*EXTERNAL*	2/46 X							
PTNREL	7FFF	*EXTERNAL*	2/47 X							
RDPTV4	7FFF	*EXTERNAL*	2/49 X							
REL	011E		2/39 E	8/60 L						
RELEAS	0121		9/04	9/11 L						
REL1	0123		7/06	8/06	9/12 L	9/13	9/52			
REL2	0128		9/16	9/18 L						
REQALC	0028	*EXTERNAL*	2/44 X	4/06						
REQP	015E		10/08	10/19	10/24 L					
REQXT	00B9	ABSOLUTE	3/13 Q	9/05						
RPMSK	015D		10/07	10/18	10/23 L					
RTNCOR	0122	*EXTERNAL*	2/43 X	6/44	9/11					
R1	00F5		8/20	8/23 L						
R1A	00EF		8/14	8/17 L						
R11	00FA		8/25	8/27 L						
R2	0104		8/31	8/37 L						
R29	0108		8/28	8/36	8/41 L					
R41	011D		8/57	8/59 L						
R5	0120		9/21 Q							
R6	0120		9/05 L	9/21						
SCH	0141		2/40 E	9/49	9/51 L					
SCHA	0140		9/47	9/50 L						
SCHERR	011C	*EXTERNAL*	2/45 X	8/58						
SPACE1	00B9		6/56	7/05 L						
SPACE4	00B5		2/37 E	4/34	6/58 L					
SPASW	00C0	*EXTERNAL*	2/44 X	7/15						
SPCEV4	7FFF	*EXTERNAL*	2/49 X							
START	0086		5/54	6/04 L	7/32					
STLPV4	008B		2/35 E	6/07	6/11 L	6/23				
STRT	00D4		7/33	7/41 L						
SWAPAR	00D6	*EXTERNAL*	2/43 X	6/06	7/43					
SWAPCK	012C		9/29 E	9/30 L	9/34	9/55	9/58			
SWAPON	00BC		2/34 E	5/21	6/22	7/11 L	8/05			
SWCKEX	0143		9/38	9/41	9/43	9/53 L				
TEMP	0071		3/37	3/46	4/22	4/38	5/24	5/34 L		
			3/41	3/59	4/26	5/12	5/29			
TEMPL	00BE		6/38	7/13 B	7/47					
TEMP1	0168		10/05	10/06	10/28	10/34 L				
THDNXT	0152		10/12 L	10/22						
THDTHS	0160		10/16	10/20	10/21	10/26 L				
THDX	015F		10/12	10/25 L	10/26	10/31				
THRDIT	0149		5/25	10/04 L	10/33					
TIME	0004	ABSOLUTE	3/06 Q	5/39	7/53					
TRY	0005		3/27 L							
TURNON	0096		6/17	6/22 L						
TI2	00EB		2/30 E	8/13 L						
UNPIO	00BF	*EXTERNAL*	2/44 X	7/14						
WAIT	0000		3/21 L	3/52	4/50	4/57				
WAIT2	004D		3/26	4/50 L	4/60					
WAIT3	0053		4/52	4/56 L						
XCORE	00BB		4/28	4/45	5/10	6/52	7/10 L	7/51	9/12	
XLOG2	0058		5/04 L	5/28	10/09					

COMPLETE REFERENCE MAP.

XSPASW	00C0		5/44	6/13	7/15 L	9/42		
XUNPIO	00BF		5/42	7/14 L	9/37	9/40		
ZERO	0022	ABSOLUTE	2/53 Q	6/43	8/23	8/30	8/46	10/17
			3/28	8/18	8/29	8/35	8/55	

1

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

0000 00AE NAM ALCORE DECK-ID M17 MSOS 5.0 SUMMARY
00AE END

BLOCKS	TYPE	ADDRESS	LENGTH
ALCORE	PROGRAM*	0000	00AE
LS1PRI	LOCAL	0077	0069
LS3PRI	LOCAL	0079	0069

ENTRY POINT NAMES AND ADDRESSES.

ALCORE -- 0000 REQALC -- 0000 RTNCOR -- 007C

EXTERNAL SYMBOLS.

CALTHD LEND LVLSTR

```
                                NAM  ALCORE       DECK-ID M17  MSOS 5.0                SUMMARY-110 ALCORE     2
                           *    MASS STORAGE OPERATING SYSTEM VERSION 5.0                            ALCORE     3
                           *    SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                        ALCORE     4
                           *    COPYRIGHT CONTROL DATA CORPORATION 1976                             ALCORE     5


                           *    CORE ALLOCATOR                                                      ALCORE     7
                 0000 P         ENT   ALCORE                                                       ALCORE     8
                 0000 P         EQU    ALCORE(*)                                                  ALCORE     9


                 0000 P         ENT  REQALC,RTNCOR                                                ALCORE    12
                 007C P
                                EXT  LVLSTR,LEND,CALTHD                                           ALCORE    13
                 0002           EQU  LPMSK($2),ZERO($22)                                          ALCORE    14
                 0022
                 0002      MINSIZ EQU MINSIZ(2)                                                   ALCORE    15
                 0011      MAXNO  EQU  MAXNO(LPMSK+15)                                            ALCORE    16
                           *                                                                      ALCORE    17
                           *                                                                      ALCORE    18
                           *         THIS MODULE FINDS AN AVAILABLE AREA IN                       ALCORE    19
                           *          THE SPACE ALLOCATED TO IT AND ASSIGNS                       ALCORE    20
                           *          PART OF IT PER A SPACE REQUEST.                             ALCORE    21
                           *                                                                      ALCORE    22
                           *         THE CORE ALLOCATOR IS ENTERRED FROM THE                      ALCORE    23
                           *          CORE ALLOCATOR DRIVER AND FROM THE                          ALCORE    24
                           *          RELEASE REQUEST PROCESSOR.                                  ALCORE    25
                           *                                                                      ALCORE    26
                           *         ON ENTRY TO ALLOCATE CORE, A AND Q MUST                      ALCORE    27
                           *          BE AS FOLLOWS.                                              ALCORE    28
                           *                                                                      ALCORE    29
                           *            A= REQUESTED LENGTH.                                      ALCORE    30
                           *            Q=PRIORITY LEVEL OF THE REQUEST.                          ALCORE    31
                           *                                                                      ALCORE    32
                           *         AN ENTRY TO RETURN CORE PREVIOUSLY                           ALCORE    33
                           *          ALLOCATED MUST HAVE THE ORIGIN OF THE                       ALCORE    34
                           *          BLOCK BEING RETURNED IN Q.                                  ALCORE    35
                           *                                                                      ALCORE    36
                           *         ENTRIES TO OBTAIN SPACE ARE MADE                             ALCORE    37
                           *          THROUGH REQALC.                                             ALCORE    38
                           *         ENTRIES TO RETURN CORE ARE MADE                              ALCORE    39
                           *          THROUGH RTNCOR.                                             ALCORE    40
                           *                                                                      ALCORE    41
                           *         IF AN ALLOCATION CAN NEVER BE MADE, THEN                     ALCORE    42
                           *          A RETURN TO CALLER IS MADE WITH Q=0                         ALCORE    43
                           *         IF NO SPACE IS AVAILABLE NOW, THEN A                         ALCORE    44
                           *          RETURN TO CALLER IS MADE WITH Q=-1                          ALCORE    45
                           *         IF THE ALLOCATION IS SUCCESSFUL, THEN                        ALCORE    46
                           *          A RETURN TO CALLER IS MADE WITH THE                         ALCORE    47
                           *          ORIGIN OF THE AREA IN Q.                                    ALCORE    48
                           *                                                                      ALCORE    49
                           *                                                                      ALCORE    50
P0000      0000          REQALC 000 0                                                            ALCORE    51
P0001      482F                 STQ*  REQLVL          REQUEST LEVEL                             ALCORE    52
P0002      0902                 INA  MINSIZ                                                     ALCORE    53
P0003      682C                 STA*  REQLTH          LENGTH=(A)+MINSIZ                         ALCORE    54
P0004      C600  7FFF X         LDA+ LVLSTR,Q                                                   ALCORE    55
```

```
                P0006  6828                STA* LSTR          LEVEL START                          ALCORE  56
                P0007  8828                ADD* REQLTH        IF LSTR+REQLTH .GE. LEND             ALCORE  57
 5              P0008  9400  7FFF X        SUB+ LEND                                               ALCORE  58
                P000A  09FD                INA  -2                                                 ALCORE  59
                P000B  0132                SAM  CA2           IF LSTR + REQLTH .GT. LEND           ALCORE  60
                P000C  0C00                ENQ  0             ERROR CODE, Q=0                      ALCORE  61
                P000D  1CF2                JMP* (REQALC)                                           ALCORE  62
10                                    *                                                            ALCORE  63
                                      *       LOOK THROUGH THE AVAILABLE AREA FOR THE              ALCORE  64
                                      *        SMALLEST USEABLE PIECE.                             ALCORE  65
                                      *                                                            ALCORE  66
                P000E  C011           CA2  LDA- MAXNO                    2**15-1                   ALCORE  67
15              P000F  6822                STA* MINPCE                                             ALCORE  68
                P0010  E000  7FFF X        LDQ  =XCALTHD                                           ALCORE  69
                P0012  4821           RCORE1 STQ* LTHD                                             ALCORE  70
                                      *                                                            ALCORE  71
                                      *                IF THREAD = FFFF, GO TO CEOT                ALCORE  72
20                                    *                                                            ALCORE  73
                P0013  E201                LDQ- 1,Q                                                ALCORE  74
                P0014  0D00                INQ  0                                                  ALCORE  75
                P0015  0151                SQN  1                                                  ALCORE  76
                P0016  181E                JMP* CEOT                                               ALCORE  77
25              P0017  40FF                STQ- I                                                  ALCORE  78
                P0018  C4FF                LDA- (I)           IF PIECE TOO SMALL                   ALCORE  79
                P0019  9816                SUB*  REQLTH                                            ALCORE  80
                P001A  0121                SAP  1                                                  ALCORE  81
                P001B  1811                JMP* CNXT          GO GET NEXT PIECE                    ALCORE  82
30              P001C  0814                TRQ  A                                                  ALCORE  83
                                      *                       IF THE START OF THE                  ALCORE  84
                P001D  9811                SUB* LSTR          PIECE ABOVE LEVEL START              ALCORE  85
                P001E  0131                SAM  1             GO CHECK SIZE                        ALCORE  86
                P001F  1805                JMP* CSIZCK                                             ALCORE  87
35                                    *                       OTHERWISE, PIECE STARS               ALCORE  88
                                      *                       BELOW START FOR THIS                 ALCORE  89
                                      *                       LEVEL.                               ALCORE  90
                                      *                                                            ALCORE  91
                                      *                       IF START OF PIECE, S1,               ALCORE  92
40                                    *                       PLUS ITS LENGTH IS                   ALCORE  93
                                      *                       .GE. THE REQUEST LEVEL               ALCORE  94
                                      *                       PLUS LENGTH, GO CHECK SIZ            ALCORE  95
                P0020  84FF                ADD- (I)                                                ALCORE  96
                P0021  980E                SUB*  REQLTH                                            ALCORE  97
45              P0022  0121                SAP  1                                                  ALCORE  98
                P0023  1809                JMP* CNXT          CANT USE PIECE                       ALCORE  99
                P0024  C4FF           CSIZCK LDA- (I)         IF THIS PIECE LARGER THAN            ALCORE 100
                P0025  980C                SUB* MINPCE        LAST PIECE, CHECK NEXT               ALCORE 101
                P0026  0131                SAM  1                                                  ALCORE 102
50              P0027  1805                JMP* CNXT                                               ALCORE 103
                P0028  C4FF                LDA- (I)                                                ALCORE 104
                P0029  6808                STA* MINPCE        SAVE LNGTH AND LOC.                  ALCORE 105
                P002A  C809                LDA* LTHD                                               ALCORE 106
                P002B  6807                STA* LMINTD        THREAD LOC. FOR SMALLEST             ALCORE 107
55              P002C  E0FF           CNXT LDQ- I             GET THE NEXT PIECE                   ALCORE 108
                P002D  18E4                JMP* RCORE1        REPEAT SEARCH OF THREAD.             ALCORE 109
                P002E  0000           LSTR NUM                                                     ALCORE 110
                P002F  0000           REQLTH NUM  0                                                ALCORE 111
                P0030  0000           REQLVL NUM                                                   ALCORE 112
```

```
                P0031  0000          MINPCE NUM 0                                                    ALCORE  113
                P0032  0000          LMINTD NUM 0                                                    ALCORE  114
              5 P0033  0000          LTHD   NUM 0                                                    ALCORE  115
                                     *                                                               ALCORE  116
                P0034  C011          CEOT   LDA- MAXNO          END OF THREAD.                       ALCORE  117
                P0035  98FB                 SUB* MINPCE         IF NO PIECE FOUND, THEN              ALCORE  118
                P0036  0101                 SAZ  1                                                   ALCORE  119
             10 P0037  0122                 SAP  CA4P1-*-1                                           ALCORE  120
                P0038  0CFE                 ENQ  -1             ERROR CODE RETURNED IN Q             ALCORE  121
                P0039  1CC6                 JMP* (REQALC)                                            ALCORE  122
                                     *                                                               ALCORE  123
                                     *                                  A PIECE WAS FOUND            ALCORE  124
             15                      *                                                               ALCORE  125
                P003A  E8F7          CA4P1  LDQ* LMINTD                                              ALCORE  126
                P003B  C201                 LDA- 1,Q                                                 ALCORE  127
                P003C  483A                 STQ* S1             S1 POINTS TO S2                      ALCORE  128
                P003D  683B                 STA* S2             START OF SEGMENTS=S1=S2              ALCORE  129
             20 P003E  CC3A                 LDA* (S2)           CHOSEN PIECE LENGTH = CN             ALCORE  130
                P003F  683C                 STA* CN                                                  ALCORE  131
                P0040  E838                 LDQ* S2             S2 POINTS TO S3                      ALCORE  132
                P0041  C201                 LDA- 1,Q                                                 ALCORE  133
                P0042  6838                 STA* S3                                                  ALCORE  134
             25                      *                                                               ALCORE  135
                P0043  C8EA                 LDA* LSTR           IF NO LOWER PIECE                    ALCORE  136
                P0044  9834                 SUB* S2                                                  ALCORE  137
                P0045  0103                 SAZ  ACA5-*-1                                            ALCORE  138
                P0046  0132                 SAM  ACA5-*-1                                            ALCORE  139
             30                      *                          A LOWER PIECE EXISTS.                ALCORE  140
                P0047  09FC                 INA -MINSIZ-1       IF LOWER PIECE LESS THAN             ALCORE  141
                P0048  0121                 SAP  1              MINIMUM SIZE PLUS 1                  ALCORE  142
                P0049  1810          ACA5   JMP* CA5                                                 ALCORE  143
                P004A  0903                 INA  MINSIZ+1                                            ALCORE  144
             35 P004B  682C                 STA* LS1PRIME                                            ALCORE  145
                P004C  E82C                 LDQ* S2             S1,I=S2                              ALCORE  146
                P004D  4829                 STQ* S1                                                  ALCORE  147
                P004E  40FF                 STQ- I                                                   ALCORE  148
                P004F  E8DE                 LDQ* LSTR                                                ALCORE  149
             40 P0050  4828                 STQ* S2                                                  ALCORE  150
                P0051  C101                 LDA- 1,I            POINTER TO S3                        ALCORE  151
                P0052  6201                 STA- 1,Q            PUT INTO S2                          ALCORE  152
                P0053  4101                 STQ- 1,I            POINTER TO S2 PUT IN S1              ALCORE  153
                P0054  CC22                 LDA* (S1)           LTH S2=LS1PRIME-ORIG LTH             ALCORE  154
             45 P0055  9822                 SUB* LS1PRIME                                            ALCORE  155
                P0056  6C22                 STA* (S2)                                                ALCORE  156
                P0057  C820                 LDA* LS1PRIME                                            ALCORE  157
                P0058  6C1E                 STA* (S1)                                                ALCORE  158
                                     *                          THREAD NOW IS ...S1,S2,S3            ALCORE  159
             50                      *          IF THERE IS NO UPPER PIECE, THEN GO TO CA6            ALCORE  160
                                     *                                                               ALCORE  161
                P0059  CC1F          CA5    LDA* (S2)                                                ALCORE  162
                P005A  98D4                 SUB* REQLTH                                              ALCORE  163
                P005B  0111                 SAN 1                                                    ALCORE  164
             55 P005C  1811                 JMP* CA6                    GO TO CA6                    ALCORE  165
                P005D  09FC                 INA -MINSIZ-1       IF UPPER PIECE SMALLER               ALCORE  166
                P005E  0121                 SAP  1              THAN MIN SIZE, GO TO CA6             ALCORE  167
                P005F  180E                 JMP* CA6                                                 ALCORE  168
                P0060  0903                 INA  MINSIZ+1                                            ALCORE  169
```

looking at allocatable core threads / adjusting links

```
                P0061 6818                STA* LS3PRIME        LEFTOVER CALLED S3PRIME                  ALCORE 170
                P0062 E816                LDQ* S2                                                       ALCORE 171
     5          P0063 40FF                STQ- I               I POINTS TO S2                           ALCORE 172
                P0064 C8CA                LDA* REQLTH                                                   ALCORE 173
                P0065 6C13                STA* (S2)                                                     ALCORE 174
                P0066 F8C8                ADQ* REQLTH                                                   ALCORE 175
                P0067 C812                LDA* LS3PRIME        LENTH  S3PRIME TO S3PRIME                ALCORE 176
    10          P0068 6622                STA- (ZERO),Q                                                 ALCORE 177
                P0069 C101                LDA- 1,I             POINTER TO NEW S3 INTO S2                ALCORE 178
                P006A 6201                STA- 1,Q             PTR TO OLD S3 TO S3PRIME                 ALCORE 179
                P006B 4101                STQ- 1,I                                                      ALCORE 180
                P006C 480E                STQ* S3              S3PRIME IS NEW S3                        ALCORE 181
    15                                *                                                                 ALCORE 182
                                      *         REMOVE SEGMENT S2 FROM THREAD S1, S2, S3.               ALCORE 183
                                      *                                                                 ALCORE 184
                P006D E809            CA6 LDQ* S1               THREAD S1 TO S3                         ALCORE 185
                P006E C80C                LDA* S3                                                       ALCORE 186
    20                                *                                                                 ALCORE 187
                P006F 6201                STA- 1,Q                                                      ALCORE 188
                P0070 E808                LDQ* S2              RETURN TO CALLER WITH                    ALCORE 189
                P0071 0814                TRQ  A               Q=FIRST USABLE ADDRESS                   ALCORE 190
                P0072 0902                INA  MINSIZ                                                   ALCORE 191
    25                                *                                                                 ALCORE 192
                                      *         STORE LOCATION OF AREA BEFORE THE AREA                  ALCORE 193
                                      *                                                                 ALCORE 194
                P0073 6201                STA- 1,Q                                                      ALCORE 195
                P0074 0822                TRA  Q                                                        ALCORE 196
    30          P0075 1C8A                JMP* (REQALC)                                                 ALCORE 197
                                      *                                                                 ALCORE 198
                                      *         DATA STORAGE                                            ALCORE 199
                                      *                                                                 ALCORE 200
                P0076 0000            S1  NUM                                                           ALCORE 201
    35          P0077      0001           BSS  LS1PRIME(1)                                              ALCORE 202
                P0078 0000            S2  NUM                                                           ALCORE 203
                P0079      0001           BSS  LS3PRIME(1)                                              ALCORE 204
                P007A 0000            S3  NUM                                                           ALCORE 205
                P007B 0000            CN  NUM  0               LENGTH OF CORE ALLOCATOR REQUEST         ALCORE 206
    40                                *                                                                 ALCORE 207
                                      *                                                                 ALCORE 208
                                      *         CORE ALLOCATOR - RETURN CORE LOGIC                      ALCORE 209
                P007C 0000            RTNCOR 0    0                                                     ALCORE 210
                P007D 4830                   STQ* RS2             RETURNED PIECE CALLED RS2           ALCORE 211
    45          P007E E000 0011 X            LDQ  =XCALTHD                                             ALCORE 212
                P007F 482C            RCA1   STQ* RTHD            REFERENCE TO NEXT ENTRY             ALCORE 213
                P0080 C201                   LDA- 1,Q             ADDRESS OF ENTRY                    ALCORE 214
                P0081 0800                   NOP  0                                                    ALCORE 215
                P0082 0900                   INA  0                                                    ALCORE 216
    50          P0083 0111                   SAN  1                                                    ALCORE 217
                P0084 1806                   JMP* RCEOT1                  END OF THREAD                ALCORE 218
                P0085 60FF                   STA- I                                                    ALCORE 219
                P0086 9826                   SUB* RS2             IF ENTRY ABOVE RS2,                  ALCORE 220
                                      *                                  GO TO RCEOT1                  ALCORE 221
    55          P0087 0122                   SAP  RCEOT1-*-1                                           ALCORE 222
                P0088 E0FF                   LDQ- I               GET NEXT PIECE                       ALCORE 223
                P0089 1FF5                   JMP* RCA1                                                 ALCORE 224
                P008A 40FF            RCEOT1 STQ- I               REF TO ENTRY WHERE NEW               ALCORE 225
                                      *                          PIECE WILL BE PUT IN I                 ALCORE 226
```

```
                P008C  C101            LDA- 1,I     CHECK IF RETURNED PIECE ALREADY     46*750  ALCORE  227
                P008D  0872            EAQ  Q      RELEASED                            46*750  ALCORE  228
              5 P008E  0151            SQN  RCA     SKIP IF NOT                         46*750  ALCORE  229
                P008F  181C            JMP* RCAD                                        46*750  ALCORE  230
                P0090  E81D      RCA   LDQ* RS2     THREAD NEW PIECE                    46*750  ALCORE  231
                P0091  C101            LDA- 1,I       THREAD NEW PIECE IN                       ALCORE  232
                P0092  6201            STA- 1,Q       LOC. OF NEXT PIECE INTO                   ALCORE  233
             10                  *                                NEW PIECE.                   ALCORE  234
                P0093  4101            STQ- 1,I       LOC. OF NEW PIECE                         ALCORE  235
                                    *                 INTO REFERENCE                            ALCORE  236
                                    *                                                           ALCORE  237
                                    *                 IF LOWER PIECE TOUCHES                    ALCORE  238
             15                     *                 NEW PIECE                                 ALCORE  239
                P0094  C0FF            LDA- I                                                   ALCORE  240
                P0095  84FF            ADD- (I)                                                 ALCORE  241
                P0096  9817            SUB* RS2                                                 ALCORE  242
                P0097  0117            SAN  RCAC-*-1                                            ALCORE  243
             20 P0098  CC15            LDA* (RS2)         COMBINE PIECES                        ALCORE  244
                P0099  84FF            ADD- (I)                                                 ALCORE  245
                P009A  64FF            STA- (I)                                                 ALCORE  246
                P009B  C201            LDA- 1,Q       REF TO NEXT PIECE GOES TO                 ALCORE  247
                P009C  6101            STA- 1,I       COMBINED PIECE FRONT.                     ALCORE  248
             25 P009D  C0FF            LDA- I         CALL NEW PIECE RS2                        ALCORE  249
                P009E  680F            STA* RS2                                                 ALCORE  250
                P009F  E80E      RCAC  LDQ* RS2       IF RS2 TOUCHES NEXT PIECE                 ALCORE  251
                P00A0  0814            TRQ  A                                                   ALCORE  252
                P00A1  8C0C            ADD* (RS2)                                               ALCORE  253
             30 P00A2  9201            SUB- 1,Q                                                 ALCORE  254
                P00A3  0117            SAN  RCAD-*-1                                            ALCORE  255
                                    *                                                           ALCORE  256
                P00A4  C201            LDA- 1,Q       COMBINE PIECES                            ALCORE  257
                P00A5  60FF            STA- I                                                   ALCORE  258
             35 P00A6  C4FF            LDA- (I)                                                 ALCORE  259
                P00A7  8C06            ADD* (RS2)                                               ALCORE  260
                P00A8  6C05            STA* (RS2)                                               ALCORE  261
                P00A9  C101            LDA- 1,I                                                 ALCORE  262
                P00AA  6201            STA- 1,Q                                                 ALCORE  263
             40 P00AB  1CD0      RCAD  JMP* (RTNCOR)                                            ALCORE  264
                P00AC  0000      RTHD  NUM  0         REFERENCE TO THREAD                       ALCORE  265
                P00AD  0000      RS2   NUM                                                      ALCORE  266
                P00AE                  END                                                      ALCORE  267

                        62474B STORAGE USED          266 STATEMENTS       38 SYMBOLS
                               6400 ASSEMBLY        1.498 SECONDS        153 REFERENCES
```

COMPLETE REFERENCE MAP.

ACA5	0049		4/28	4/29	4/33 L					
ALCORE	0000		2/10 E	2/11 Q						
CALTHD	007F	*EXTERNAL*	2/16 X	3/16	5/45					
CA2	000E		3/07	3/14 L						
CA4P1	003A		4/10	4/16 L						
CA5	0059		4/33	4/52 L						
CA6	006D		4/55	4/58	5/18 L					
CEOT	0034		3/24	4/07 L						
CN	007B		4/21	5/39 L						
CNXT	002C		3/29	3/46	3/50	3/55 L				
CSIZCK	0024		3/34	3/47 L						
I	00FF	-SYSTEM-	3/25	3/47	4/38	5/56	6/17	6/25		
			3/26	3/51	5/05	5/58	6/21	6/34		
			3/43	3/55	5/52	6/16	6/22	6/35		
LEND	0009	*EXTERNAL*	2/16 X	3/05						
LMINTD	0032		3/54	4/04 L	4/16					
LPMSK	0002	ABSOLUTE	2/17 Q	2/20						
LSTR	002E		2/60	3/32	3/57 L	4/26	4/39			
LS1PRI	0077		4/35	4/45	4/47	5/35 B				
LS3PRI	0079		4/60	5/09	5/37 B					
LTHD	0033		3/17	3/53	4/05 L					
LVLSTR	0005	*EXTERNAL*	2/16 X	2/59						
MAXNO	0011	ABSOLUTE	2/20 Q	3/14	4/07					
MINPCE	0031		3/15	3/48	3/52	3/60 L	4/08			
MINSIZ	0002	ABSOLUTE	2/19 Q	2/57	4/31	4/34	4/56	4/59	5/24	
RCA	0090		6/05	6/07 L						
RCAC	009F		6/19	6/27 L						
RCAD	00AB		6/06	6/31	6/40 L					
RCA1	0080		5/46 L	5/57						
RCEOT1	008B		5/51	5/55	5/58 L					
RCORE1	0012		3/17 L	3/56						
REQALC	0000		2/14 E	2/55 L	3/09	4/12	5/30			
REQLTH	002F		2/58	3/04	3/27	3/44	3/58 L	4/53	5/06	5/08
REQLVL	0030		2/56	3/59 L						
RS2	00AD		5/44	6/07	6/20	6/27	6/36	6/42 L		
			5/53	6/18	6/26	6/29	6/37			
RTHD	00AC		5/46	6/41 L						
RTNCOR	007C		2/14 E	5/43 L	6/40					
S1	0076		4/18	4/37	4/44	4/48	5/18	5/34 L		
S2	0078		4/19	4/22	4/36	4/46	5/04	5/22		
			4/20	4/27	4/40	4/52	5/07	5/36 L		
S3	007A		4/24	5/14	5/19	5/38 L				
ZERO	0022	ABSOLUTE	2/17 Q	5/10						

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

0000 0075 NAM NFNR DECK-ID M21 MSOS 5.0 SUMMARY
0075 END

ENTRY POINT NAMES AND ADDRESSES.

FINDRQ -- 0000 FNR -- 0000 NFNR -- 0000

EXTERNAL SYMBOLS.

ALTSUB LOG1 LOG1A LOG2

```
                                        NAM  NFNR          DECK-ID M21  MSOS 5.0                SUMMARY-110 NFNR      2
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                              NFNR      3
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                          NFNR      4
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                               NFNR      5


                                    *   FIND NEXT REQUEST-NON-BUFFERED                                        NFNR      7
                          0000 P        ENT   NFNR                                                          NFNR      8
                          0000 P        EQU   NFNR(*)                                                       NFNR      9


                                    *                                                                         NFNR     12
                                    *                                                                         NFNR     13
                                    *        THIS PROGRAM FINDS THE NEXT REQUEST                              NFNR     14
                                    *         FOR A GIVEN PHYSICAL DEVICE.                                    NFNR     15
                                    *        IT IS ENTERED FROM ALL DRIVERS AND                               NFNR     16
                                    *         RETURNS AS FOLLOWS                                              NFNR     17
                                    *                                                                         NFNR     18
                                    *           CALL+1 IMPLIES NO REQUEST FOUND                               NFNR     19
                                    *           CALL+2 IMPLIES A REQUEST IS READY                             NFNR     20
                                    *                                                                         NFNR     21
                                    *        WHEN A REQUEST IS FOUND, FNR SETS                                NFNR     22
                                    *         ALL POSSIBLE INFORMATION IN THE                                 NFNR     23
                                    *         PHYSICAL TABLE SLOT BEFORE RETURNING.                           NFNR     24
                                    *                                                                         NFNR     25
                                    *        FNR IS ENTERED WITH THE CORE LOCATION                            NFNR     26
                                    *         OF THE PHYSICAL DEVICE TABLE SLOT IN I.                         NFNR     27
                                    *                                                                         NFNR     28
                                    *                                                                         NFNR     29
                          0000 P        ENT  FNR                                                            NFNR     30
                          0000 P        ENT   FINDRQ                                                        NFNR     31
                                        EXT  LOG1,LOG1A,LOG2                                                NFNR     32
                                        EXT  ALTSUB        SUB. TO SET Q=ALT. IF LU IN Q IS DOWN            NFNR     33
                                    *                                                                       NFNR     34
                                    *        PHYSICAL DEVICE TABLE.                                         NFNR     35
                          0005          EQU  ELU(5)                    LOGICAL UNIT=L.U.                   NFNR     36
                          0006          EQU  EPTR(6)                   CALL PARAMETER LIST LOC.            NFNR     37
                          0008          EQU  EREQST(8)                                                     NFNR     38
                          0009          EQU  ESTAT1(9)                 STATUS WD.1.                        NFNR     39
                          000A          EQU  ECCOR(10)                 CURRENT I/O WD.LOC.                 NFNR     40
                          000B          EQU  ELSTWD(11)                LAST+1 WD.LOC.                      NFNR     41
                          000F          EQU  RETURN(15)                                        *632         NFNR     42
                                    *                                                                       NFNR     43
                                    *                                                                       NFNR     44
                          0002          EQU  LPMSK(2)                                                      NFNR     45
                          0022          EQU  ZERO($22)                                                     NFNR     46
                                    *                                                                       NFNR     47
                          0023          EQU  ONEBIT($23)                                                   NFNR     48
                          00BD          EQU  ASABS($BD)                                                    NFNR     49
                          00BF          EQU  ANABS($BF)                                                    NFNR     50
                                    *                                                                       NFNR     51
P0000     0B00                    FNR   NOP                                                               NFNR     52
P0001     0500                          IIN  0          must be reentrant                                 NFNR     53
P0002     C8FD                          LDA* FINDRQ        SAVE RETURN ADR                                NFNR     54
P0003     610F                          STA- RETURN,I                                          *632         NFNR     55
P0004     0C00                          ENQ   0                                                           NFNR     56
P0005     410A                          STO- ECCOR,I                                                      NFNR     57
```

```
                P0006  E105                LDQ- ELU,I      LU ASSIGNED TO DEVICE                          NFNR   58
                P0007  0D00                INQ  0                                                         NFNR   59
          5     P0008  0147                SQZ  AD-*-1                                                    NFNR   60
                P0009  181A                JMP* CAA                                                       NFNR   61

                P000A  5400  7FFF X  AC     RTJ  ALTSUB     IF LU = Q IS DOWN, SET Q = ALTERNATE LU         NFNR   63
                P000C  C600  7FFF X        LDA  LOG1A,Q    INTERRUPTS ARE ENABLED                         NFNR   64
         10     P000E  90FF                SUB- I          ---- current LU # ? me just fenished            NFNR   65  recovering
                P000F  0107                SAZ  AE-*-1     IF THIS L.U. USES THIS DEVICE, GO TO AE         NFNR   66
                P0010  C10A           AD   LDA- ECCOR,I    SEARCH ALL LU FOR THIS DEVICE /shared device    NFNR   67
                P0011  0822                TRA  Q                                                         NFNR   68
         15     P0012  9C49                SUB* (ALOG1)    MAX LU NO                                      NFNR   69
                P0013  0129                SAP  EXIT-*-1   IF SEARCH IS COMPLETED, GO TO EXIT              NFNR   70
                P0014  0D01                INQ  1                                                         NFNR   71
                P0015  410A                STQ- ECCOR,I    SAVE LU NO FOR SEARCH                          NFNR   72
                P0016  18F3                JMP* AC                                                        NFNR   73
         20

                P0017  E10A           AE   LDQ- ECCOR,I    REQUESTED LOGICAL UNIT                         NFNR   75
                P0018  0500                IIN  0                                                         NFNR   76
                P0019  4105                STQ- ELU,I      ASSIGN THIS L.U. TO THE DEVICE                 NFNR   77
         25     P001A  C10F                LDA- RETURN,I                                  *632            NFNR   78
                P001B  68E4                STA* FINDRQ                                                    NFNR   79
                P001C  1807                JMP* CAA                                                       NFNR   80

         30     P001D  0500           EXIT IIN  0          NO FURTHER REQUESTS FOR THIS DEVICE            NFNR   82
                P001E  0A00                ENA  0          FREE THE DEVICE                                NFNR   83
                P001F  6105                STA- ELU,I                                                     NFNR   84
                P0020  E10F                LDQ- RETURN,I                                  *632            NFNR   85
                P0021  0400                EIN  0                                                         NFNR   86
         35     P0022  1622                JMP- (ZERO),Q   RETURN TO ADR. OF CALL +1                       NFNR   87

                                      *    DEVICE IS ASSIGNED TO A L.U. (I.E., THE L.U. ADDRESS IS IN     NFNR   89
                                      *    WORD ELU IN THE PHYS DEV TABLE, AND IN Q).                     NFNR   90
         40
                                Address of LOG2
                P0023  C600  7FFF X  CAA  LDA+ LOG2,Q    Log2 thread this LU                            NFNR   92
                P0025  0900  when plugged in by loader   INA  0   get rid of all RS                       NFNR   93
                P0026  0116                SAN  CB-*-1     IF THE THREAD IS NOT EMPTY, GO TO CB            NFNR   94
         45                                                 active request still there

                                      *    THE THREAD IS EMPTY                                            NFNR   96

         50     P0027  CE34                LDA* (ALOG1),Q  CHECK THE TYPE O/1 BIT  shared ?               NFNR   98
                P0028  0FC1                ALS  1          bit ig to sign bit                             NFNR   99
                P0029  0122                SAP  2          not shared                                     NFNR  100
                P002A  0400                EIN  0                                                         NFNR  101
                P002B  18E4                JMP* AD         CONTINUE SEARCH IF LU SHARES A DEVICE          NFNR  102
         55     P002C  18F0                JMP* EXIT                                                      NFNR  103

                P002D  6106           CB   STA- EPTR,I      SAVE ADDRESS OF TOP REQUEST IN THREAD    4.0   NFNR  105
                P002E  0822                TRA  Q                                                         NFNR  106
                                                                 in PHYS TAB
```

```
                P002F  C202          LDA- 2,Q                                                NFNR  107
                P0030  E105          LDQ- ELU,I                                              NFNR  108
              5 P0031  0400          EIN  0                                                  NFNR  109
                P0032  6EF1          STA* (CAA+1),Q    UPDATE THE THREAD                     NFNR  110
                P0033  C108          LDA- EREQST,I                                           NFNR  111
                P0034  A010          AND-  LPMSK+14                                          NFNR  112
                P0035  B032          EOR- ONEBIT+15    SET REQUEST IN PROGRESS BIT           NFNR  113
             10 P0036  6108          STA- EREQST,I                                           NFNR  114
                P0037  C109          LDA- ESTAT1,I     driver states from phys TNB           NFNR  115
                P0038  A02C          AND- ONEBIT+9     CLEAR STATUS WORD EXCEPT FOR M.M. BIT NFNR  116
                P0039  6109          STA- ESTAT1,I                                           NFNR  117
                P003A  E106          LDQ- EPTR,I                                             NFNR  118
             15 P003B  C622          LDA- (ZERO),Q                                           NFNR  119
                P003C  A000  3E00    AND  =N$3E00      EXTRACT REQUEST CODE                  NFNR  120
                P003E  0117          SAN  CCX-*-1                                            NFNR  121
                P003F  C201          LDA- 1,Q          DIRECTORY CALL                        NFNR  122
                P0040  610A          STA- ECCOR,I                                            NFNR  123
             20 P0041  C204          LDA- 4,Q            SET STARTING                        NFNR  124
                P0042  E10F          LDQ- RETURN,I     AND FINISHING                 *632    NFNR  125
                P0043  810A          ADD- ECCOR,I        ADDRESSES FROM                      NFNR  126
                P0044  610B          STA- ELSTWD,I       THE DIRECTORY,                      NFNR  127
                P0045  1201          JMP- 1,Q          JMP TO request +1 (call+2)            NFNR  128
             25 P0046  E203    CCX   LDQ- 3,Q          LCW word of request                   NFNR  129
                P0047  0F69          LRS  9                                                  NFNR  130
                P0048  A007          AND- LPMSK+5      MASK FOR REQUEST CODE       **MSOS 4.0 NFNR  131
                P0049  0FF0          LLS  16           A=make bits of A bits                 NFNR  132
                P004A  A026          AND- ONEBIT+3     Q=                                    NFNR  133
             30 P004B  0DFE          INQ  -1                                                 NFNR  134
                P004C  014D          SQZ  CBG-*-1      READ   0                            NFNR  135
                P004D  0DFE          INQ  -1                                                 NFNR  136
                P004E  014A          SQZ  CBF-*-1      WRITE  1                            NFNR  137
                P004F  0DFD          INQ  -2                                                 NFNR  138
             35 P0050  0147          SQZ  CBE-*-1      FREAD  2                            NFNR  139
                P0051  0DFD          INQ  -2                                                 NFNR  140
                P0052  0144          SQZ  CBD-*-1      FWRITE 3                            NFNR  141
                P0053  0DF7          INQ  -8           MOTION                              NFNR  142
                P0054  0159          SQN  CD           ALL OTHERS                          NFNR  143
             40 P0055  1800  0010    JMP  CD1                                              NFNR  144


                P0057  0901          CBD  INA  1       FORMAT WRITE CODE = 3                 NFNR  146
             45 P0058  0901          CBE  INA  1       FORMAT READ CODE = 2                  NFNR  147
                P0059  0901          CBF  INA  1       WRITE CODE = 1                        NFNR  148
                P005A  1802          CBG  JMP* CBJ     READ CODE = 0                         NFNR  149

             50 P005B  7FFF X        ALOG1 ADC  LOG1                                         NFNR  151


                P005C  B109          CBJ  EOR- ESTAT1,I                                      NFNR  153
                P005D  6109               STA- ESTAT1,I                                      NFNR  154
             55

                                  *          GET THE ABSOLUTE VALUE OF N AND S FROM THE REQUEST NFNR  156
```

```
                P005E  E106          CD    LDQ- EPTR,I          Get parameter list                          NFNR  158
                P005F  C622                LDA- (ZERO),Q        GET FIRST WORD OF REQUEST     **MSOS 4.0 NFNR  159
      5         P0060  A031                AND- ONEBIT+14       MASK FOR D PARAMETER          **MSOS 4.0 NFNR  160
                P0061  0106                SAZ  CDA-*-1         A=0 D PARAMETER NOT SET--PART 0 **MSOS 4.0 NFNR  161
                P0062  C205                LDA- 5,Q             GET THE STARTING ADDRESS      **MSOS 4.0 NFNR  162
                P0063  610A                STA- ECCOR,I         SAVE IN PDT                   **MSOS 4.0 NFNR  163
                P0064  8204                ADD- 4,Q             ADD NO OF WORDS TO FORM LAST+1 **MSOS 4.0 NFNR  164
     10         P0065  610B                STA- ELSTWD,I        SAVE IN PDT                   **MSOS 4.0 NFNR  165
                P0066  E10F          CD1   LDQ- RETURN,I        PICK UP RETURN ADDRESS                      NFNR  166
                P0067  1201                JMP- 1,Q             RETURN TO CALL+2              **MSOS 4.0 NFNR  167
                P0068  54BD          CDA   RTJ- (ASABS)         Part 0 request                              NFNR  168
                P0069  410A                STQ- ECCOR,I         location of buffer                          NFNR  169
     15         P006A  E106                LDQ- EPTR,I                                                      NFNR  170
                P006B  54BF                RTJ- (ANABS)         for length of buffer                        NFNR  171
                P006C  C10F                LDA- RETURN,I        PICK UP THE RETURN ADDRESS    *632          NFNR  172
                P006D  410B                STQ- ELSTWD,I                                                    NFNR  173
                P006E  0822                TRA  Q                                                           NFNR  174
     20         P006F  C10B                LDA- ELSTWD,I                                                    NFNR  175
                P0070  810A                ADD- ECCOR,I         PLACE LAST+1  ADDRESS IN ELSTWD             NFNR  176
                P0071  0121                SAP  DAA-*-1                                                     NFNR  177
                P0072  A011                AND- LPMSK+15                                                    NFNR  178
                P0073  610B          DAA   STA- ELSTWD,I                                                    NFNR  179
     25         P0074  1201                JMP- 1,Q             RETURN TO CALL * 2.                         NFNR  180
                                           *                                                                NFNR  181
                       0000 P              EQU  FINDRQ(FNR)                                                 NFNR  182
                P0075                      END                                                              NFNR  183

                       61013B STORAGE USED          182 STATEMENTS      36 SYMBOLS
                            6400 ASSEMBLY         1.051 SECONDS       115 REFERENCES
```

Return to call+2

return to call+2

ASABS & ANABS / absolute the parameters for calls.

COMPLETE REFERENCE MAP.

AC	000A		3/09 L	3/19					
AD	0010		3/05	3/13 L	3/54				
AE	0017		3/12	3/22 L					
ALOG1	005B		3/15	3/50	4/50 L				
ALTSUB	000B	*EXTERNAL*	2/35 X	3/09					
ANABS	00BF	ABSOLUTE	2/52 Q	5/16					
ASABS	00BD	ABSOLUTE	2/51 Q	5/13					
CAA	0023		3/06	3/27	3/42 L	4/06			
CB	002D		3/44	3/58 L					
CBD	0057		4/37	4/44 L					
CBE	0058		4/35	4/45 L					
CBF	0059		4/33	4/46 L					
CBG	005A		4/31	4/47 L					
CBJ	005C		4/47	4/53 L					
CCX	0046		4/17	4/25 L					
CD	005E		4/39	4/60 L					
CDA	0068		5/06	5/13 L					
CD1	0066		4/40	5/11 L					
DAA	0073		5/22	5/24 L					
ECCOR	000A	ABSOLUTE	2/42 Q	3/13	3/22	4/22	5/14		
			2/59	3/18	4/19	5/08	5/21		
ELSTWD	000B	ABSOLUTE	2/43 Q	4/23	5/10	5/18	5/20	5/24	
ELU	0005	ABSOLUTE	2/38 Q	2/60	3/24	3/32	4/04		
EPTR	0006	ABSOLUTE	2/39 Q	3/58	4/14	4/60	5/15		
EREQST	0008	ABSOLUTE	2/40 Q	4/07	4/10				
ESTAT1	0009	ABSOLUTE	2/41 Q	4/11	4/13	4/53	4/54		
EXIT	001D		3/16	3/30 L	3/55				
FINDRQ	0000		2/33 E	2/56	3/26	5/27 Q			
FNR	0000		2/32 E	2/54 L	5/27				
I	00FF	-SYSTEM-	3/11						
LOG1	005B	*EXTERNAL*	2/34 X	4/50					
LOG1A	000D	*EXTERNAL*	2/34 X	3/10					
LOG2	0024	*EXTERNAL*	2/34 X	3/42					
LPMSK	0002	ABSOLUTE	2/47 Q	4/08	4/27	5/23			
NFNR	0000		2/10 E	2/11 Q					
ONEBIT	0023	ABSOLUTE	2/50 Q	4/09	4/12	4/29	5/05		
RETURN	000F	ABSOLUTE	2/44 Q	2/57	3/25	3/33	4/21	5/11	5/17
ZERO	0022	ABSOLUTE	2/48 Q	3/35	4/15	5/04			

STORAGE ALLOCATION.

ADDRESS	LENGTH	BINARY CONTROL CARDS.			
0000	002E	NAM	MAKQ	DECK-ID M08 MSOS 5.0	SUMMARY
002E		END			

ENTRY POINT NAMES AND ADDRESSES.

MAKEQ -- 0000 MAKQ -- 0000

```
                                        NAM  MAKQ          DECK-ID M08  MSOS 5.0          SUMMARY-110 MAKQ      2
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                      MAKQ      3
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                  MAKQ      4
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                       MAKQ      5

                                    *   MAKE ERROR CODE                                               MAKQ      7
                          0000 P        ENT   MAKQ                                                    MAKQ      8
                          0000 P        EQU   MAKQ(*)                                                 MAKQ      9

                          0000 P          ENT       MAKEQ                                             MAKQ     12
                          000F            EQU       RETURN(15)                                        MAKQ     13
                          000B            EQU       LASTP1(11)                                        MAKQ     14
                          000A            EQU       CORE(10)                                          MAKQ     15
                          0022            EQU       ZERO($22)                                         MAKQ     16
                          0031            EQU       BIT14($31)                                        MAKQ     17
                          0008            EQU       ERRTAB(8)                                         MAKQ     18
                          000C            EQU       STATUS(12)                                        MAKQ     19
                          000F            EQU       X1FFF($F)                                         MAKQ     20
                          0009            EQU       SWITCH(9)                                         MAKQ     21
                          0006        EQU  EPTR(6)       REQUEST POINTER                               MAKQ     22
                          0003        EQU  LOWBTS(3)                                                   MAKQ     23
P0000     0B00        MAKEQ NOP   0                                                                    MAKQ     24
P0001     0500              IIN   0                                                                    MAKQ     25
P0002     C8FD              LDA* MAKEQ                                                               MAKQ     26
P0003     0400              EIN   0                                                                  MAKQ     27
P0004     610F              STA- RETURN,I                                                            MAKQ     28
P0005     E106              LDO- EPTR,I        POINTER                                               MAKQ     29
P0006     C622              LDA- (ZERO),Q      GET REQUEST WORD                                      MAKQ     30
P0007     0F49              ARS   9                                                                  MAKQ     31
P0008     A007              AND- LOWBTS+4      MASK REQ CODE                                         MAKQ     32
P0009     09F1              INA   -14                                                                MAKQ     33
P000A     0C00              ENQ   0                                                                  MAKQ     34
P000B     0111              SAN   LABEL1       NOT MOTION                                            MAKQ     35
P000C     1813              JMP* NSHORT        IS NOTION, NO STORE IN LUA                            MAKQ     36
P000D     C10B        LABEL1 LDA- LASTP1,I                                                           MAKQ     37
P000E     910A               SUB-       CORE,I                                                     MAKQ     38
P000F     010F               SAZ        NSHORT-*-1                                                 MAKQ     39
P0010     C109               LDA-       SWITCH,I              SWITCH SET                           MAKQ     40
P0011     0FCD               ALS        13                    FOR LOWER                            MAKQ     41
P0012     0121               SAP        1                                                          MAKQ     42
P0013     D10A               RAO-       CORE,I                YES,INC ADDRES                       MAKQ     43
P0014     0FC2               ALS        2                                                          MAKQ     44
P0015     0139               SAM        NSHORT-*-1                                                 MAKQ     45
P0016     C10B               LDA-       LASTP1,I              SHORT TRANSFER                       MAKQ     46
P0017     910A               SUB-       CORE,I                                                     MAKQ     47
P0018     0106               SAZ        NSHORT-*-1                                                 MAKQ     48
P0019     E10B               LDQ-       LASTP1,I            YES,SET NEXT                           MAKQ     49
P001A     0DFE               INQ        -1                   AVAIL.LOC INTO                        MAKQ     50
P001B     C10A               LDA-       CORE,I               END OF BUFFER                         MAKQ     51
P001C     6622               STA-       (ZERO),Q                                                   MAKQ     52
P001D     610B          STA- LASTP1,I                                                               MAKQ     53
P001E     E031               LDQ-       BIT14                                                      MAKQ     54
P001F     C108          NSHORT LDA-      ERRTAB,I                                                   MAKQ     55
P0020     A031               AND-       BIT14                                                      MAKQ     56
P0021     0106               SAZ        NOERR-*-1                                                  MAKQ     57
```

check for short words

buffer was exactly filled

```
                P0022  0FC1              ALS     1                                  MAKQ  58
                P0023  0872              EAQ     Q                                  MAKQ  59
              5 P0024  0A01              ENA     1                                  MAKQ  60
                P0025  A10C              AND-    STATUS,I                           MAKQ  61
                P0026  0FCD              ALS     13                                 MAKQ  62
                P0027  0872              EAQ     Q                                  MAKQ  63
                P0028  C00F       NOERR  LDA-    X1FFF                              MAKQ  64
             10 P0029  A109              AND-    SWITCH,I                           MAKQ  65
                P002A  0874              EAQ     A                                  MAKQ  66
                P002B  6109              STA-    SWITCH,I                           MAKQ  67
                P002C  E10F              LDQ-    RETURN,I                           MAKQ  68
                P002D  1622              JMP-    (ZERO),Q                           MAKQ  69
             15 P002E                    END                                        MAKQ  70
```

(ESTAT 1)

Returns to where called from.

56747B STORAGE USED 69 STATEMENTS 16 SYMBOLS
6400 ASSEMBLY 0.616 SECONDS 48 REFERENCES

COMPLETE REFERENCE MAP.

BIT14	0031	ABSOLUTE	2/19 Q	2/56	2/58			
CORE	000A	ABSOLUTE	2/17 Q	2/40	2/45	2/49	2/53	
EPTR	0006	ABSOLUTE	2/24 Q	2/31				
ERRTAB	0008	ABSOLUTE	2/20 Q	2/57				
LABEL1	000D		2/37	2/39 L				
LASTP1	000B	ABSOLUTE	2/16 Q	2/39	2/48	2/51	2/55	
LOWBTS	0003	ABSOLUTE	2/25 Q	2/34				
MAKEQ	0000		2/14 E	2/26 L	2/28			
MAKQ	0000		2/10 E	2/11 Q				
NOERR	0028		2/59	3/09 L				
NSHORT	001F		2/38	2/41	2/47	2/50	2/57 L	
RETURN	000F	ABSOLUTE	2/15 Q	2/30	3/13			
STATUS	000C	ABSOLUTE	2/21 Q	3/06				
SWITCH	0009	ABSOLUTE	2/23 Q	2/42	3/10	3/12		
X1FFF	000F	ABSOLUTE	2/22 Q	3/09				
ZERO	0022	ABSOLUTE	2/18 Q	2/32	2/54	3/14		

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

0000 0030 NAM NCMPRQ DECK-ID M20 MSOS 5.0 SUMMARY
0030 END

ENTRY POINT NAMES AND ADDRESSES.

COMPRQ -- 0000 NCMPRQ -- 0000

EXTERNAL SYMBOLS.

LOGI

```
                                    NAM  NCMPRQ       DECK-ID M20  MSOS 5.0          SUMMARY-110 NCMPRQ    2
                               *    MASS STORAGE OPERATING SYSTEM VERSION 5.0                      NCMPRQ    3
                               *    SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                   NCMPRQ    4
                               *    COPYRIGHT CONTROL DATA CORPORATION 1976                        NCMPRQ    5


                               *    COMPLETE REQUEST FOR DRIVERC                                   NCMPRQ    7
                          0000 P    ENT   NCMPRQ                                                  NCMPRQ    8
                          0000 P    EQU   NCMPRQ(*)                                               NCMPRQ    9


                          0000 P    ENT  COMPRQ                                                   NCMPRQ   12
                                    EXT  LOG1                                                     NCMPRQ   13
                               *                                                                  NCMPRQ   14
                               *         PHYSICAL DEVISE TABLE INDECES.                           NCMPRQ   15
                               *                                                                  NCMPRQ   16
                          0004      EQU  EDCLK(4)                                                 NCMPRQ   17
                          0005      EQU  ELU(5)                                                   NCMPRQ   18
                          0006      EQU  EPTR(6)                                                  NCMPRQ   19
                          0008      EQU  EREQST(8)                                                NCMPRQ   20
                          0009      EQU  ESTAT1(9)                                                NCMPRQ   21
                          000F      EQU  RETURN(15)                                               NCMPRQ   22
                               *                                                                  NCMPRQ   23
                               *                                                                  NCMPRQ   24
                          0002      EQU  LPMSK(2)                                                 NCMPRQ   25
                          0023      EQU  ONEBIT($23)                                              NCMPRQ   26
                          0012      EQU  NZERO($12)                                               NCMPRQ   27
                          0022      EQU  ZERO($22)                                                NCMPRQ   28
                          00F4      EQU  AMONI($F4)                                               NCMPRQ   29
                               *                                                                  NCMPRQ   30
                               *                                                                  NCMPRQ   31
                               *         THIS MODULE SCHEDULES COMPLETION                         NCMPRQ   32
                               *          ROUTINES AND HOUSEKEEPS FOR DRIVERS.                    NCMPRQ   33
                               *                                                                  NCMPRQ   34
                               *         ON ENTRY FROM A DRIVER, THE I REGISTER                   NCMPRQ   35
                               *          MUST CONTAIN THE CORE LOCATION OF THE                   NCMPRQ   36
                               *          PHYSICAL DEVICE TABLE SLOT OF THE                       NCMPRQ   37
                               *          SUBJECT EQUIPMENT.                                      NCMPRQ   38
                               *                                                                  NCMPRQ   39
                               *         I IS SAVED AND RETURNED TO THE CALLER AT                 NCMPRQ   40
                               *          CALL+1                                                  NCMPRQ   41
                               *                                                                  NCMPRQ   42
                               *                                                                  NCMPRQ   43
P0000 0000                     COMPRQ 0    0                                                      NCMPRQ   44
P0001 0500                            IIN  0                                                      NCMPRQ   45
P0002 E8FD                            LDQ* COMPRQ                    SAVE RETURN.                 NCMPRQ   46
P0003 0400                            EIN  0                                                      NCMPRQ   47
P0004 410F                            STQ- RETURN,I                                               NCMPRQ   48
P0005 0AFF                            ENA  -0                        SET DIAGNOSTIC               NCMPRQ   49
P0006 6104                            STA- EDCLK,I                     CLOCK IDLE.                NCMPRQ   50
P0007 E106                            LDQ- EPTR,I                                                 NCMPRQ   51
P0008 C622                            LDA- (ZERO),Q      DO NOT SET ERROR FIELD IF                NCMPRQ   52
P0009 0F49                            ARS  9             THE REQUEST WAS A MAS STORAGE            NCMPRQ   53
P000A A007                            AND- LPMSK+5       DIRECTORY CALL                **MSOS 4.0 NCMPRQ   54
P000B 0107                            SAZ  CC-*-1                                                 NCMPRQ   55
P000C C203                            LDA- 3,Q                                                    NCMPRQ   56
P000D A00F                            AND- LPMSK+13          CLEAR ERROR FIELD                    NCMPRQ   57
```

Runs at driver priority

System dir? call?

don't save V bits

measures diag. clock off by setting to -1

moves error bits to word 3

if no completion rq clear thread

when diag tmr times out it counts to all negative (-1) but not FFFF (-0).

if diag timer clock = -0 either never used or shut off by comp-request. (req on physunit)

```
                P000E  6203                STA- 3,Q          IN REQUEST AND                          NCMPRQ  58
                P000F  C109                LDA- ESTAT1,I     REPLACE WITH                            NCMPRQ  59
      5         P0010  A01F                AND- NZERO+13     SAME FROM PHYSTB                        NCMPRQ  60
                P0011  B203                EOR- 3,Q                                                  NCMPRQ  61
                P0012  6203                STA- 3,Q          Save back in logical unit word          NCMPRQ  62
                P0013  C201          CC    LDA- 1,Q          completion address word.                NCMPRQ  63
                P0014  0112                SAN  CD-*-1       IF COMP. ADDR. EQUAL ZERO               NCMPRQ  64
     10         P0015  6202                STA- 2,Q          CLEAR THREAD AND                        NCMPRQ  65
                P0016  180C                JMP* EE                     GO TO EE.                     NCMPRQ  66
                P0017  C622          CD    LDA- (ZERO),Q     schedule completion address             NCMPRQ  67
                P0018  A011                AND- LPMSK+15     SET BIT 15 OF WORD ZERO                 NCMPRQ  68
                P0019  B032                EOR- ONEBIT+15    OF THE REQUEST                          NCMPRQ  69
     15         P001A  6622                STA- (ZERO),Q     This is a secondary call.               NCMPRQ  70
                P001B  0814                TRQ  A            A = request address                     NCMPRQ  71
                P001C  E203                LDQ- 3,Q          GET ERROR WORD FROM REQ.                NCMPRQ  72
                P001D  0500                IIN  0                                                    NCMPRQ  73
                P001E  6803                STA* CE                                                   NCMPRQ  74
     20         P001F  54F4                RTJ- (AMONI)      REQUEST AN INDIRECT                     NCMPRQ  75
                P0020  6000                VFD  N1/0,N1/1,N5/16,N1/0,N8/0          ***MSOS4.0        NCMPRQ  76
                P0021  0000          CE    0    0            SECONDARY SCHED. CALL(completion addr).  NCMPRQ  77
                P0022  C108          EE    LDA- EREQST,I     IF E IS EQUAL TO  1                     NCMPRQ  78
                P0023  A010                AND- LPMSK+14               OTHERWISE,                    NCMPRQ  79
     25         P0024  6108                STA- EREQST,I     ZERO THE FIELD  active/error            NCMPRQ  80
                P0025  E105                LDQ- ELU,I                                                NCMPRQ  81
                P0026  C600  7FFF X        LDA+ LOG1,Q                                               NCMPRQ  82
                P0028  0FC1                ALS  1                      TEST L.U. TYPE                NCMPRQ  83
                P0029  0123                SAP  HH-*-1                                               NCMPRQ  84
     30         P002A  0804                SET  A                                                    NCMPRQ  85
                P002B  0500                IIN  0                                                    NCMPRQ  86
                P002C  6105                STA- ELU,I                                                NCMPRQ  87
                P002D  0400          HH    EIN  0                                                    NCMPRQ  88
                P002E  E10F                LDQ- RETURN,I                                             NCMPRQ  89
     35         P002F  1622                JMP- (ZERO),Q     return to caller [which should be the driver]  NCMPRQ  90
                P0030                      END                                                       NCMPRQ  91

                57435B STORAGE USED              90 STATEMENTS       19 SYMBOLS
                  6400 ASSEMBLY             0.697 SECONDS          48 REFERENCES
```

part 1 indirect request because MONI will be running on pt 1 or 0 we don't know.

HH because other actual may come from RW

COMPLETE REFERENCE MAP.

AMONI	00F4	ABSOLUTE	2/31 Q	3/20				
CC	0013		2/57	3/08 L				
CD	0017		3/09	3/12 L				
CE	0021		3/19	3/22 L				
COMPRQ	0000		2/14 E	2/46 L	2/48			
EDCLK	0004	ABSOLUTE	2/19 Q	2/52				
EE	0022		3/11	3/23 L				
ELU	0005	ABSOLUTE	2/20 Q	3/26	3/32			
EPTR	0006	ABSOLUTE	2/21 Q	2/53				
EREQST	0008	ABSOLUTE	2/22 Q	3/23	3/25			
ESTATI	0009	ABSOLUTE	2/23 Q	3/04				
HH	002D		3/29	3/33 L				
LOG1	0027	*EXTERNAL*	2/15 X	3/27				
LPMSK	0002	ABSOLUTE	2/27 Q	2/56	2/59	3/13	3/24	
NCMPRQ	0000		2/10 E	2/11 Q				
NZERO	0012	ABSOLUTE	2/29 Q	3/05				
ONEBIT	0023	ABSOLUTE	2/28 Q	3/14				
RETURN	000F	ABSOLUTE	2/24 Q	2/50	3/34			
ZERO	0022	ABSOLUTE	2/30 Q	2/54	3/12	3/15	3/35	

80/12/11. 10.14.00.
PROGRAM LTMSOSC

STORAGE ALLOCATION.

ADDRESS	LENGTH	BINARY CONTROL CARDS.
0000	0173	NAM ADEV DECK-ID M22 MSOS 5.0 SUMMARY
0173		END

BLOCKS	TYPE	ADDRESS	LENGTH
ADEV	PROGRAM*	0000	0173
HASHLD	LOCAL	0071	0001
HASRLU	LOCAL	0072	0001
FLAGX	LOCAL	008F	0001
HASLU	LOCAL	0090	0001
HOLDAL	LOCAL	0091	0001
NOLU	LOCAL	00E8	0001
NOHOLD	LOCAL	00F3	0001
BUF	LOCAL	0104	0001

ENTRY POINT NAMES AND ADDRESSES.

ADEV -- 0000	ALTSUB -- 015E	DEVERR -- 0000
ALTDEV -- 0000	CONVER -- 00E9	

EXTERNAL SYMBOLS.

ALTERR	JBCNCL	LOG1A	RELBYQ	SYFAIL	UNPIOF
DUMALT	LOG1	LOG2	SWTCH	UNPIO	

```
                                NAM  ADEV        DECK-ID M22  MSOS 5.0              SUMMARY-132 ADEV132    1
                           *    ALTERNATE DEVICE HANDLER                                      ADEV       3
                           *    MASS STORAGE OPERATING SYSTEM VERSION 5.0                     ADEV       4
                           *    SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                  ADEV       5
                           *    COPYRIGHT CONTROL DATA CORPORATION 1976                       ADEV       6

                  0000 P        ENT   ADEV                                                    ADEV       8
                  0000 P        EQU   ADEV(*)                                                ADEV       9

                  0000 P        ENT  DEVERR,ALTDEV                                           ADEV      11
                  0000 P
                  00E9 P        ENT  CONVER        HEX TO ASCII CONVERSION ROUTINE           ADEV      12
                                EXT   JBCNCL                                                 ADEV      13
                                EXT  ALTERR        TABLE USED TO SAVE ERROR WORDS            ADEV      14
                  015E P        ENT  ALTSUB        ALTERNATE LOGICAL UNIT SUB.               ADEV      15
                                EXT  DUMALT        DUMMY ALTERNATE LU NO.                    ADEV      16
                                EXT  LOG1,LOG1A,LOG2                          **MSOS 4.1**  ADEV      17
                                EXT  RELBYQ                                   **MSOS 4.1**  ADEV      18
                                EXT  SWTCH                                                   ADEV      19
                                EXT  UNPIO,UNPIOF  UNPROTECTED I/O FLAFS        **MSOS 4.0  ADEV      20
                                EXT  SYFAIL        SITE FAIL LOCATED IN SYSDAT ($18FF)       ADEV      21
                  000A          EQU  NN(10)        MAX NO OF ALTERNATES IN A SINGLE CHAIN    ADEV      22
                           *                       COMMUNICATION REGION ADRS                 ADEV      23
                  00B5          EQU  FNR($B5)                                                ADEV      24
                  000E          EQU  LEVEL(14)                                               ADEV      25
                  0012          EQU  NZERO($12),DISP($EA)                                    ADEV      26
                  00EA
                  0046          EQU  TEN($46),ZROBIT($33),COMP($B6)                          ADEV      27
                  0033
                  00B6
                  00F4          EQU  AMONI($F4),LPMSK(2),ONEBIT($23)                         ADEV      28
                  0002
                  0023
                           *                       PHYSICAL DEV TABLE WORDS                  ADEV      29
                  0005          EQU  ELU(5),EPTR(6),ESTAT1(9)                                ADEV      30
                  0006
                  0009
                           *                       CALL PARAMETER WORDS                      ADEV      31
                  0002          EQU  PT(2)                                                   ADEV      32
                           *    THIS MODULE IS ENTERRED FROM A DRIVER WHEN A                  ADEV      33
                           *    DEVICE HAS FAILED. IT ATTEMPTS TO SWITCH TO AN                ADEV      34
                           *    ALTERNATE IF POSSIBLE. FAILING THAT, IT REQUESTS              ADEV      35
                           *    OPERATOR ACTION. IT IS ENTERRED VIA A JUMP WITH               ADEV      36
                           *    Q SET AS FOLLOWS                                              ADEV      37

                           *          BITS 0-5  ERROR CODE                                    ADEV      39
                           *          BITS 6-15 LOGICAL UNIT NUMBER                           ADEV      40
                           ************************************************************      ADEV      41
                           *                                                                  ADEV      42
                           *      THE ABOVE DOES NOT APPLY IF Q IS MINUS. CERTAIN DRIVERS HAVE ADEV      43
                           *    EXCEEDED THE ERROR CODE FIELD IN Q, SO THESE DRIVERS NOW PASS IN ADEV      44
                           *    Q THE LOGICAL UNIT IN THE UPPER 8 BITS AND THE ERROR CODE IN    ADEV      45
                           *    THE LOWER 8 BITS. BIT 15 IS SET AS A FLAG.                      ADEV      46
                           *                                                                    ADEV      47
                           ************************************************************      ADEV      48
```

```
                P0000  54F4           ALTDEV RTJ- (AMONI)       SCHEDULER REQUEST                          ADEV   50
                P0001  520E                  VFD  N1/0,N1/1,N5/9,N1/0,N4/0,X4/LEVEL          ***MSOS4.0 ADEV   51
                P0002  0004 P                ADC  ALTGO                                       ***MSOS4.0 ADEV   52
                P0003  14EA                  JMP- (DISP)                                                 ADEV   53

                                             *      THE ERROR CODE AND LU ARE IN ONE OF TWO FORMATS,SO THE FOLLOWING ADEV   55
                                             *      CODE ARRANGES THE Q REGISTER TO HAVE THE LU IN THE UPPER 8 BITS  ADEV   56
                                             *      AND THE ERROR CODE IN THE LOWER 8 BITS.                          ADEV   57
                P0004  0163           ALTGO  SQP  ALTO                                                           ADEV   58
                P0005  0814                  TRQ  A                                                             ADEV   59
                P0006  B032                  EOR- ONEBIT+15      STRIP FLAG                                     ADEV   60
                P0007  1806                  JMP* ALT1                                                          ADEV   61
                                             *                                                                  ADEV   62
                P0008  0A3F           ALTO   ENA  $3F           SEQ FOR LU AND ERROR CODE IN Q                 ADEV   63
                P0009  08B4                  LAQ  A                                                             ADEV   64
                P000A  0F26                  QRS  6                                                             ADEV   65
                P000B  0FA8                  QLS  8                                                             ADEV   66
                P000C  0874                  EAQ  A                                                             ADEV   67
                                             *                                                                  ADEV   68
                P000D  685F           ALT1   STA* SAVERR        SAVE LOGICAL UNIT AND ERROR CODE               ADEV   69
                P000E  0F48                  ARS  8                                                             ADEV   70
                P000F  0111                  SAN  ALT2           CHECK FOR LU 00                            ADEV   71
                P0010  14EA                  JMP-  (DISP)                                                       ADEV   72
                P0011  E85E           ALT2   LDQ* Q1SAV                                                         ADEV   73
                P0012  CE5C                  LDA* (ATAB),Q                                                      ADEV   74
                P0013  0102                  SAZ  ALT5-*-1       CHECK FOR SPACE IN ERROR WORD TABLE            ADEV   75

                P0014  5400  7FFF X          RTJ+ SYFAIL         IRRECOVERABLE ERROR - HANG                     ADEV   77
                                             *                   INCREASE SIZE OF TABLE ALTERR                  ADEV   78

                P0016  40FF           ALT5   STQ- I              I = Q1SAV                                      ADEV   80
                P0017  E855                  LDQ* SAVERR                                                        ADEV   81
                P0018  0F28                  QRS  8              IF LU SPECIFIED IS ALREADY DOWN                ADEV   82
                P0019  4859                  STQ* HASRLU                                                        ADEV   83
                P001A  5C53                  RTJ* (XALTSB)       THEN GET LU OF ALTERNATE THAT FAILED           ADEV   84
                P001B  4856                  STQ* HASHLD                                                        ADEV   85
                P001C  C850                  LDA* SAVERR         Q = LU THAT FAILED, A = ERROR WORD             ADEV   86
                P001D  0FC8                  ALS  8                                                             ADEV   87
                P001E  0F68                  LRS  8              CHANGE LU NO IN ERROR WORD                     ADEV   88
                P001F  684D                  STA* SAVERR         SAVE ERROR WORD                                ADEV   89
                P0020  E851                  LDQ* HASHLD                                                        ADEV   90

                P0021  CE52                  LDA* (ALOG1),Q      MARK THIS LU DOWN                              ADEV   92
                P0022  6838                  STA* HAS7                                                          ADEV   93
                P0023  A000  9FFF            AND  =N$9FFF                                                       ADEV   94
                P0025  B000  6000            EOR  =N$6000        MARK LU DOWN AND SET TO TYPE 1                 ADEV   95
                P0027  6E4C                  STA* (ALOG1),Q                                                     ADEV   96
                P0028  5C45                  RTJ* (XALTSB)       IF LU = Q IS DOWN, SET Q = ALTERNATE LU        ADEV   97
                P0029  0156                  SQN  HAS4-*-1                                                      ADEV   98
                P002A  E847                  LDQ* HASHLD         FAILED LU                                      ADEV   99
                P002B  C82F                  LDA* HAS7           RESTORE LU LOG1 STATUS                         ADEV  100
                P002C  6E47                  STA* (ALOG1),Q                                                     ADEV  101
                P002D  CE65                  LDA* (ALOG1A),Q                                                    ADEV  102
                P002E  60FF                  STA- I                                                             ADEV  103
```

```
                P002F  182C            JMP* SCHNC      NO ALTERNATE ASSIGNED          **MSOS 4.1** ADEV  104
                P0030  4860     HAS4   STQ* HASLU      SAVE ALTERNATE LU                           ADEV  105
     5
                                *           HASLU NOW CONTAINS THE LU OF THE ALTERNATE              ADEV  107
                                *           HASRLU CONTAINS THE ORIGINAL REQUESTED LU               ADEV  108
                                *           AND HASHLD CONTAINS THE LU THAT FAILED                  ADEV  109
    10
                P0031  E840             LDQ* HASHLD                                                ADEV  111
                P0032  EE60             LDQ* (ALOG1A),Q                                            ADEV  112
                P0033  C206             LDA- EPTR,Q     LOCATION OF CURRENT REQUEST                ADEV  113
    15          P0034  60FF             STA- I                                                     ADEV  114
                P0035  E83D             LDQ* HASRLU     REQUESTED LU                               ADEV  115
                P0036  0500             IIN  0                                                     ADEV  116
                P0037  CE5C             LDA* (ALOG2),Q  RETHREAD THE REQUEST                       ADEV  117
                P0038  6102             STA- PT,I                                                  ADEV  118
    20          P0039  C0FF             LDA- I                                                     ADEV  119
                P003A  6E59             STA* (ALOG2),Q                                             ADEV  120


    25          P003B  0400             EIN  0                                                     ADEV  122
                P003C  E835             LDQ* HASHLD     LU THAT FAILED                             ADEV  123
                P003D  CE55             LDA* (ALOG1A),Q                                            ADEV  124
                P003E  60FF             STA- I          I = PDT ADR OF FAILED DEV.                 ADEV  125
                P003F  0844             CLR  A                                                     ADEV  126
    30          P0040  6105             STA- ELU,I      CLEAR FAILED DEVICE TABLE                  ADEV  127


                P0041  E84F             LDQ*  HASLU                                                ADEV  129
                P0042  CE31             LDA* (ALOG1),Q  SET ALTERNATE TO TYPE 1                    ADEV  130
    35          P0043  A041             AND- ZROBIT+14                                             ADEV  131
                P0044  B031             EOR- ONEBIT+14                                             ADEV  132
                P0045  6E2E             STA* (ALOG1),Q                                             ADEV  133

                P0046  EC28             LDQ* (ATAB)                                                ADEV  135
    40          P0047  C825     HAS3    LDA* SAVERR     SEARCH TABLE FOR THIS ERROR                ADEV  136
                P0048  9E26             SUB* (ATAB),Q                                              ADEV  137
                P0049  0103             SAZ  HAS3A-*-1                                             ADEV  138
                P004A  0DFE             INQ  -1                                                    ADEV  139
                P004B  0142             SQZ  HAS3B-*-1  SKIP IF END OF SEARCH                      ADEV  140
    45          P004C  18FA             JMP* HAS3                                                  ADEV  141
                P004D  681F     HAS3A   STA* SAVERR     SET SAVERR = 0 IF ERROR IS ALREADY IN TABLE ADEV  142

                P004E  E842     HAS3B   LDQ* HASLU      LU OF ALTERNATE                            ADEV  144
                P004F  EE43             LDQ* (ALOG1A),Q                                            ADEV  145
    50          P0050  0500             IIN  0                                                     ADEV  146
                P0051  C205             LDA- ELU,Q      IF THE ALT DEV IS NOT BUSY                 ADEV  147
                P0052  0101             SAZ  HAS6-*-1     SCHEDULE THE DRIVER,                     ADEV  148
                P0053  1808             JMP* SCHNC      GO TO SCHDL LVL 4 SECTION      **MSOS 4.1** ADEV  149
                P0054  0814     HAS6    TRQ  A                                                     ADEV  150
    55                          *                                                  ***MSOS4.0 ADEV  151
                P0055  6805             STA* HAS7                                                  ADEV  152
                P0056  C81C             LDA* HASRLU     SET DEVICE BUSY                            ADEV  153
                P0057  6205             STA- ELU,Q                                                 ADEV  154
                P0058  54F4             RTJ- (AMONI)                                               ADEV  155
```

```
                P0059  2000          ADC  $2000      SCHEDULE DRIVER VIA PHYSTB        ***MSOS4.0 ADEV  156
                P005A  0000    HAS7  NUM  0                                                     ADEV  157
5
                P005B  C834    SCHNC LDA* FLAGX                                                 ADEV  159
                P005C  0115          SAN  SCHNX-*-1   IF NOALT SECTION NOT BUSY                ADEV  160
                P005D  0804          SET  A           SCHEDULE IT AT LEVEL 4                  ADEV  161
10              P005E  6831          STA* FLAGX       SET BUSY FLAG                           ADEV  162
                                     *                                                        ADEV  163
                P005F  54F4          RTJ- (AMONI)                                            ADEV  164
                P0060  5244          VFD  N1/0,N1/1,N5/9,N1/0,N4/4,N4/4             ***MSOS4.0 ADEV  165
                P0061  0074 P        ADC  NOALT       SEARCH FOR MORE ENTRIES ON COMP ***MSOS4.0 ADEV  166
15                                   *                                                        ADEV  167
                P0062  E80D    SCHNX LDQ* Q1SAV       INDEX TO ALTERR TABLE                   ADEV  168
                P0063  C809          LDA* SAVERR                                             ADEV  169
                P0064  0111          SAN  1                                                  ADEV  170
                P0065  14EA          JMP- (DISP)      EXIT IF SAVERR = 0                     ADEV  171
20              P0066  6E08          STA* (ATAB),Q    SAVE ERROR WORD IN TABLE               ADEV  172
                P0067  0DFE          INQ  -1          UPDATE AND SAVE INDEX TO ALTERR TABLE  ADEV  173
                P0068  0151          SQN  1           SKIP IF NOT END OF TABLE               ADEV  174
                P0069  EC05          LDQ* (ATAB)      SIZE OF TABLE                          ADEV  175
                P006A  4805          STQ* Q1SAV                                              ADEV  176
25              P006B  14EA          JMP- (DISP)                                             ADEV  177

                P006C  0000    SAVERR ADC  0                                                 ADEV  179
                P006D  015E P  XALTSB ADC  ALTSUB       SUB. TO SET Q=ALT. IF LU IN Q IS DOWN ADEV  180
30              P006E  7FFF X  ATAB   ADC  ALTERR       ADR OF ERROR WORD BUFFER TABLE        ADEV  181
                P006F  0001    Q1SAV  NUM  1           INDEX FOR READING IN TO  ALTERR TABLE ADEV  182
                P0070  0001    Q2SAV  NUM  1           INDEX FOR READING OUT OF ALTERR TABLE ADEV  183
                P0071       0001       HASHLD BSS  HASHLD(1)                                 ADEV  184
                P0072       0001       HASRLU BSS  HASRLU(1)                                 ADEV  185
35              P0073  7FFF X  ALOG1  ADC  LOG1                                              ADEV  186


                                     *    MESSAGE OUTPUT AND HANDLING OF DRIVERS THAT        ADEV  188
40                                   *    HAVE NO ALTERNATE IS DONE AT LEVEL 4               ADEV  189

                P0074  E8FB    NOALT LDQ* Q2SAV       GET NEXT ENTRY FROM ALTERR TABLE       ADEV  191
                P0075  0500          IIN  0           INHIBIT INTERRUPTS                     ADEV  192
45              P0076  CEF7          LDA* (ATAB),Q                                           ADEV  193
                P0077  0112          SAN  NOALTX-*-1  SKIP IF ENTRY FOUND                    ADEV  194
                                     *                OTHERWISE                              ADEV  195
                P0078  6817          STA* FLAGX       CLEAR BUSY FLAG                        ADEV  196
                P0079  14EA          JMP- (DISP)      EXIT                                   ADEV  197
50
                P007A  6800 0078 NOALTX STA  NOHOLD                             ***MSOS4.0 ADEV  199
                P007C  0400          EIN  0                                                  ADEV  200
                P007D  0F48          ARS  8           SAVE LU                                ADEV  201
55              P007E  686A          STA* NOLU                                               ADEV  202
                P007F  0A00          ENA  0           CLEAR ENTRY FROM TABLE                 ADEV  203
                P0080  6EED          STA* (ATAB),Q                                           ADEV  204
                P0081  C8EE          LDA* Q2SAV       UPDATE INDEX TO ALTERR TABLE           ADEV  205
                P0082  09FE          INA  -1                                                 ADEV  206
```

```
                P0083  0111                SAN  1             SKIP IF NOT END OF TABLE                          ADEV  207
                P0084  CCE9                LDA* (ATAB)        SIZE OF TABLE                                    ADEV  208
            5   P0085  68EA                STA* Q2SAV                                                          ADEV  209
                P0086  E862                LDQ* NOLU                                                           ADEV  210
                P0087  CE0B                  LDA*      (ALOG1A),Q          SET UP                           ADEV  211
                P0088  60FF                  STA-      I                    BASE PDT IN I                   ADEV  212
                P0089  CEE9                LDA* (ALOG1),Q                                                      ADEV  213
           10   P008A  A00C                AND- LPMSK+10                                                       ADEV  214
                P008B  0822                TRA  Q             Q = LU OF FIRST ALTERNATE                        ADEV  215
                P008C  5CE0                RTJ* (XALTSB)      SET Q= ALT. IF LU IN Q IS DOWN                   ADEV  216
                P008D  0156                SQN  NOA-*-1                                                        ADEV  217
                P008E  1822                JMP* NO3           NO ALTERNATE ASSIGNED                            ADEV  218
           15
                P008F        0001  FLAGX  BZS  FLAGX(1)                                                        ADEV  220
                P0090        0001  HASLU  BSS  HASLU(1)                                                        ADEV  221
                P0091        0001  HOLDAL BSS  HOLDAL(1)                                                      ADEV  222
           20   P0092  7FFF X       ALOG1A ADC  LOG1A                                                         ADEV  223
                P0093  7FFF X       ALOG2  ADC  LOG2                                                          ADEV  224


           25                       *     THIS SECTION OUTPUTS THE MSG IF THE ALT IS OK                       ADEV  226

                P0094  48FC        NOA    STQ* HOLDAL        SAVE ALTERNATE LU                                ADEV  228
                P0095  C808               LDA* MAS300                                                         ADEV  229
                P0096  B011               EOR- LPMSK+15                                                       ADEV  230
           30   P0097  0106               SAZ  NOB                                                            ADEV  231
                P0098  C4FF               LDA- (I)                                                            ADEV  232
                P0099  6803               STA* MRINA                                                          ADEV  233
                P009A  E0FF               LDQ- I             GET PDT ADDRESS                 **MSOS 4.1**    ADEV  234
                P009B  54F4               RTJ- ($F4)                                                          ADEV  235
           35   P009C  5200        MRINA  NUM  $5200         SCHEDULE MAS300 AT DRIVER PL (MASDRV)**MSOS4.0    ADEV  236
                P009D  7FFF X      MAS300 ADC  RELBYQ        RELEASE DRIVERS CORE IF ANY                       ADEV  237
                P009E  C84A        NOB    LDA* NOLU          LU THAT FAILED                                   ADEV  238
                P009F  584A               RTJ* CONVRT        CONVERT LU TO ASCII AND                          ADEV  239
                P00A0  6855               STA* HASMS1+1        STORE IN MESSAGE                               ADEV  240
           40   P00A1  C852               LDA* NOHOLD        ERROR WORD                                       ADEV  241
                P00A2  A00A               AND- NZERO-8                                                        ADEV  242
                P00A3  5846               RTJ* CONVRT        CONVERT ERROR CODE TO ASCII                      ADEV  243
                P00A4  6856               STA* HASMS1+6        AND STOR IN MESSAGE                            ADEV  244
                P00A5  C8EB               LDA* HOLDAL        ALTERNATE LU                                     ADEV  245
           45   P00A6  5843               RTJ* CONVRT        CONVERT ALTERNATE TO ASCII                       ADEV  246
                P00A7  6857               STA* HASMS2+2        AND STORE IN MESSAGE                           ADEV  247
                P00A8  54F4               RTJ- (AMONI)       ALTERNATE LU MESSAGE                             ADEV  248
                P00A9  4CF4               VFD  N1/0,N1/1,N5/6,N1/0,N4/15,N4/4                ***MSOS4.0       ADEV  249
                P00AA  0074 P             ADC  NOALT         SEARCH FOR MORE ENTRIES ON COMP  ***MSOS4.0       ADEV  250
           50   P00AB  0000               NUM  0,$18FC,12                                                     ADEV  251
                P00AC  18FC
                P00AD  000C
                P00AE  00F4 P             ADC  HASMS1                                        ***MSOS4.0       ADEV  252
                P00AF  14EA               JMP- (DISP)        WAIT FOR COMPLETION                              ADEV  253
           55
                                          *          THIS SECTION IS ENTERED AT LEVEL 4                       ADEV  255
                                          *          WHEN NO OPERATIONAL ALTERNATE EXISTS                     ADEV  256
```

```
                P00B0   C838          N03   LDA* NOLU                                  **MSOS 4.1** ADEV  258
                P00B1   5838                RTJ* CONVRT       CONVERT LU TO ASCII AND             ADEV  259
                P00B2   6843                STA* NOMES1+1       STORE IN MESSAGE                  ADEV  260
                P00B3   C840                LDA* NOHOLD                                           ADEV  261
                P00B4   A00A                AND- NZERO-8                                          ADEV  262
                P00B5   5834                RTJ* CONVRT       CONVERT ERROR CODE TO ASCII         ADEV  263
                P00B6   6844                STA* NOMES1+6       AND STORE IN MESSAGE              ADEV  264
                P00B7   54F4                RTJ- (AMONI)      TELL THE OPERATOR                   ADEV  265
                P00B8   4CF4                VFD  N1/0,N1/1,N5/6,N1/0,N4/15,N4/4          ***MSOS4.0 ADEV  266
                P00B9   0000                ADC  0                                                ADEV  267
                P00BA   0000                NUM  0,$18FC,7                                        ADEV  268
                P00BB   18FC
                P00BC   0007
                P00BD   00F4 P              ADC  NOMES1                                  ***MSOS4.0 ADEV  269

                                      *           REQUEST ACTION BY THE OPERATOR                  ADEV  271

                P00BE   0AFF          NO2   ENA  -0                                             ADEV  273
                P00BF   6845                STA* BUF                                              ADEV  274
                P00C0   54F4                RTJ- (AMONI)                                          ADEV  275
                P00C1   4CF4                VFD  N1/0,N1/1,N5/6,N1/0,N4/15,N4/4          ***MSOS4.0 ADEV  276
                P00C2   0000                ADC  0                                                ADEV  277
                P00C3   0000                NUM  0,$18FC,4                                        ADEV  278
                P00C4   18FC
                P00C5   0004
                P00C6   0100 P              ADC  NOMES2                                  **MSOS 4.0 ADEV  279

                                      *           GET OPERATOR INPUT VIA COMMENT INPUT MEDIUM      ADEV  281

                P00C7   54F4                RTJ- (AMONI)                                          ADEV  283
                P00C8   48F4                VFD  N1/0,N1/1,N5/4,N1/0,N4/15,N4/4          ***MSOS4.0 ADEV  284
                P00C9   00CF P              ADC  NO5                                     ***MSOS4.0 ADEV  285
                P00CA   0000                NUM  0,$18FD,1                                        ADEV  286
                P00CB   18FD
                P00CC   0001
                P00CD   0104 P              ADC  BUF                                     ***MSOS4.0 ADEV  287
                P00CE   14EA                JMP- (DISP)                                           ADEV  288

                                      *     AT THIS TIME, THE LEGAL OPTIONS IN BUF CAN BE           ADEV  290
                                      *           1. RP - REPEAT REQUEST                            ADEV  291
                                      *           2. CU - CONTINUE - KEEP DEVICE UP                 ADEV  292
                                      *           3. CD - CONTINUE - MARK DEVICE DOWN               ADEV  293
                                      *           4  DU - DELETE JOB - KEEP DEVICE UP               ADEV  294
                                      *           5  DD - DELETE JOB - MARK DEVICE DOWN             ADEV  295
                                      *                                                             ADEV  296
                                      *     ANYTHING ELSE CAUSES REPETITION OF THE ACTION           ADEV  297
                                      *     PRINTOUT.                                               ADEV  298

                P00CF   0161          NO5   SQP  1              NO IO ERROR          **MSOS 4.1** ADEV  300
                P00D0   18ED                JMP* NO2            IO ERROR OR TIMEOUT, REPEAT **MSOS 4.1** ADEV  301
```

```
                P00D1  C833                    LDA* BUF          CHECK DATA INPUT                    ADEV  302
                P00D2  9833                    SUB* RP                                               ADEV  303
                P00D3  0112                    SAN  NO6-*-1                                          ADEV  304
                P00D4  1800  0033              JMP  A            ITS REPEAT                          ADEV  305
                P00D6  8830            NO6     ADD* CU                                               ADEV  306
                P00D7  0112                    SAN  NO7-*-1                                          ADEV  307
                P00D8  1800  0043              JMP  B            CONTINUE                            ADEV  308
                P00DA  0911            NO7     INA  $11                                              ADEV  309
                P00DB  0112                    SAN  NO8-*-1                                          ADEV  310
                P00DC  1800  0048              JMP  C            CONTINUE DEVICE DOWN                ADEV  311
                P00DE  9829            NO8     SUB* DU                                               ADEV  312
                P00DF  0112                    SAN  NO9-*-1                                          ADEV  313
                P00E0  1800  0065              JMP  D            JOB DELETE                          ADEV  314
                P00E2  0911            NO9     INA  $11                                              ADEV  315
                P00E3  0112                    SAN  NO10-*-1                                         ADEV  316
                P00E4  1800  0073              JMP  E            JOB DELETE DEVICE DOEN              ADEV  317
                P00E6  0B00            NO10    NOP  0            DONT KNOW - TRY AGAIN               ADEV  318
                P00E7  18D6                    JMP* NO2                                              ADEV  319


                P00E8          0001    NOLU    BSS  NOLU(1)                    **MSOS4.0**          ADEV  321

                               *               HEX TO ASCII CONVERSION                               ADEV  323
                               *               A-REG = $00 TO $63 ON ENTRY                           ADEV  324
                               *               ROUTINE CONVERTS TO DECIMAL                           ADEV  325
                               *               AND RETURNS WITH ASCII CHARS IN A                     ADEV  326
                               *               THE Q-REGISTER IS NOT SAVED                           ADEV  327

                P00E9  0000    CONVRT  NUM  0            HEX TO ASC CONVERSION                       ADEV  329
                P00EA  0500            IIN  0                                                        ADEV  330
                P00EB  0C00            ENQ  0                                                        ADEV  331
                P00EC  3046            DVI- TEN          MSB IN A, LSB IN Q                          ADEV  332
                P00ED  0FC8            ALS  8                                                        ADEV  333
                P00EE  0834            AAQ  A                                                        ADEV  334
                P00EF  8000  3030      ADD  =N$3030      TWO ASCII CHARS IN A-REG                    ADEV  335
                P00F1  0400            EIN  0                                                        ADEV  336
                P00F2  1CF6            JMP* (CONVRT)                                                 ADEV  337

                P00F3          0001    NOHOLD  BSS  NOHOLD(1)                                        ADEV  339
                P00F4  4C2C            HASMS1  ALF  7,L,   FAILED                                    ADEV  340
                P00F5  2020
                P00F6  2046
                P00F7  4149
                P00F8  4C45
                P00F9  4420
                P00FA  2020
                P00FB  200D                    NUM  $200D                                            ADEV  341
                P00FC  414C            HASMS2  ALF  3,ALT,                                           ADEV  342
                P00FD  542C
                P00FE  2020
                P00FF  200D                    NUM  $200D                                            ADEV  343
                               00F4 P  NOMES1  EQU  NOMES1(HASMS1)                                   ADEV  344
                P0100  4143            NOMES2  ALF  3,ACTION                                         ADEV  345
                P0101  5449
```

```
                P0102   4F4E
                P0103   200D                    NUM  $200D                                                    ADEV    346
     5          P0104           0001    BUF     BSS  BUF(1)                                                   ADEV    347
                P0105   5250            RP      ALF  1,RP                                                    ADEV    348
                P0106   0EFB            CU      NUM  $EFB                                                    ADEV    349
                P0107   0111            DU      NUM  $111                                                    ADEV    350
                                        *     THIS ROUTINE PROCESSES THE REPEAT OPTION.                       ADEV    351
    10
                P0108   E800   FFDE     A       LDQ  NOLU                                                    ADEV    353
                P010A   CE51                    LDA* (BLOG1A),Q                                              ADEV    354
                P010B   0822                    TRA  Q              P.D.T. ADDRESS TO Q          65*1417     ADEV    355
    15          P010C   680E                    STA* A1             SCHEDULE DRIVER DIRECTLY     65*1417     ADEV    356
                P010D   C206                    LDA- EPTR,0         REQUEST PARAMETER ADDRESS    65*1417     ADEV    357
                P010E   60FF                    STA- I                                           65*1417     ADEV    358
                P010F   E800   FFD7            LDQ  NOLU           LOGICAL UNIT                 65*1417     ADEV    359
                P0111   0500                    IIN  0                                           65*1417     ADEV    360
    20          P0112   CE4A                    LDA* (BLOG2),Q      RETHREAD THIS REQUEST        65*1417     ADEV    361
                P0113   6102                    STA- PT,I           TO THE TOP OF THE THREAD     65*1417     ADEV    362
                P0114   C0FF                    LDA- I                                           65*1417     ADEV    363
                P0115   0400                    EIN  0                                           65*1417     ADEV    364
                P0116   6E46                    STA* (BLOG2),Q                                   65*1417     ADEV    365
    25          P0117   EE44                    LDQ* (BLOG1A),Q     PYSTAB ADDRESS TO Q          65*1417     ADEV    366

                P0118   54F4            A0      RTJ- (AMONI)        REPEAT THE REQUEST                       ADEV    368
                P0119   2000                    ADC  $2000          INDIRECT                 ***MSOS4.0      ADEV    369
    30          P011A   0000            A1      NUM  0                                                       ADEV    370
                P011B   1C42                    JMP* (ANOALT)       RETURN TO SEARCH ALTERR FOR MORE ENTRIES ADEV    371

    35                                  *     THIS ROUTINE IS ENTERED VIA THE CONTINUE OPTION                 ADEV    373

                P011C   E800   FFCA     B       LDQ  NOLU                                                    ADEV    375
                P011E   CE3D                    LDA* (BLOG1A),Q                                              ADEV    376
    40          P011F   60FF                    STA- I                                                       ADEV    377
                P0120   54B6                    RTJ- (COMP)         COMPLETE THE REQUEST                     ADEV    378
                P0121   C0FF                    LDA- I                                                       ADEV    379
                                        *                                            **********              ADEV    380
                P0122   68F7                    STA* A1                                                      ADEV    381
    45          P0123   E0FF                    LDQ- I              Q = ADR OF P.D.T.                        ADEV    382
                P0124   18F3                    JMP* A0             SCHEDULE THE DRIVER INITIATOR            ADEV    383

    50                                  *     THIS ROUTINE IS ENTERED TO MARK DEVICE DOWN AND                 ADEV    385
                                        *   REPORT THE ERROR TO ALL CALLERS.                                 ADEV    386

                P0125   E8C2            C       LDQ* NOLU           LOGICAL UNIT NO. TO Q        126*5051    ADEV132   2
    55          P0126   0500                    IIN  0                                                       ADEV    389
                                        *                           4 CARDS DELETED              126*5051    ADEV132   3
                P0127   CE34                    LDA* (BLOG1A),Q                                              ADEV    394
                P0128   60FF                    STA- I                                                       ADEV    395
                P0129   C109                    LDA- ESTAT1,I       SCHEDULE ALL COMPLETION                  ADEV    396
```

```
                                *                       ADDRESSES IN THE THREAD                          ADEV    397
     P012A  6800  FFC7          STA  NOHOLD            WITH ERROR INDICATORS                            ADEV    398
 5   P012C  54B6          C1    RTJ- (COMP)                                                             ADEV    399
     P012D  54B5                RTJ- (FNR)                                                              ADEV    400
     P012E  1805                JMP* C2                                                                 ADEV    401
     P012F  C800  FFC2          LDA  NOHOLD                                                             ADEV    402
     P0131  6109                STA- ESTAT1,I                                                           ADEV    403
10   P0132  18F9                JMP* C1                                                                 ADEV    404
                  0133 P  C2    EQU  C2(*)                                        126*5051 ADEV132        4
     P0133  E8B4                LDQ* NOLU              LOGICAL UNIT NO. TO Q      126*5051 ADEV132        5
     P0134  CE26                LDA* (BLOG1),Q         TURN ALTERNATE INDICATOR ON. 126*5051 ADEV132      6
     P0135  A040                AND- ZROBIT+13           THIS EFFECTIVELY MARKS THE 126*5051 ADEV132      7
15   P0136  B030                EOR- ONEBIT+13           DEVICE DOWN SINCE THERE    126*5051 ADEV132      8
     P0137  6E23                STA* (BLOG1),Q           IS NO ALTERNATE.           126*5051 ADEV132      9
     P0138  C800  FF63          LDA  MAS300                                         132*5051 ADEV132     10
     P013A  6809                STA* MRIN+1                                                             ADEV    406
     P013B  B011                EOR- LPMSK+15                                                           ADEV    407
20   P013C  0108                SAZ  C3-*-1            SKIP IF NOT IN CORE.                             ADEV    408
     P013D  C4FF                LDA- (1)               (A) = 1ST WORD OF PDT.                           ADEV    409
     P013E  6804                STA* MRIN                                                               ADEV    410
     P013F  0814                TRQ  A                 SAVE Q                  **MSOS 4.1** ADEV        411
     P0140  E0FF                LDQ- I                 GET PDT ADDRESS         **MSOS 4.1** ADEV        412
25   P0141  54F4                RTJ- ($F4)                                                              ADEV    413
     P0142  5200          MRIN  NUM  $5200             SCHEDULE MAS300           ***MSOS4.0 ADEV        414
     P0143  0000                ADC  *-*               PROGRAM MODIFIED                                 ADEV    415
                                *                       ***** IN MMEXEC *****   **MSOS 4.1** ADEV        416
     P0144  0822                TRA  Q                 RESTORE Q               **MSOS 4.1** ADEV        417
30   P0145  1C18          C3    JMP* (ANOALT)                                                           ADEV    418


                                *    THIS ROUTINE IS ENTERED TO KILL A JOB ON THE                       ADEV    420
35                              *  BASIS OF THE ERROR. THE DEVICE IS LEFT UP.                           ADEV    421

     P0146  5802          D     RTJ* JKSUB             SCHEDULE JBKILL                                  ADEV    423
     P0147  18D4                JMP* B                 GO TO CU ROUTINE                                 ADEV    424
40

     P0148  0000          JKSUB NUM  0                                                                  ADEV    426
     P0149  C400  7FFF X        LDA  UNPIO             DU AND DD ONLY LEGAL    **MSOS 4.0 ADEV        427
     P014B  8400  7FFF X        ADD  UNPIOF            FOR UNPROTECTED I/O REQUESTS **MSOS 4.0 ADEV   428
45   P014D  0112                SAN  D1-*-1            IF JOB PROCESSOR NOT IN, GO                      ADEV    429
     P014E  1800  FF6E    D0    JMP  NO2               BACK TO ACTION TYPEOUT                           ADEV    430
     P0150  C400  7FFF X  D1    LDA  SWTCH             IS LIBEDT IN                                     ADEV    431
     P0152  0101                SAZ  1                 NO                                               ADEV    432
     P0153  18FA                JMP* D0                                                                 ADEV    433
50   P0154  54F4                RTJ- (AMONI)           SCHEDULE JOBKIL AT LEVEL 2                       ADEV    434
     P0155  5202                NUM  $5202                                                              ADEV    435
     P0156  7FFF X              ADC  JBCNCL                                                             ADEV    436
     P0157  1CF0                JMP* (JKSUB)           RETURN                                           ADEV    437

55

                                *    THIS ROUTINE IS ENTERED WHEN THE DEVICE IS TO                      ADEV    439
                                *  BE SET DOWN AND THE JOB DELETED.                                     ADEV    440
```

```
                P015B   58EF            E       RTJ* JKSUB      SCHEDULE JBKILL                         ADEV    442
                P015C   18CB                    JMP* C          GO TO DU ROUTINE                        ADEV    443

                P015D   0073 X          BLOG1   ADC  LOG1                                               ADEV    445
                P015E   0092 X          BLOG1A  ADC  LOG1A                                              ADEV    446
                P015F   0093 X          BLOG2   ADC  LOG2                                               ADEV    447
                P0160   0074 P          ANOALT  ADC  NOALT                                              ADEV    448


                                0000 P  DEVERR  EQU  DEVERR(ALTDEV)                                     ADEV    450.
                                00E9 P          EQU  CONVER(CONVRT)                                     ADEV    451
```



```
                                        *       THIS SUBROUTINE IS ENTERED TO DETERMINE                 ADEV    454
                                        *       IF A GIVEN LOGICAL UNIT (IN Q) IS OPERATIVE             ADEV    455
                                        *       RETURN IS WITH Q = INITIAL LU OR ITS FIRST              ADEV    456
                                        *       OPERATIVE ALTERNATE.                                    ADEV    457
                                        *       IF THE INITIAL LU IS MARKED DOWN (INOPERATIVE)          ADEV    458
                                        *       1) Q = LU OF THE OPERATIVE ALTERNATE, OR                ADEV    459
                                        *       2) Q = 0  IF NO ALTERNATE IS ASSIGNED, OR               ADEV    460
                                        *       3) Q = DUMALT(0 OR DUMMY) IF ALL ALTERNATES ARE DOWN    ADEV    461

                P0161   0000            ALTSUB  NUM  0          Q = INITIAL LU ON ENTRY,  1-IS SAVED     ADEV    463
                P0162   0500                    IIN  0                                                  ADEV    464
                P0163   0A0A                    ENA  NN         SET INITIAL VALUE OF COUNT              ADEV    465
                P0164   6810                    STA* COUNT                                              ADEV    466
                P0165   014B            LOOP    SQZ  EXIT-*-1   EXIT IF NO ALT LU EXISTS, Q=0          ADEV    467
                P0166   CEF6                    LDA* (BLOG1),Q                                          ADEV    468
                P0167   0FC2                    ALS  2                                                  ADEV    469
                P0168   0128                    SAP  EXIT-*-1   EXIT IF LU Q IS OPERATIVE               ADEV    470
                P0169   0F42                    ARS  2                                                  ADEV    471
                P016A   A00C                    AND- LPMSK+10                                           ADEV    472
                P016B   0822                    TRA  Q          Q = ALTERNATE LU                        ADEV    473
                P016C   C808                    LDA* COUNT                                              ADEV    474
                P016D   09FE                    INA  -1                                                 ADEV    475
                P016E   6806                    STA* COUNT                                              ADEV    476
                P016F   0113                    SAN  OK-*-1     CONTINUE IF MAX NO OF ALTERNATES NOT EXCEEDED ADEV 477
                P0170   E805                    LDQ* M          OTHERWISE SET Q = 0, OR DUMMY LU        ADEV    478
                P0171   0400            EXIT    EIN  0                                                  ADEV    479
                P0172   1CEE                    JMP* (ALTSUB)                                           ADEV    480
                P0173   18F1            OK      JMP* LOOP                                               ADEV    481
                P0174   0000            COUNT   NUM  0                                                  ADEV    482
                P0175   7FFF X          M       ADC  DUMALT     LU TO BE USED IF ALL ALTERNATES ARE DOWN ADEV    483
                P0176                           END                                                     ADEV    484


                        66507B STORAGE USED          486 STATEMENTS      105 SYMBOLS
                               6400 ASSEMBLY       2.978 SECONDS        348 REFERENCES
```

COMPLETE REFERENCE MAP.

A	0108		8/06	9/12 L						
ADEV	0000		2/10 E	2/11 Q						
ALOG1	0073		3/48	3/52	3/57	4/34	4/37	5/35 L	6/09	
ALOG1A	0092		3/58	4/13	4/27	4/49	6/07	6/20 L		
ALOG2	0093		4/18	4/21	6/21 L					
ALTDEV	0000		2/13 E	2/60 L	11/14					
ALTERR	006E	*EXTERNAL*	2/17 X	5/30						
ALTGO	0004		3/05	3/12 L						
ALTSUB	015E		2/18 E	5/29	12/14 L	12/31				
ALT0	0008		3/12	3/17 L						
ALT1	000D		3/15	3/23 L						
ALT2	0011		3/25	3/27 L						
ALT5	0016		3/29	3/36 L						
AMONI	00F4	ABSOLUTE	2/34 Q	4/59	6/47	7/24	9/28			
			2/60	5/12	7/10	7/36	10/50			
ANOALT	015D		9/31	10/30	11/10 L					
ATAB	006E		3/28	4/41	5/23	5/45	6/04			
			4/39	5/20	5/30 L	5/57				
A0	0118		9/28 L	9/46						
A1	011A		9/15	9/30 L	9/44					
B	011C		8/09	9/38 L	10/39					
BLOG1	015A		10/13	10/16	11/07 L	12/19				
BLOG1A	015B		9/13	9/25	9/39	9/57	11/08 L			
BLOG2	015C		9/20	9/24	11/09 L					
BUF	0104		7/23	7/42	7/60	9/05 B				
C	0125		8/12	9/54 L	11/05					
COMP	00B6	ABSOLUTE	2/32 Q	9/41	10/05					
CONVER	00E9		2/15 E	11/15 Q						
CONVRT	00E9		6/38	6/42	6/45	7/04	7/08	8/33 L	8/41	11/15
COUNT	0171		12/17	12/25	12/27	12/33 L				
CU	0106		8/07	9/07 L						
C1	012C		10/05 L	10/10						
C2	0133		10/07	10/11 Q						
C3	0145		10/20	10/30 L						
D	0146		8/15	10/38 L						
DEVERR	0000		2/13 E	11/14 Q						
DISP	00EA	ABSOLUTE	2/29 Q	3/06	3/26	5/19	5/25	5/49	6/54	7/43
DU	0107		8/13	9/08 L						
DUMALT	0172	*EXTERNAL*	2/19 X	12/34						
D0	014E		10/46 L	10/49						
D1	0150		10/45	10/47 L						
E	0158		8/18	11/04 L						
ELU	0005	ABSOLUTE	2/38 Q	4/30	4/51	4/58				
EPTR	0006	ABSOLUTE	2/38 Q	4/14	9/16					
ESTAT1	0009	ABSOLUTE	2/39 Q	9/59	10/09					
EXIT	016E		12/18	12/21	12/30 L					
FLAGX	008F		5/07	5/10	5/48	6/17 B				
FNR	00B5	ABSOLUTE	2/27 Q	10/06						
HASHLD	0071		3/41	3/46	3/55	4/12	4/26	5/33 B		
HASLU	0090		4/04	4/33	4/48	6/18 B				
HASMS1	00F4		6/39	6/43	6/53	8/45 L	8/57			
HASMS2	00FC		6/46	8/53 L						
HASRLU	0072		3/39	4/16	4/57	5/34 B				
HAS3	0047		4/40 L	4/45						
HAS3A	004D		4/42	4/46 L						
HAS3B	004E		4/44	4/48 L						
HAS4	0030		3/54	4/04 L						

COMPLETE REFERENCE MAP.

HAS6	0054		4/52	4/54 L						
HAS7	005A		3/49	3/56	4/56	5/04 L				
HOLDAL	0091		6/19 B	6/27	6/44					
I	00FF	-SYSTEM-	3/36	4/15	4/28	6/31	9/17	9/40	9/45	10/21
			3/59	4/20	6/08	6/33	9/22	9/42	9/58	10/24
JBCNCL	0156	*EXTERNAL*	2/16 X	10/52						
JKSUB	0148		10/38	10/42 L	10/53	11/04				
LEVEL	000E	ABSOLUTE	2/28 Q	3/04						
LOG1	015A	*EXTERNAL*	2/20 X	5/35	11/07					
LOG1A	015B	*EXTERNAL*	2/20 X	6/20	11/08					
LOG2	015C	*EXTERNAL*	2/20 X	6/21	11/09					
LOOP	0162		12/18 L	12/32						
LPMSK	0002	ABSOLUTE	2/34 Q	6/10	6/29	10/19	12/23			
M	0172		12/29	12/34 L						
MAS300	009D		6/28	6/36 L	10/17					
MRIN	0142		10/18	10/22	10/26 L					
MRINA	009C		6/32	6/35 L						
MN	000A	ABSOLUTE	2/25 Q	12/16						
NOA	0094		6/13	6/27 L						
NOALT	0074		5/14	5/43 L	6/49	11/10				
NOALTX	007A		5/46	5/52 L						
NOB	009E		6/30	6/37 L						
NOHOLD	00F3		5/52	6/40	7/06	8/44 B	10/04	10/08		
NOLU	00E8		5/55	6/37	8/24 B	9/18	9/54			
			6/06	6/60	9/12	9/38	10/12			
NOMES1	00F4		7/05	7/09	7/16	8/57 Q				
NOMES2	0100		7/30	8/58 L						
NO10	00E6		8/17	8/19 L						
NO2	00BE		7/22 L	7/59	8/20	10/46				
NO3	00B0		6/14	6/60 L						
NO5	00CF		7/38	7/58 L						
NO6	00D6		8/05	8/07 L						
NO7	00DA		8/08	8/10 L						
NO8	00DE		8/11	8/13 L						
NO9	00E2		8/14	8/16 L						
NZERO	0012	ABSOLUTE	2/29 Q	6/41	7/07					
OK	0170		12/28	12/32 L						
ONEBIT	0023	ABSOLUTE	2/35 Q	3/14	4/36	10/15				
PT	0002	ABSOLUTE	2/42 Q	4/19	9/21					
Q1SAV	006F		3/27	5/16	5/24	5/31 L				
Q2SAV	0070		5/32 L	5/43	5/58	6/05				
RELBYQ	009D	*EXTERNAL*	2/21 X	6/36						
RP	0105		8/04	9/06 L						
SAVERR	006C		3/23	3/37	3/42	3/45	4/40	4/46	5/17	5/28 L
SCHNC	005B		3/60	4/53	5/07 L					
SCHNX	0062		5/08	5/16 L						
SWTCH	0151	*EXTERNAL*	2/22 X	10/47						
SYFAIL	0015	*EXTERNAL*	2/24 X	3/32						
TEN	0046	ABSOLUTE	2/31 Q	8/36						
UNPIO	014A	*EXTERNAL*	2/23 X	10/43						
UNPIOF	014C	*EXTERNAL*	2/23 X	10/44						
XALTSB	006D		3/40	3/53	5/29 L	6/12				
ZROBIT	0033	ABSOLUTE	2/31 Q	4/35	10/14					

```
1          1700 ASSEMBLY OF ALAQ                                CLASS - VER 3.0    08/21/80  00.20.40.      PAGE     1
           STORAGE ALLOCATION.

                 ADDRESS   LENGTH            BINARY CONTROL CARDS.

                    0000      006F           NAM    ALAQ          DECK-ID M28  MSOS 5.0            SUMMAR
                    006F                     END

                 ENTRY POINT NAMES AND ADDRESSES.

                         RLAQ   -- 002F      RQAQ   -- 0000


                 EXTERNAL SYMBOLS.

                         AQSSIZ    AQSTCK    SYFAIL
1          1700 ASSEMBLY OF ALAQ                                CLASS - VER 3.0    08/21/80  00.20.41.      PAGE     2

                                        NAM  ALAQ          DECK-ID M28  MSOS 5.0            SUMMARY-110 ALAQ      2
                                    *   A/Q  CHANNEL USAGE ALLOCATOR                                      ALAQ      3
                5                   *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                         ALAQ      4
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                      ALAQ      5
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                           ALAQ      6

               10                   ************************************************************************ ALAQ      8
                                    *  EACH DRIVER RESPONSIBLE FOR A DEVICE REQUIRING A/Q ALLOCATION MUST     ALAQ      9
                                    *      REQUEST CONTROL OF THE A/Q CHANNEL AND FOLLOWING COMPLETION OF     ALAQ     10
                                    *      ONE TRANSFER, RELEASE CONTROL.                                     ALAQ     11
                                    *                                                                         ALAQ     12
               15                   *  A SAMPLE OPERATION IS AS FOLLOWS....                                   ALAQ     13
                                    *       DRIVER REQUEST 1706 ACCESS...RTJ+  RQAQ                           ALAQ     14
                                    *      DRIVER COMPLETES OPERATION...RTJ+  RLAQ                            ALAQ     15
                                    *    RETURN IS MADE TO THE DRIVER FOR CONTINUATION                        ALAQ     16
                                    *                                                                         ALAQ     17
               20                   *  IF ACESS IS REQUESTED AND THE A/Q CHANNEL IS BUSY, THE RETURN ADDRESS  ALAQ     18
                                    *    PRIORITY LEVEL, AND I-REGISTER IS SAVED IN A CIRCULAR STACK UNTIL    ALAQ     19
                                    *    IT IS AVAILABLE WHEN THE REQUESTOR IS SCHEDULED AT HIS ENTRY         ALAQ     20
                                    *    PRIORITY WITH THE I-REGISTER IN Q. THE STACK IS FIRST IN, FIRST OUT  ALAQ     21
                                    *                                                                         ALAQ     22
               25                   *  ON ENTRY TO RELEASE THE A/Q CHANNEL THE I-REGISTER IS RETURNED IN Q.   ALAQ     23
                                    ************************************************************************ ALAQ     24


                                    *  PROGRAM ENTRY POINTS                                                  ALAQ     26
               30       0000 P          ENT  RQAQ          ACESS ENTRY FOR A/Q CHANNEL      **MSOS 4.1** ALAQ     27
                        002F P          ENT  RLAQ          RELEASE ENTRY FOR A/Q CHANNEL    **MSOS 4.1** ALAQ     28


                                    *      PROGRAM EXTERNALS                                                 ALAQ     30
               35                       EXT  AQSTCK        REQUEST STACK                    **MSOS 4.1** ALAQ     31
                                        EXT  AQSSIZ        REQUEST STACK SIZE TABLE         **MSOS 4.1** ALAQ     32
                                        EXT  SYFAIL        SITE FAIL LOCATED IN SYSDAT ($18FF)               ALAQ     33


               40                   *  PROGRAM EQUIVALENCES                                                  ALAQ     35
                        0022            EQU  ZERO($22)     ZERO ADDRESS                                      ALAQ     36
                        00FF            EQU  PRIOR($FF)    SYSTEM PRIORITY LEVEL                             ALAQ     37
                        00FA            EQU  ADISP($FA)    DISPATCHER                                        ALAQ     38
                        00F4            EQU  AMONI($F4)    MONITOR REQUEST ENTRY                             ALAQ     39
```

A/Q channel allocator

```
                                ********************************************************************** ALAQ      42
                                *      THIS SECTION IS THE A/Q CHANNEL REQUEST ENTRY. IF THE A/Q CHANNEL ALAQ      43
                                *      IS NOT ACTIVE, RETURN IS MADE IMMEDIATELY TO THE DRIVER. IF THE   ALAQ      44
                                *      A/Q CHANNEL IS BUSY, THE DRIVERS I-REGISTER, PRIORITY, RETURN     ALAQ      45
                                *      ARE SAVED IN THE WAITING STACK. IF THE QUANTITY OF ENTRIESEXCEEDS ALAQ      46
                                *      THE STACK SIZE, THERE IS NO ALTERNATIVE BUT TO STOP THE SYSTEM.   ALAQ      47
                                ********************************************************************** ALAQ      48

P0000  0000          RQAQ   NUM  0          ACESS ENTRY                        **MSOS 4.1** ALAQ      50
P0001  0500                 IIN  0          INHIBIT INTERRUPTS                              ALAQ      51
P0002  C827                 LDA* BUSYAQ     CHECK BUSY STATUS                  **MSOS 4.1** ALAQ      52
P0003  0115                 SAN  THREAD     SKIP IF BUSY                                    ALAQ      53
P0004  D825                 RAO* BUSYAQ     SET BUSY FLAG                      **MSOS 4.1** ALAQ      54
P0005  E0FF          RTNGOT LDQ- I          PUT I-REG. INTO Q-REG. FOR RETURN               ALAQ      55
P0006  4828                 STQ* GOTAQ      SAVE PDT ADDRESS OF CURRENT USER                ALAQ      56
P0007  0400                 EIN  0          ENABLE INTERRUPTS                               ALAQ      57
P0008  1CF7                 JMP* (RQAQ)     RETURN TO CALLER                   **MSOS 4.1** ALAQ      58
P0009  C0FF          THREAD LDA- I          CREATE TEMPORARY HOLDING AREA FOR STACK DATA     ALAQ      59
P000A  E824                 LDQ* GOTAQ      SEE IF THIS DRIVER ALREADY HAS AQ               ALAQ      60
P000B  0872                 EAQ  Q                                                          ALAQ      61
P000C  0151                 SQN  NOGOT      SKIP IF NOT CURRENT USER                        ALAQ      62
P000D  18F7                 JMP* RTNGOT     RETURN TO DRIVER - ALREADY HAS IT               ALAQ      63
P000E  681A          NOGOT  STA* TEMPII     SAVE DRIVER I-REG.                              ALAQ      64
P000F  E853                 LDQ* STKADD     PICK UP POINTER TO STACK ADDRESS   **MSOS 4.1** ALAQ      65
P0010  C81A                 LDA* AQIN       PICK UP POINTER FOR NEXT IN        **MSOS 4.1** ALAQ      66
P0011  0832                 AAQ  Q                                                          ALAQ      67
P0012  C622                 LDA- (ZERO),Q   PICK UP FIRST VACANT LOCATION                   ALAQ      68
P0013  0102                 SAZ  GOOD                                                       ALAQ      69
P0014  5400  7FFF X         RTJ+ SYFAIL     A/Q TABLE IN SYSDAT NOT LARGE ENOUGH - HANG     ALAQ      70
P0016  C8E9          GOOD   LDA* RQAQ       ASSEMBLE STACK ENTRYRETURN ADDRESS**MSOS 4.1** ALAQ      71
P0017  6622                 STA- (ZERO),Q                                                   ALAQ      72
P0018  0D01                 INQ  1                                                          ALAQ      73
P0019  C80F                 LDA* TEMPII     DRIVER I-REGISTER                               ALAQ      74
P001A  6622                 STA- (ZERO),Q                                                   ALAQ      75
P001B  0D01                 INQ  1                                                          ALAQ      76
P001C  C0EF                 LDA- PRIOR      DRIVER PRIORITY                                 ALAQ      77
P001D  6622                 STA- (ZERO),Q                                                   ALAQ      78
P001E  C80C                 LDA* AQIN       RESET NEXT IN POINTER              **MSOS 4.1** ALAQ      79
P001F  EC45                 LDQ* (XSTKSZ)   OBTAIN STACK SIZE                               ALAQ      80
P0020  0852                 TCQ  Q                                                          ALAQ      81
P0021  0903                 INA  3                                                          ALAQ      82
P0022  0832                 AAQ  Q                                                          ALAQ      83
P0023  0151                 SQN  NOOVER                                                     ALAQ      84
P0024  0814                 TRQ  A                                                          ALAQ      85
P0025  6805          NOOVER STA* AQIN                                  **MSOS 4.1** ALAQ      86
P0026  0400                 EIN  0          ENABLE INTERRUPTS                               ALAQ      87
P0027  14EA                 JMP- (ADISP)    EXIT TO DISPATCHER                              ALAQ      88
P0028  0000          TEMPII NUM  0                                                          ALAQ      89
P0029  0000          BUSYAQ NUM  0                                                          ALAQ      90
P002A  0000          AQIN   NUM  0                                                          ALAQ      91
P002B  0000          AQOUT  NUM  0                                     **MSOS 4.1** ALAQ      92
P002C  0000          ITAQ   NUM  0                                     **MSOS 4.1** ALAQ      93
P002D  0000          TIAQ   NUM  0                                     **MSOS 4.1** ALAQ      94
P002E  0000          GOTAQ  NUM  0                                                  ALAQ      95
```

```
                *      THIS SECTION IS ENTERED BY THE DRIVER TO RELEASE THE A/Q CHANNEL* ALAQ   98
                *      IF NO OTHER DRIVER IS WAITING, RETURN IS MADE IMMEDIATELY TO    * ALAQ   99
                *      DRIVER.  OTHERWISE, THE STACK ENTRY IS MOVED INTO THIS PROGRAM  * ALAQ  100
                *      IF NO OTHER DRIVER IS WAITING, RETURN IS MADE IMMEDIATELY TO    * ALAQ  101
                *      DRIVER.  OTHERWISE, THE STACK ENTRY IS MOVED INTO THIS PROGRAM  * ALAQ  102
                *      AND THE RELEASING DRIVER AND REQUESTING DRIVER ARE BOTH         * ALAQ  103
                *      SCHEDULED                                                       * ALAQ  104
                ********************************************************************** ALAQ  105


P002F 0000      RLAQ  NUM  0          RELEASE ENTRY                  **MSOS 4.1** ALAQ  107
P0030 0500            IIN  0          INHIBIT INTERRUPTS                          ALAQ  108
P0031 C0FF            LDA- I          SAVE DRIVER I-REG.                          ALAQ  109
P0032 E8FB            LDQ* GOTAQ      SEE IF RELEASING DRIVER REALLY HAS AQ       ALAQ  110
P0033 0872            EAQ  Q                                                      ALAQ  111
P0034 0143            SQZ  GOTNO      SKIP IF SAME                   **MSOS 4.1** ALAQ  112
P0035 0822            TRA  Q                                                      ALAQ  113
P0036 0400            EIN  0                                                      ALAQ  114
P0037 1CF7            JMP* (RLAQ)     IGNORE RELEASE - NOT ACQUIRED               ALAQ  115
P0038 68F3      GOTNO STA* ITAQ                                   **MSOS 4.1** ALAQ  116
P0039 E8F0            LDQ* AQIN       CHECK IF POINTERS =            **MSOS 4.1** ALAQ  117
P003A C8F0            LDA* AQOUT                                    **MSOS 4.1** ALAQ  118
P003B 0872            EAQ  Q                                                      ALAQ  119
P003C 015A            SQN  DOIT       SKIP IF PTRS NOT EQUAL                      ALAQ  120
P003D E825            LDQ* STKADD     PTRS= IS STACK FULL OR EMPTY   **MSOS 4.1** ALAQ  121
P003E 0832            AAQ  Q                                                      ALAQ  122
P003F E622            LDQ- (ZERO),Q                                               ALAQ  123
P0040 0156            SQN  DOIT       SKIP IF STACK FULL                          ALAQ  124
P0041 0A00            ENA  0          STACK CLEARED, ZERO BUSY FLAG               ALAQ  125
P0042 68E6            STA* BUSYAQ     AND RETURN                     **MSOS 4.1** ALAQ  126
P0043 68EA            STA* GOTAQ      CLEAR CURRENT USER PDT ADDRESS              ALAQ  127
P0044 E8E7            LDQ* ITAQ       RESTORE DRIVER I-REG.          **MSOS 4.1** ALAQ  128
P0045 0400            EIN  0                                                      ALAQ  129
P0046 1CE8            JMP* (RLAQ)     RETURN TO DRIVER               **MSOS 4.1** ALAQ  130
P0047 E81B      DOIT  LDQ* STKADD     MOVE STACK ENTRY TO TEMP       **MSOS 4.1** ALAQ  131
P0048 0832            AAQ  Q                                                      ALAQ  132
P0049 C622            LDA- (ZERO),Q                                               ALAQ  133
P004A 681E            STA* SKD11      SET LOCATION TO SCHEDULE                    ALAQ  134
P004B 0844            CLR  A                                                      ALAQ  135
P004C 6622            STA- (ZERO),Q                                               ALAQ  136
P004D 0D01            INQ  1                                                      ALAQ  137
P004E C622            LDA- (ZERO),Q                                               ALAQ  138
P004F 68DE            STA* GOTAQ      NEW DEVICE HAS AQ                           ALAQ  139
P0050 0844            CLR  A                                                      ALAQ  140
P0051 6622            STA- (ZERO),Q                                               ALAQ  141
P0052 0D01            INQ  1                                                      ALAQ  142
P0053 C622            LDA- (ZERO),Q                                               ALAQ  143
P0054 880F            ADD* SKDMSK                                                 ALAQ  144
P0055 6812            STA* SKD01      SET SCHEDULE CODE + PRIORITY                ALAQ  145
P0056 0844            CLR  A                                                      ALAQ  146
P0057 6622            STA- (ZERO),Q                                               ALAQ  147
P0058 C8D2            LDA* AQOUT      UPDATE STACK PTR               **MSOS 4.1** ALAQ  148
                *                     1 CARD DELETED                              ALAQ  149
P0059 EC0B            LDQ* (XSTKSZ)   PICK UP STACK SIZE             **MSOS 4.1** ALAQ  150
P005A 0852            TCQ  Q                                                      ALAQ  151
```

```
                P005B  0903              INA  3                                                    ALAQ  152
                P005C  0832              AAQ  Q                                                    ALAQ  153
              5 P005D  0151              SQN  OVERNO                                               ALAQ  154
                P005E  0814              TRQ  A                                                    ALAQ  155
                P005F  68CB    OVERNO    STA* AQOUT  UPDATE STACK POINTER          **MSOS 4.1** ALAQ  156
                P0060  C8CE              LDA* RLAQ   PICK UP RETURN ADDRESS        **MSOS 4.1** ALAQ  157
                P0061  1804              JMP* SKDL   GO TO SCHEDULER ROUTINE       **MSOS 4.1** ALAQ  158
```

```
                                ********************************************************************************  ALAQ    160
                                *      TABLE OF ADDRESSES AND CONSTANTS                                          *  ALAQ    161
                                ********************************************************************************  ALAQ    162


     P0062    7FFF X    STKADD ADC  AQSTCK       DATA STACK ADDRESSES            **MSOS 4.1**  ALAQ    164
     P0063    5200      SKDMSK NUM  $5200                                                       ALAQ    165
     P0064    7FFF X    XSTKSZ ADC  AQSSIZ                                      **MSOS 4.1**  ALAQ    166
```

```
                                ********************************************************************** ALAQ  168
 5                              *      THIS SECTION SCHEDULES THE REQUESTING AND RELEASING DRIVERS     * ALAQ  169
                                *      AT THEIR PRIORITIES.                                            * ALAQ  170
                                ********************************************************************** ALAQ  171

10  P0065   E8C8    SKDL   LDQ* GOTAQ                                                                  ALAQ  173
    P0066   54F4           RTJ- (AMONI)       SCHEDULE NEXT USER                                      ALAQ  174
    P0067   0000    SKD01  NUM  0                                                                      ALAQ  175
    P0068   0000    SKD11  NUM  0                                                                      ALAQ  176
    P0069   0500           IIN  0                                                                      ALAQ  177
15  P006A   68C4           STA* RLAQ          RESTORE RETURN ADDRESS                                  ALAQ  178
    P006B   E0FF           LDQ- I             RESTORE PDT ADDRESS                                     ALAQ  179
    P006C   0400           EIN  0                                                                      ALAQ  180
    P006D   1CC1           JMP* (RLAQ)        RETURN                                                  ALAQ  181
    P006E   14EA           JMP- (ADISP)       EXIT TO DISPATCHER                                      ALAQ  182
20  P006F                  END                                                                        ALAQ  183


61011B STORAGE USED            182 STATEMENTS       30 SYMBOLS
       6400 ASSEMBLY         1.076 SECONDS         99 REFERENCES
```

COMPLETE REFERENCE MAP.

ADISP	00EA	ABSOLUTE	2/43 Q	3/51	7/19				
AMONI	00F4	ABSOLUTE	2/44 Q	7/11					
AQIN	002A		3/29	3/42	3/49	3/54 L	4/25		
AQOUT	002B		3/55 L	4/26	4/56	5/07			
AQSSIZ	0064	*EXTERNAL*	2/36 X	6/11					
AQSTCK	0062	*EXTERNAL*	2/35 X	6/09					
BUSYAQ	0029		3/15	3/17	3/53 L	4/34			
DOIT	0047		4/28	4/32	4/39 L				
GOOD	0016		3/32	3/34 L					
GOTAQ	002E		3/19	3/23	3/58 L	4/18	4/35	4/47	7/10
GOTNO	0038		4/20	4/24 L					
I	00FF	-SYSTEM-	3/18	3/22	4/17	7/16			
ITAQ	002C		3/56 L	4/24	4/36				
NOGOT	000E		3/25	3/27 L					
NOOVER	0025		3/47	3/49 L					
OVERNO	005F		5/05	5/07 L					
PRIOR	00EF	ABSOLUTE	2/42 Q	3/40					
RLAQ	002F		2/31 E	4/15 L	4/23	4/38	5/08	7/15	7/18
ROAQ	0000		2/30 E	3/13 L	3/21	3/34			
RTNGOT	0005		3/18 L	3/26					
SKDL	0065		5/09	7/10 L					
SKDMSK	0063		4/52	6/10 L					
SKDOI	0067		4/53	7/12 L					
SKDII	0068		4/42	7/13 L					
STKADD	0062		3/28	4/29	4/39	6/09 L			
SYFAIL	0015	*EXTERNAL*	2/37 X	3/33					
TEMPII	0028		3/27	3/37	3/52 L				
THREAD	0009		3/16	3/22 L					
TIAQ	002D		3/57 L						
XSTKSZ	0064		3/43	4/58	6/11 L				
ZERO	0022	ABSOLUTE	2/41 Q	3/35	3/41	4/41	4/46	4/51	
			3/31	3/38	4/31	4/44	4/49	4/55	

STORAGE ALLOCATION.

ADDRESS	LENGTH	BINARY CONTROL CARDS.
0000	0022	NAM DTIMER DECK-ID M05 MSOS 5.0 SUMMARY.
0022		END

ENTRY POINT NAMES AND ADDRESSES.

DTIMER -- 0000 DTMER -- 0000

EXTERNAL SYMBOLS.

DGNTAB TMRLVL

```
                                        NAM  DTIMER       DECK-ID M05  MSOS 5.0          SUMMARY-110 DTIMER     2
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                      DTIMER     3
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                  DTIMER     4
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                       DTIMER     5


                                    *   E006 DIAGNOSTIC TIMER                                         DTIMER     7
                          0000 P        ENT   DTMER                                                   DTIMER     8
                          0000 P        EQU   DTMER(*)                                               DTIMER     9


                                    *   THIS CORE RESIDENT PROGRAM IS OPERATED PERIODICALLY            DTIMER    12
                                    *   VIA A TIMER REQUEST.  IT IS USED TO DETECT I/O HANGUP         DTIMER    13
                                    *   ONLY THE DEVICES LISTED IN TABLE DGNTAB ARE SUPERVISED.       DTIMER    14

                                    *   IT CAN BE OPERATED IN MULTIPLES OF 1/10 SECS                  DTIMER    16


                          0000 P        ENT  DTIMER                                                   DTIMER    18

                                        EXT  DGNTAB       TABLE OF P.D.T. ADRS                        DTIMER    20
                                        EXT  TMRLVL       TIMER LEVEL DEFINED IN SYSDAT   **MSOS 4.0 DTIMER    21
                          0004          EQU  EDCLK(4)     DIAGNOSTIC CLOCK LOCATION                   DTIMER    22
                          0003          EQU  EDPGM(3)     DIAGNOSTIC ERROR ENTRY                      DTIMER    23
                          000A          EQU  DELAY(10)    DELAY TIME IN 1/10 SECS                     DTIMER    24
                          0008          EQU  TIMRC(8)     TIMER REQUEST CODE                          DTIMER    25
                          4000          EQU  DBIT($4000)                  ***MSOS4.0                DTIMER    26
                          00F4          EQU  AMONI($F4),ADISP($EA)                                    DTIMER    27
                          00EA
                          0002          EQU  ZERO(2)                                                  DTIMER    28


P0000 0A00          DTIMER ENA  0          SET J=1ST LGIA ENTRY                                       DTIMER    30
P0001 6816                 STA* J                                                                     DTIMER    31
P0002 E815          A2     LDQ* J                                                                     DTIMER    32
P0003 E600 7FFF X          LDQ  DGNTAB,Q     GET ADR OF P.D.T.                                       DTIMER    33
P0005 0161                 SQP  A7-*-1       IS THIS END OF TABLE                                    DTIMER    34
P0006 1812                 JMP* A3           YES    EXIT                                             DTIMER    35
P0007 C204          A7     LDA- EDCLK,Q                                                               DTIMER    36
P0008 0121                 SAP  A5-*-1                                                                DTIMER    37
P0009 180C                 JMP* A1           GO TO A1.                                                DTIMER    38
P000A 09FE          A5     INA  -1           DECREMENT DCLK(J) BY 1.                                  DTIMER    39
P000B 6204                 STA- EDCLK,Q                                                               DTIMER    40
P000C 0131                 SAM  A6-*-1       IF DCLK(J) IS NEGATIVE,                                  DTIMER    41
P000D 1808                 JMP* A1                                                                    DTIMER    42
P000E C602          A6     LDA- (ZERO),Q     SCHEDULE DIAGNOSTIC                                      DTIMER    43
P000F 6804                 STA* SCHED1       ERROR ENTRY                                              DTIMER    44
P0010 C203                 LDA- EDPGM,Q                                                               DTIMER    45
P0011 6803                 STA* SCHED2                                                                DTIMER    46
P0012 54F4                 RTJ- (AMONI)      CALL SCHEDULER                                           DTIMER    47
P0013 0000          SCHED1 NUM  0            REQUEST CODE,LEVEL                                       DTIMER    48
P0014 0000          SCHED2 NUM  0            LOCATION IN DRIVER                                       DTIMER    49
                    *                        INSERT ANY OTHER PROGRAM                                 DTIMER    50
                    *                        ACTION IN HERE                                           DTIMER    51
P0015 D802          A1     RAO* J            INCREMENT J BY 1.                                        DTIMER    52
P0016 18EB                 JMP* A2                                                                    DTIMER    53
P0017 0000          J      NUM  0                                                                     DTIMER    54
```

```
                                *                       TIMER DELAY                                 DTIMER    55
         P0018   C805          A3      LDA* RQCOD      SET DIAGNOSTIC TIMER LEVEL  **MSOS 4.0 DTIMER    56
    5    P0019   A016                  AND- $16        $FFF0 MASK                  **MSOS 4.0 DTIMER    57
         P001A   8807                  ADD* DTLVL                                  **MSOS 4.0 DTIMER    58
         P001B   6807                  STA* RQCOD                                  **MSOS 4.0 DTIMER    59
                                *                                                           DTIMER    60
         P001C   54F4                  RTJ- (AMONI)                                **MSOS 4.0 DTIMER    61
   10    P001D   5010          RQCOD   ADC  TIMRC*$200+$10+DBIT                    **MSOS 4.0 DTIMER    62
         P001E   0000 P                ADC  DTIMER                                 ***MSOS4.0 DTIMER    63
         P001F   000A                  ADC  DELAY                                            DTIMER    64
         P0020   14EA                  JMP- (ADISP)    CALL DISPATCHER                       DTIMER    65
         P0021   7FFF X        DTLVL   ADC  TMRLVL                                          DTIMER    66
   15
         P0022                         END                                                   DTIMER    68

                                56751B STORAGE USED          67 STATEMENTS      23 SYMBOLS
                                  6400 ASSEMBLY          0.587 SECONDS          53 REFERENCES
```

COMPLETE REFERENCE MAP.

ADISP	00EA	ABSOLUTE	2/30 Q	3/13		
AMONT	00F4	ABSOLUTE	2/30 Q	2/52	3/09	
A1	0015		2/43	2/47	2/57 L	
A2	0002		2/37 L	2/58		
A3	0018		2/40	3/04 L		
A5	000A		2/42	2/44 L		
A6	000E		2/46	2/48 L		
A7	0007		2/39	2/41 L		
DBIT	4000	ABSOLUTE	2/29 Q	3/10		
DELAY	000A	ABSOLUTE	2/27 Q	3/12		
DGNTAB	0004	*EXTERNAL*	2/23 X	2/38		
DTIMER	0000		2/21 E	2/35 L	3/11	
DTLVL	0021		3/06	3/14 L		
DTMER	0000		2/10 E	2/11 Q		
EDCLK	0004	ABSOLUTE	2/25 Q	2/41	2/45	
EDPGM	0003	ABSOLUTE	2/26 Q	2/50		
J	0017		2/36	2/37	2/57	2/59 L
RQCOD	001D		3/04	3/07	3/10 L	
SCHED1	0013		2/49	2/53 L		
SCHED2	0014		2/51	2/54 L		
TIMRC	0008	ABSOLUTE	2/28 Q	3/10		
TMRLVL	0021	*EXTERNAL*	2/24 X	3/14		
ZERO	0002	ABSOLUTE	2/32 Q	2/48		

STORAGE ALLOCATION.

ADDRESS	LENGTH	BINARY CONTROL CARDS.
0000	0193	NAM MMEXEC DECK-ID M01 MSOS 5.0 SUMMARY
0193		END

BLOCKS	TYPE	ADDRESS	LENGTH
MMEXEC	PROGRAM*	0000	0193
OCUPNT	LOCAL	0094	0002
QUE	LOCAL	00A2	0008
QUEMM	LOCAL	00AA	0008

ENTRY POINT NAMES AND ADDRESSES.

MASCON -- 0155	MASERR -- 0189	MAS300 -- 00B3
MASDRV -- 0000	MASEXT -- 00B3	RELBYQ -- 00B2

EXTERNAL SYMBOLS.

ALTDEV	BUFF	BUFFE	LOG	LOG1A

```
                        NAM  MMEXEC        DECK-ID M01  MSOS 5.0          SUMMARY-132 MMEXEC132   1
                    *   EXECUTIVE FOR MASS MEMORY RESIDENT I/O DRIVERS                  MMEXEC      3
                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                       MMEXEC      4
                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                    MMEXEC      5
                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                         MMEXEC      6


                    ************************************************                  MMEXEC      8
                    *                                                                 MMEXEC      9
                    *         THIS ROUTINE IS THE CORE RESIDENT INTERFACE             MMEXEC     10
                    *         FOR ALL I/O DRIVERS WHICH RESIDENT ON                   MMEXEC     11
                    *         MASS MEMORY.                                            MMEXEC     12
                    *                                                                 MMEXEC     13
                    *         THIS PROGRAM MANAGES 1 OR 2 INTERNAL BUFFERS.           MMEXEC     14
                    *         THE I/O DRIVERS ARE READ INTO THE BUFFER AREA           MMEXEC     15
                    *         WHEN THEY HAVE I/O TO PERFORM, OR QUEUES THE            MMEXEC     16
                    *         DRIVER INTERNALLY WHEN NO BUFFER IS AVAILABLE.          MMEXEC     17
                    *                                                                 MMEXEC     18
                    *         THE ROUTINE MAY BE ENTERED AT ANY PRIORITY LEVEL.       MMEXEC     19
                    *         THE LEVEL IS ALWAYS CORRECTED, IF REQUIRED,             MMEXEC     20
                    *         TO THE OPERATING LEVEL OF THE PROGRAM.                  MMEXEC     21
                    ************************************************                  MMEXEC     22


                    *                                                                 MMEXEC     24
                    *   LOCORE EQUS                                                   MMEXEC     25
                    *                                                                 MMEXEC     26

          0003          EQU  LPMSK(3)                                                 MMEXEC     28
          0023          EQU  ONEBIT($23)                                              MMEXEC     29
          00B5          EQU  AFNR($B5)                                                MMEXEC     30
          00EA          EQU  ADISP($EA)                                               MMEXEC     31
          00EF          EQU  PRILVL($EF)                                              MMEXEC     32
          00F4          EQU  AMONI($F4)                                               MMEXEC     33


                    *                                                                 MMEXEC     36
                    *   ENTRY POINTS                                                  MMEXEC     37
                    *                                                                 MMEXEC     38
0000 P 00B3 P 0155 P 0189 P     ENT  MASDRV,MASEXT,MASCON,MASERR                      MMEXEC     39
00B3 P                          ENT  MAS300                                           MMEXEC     40
00B2 P                          ENT  RELBYQ                                           MMEXEC     41


                    *                                                                 MMEXEC     43
                    *   EXTERNALS                                                     MMEXEC     44
                    *                                                                 MMEXEC     45
                        EXT  ALTDEV,LOGIA                                             MMEXEC     46
                        EXT  LOG                                                      MMEXEC     47
                        EXT  BUFF,BUFFE    BUFFERS FOR DRIVERS                        MMEXEC     48


                    *                                                                 MMEXEC     50
```

```
                        *       PHYSICAL DEVICE TABLE EQUS                                      MMEXEC    51
                        *                                                                       MMEXEC    52
                0005            EQU  ELU(5)                                                     MMEXEC    53
                0007            EQU  EWES(7)                                                    MMEXEC    54
                0008            EQU  EREQST(8)                                                  MMEXEC    55
                0009            EQU  ESTAT1(9)                                                  MMEXEC    56
                000D            EQU  MASLGN(13)                                                 MMEXEC    57
                000E            EQU  MASSEC(14)                                                 MMEXEC    58


                        *                                                                       MMEXEC    60
                        *       INTERNAL EQUS                                                   MMEXEC    61
                        *                                                                       MMEXEC    62
                001D            EQU  ERCODE(29)                                                 MMEXEC    63
                0048            EQU  FDDPTH(72)     FDD PHYSICAL DEVICE TABLE THREAD            MMEXEC    64
                0008            EQU  OPLVL(8)                                                   MMEXEC    65
                0003            EQU  MSKBNM(LPMSK)                                              MMEXEC    66
                0033    SECNUM  EQU  SECNUM(51)     USEABLE SECTOR CNT IN WORD-ADDR BUFFR 132*5305 MMEXEC132  2
                0006            EQU  SELCTF(06)                                                 MMEXEC    67
                0044            EQU  T18335(68)                                                 MMEXEC    68
```

```
                P0000  40FF            MASDRV STQ- I              INITIATOR FOR MM DRIVERS                    MMEXEC  70
                P0001  5867                   RTJ* LEVLIT         SET LEVEL FOR OPERATION                     MMEXEC  71
                P0002  1805                   JMP* SAMLV1         SAME LEVEL                                  MMEXEC  72
                P0003  54F4                   RTJ- ($F4)          MONI CALL                                   MMEXEC  73
                P0004  52F8                   ADC  $52F0+OPLVL    SCHEDULE AT PROPER LEVEL                    MMEXEC  74
                P0005  0007 P                 ADC  SAMLV1                                                     MMEXEC  75
                P0006  14EA                   JMP- ($EA)          CALL DISPATCHER                             MMEXEC  76
                P0007  40FF            SAMLV1 STQ- I              PDT TO I                                    MMEXEC  77
                P0008  5852                   RTJ* FINDIT         FIND IF IN CORE ALREADY                     MMEXEC  78
                P0009  0161                   SQP  1                                                          MMEXEC  79
                P000A  1811                   JMP* NOTIN                                                      MMEXEC  80
                P000B  CA00  0084             LDA  BFSTAT,Q       STATUS OF DRIVER, Q = INDEX OF BUFFER 0-1   MMEXEC  81
                P000D  013C                   SAM  EXIT           IT IS COMING, NOT THERE YET, EXIT           MMEXEC  82
                P000E  0115                   SAN  TAGY                                                       MMEXEC  83
                P000F  DA00  0080      IN     RAO  BFSTAT,Q       IN CORE Q = BUFFER INDEX                    MMEXEC  84
                P0011  C0FF            GOTOIT LDA- I                                                          MMEXEC  85
                P0012  6A00  007F             STA  BUFPDT,Q       UPDATE RECORD OF LAST PDT USED              MMEXEC  86
                P0014  C4FF            TAGY   LDA- (1)                                                        MMEXEC  87
                P0015  0500                   IIN  0                                                          MMEXEC  88
                P0016  6802                   STA* DRVLVL                                                     MMEXEC  89
                P0017  54F4                   RTJ- (AMONI)        SCHEDULE STARTER AT DRIVER LEVEL            MMEXEC  90
                P0018  520A            DRVLVL NUM  $520A          SCHEDULE REQUEST, Q = BUFFER INDEX          MMEXEC  91
                P0019  011E P                 ADC  STRTUP                                                     MMEXEC  92
                P001A  14EA            EXIT   JMP- (ADISP)        EXIT                                        MMEXEC  93
                P001B  E800  0081      NOTIN  LDQ  NXTBUF         INITIALIZE INDEX                            MMEXEC  94
                P001D  4800  0078             STQ  BUFNUM                                                     MMEXEC  95
                P001F  CA71                   LDA* BFSTAT,Q       GET BUFFER STATUS                           MMEXEC  96
                P0020  0105                   SAZ  GOT1           INACTIVE, CAN USE                           MMEXEC  97
                P0021  5832                   RTJ* SWITCH         SWITCH                                      MMEXEC  98
                P0022  CA6E                   LDA* BFSTAT,Q       BUFFER STATUS                               MMEXEC  99
                P0023  0102                   SAZ  GOT1           THIS ONE OPEN                               MMEXEC 100
                P0024  1800  0008             JMP  QUEIT                                                      MMEXEC 101
                P0026  5800  0106      GOT1   RTJ  CHECKL         CHECK LENGTH                                MMEXEC 102
                P0028  0AFE                   ENA  -1                                                         MMEXEC 103
                P0029  6A67                   STA* BFSTAT,Q       SET COMING                                  MMEXEC 104
                P002A  C0FF                   LDA- I                                                          MMEXEC 105
                P002B  6A67                   STA* BUFPDT,Q       SAVE PDT ADDRESS                            MMEXEC 106
                P002C  C10E                   LDA- MASSEC,I                                                   MMEXEC 107
                P002D  6A67                   STA* OCUPNT,Q       SAVE MASS MEMORY ADDRESS OCCUPANT           MMEXEC 108
                P002E  C10D                   LDA- MASLGN,I       LENGTH                                      MMEXEC 109
                P002F  6808                   STA* TEMP           TEMP, NO WORDS                              MMEXEC 110
                P0030  40FF                   STQ- I              INDEX TO I                                  MMEXEC 111
                P0031  2966                   MUI* SIGN,I         *   0  OR  -1                               MMEXEC 112
                P0032  8967                   ADD* BUFADR,I       TO GET START OF DRIVER                      MMEXEC 113
                P0033  696D                   STA* BUFSTR,I                                                   MMEXEC 114
                P0034  E96A                   LDQ* INCRMT,I       DETERMINE WHICH FREAD CALL                  MMEXEC 115
                P0035  6A0D                   STA* STAR1,Q        STARTING ADDRESS                            MMEXEC 116
                P0036  C000  0000             LDA  =N0                                                        MMEXEC 117
                             0037 P    TEMP   EQU  TEMP(*-1)                                                  MMEXEC 118
                P0038  6A09                   STA* N1,Q           STORE NO WORDS                              MMEXEC 119
                P0039  C95B                   LDA* OCUPNT,I       MM ADDRESS                                  MMEXEC 120
                P003A  6A0A                   STA* MM1,Q                                                      MMEXEC 121
                P003B  1A01                   JMP* READ1,Q                                                    MMEXEC 122
                P003C  54F4            READ1  RTJ- (AMONI)                                                    MMEXEC 123
                P003D  48F8                   ADC  $48F0+OPLVL    FREAD                                       MMEXEC 124
                P003E  0071 P                 ADC  ROCMP          CCOMPLETION                                 MMEXEC 125
```

```
                P003F 0000              NUM  0            THREAD                                  MMEXEC 126
                P0040 08C2              NUM  $8C2         LIB. UNIT IN LOCORE                     MMEXEC 127
                P0041 0000      N1      NUM  0            NO WORDS                                MMEXEC 128
                P0042 0000      STAR1   NUM  0            STARTING ADDRESS                        MMEXEC 129
                P0043 0000              NUM  0            MSB                                     MMEXEC 130
                P0044 0000      MM1     NUM  0            LSB                                     MMEXEC 131
                P0045 180A              JMP* SWICUM                                               MMEXEC 132
                P0046 54F4      READ2   RTJ- (AMONI)                                             MMEXEC 133
                P0047 48F8              ADC  $48F0+OPLVL  FREAD                                   MMEXEC 134
                P0048 0073 P            ADC  R1CMP        COMPLETION                              MMEXEC 135
                P0049 0000              NUM  0            THREAD                                  MMEXEC 136
                P004A 08C2              NUM  $8C2         LIB. UNIT                               MMEXEC 137
                P004B 0000      N2      NUM  0            NO WORDS                                MMEXEC 138
                P004C 0000      STAR2   NUM  0            STARTING ADDRESS                        MMEXEC 139
                P004D 0000              NUM  0            MSB                                     MMEXEC 140
                P004E 0000      MM2     NUM  0            LSB                                     MMEXEC 141
                P004F E0FF      SWICUM  LDQ- I            RESTORE BUFFER INDEX                    MMEXEC 142
                P0050 5803              RTJ* SWITCH                                               MMEXEC 143
                P0051 484C              STQ* NXTBUF       PROBABLE NEXT BUFFER TO USE             MMEXEC 144
                P0052 14EA              JMP- (ADISP)      EXIT                                    MMEXEC 145

                                        *                                                         MMEXEC 147
                                        *       SWITCH BUFFER SUBROUTINE                          MMEXEC 148
                                        *       INDEX IN Q                                        MMEXEC 149
                                        *       INDEX IN Q                                        MMEXEC 150
                                        *       ACCOUT FOR SINGEL OR DOUBLE BUFFER                MMEXEC 151
                P0053 0000      SWITCH  NUM  0            ENTRY                                   MMEXEC 152
                P0054 0D01              INQ  1            BUMP 1                                  MMEXEC 153
                P0055 0814              TRQ  A                                                    MMEXEC 154
                P0056 A003              AND- MSKBNM       MASK FOR MAX 0,1                        MMEXEC 155
                P0057 0822              TRA  Q            DUPLICATE                               MMEXEC 156
                P0058 683E              STA* BUFNUM       UPDATE CURRENT                          MMEXEC 157
                P0059 1CF9              JMP* (SWITCH)     RETURN                                  MMEXEC 158

                                        *                 5 CARDS DELETED                         MMEXEC 160
                P005A 0000      FINDIT  NUM  0            ENTRY                                   MMEXEC 161
                P005B 0500              IIN  0            INHIBIT, USED BY MASCON, MAY NOT BE OPLVL MMEXEC 162
                P005C 0C00              ENQ  0                                                    MMEXEC 163
                P005D CA37      LOOP1   LDA* OCUPNT,Q     GET OCCUPANTS MASSEC                    MMEXEC 164
                P005E B10E              EOR- MASSEC,I     DIFFERENCE WITH CURRENT DRIVER          MMEXEC 165
                P005F 0113              SAN  NOTHIS       NO MATCH                                MMEXEC 166
                P0060 4836      EXTFND  STQ* BUFNUM                                               MMEXEC 167
                P0061 0400              EIN  0                                                    MMEXEC 168
                P0062 1CF7              JMP* (FINDIT)     RETURN CALLER                           MMEXEC 169
                P0063 58EF      NOTHIS  RTJ* SWITCH                                               MMEXEC 170
                P0064 0101              SAZ  ALLCHK       ALL HAVE BEEN CHECK                     MMEXEC 171
                P0065 18F7              JMP* LOOP1        ONE MORE                                MMEXEC 172
                P0066 0CFF      ALLCHK  ENQ  -0           NO FIND IN BUFFERS, NOT IN CORE         MMEXEC 173
                P0067 18F8              JMP* EXTFND                                               MMEXEC 174
                                        *                                                         MMEXEC 175
                                        *       CORRECT PRIORITY LEVEL IF NECESSARY               MMEXEC 176
                                        *                                                         MMEXEC 177

                P0068 0000      LEVLIT  NUM  0            ENTRY                                   MMEXEC 179
```

```
                P0069  0500                IIN  0                                                  MMEXEC  180
                P006A  E0FF                LDQ- I              PDT ADDRESS                        MMEXEC  181
              5 P006B  C0EF                LDA- PRILVL         CURRENT SYSTEM LEVEL               MMEXEC  182
                P006C  09F7                INA  -OPLVL                                            MMEXEC  183
                P006D  0101                SAZ  LEVLRT         SAME PRIORITY                      MMEXEC  184
                P006E  D8F9                RAO* LEVLIT         NOT SAME, GO TO SCHED CALL         MMEXEC  185
                P006F  0400         LEVLRT EIN  0                                                  MMEXEC  186
             10 P0070  1CF7                JMP* (LEVLIT)       RETURN                             MMEXEC  187


                P0071  0A00         ROCMP  ENA  0               COMPLETION FOR  0                  MMEXEC  189
                P0072  1802                JMP* R1CMP+1                                           MMEXEC  190
             15 P0073  0A01         R1CMP  ENA  1               COMPLETION FOR  1                  MMEXEC  191
                P0074  0176                SQM  BADXFR         Q MINUS FOR I/O ERROR              MMEXEC  192
                P0075  0822                TRA  Q              NO ERROR                           MMEXEC  193
                P0076  CA1C                LDA* BUFPDT,Q                                          MMEXEC  194
                P0077  60FF                STA- I              RESTORE PDT ADDRESS                MMEXEC  195
             20 P0078  DA18                RAO* BFSTAT,Q       IN AN INACTIVE STATE               MMEXEC  196
                P0079  1800  FF94          JMP  IN                                                MMEXEC  197
                P007B  0822         BADXFR TRA  Q              FAILED TRANSFER                    MMEXEC  198
                P007C  CA16                LDA* BUFPDT,Q                                          MMEXEC  199
                P007D  60FF                STA- I              RESTORE PDT ADDRESS                MMEXEC  200
             25 P007E  0A00                ENA  0                                                 MMEXEC  201
                P007F  6A15                STA* OCUPNT,Q       MAKE UNOCCUPIED                    MMEXEC  202
                P0080  6A10                STA* BFSTAT,Q                                          MMEXEC  203
                P0081  54B5                RTJ- (AFNR)         FIND NEXT REQUEST, SET UP PDT      MMEXEC  204
                P0082  0B00                NOP  0                                                 MMEXEC  205
             30 P0083  C109                LDA- ESTAT1,I                                          MMEXEC  206
                P0084  B032                EOR- ONEBIT+15      SET ERROR BIT                      MMEXEC  207
                P0085  6109                STA- ESTAT1,I                                          MMEXEC  208
                P0086  E105                LDQ- ELU,I          LOGICAL UNIT                       MMEXEC  209
                P0087  0FA6                QLS  6                                                 MMEXEC  210
             35 P0088  0A1D                ENA  ERCODE         ERROR CODE                         MMEXEC  211
                P0089  0832                AAQ  Q              TOTAL CODE IN Q FOR ALTDEV         MMEXEC  212
                P008A  5400  7FFF X        RTJ+ LOG            GO LOG ERROR                       MMEXEC  213
                P008C  54F4                RTJ- (AMONI)        SCHEDULE                           MMEXEC  214
                P008D  52F8                ADC  $52F0+OPLVL    AT CURRENT LEVEL                   MMEXEC  215
             40 P008E  7FFF X              ADC  ALTDEV         ALTERNATE DEVICE HANDLER           MMEXEC  216

                                    *                                                              MMEXEC  218
                                    *   CONTINUE AS IF EXIT FROM DRIVER                            MMEXEC  219
                                    *   FIND ANY WAITING DRIVERS                                   MMEXEC  220
             45                     *                                                              MMEXEC  221
                P008F  1824                JMP* MASEXT                                            MMEXEC  222


                                    *                                                              MMEXEC  224
             50                     *   WORKING AREA                                               MMEXEC  225
                                    *                                                              MMEXEC  226

                P0090  0000         BFSTAT NUM  0               BUFFER STATUS- 0 = INACTIVE        MMEXEC  228
                P0091  0000                NUM  0                             1 = COMING OR ACTIVE MMEXEC  229
             55
                P0092  0000         BUFPDT ADC  0,0             PDT FOR RESPECTIVE BUFFER          MMEXEC  231
                P0093  0000

                P0094        0002   OCUPNT BZS  OCUPNT(2)       MM ADDRESS OF DRIVER IN BUFFER     MMEXEC  233
```

```
                P0096  0000          BUFNUM NUM  0             BUFFER BEING PROCESSED,  0-1                MMEXEC  235
                P0097  0000          SIGN   NUM  0,-1          * LENGTH + BUFADR = START OF DRIVER       MMEXEC  237
                P0098  FFFE
                P0099  7FFF X        BUFADR ADC  BUFF          BUFFER ADDRESSES,                         MMEXEC  239
                P009A  7FFF X               ADC  BUFFE         SEE -SIGN-                                MMEXEC  240
                P009B  0000          NXTQUE NUM  0             NEXT QUE SLOT                             MMEXEC  242
                P009C  0000          NXTXCT NUM  0             NEXT TO EXECUTE                           MMEXEC  243
                P009D  0000          NXTBUF NUM  0             NEXT BUFFER TO USE, 0-1                   MMEXEC  245
                P009E  0000          INCRMT ADC  0,READ2-READ1  INCREMENT TO PROPER READ CALL             MMEXEC  247
                P009F  000A
                P00A0  0099 X        BUFSTR ADC  BUFF,*-*      START OF DRIVER                           MMEXEC  249
                P00A1  0000
                P00A2        0008    QUE    BZS  QUE(8)        PDT ADDRESSES OF WAITING DRIVERS          MMEXEC  251
                P00AA        0008    QUEMM  BZS  QUEMM(8)      MM ADDRESS OF PDT IN QUE                  MMEXEC  253
                                     *                                                                    MMEXEC  254
                                     *                                                                    MMEXEC  256
                                     *      RELEASE BUFFER OF PDT IN --Q--, USED BY ADEV                  MMEXEC  257
                                     *                                                                    MMEXEC  258
                P00B2  40FF          RELBYQ STQ- I             SAVE Q FOR RELEASE                        MMEXEC  259
                                     *      DRIVERS EXIT HERE WHEN THEY HAVE SERVICED                     MMEXEC  261
                                     *      ALL REQUESTS ON ALL LOGICAL UNITS THEY CONTROL                MMEXEC  262
                                     *                                                                    MMEXEC  263
                                     *      I -- CONTAINS PDT ADDRESS                                     MMEXEC  264
                                     *                                                                    MMEXEC  265
                P00B3  58B4          MASEXT RTJ* LEVLIT        CORRECT PRIORITY LEVEL                    MMEXEC  266
                       00B3 P               EQU  MAS300(MASEXT)                                         MMEXEC  267
                P00B4  1805                 JMP* SAMLV2        SAME LEVEL                                MMEXEC  268
                P00B5  54F4                 RTJ- ($F4)         MONI CALL                                 MMEXEC  269
                P00B6  52F8                 ADC  $52F0+OPLVL   SCHEDULE AT PROPER LEVEL                  MMEXEC  270
                P00B7  00B9 P               ADC  SAMLV2                                                  MMEXEC  271
                P00B8  14EA                 JMP- ($EA)         CALL DISPATCHER                           MMEXEC  272
                P00B9  40FF          SAMLV2 STQ- I             PDT TO I                                  MMEXEC  273
                P00BA  589F                 RTJ* FINDIT        FIND BUFFER CONTAINING DRIVER             MMEXEC  274
                P00BB  0164                 SOP  OKIN                                                    MMEXEC  275
                P00BC  C0FF                 LDA- I                                                       MMEXEC  276
                P00BD  6802                 STA* NOFIND        SAVE PDT FOR DEBUG                        MMEXEC  277
                P00BE  14EA                 JMP- (ADISP)                                                 MMEXEC  278
                P00BF  0000          NOFIND ADC  *-*           LAST PDT OF DRIVER RELEASING WHEN NOT IN  MMEXEC  279
                P00C0  CACF          OKIN   LDA* BFSTAT,Q                                               MMEXEC  280
                P00C1  48DB                 STQ* NXTBUF                                                  MMEXEC  281
                P00C2  0105                 SAZ  ALDONE                                                  MMEXEC  282
                P00C3  09FE                 INA  -1           DECREMENT REQUEST                          MMEXEC  283
                P00C4  6ACB                 STA* BFSTAT,Q                                              MMEXEC  284
                P00C5  0102                 SAZ  ALDONE       NO NEW WAITING                           MMEXEC  285
                P00C6  1800  FF49    OKIN2  JMP  GOTOIT                                                 MMEXEC  286
                P00C8  E400  7FFF X  ALDONE LDQ+ LOGIA         GET NO. LOGICAL UNITS                     MMEXEC  287
```

```
                        00C9 P  ALOGIA EQU  ALOGIA(*-1)  ADDRESS OF LOGIA                          MMEXEC  288
          P00CA  4800   FF6B    LOOP2  STQ  TEMP                                                 MMEXEC  289
    5     P00CC  EEFC          LDQ* (ALOGIA),Q  GET PDT ADDRESS                                  MMEXEC  290
          P00CD  C20E          LDA- MASSEC,Q    GET SECTOR                                       MMEXEC  291
          P00CE  B10E          EOR- MASSEC,I    DIFFERENCE OF ONE EXITING                        MMEXEC  292
          P00CF  0101          SAZ  TAG000      SKIP IF MATCH                 123*4885 MMEXEC132  3
          P00D0  1818          JMP* NOSAME      JUMP IF NO MATCH              123*4885 MMEXEC132  4
   10     P00D1  C20D          TAG000 LDA- MASLGN,Q  CHECK LENGTHS SAME TOO   123*4885 MMEXEC132  5
          P00D2  B10D          EOR- MASLGN,I                                                     MMEXEC  294
          P00D3  0101          SAZ  TAG001                                                       MMEXEC  295
          P00D4  1814          JMP* NOSAME      THIS DEVICE DOES NOT MATCH RELEASING             MMEXEC  296
                        00D5 P  TAG001 EQU  TAG001(*)                                           MMEXEC  297
   15     P00D5  0500          IIN  0                                                            MMEXEC  298
          P00D6  C205          LDA- ELU,Q                                                        MMEXEC  299
          P00D7  0106          SAZ  NOASGN      SKIP IF UNIT NOT ACTIVE                          MMEXEC  300
          P00D8  C208          LDA- 8,Q         GET REQUEST STATUS THIS PDT                      MMEXEC  301
          P00D9  0134          SAM  NOASGN      SKIP IF OPERATION IN PROGRESS                    MMEXEC  302
   20     P00DA  40FF          STQ- I           SAVE NEW PDT ADDRESS                             MMEXEC  303
          P00DB  E8C1          LDQ* NXTBUF      RESTORE INDEX                                    MMEXEC  304
          P00DC  DAB3          RAO* BFSTAT,Q    BUMP INTERNAL ACTIVE STATUS                      MMEXEC  305
          P00DD  18E8          JMP* OKIN2       JUST REACTIVATED, GO TO DRIVER                   MMEXEC  306
                               *                6 CARDS DELETED                                  MMEXEC  307
   25                   00DE P  NOASGN EQU  NOASGN(*)                                           MMEXEC  308
          P00DE  C000  0000 P  LDA  =XMASDRV    SAME RESET ADDRESS                               MMEXEC  309
          P00E0  6201          STA- 1,Q         --- INITIATOR                                    MMEXEC  310
          P00E1  C000  0155 P  LDA  =XMASCON                                                    MMEXEC  311
          P00E3  6202          STA- 2,Q         --- CONTINUATOR                                  MMEXEC  312
   30     P00E4  C000  0189 P  LDA  =XMASERR                                                    MMEXEC  313
          P00E6  6203          STA- 3,Q         --- DIAGNOSTIC TIME OUT                          MMEXEC  314
          P00E7  0400          EIN  0                                                            MMEXEC  315
          P00E8  E800   FF4D   NOSAME LDQ  TEMP                                                 MMEXEC  316
          P00EA  0DFE          INQ  -1          DECREMENT COUNTER                                MMEXEC  317
   35     P00EB  0141          SOZ  DONRES      ALL SEARCHED                                     MMEXEC  318
          P00EC  18DD          JMP* LOOP2       MORE TO SEARCH                                   MMEXEC  319
          P00ED  E8AE          DONRES LDQ* NXTXCT  INDEX OF NEXT TO EXECUTE                     MMEXEC  320
          P00EE  CAB3          LDA* QUE,Q                                                        MMEXEC  321
          P00EF  0115          SAN  ONEWAT                                                       MMEXEC  322
   40     P00F0  E8A5          LDQ* BUFNUM                                                       MMEXEC  323
          P00F1  5800   FF60   RTJ  SWITCH                                                      MMEXEC  324
          P00F3  48A9          STQ* NXTBUF                                                       MMEXEC  325
          P00F4  14EA          JMP- (ADISP)     NONE QUED, EXIT                                  MMEXEC  326
          P00F5  60FF          ONEWAT STA- I                                                     MMEXEC  327
   45     P00F6  0A00          ENA  0                                                            MMEXEC  328
          P00F7  6AAA          STA* QUE,Q       CLEAR QUEUE SLOT                                 MMEXEC  329
          P00F8  582F          RTJ* BUMPQ                                                        MMEXEC  330
          P00F9  68A2          STA* NXTXCT      UPDATE                                           MMEXEC  331
          P00FA  E89B          LDQ* BUFNUM      GET BUFFER NUMBER                                MMEXEC  332
   50     P00FB  1800   FF29   JMP  GOT1                                                        MMEXEC  333


                               *                                                                MMEXEC  335
   55                          *     QUE IT ROUTINE                                             MMEXEC  336
                               *                                                                MMEXEC  337

          P00FD  E89E          QUEIT  LDQ* NXTXCT   GET INITIAL INDEX                           MMEXEC  339
          P00FE  CAA3          LOOP3  LDA* QUE,Q                                                MMEXEC  340
```

```
                P00FF  0117                SAN  OCCPID                                                  MMEXEC  341
                P0100  C0FF                LDA- I              UNOCCUPIED QUE SLOT, AND NO PREVIOUS ENTRY MMEXEC  342
          5     P0101  6AA0                STA* QUE,Q          PUT THIS ONE IN IT                       MMEXEC  343
                P0102  C10E                LDA- MASSEC,I       SAVE MASS MEMORY ADDRESS                 MMEXEC  344
                P0103  6AA6                STA* QUEMM,Q                                                 MMEXEC  345
                P0104  5823                RTJ* BUMPQ                                                   MMEXEC  346
                P0105  4895                STQ* NXTQUE                                                  MMEXEC  347
         10     P0106  14EA                JMP- (ADISP)        EXIT                                     MMEXEC  348
                P0107  CAA2         OCCPID LDA* QUEMM,Q                                                 MMEXEC  349
                P0108  B10E                EOR- MASSEC,I       DIFFERENCE OF MM ADDRESSES               MMEXEC  350
                P0109  0111                SAN  BMPQUE         NOT SAME, BUT                            MMEXEC  351
                P010A  14EA                JMP- (ADISP)        THIS DRIVER ALREADY QUED, EXIT           MMEXEC  352
         15     P010B  581C         BMPQUE RTJ* BUMPQ                                                   MMEXEC  353
                P010C  B88F                EOR* NXTXCT         TEST ALL SLOTS CHECKED                   MMEXEC  354
                P010D  0101                SAZ  NOQUE          ALL CHECKED                              MMEXEC  355
                P010E  18EF                JMP* LOOP3                                                   MMEXEC  356
                                           *                                                            MMEXEC  357
         20                                *     SHOULD WAIT IN SCHEDULE STACK                          MMEXEC  358
                                           *                                                            MMEXEC  359

                P010F  E0FF         NOQUE  LDQ- I              PASS PDT ADDRESS                         MMEXEC  361
                P0110  54F4         DOWNLK RTJ- (AMONI)                                                 MMEXEC  362
         25     P0111  5202                NUM  $5202          SCHEDULE LEVEL 2 WAIT                    MMEXEC  363
                P0112  0114 P              ADC  SCRCHQ                                                  MMEXEC  364
                P0113  14EA                JMP- (ADISP)                                                 MMEXEC  365

         30     P0114  40FF         SCRCHQ STQ- I              LEVEL 2 WAITING FOR QUE SLOT             MMEXEC  367
                P0115  E885                LDQ* NXTQUE                                                  MMEXEC  368
                P0116  CA8B                LDA* QUE,Q                                                   MMEXEC  369
                P0117  E0FF                LDQ- I              RESTORE PDT                              MMEXEC  370
                P0118  0101                SAZ  BACKUP         OPEN BACK                                MMEXEC  371
         35     P0119  18F6                JMP* DOWNLK         RESCHEDULE                               MMEXEC  372
                P011A  1800  FEE4   BACKUP JMP  MASDRV         QUEUE OPEN, GO QUE THIS DRIVER           MMEXEC  373
                P011C  40FF                STQ- I              PDT TO I                                 MMEXEC  374
                P011D  18DF                JMP* QUEIT          GO QUE IT                                MMEXEC  375
                                           *                                                            MMEXEC  376
         40                                *     START UP DRIVER                                        MMEXEC  377
                                           *     Q = PDT ADDR.                                          MMEXEC  378
                                           *     A = ADDRESS OF DRIVER                                  MMEXEC  379
                                           *                                                            MMEXEC  380
                P011E  0500         STRTUP IIN  0                                                       MMEXEC  381
         45     P011F  CA00  FF7F          LDA  BUFSTR,Q       GET STARTING ADDRESS                     MMEXEC  382
                P0121  6805                STA* GOADR                                                   MMEXEC  383
                P0122  EA00  FF6E          LDQ  BUFPDT,Q       GET PDT                                  MMEXEC  384
                P0124  0400                EIN  0                                                       MMEXEC  385
                P0125  1400  0000          JMP+ 0                                                       MMEXEC  386
         50                  0126 P GOADR  EQU  GOADR(*-1)                                             MMEXEC  387
                P0127  0000         BUMPQ  NUM  0                                                       MMEXEC  388
                P0128  0814                TRQ  A                                                       MMEXEC  389
                P0129  0901                INA  1              BUMP INDEX                               MMEXEC  390
                P012A  A005                AND- LPMSK+2                                                 MMEXEC  391
         55     P012B  0822                TRA  Q                                                       MMEXEC  392
                P012C  1CFA                JMP* (BUMPQ)                                                 MMEXEC  393
```

```
                                *                                                          MMEXEC  395
                                *     ROUTINE TO CHECK LENGTH OF ALL DRIVERS               MMEXEC  396
                                *          USING BUFF                                     MMEXEC  397
                                *                                                          MMEXEC  398

P012D 0000          CHECKL NUM  0          SUBROUTINE ENTRY                                MMEXEC  400
P012E C800 FF6A           LDA  BUFADR+1    END ADDRESS                                     MMEXEC  401
P0130 9800 FF67           SUB  BUFADR      = TOTAL AVAIL                                   MMEXEC  402
P0132 910D                SUB- MASLGN,I    MINUS LENGTH THIS DRIVER                        MMEXEC  403
P0133 0122                SAP  WILFIT      WILL FIT SOME TIME                              MMEXEC  404
P0134 1800 FF46           JMP  BADXFR+1    REPORT ERROR AS MM FAIL                         MMEXEC  405
P0136 810D          WILFIT ADD- MASLGN,I   TOTAL AVAILABLE                                 MMEXEC  406
P0137 EA00 FF59           LDQ  BUFPDT,Q    PDT ADDRESS OF CURRENT OCCUPANT                 MMEXEC  407
P0139 981B                SUB* NUSED       MINUS WORDS IN USE                              MMEXEC  408
P013A 0141                SQZ  LABEL1      NOT ASSIGNED TO A DRIVER                        MMEXEC  409
P013B 820D                ADD- MASLGN,Q    PLUS WORDS USED BY OCCUPANT                     MMEXEC  410
P013C 910D          LABEL1 SUB- MASLGN,I   MINUS WORDS FOR NEW DRIVER                      MMEXEC  411
P013D 0135                SAM  NOTNUF                                                      MMEXEC  412
P013E C816                LDA* NUSED       TOTAL USED                                      MMEXEC  413
P013F 0141                SQZ  LABEL2      BUFFER NOT USED                                 MMEXEC  414
P0140 920D                SUB- MASLGN,Q    MINUS CURRENT LENGTH                            MMEXEC  415
P0141 810D          LABEL2 ADD- MASLGN,I   PLUS NEW LENGTH                                 MMEXEC  416
P0142 180E                JMP* GOTNUF      NEW NUSED                                       MMEXEC  417
P0143 0A01          NOTNUF ENA  1          NEW DRIVER BIGGER THAN OLD, OVERLAP             MMEXEC  418
P0144 B800 FF50           EOR  BUFNUM      TEST OTHER DRIVER                               MMEXEC  419
P0146 0822                TRA  Q                                                           MMEXEC  420
P0147 CA00 FF47           LDA  BFSTAT,Q    GET ACTIVE STATUS                               MMEXEC  421
P0149 0101                SAZ  LABEL3      INACTIVE                                        MMEXEC  422
P014A 18B2                JMP* QUEIT       ACTIVE, NEW ONE NO FIT NOW                      MMEXEC  423
P014B 6A00 FF47     LABEL3 STA  OCUPNT,Q   FITS, WILL OVERLAY OTHER PARTIALLY              MMEXEC  424
P014D 6A00 FF43           STA  BUFPDT,Q                                                    MMEXEC  425
P014F C10D                LDA- MASLGN,I    NEW DRIVER LENGTH TOTAL USED                    MMEXEC  426
P0150 6804          GOTNUF STA* NUSED                                                      MMEXEC  427
P0151 E800 FF43           LDQ  BUFNUM      RESTORE ORIGINAL INDEX                          MMEXEC  428
P0153 1CD9                JMP* (CHECKL)    RETURN                                          MMEXEC  429
P0154 0000          NUSED NUM  0           NUMBER OF WORDS IN USE                          MMEXEC  430

                                *                                                          MMEXEC  432
                                *     THIS ROUTINE RESPONDS TO INTERRUPTS                  MMEXEC  433
                                *     FOR DRIVERS WHICH ARE NOT CURRENTLY IN CORE          MMEXEC  434
                                *                                                          MMEXEC  435
                                *     THIS MUST BE CONSIDERED A GHOST INTERRUPT SITUATION  MMEXEC  436
                                *                                                          MMEXEC  437
                                *     OR THE INTERRUPT RESPONSE IS USING A PDT             MMEXEC  438
                                *     ADDRESS OTHER THAN THE ACTIVE ONE                    MMEXEC  439

P0155 0500          MASCON IIN  0          IIN FOR FINDIT                                  MMEXEC  441
P0156 40FF                STQ- I           PDT TO I                                        MMEXEC  442
P0157 4831                STQ* LASTPT      DIAG SAVE                                       MMEXEC  443
P0158 5800 FF00           RTJ  FINDIT      DETERMINE IF DRIVER IN CORE                     MMEXEC  444
P015A 0500                IIN  0           IIN AGAIN, FINDIT DOES EIN                      MMEXEC  445
P015B 0171                SQM  NOTINC                                                      MMEXEC  446
P015C 181F                JMP* OKINI       IN, BUT PDT MUST BE OTHER THAN INT RESPONSE     MMEXEC  447

                                *     NOT IN CORE                                          MMEXEC  449
```

```
                    015D P  NOTINC EQU  NOTINC(*)                                                    MMEXEC  451
 5  P015D  0400                    EIN  0                                                           MMEXEC  452
    P015E  E107                    LDQ- EWES,I          GET EQUIP CODE                              MMEXEC  453
    P015F  C01D                    LDA- $1D                                                         MMEXEC  454
    P0160  08B2                    LAQ Q                MASK CONVERTER  $F100                       MMEXEC  455
    P0161  F02E                    ADQ- $2E             ADD $800                                    MMEXEC  456
10  P0162  0201                    INP  1               NMA AND TERMINATE IF BUFFERED               MMEXEC  457
    P0163  0B00                    NOP  0                                                           MMEXEC  458
    P0164  E107                    LDQ- EWES,I          GET EQUIP CODE                              MMEXEC  459
    P0165  0A02                    ENA  2                                                           MMEXEC  460
    P0166  0301                    OUT  1               ACK INTERRUPT                               MMEXEC  461
15  P0167  0B00                    NOP  0                                                           MMEXEC  462
    P0168  D81F                    RAO* INTCNT          BUMP COUNT                                  MMEXEC  463
    P0169  C108                    LDA- EREQST,I        CHECK TYPE CODE FOR FDD DEVICE              MMEXEC  464
    P016A  0F44                    ARS  4                                                           MMEXEC  465
    P016B  A009                    AND- LPMSK+6                                                     MMEXEC  466
20  P016C  09BB                    INA  -T18335                                                     MMEXEC  467
    P016D  011C                    SAN  NOTFDD          SKIP IF NOT FDD                             MMEXEC  468
    P016E  6133                    STA- SECNUM,I        INDICATE WORD-ADDR. BUFFER NOT GOOD  132*5305 MMEXEC132   6
    P016F  0C06                    ENQ  SELCTF          SELECT UNIT AND EOP AND CLEAR INTERRUPT     MMEXEC  469
    P0170  F107                    ADQ- EWES,I          ADD EQUIPMENT CODE FOR UNIT 0               MMEXEC  470
25  P0171  0301                    OUT  1                                                           MMEXEC  471
    P0172  0B00                    NOP                                                              MMEXEC  472
    P0173  E148                    LDQ- FDDPTH,I        REPEAT FOR OTHER UNIT IF IT EXIST           MMEXEC  473
    P0174  40FF                    STQ- I                                                           MMEXEC  474
    P0175  6133                    STA- SECNUM,I        INDICATE WORD-ADDR. BUFFER NOT GOOD  132*5305 MMEXEC132   7
30  P0176  0C06                    ENQ  SELCTF                                                      MMEXEC  475
    P0177  F107                    ADQ- EWES,I                                                      MMEXEC  476
    P0178  0301                    OUT  1                                                           MMEXEC  477
    P0179  0B00                    NOP                                                              MMEXEC  478
    P017A  14EA            NOTFDD  JMP- (ADISP)                                                     MMEXEC  479
35

    P017B  CA00  FF13      OKIN1   LDA  BFSTAT,Q                                                    MMEXEC  481
    P017D  0111                    SAN  1               IS ACTIVE                                   MMEXEC  482
    P017E  18DE                    JMP* NOTINC          A GHOST TREAT AS NOT IN CORE                MMEXEC  483
40  P017F  EA00  FF11              LDQ  BUFPDT,Q        USE PDT ADDRESS LAST USED                   MMEXEC  484
    P0181  C202                    LDA- 2,Q             GET CONTINUATOR                             MMEXEC  485
    P0182  6804                    STA* ADDCON                                                      MMEXEC  486
    P0183  E0FF                    LDQ- I               RESTORE PDT                                 MMEXEC  487
    P0184  0400                    EIN  0                                                           MMEXEC  488
45  P0185  1400  0000              JMP+ 0               JMP TO CURRENTLY DEFINED CONTINUATOR        MMEXEC  489
                    0186 P  ADDCON EQU  ADDCON(*-1)                                                 MMEXEC  490
    P0187  0000            INTCNT  NUM  0               COUNTER OF GI                               MMEXEC  491
    P0188  0000            LASTPT  NUM  0               LAST PDT ADDRESS OF GI                      MMEXEC  492

50

                           *                                                                        MMEXEC  494
                           *       THIS ROUTINE RESPONDS TO A DIAGNOSTIC TIMEOUT                    MMEXEC  495
                           *       OF A DRIVER WHICH IS NOT RESIDENT IN THE BUFFER                  MMEXEC  496
55                         *                                                                        MMEXEC  497
    P0189  4808            MASERR  STQ* LASTER                                                      MMEXEC  499
    P018A  E205                    LDQ- ELU,Q                                                       MMEXEC  500
    P018B  0FA6                    OLS  6               ERROR CODE OF 0                             MMEXEC  501
    P018C  D806                    RAO* ERRCNT                                                      MMEXEC  502
```

```
      P018D   5400   008B X          RTJ+ LOG        GO LOG ERROR                                MMEXEC  503
      P018F   1400   008E X          JMP+ ALTDEV                                                 MMEXEC  504
5     P0191   0000          LASTER NUM  0             PDT ADDRESS OF LAST TIMEOUT                 MMEXEC  505
      P0192   0000          ERRCNT NUM  0             COUNT OF TIMEOUT ERRORS                     MMEXEC  506
      P0193                 END                                                                   MMEXEC  507

                    66743B STORAGE USED          511 STATEMENTS      112 SYMBOLS
                      6400 ASSEMBLY            3.220 SECONDS         368 REFERENCES
```

COMPLETE REFERENCE MAP.

ADDCON	0186		11/42	11/46 Q					
ADISP	00EA	ABSOLUTE	2/34 Q	5/22	8/43	9/14	11/34		
			4/27	7/50	9/10	9/27			
AFNR	00B5	ABSOLUTE	2/33 Q	6/28					
ALDONE	00C8		7/54	7/57	7/59 L				
ALLCHK	0066		5/51	5/53 L					
ALOG1A	00C9		7/60 Q	8/05					
ALTDEV	0190	*EXTERNAL*	2/54 X	6/40	12/04				
AMONI	00F4	ABSOLUTE	2/36 Q	4/24	4/57	5/10	6/38	9/24	
BACKUP	011A		9/34	9/36 L					
BADXFR	007B		6/16	6/22 L	10/13				
BFSTAT	0090		4/15	4/30	4/38	6/27	7/52	8/22	11/37
			4/18	4/33	6/20	6/53 L	7/56	10/29	
BMPQUE	010B		9/13	9/15 L					
BUFADR	0099		4/47	7/09 L	10/09	10/10			
BUFF	00A0	*EXTERNAL*	2/56 X	7/09	7/20				
BUFFE	009A	*EXTERNAL*	2/56 X	7/10					
BUFNUM	0096		4/29	5/36	5/47	7/04 L	8/40	8/49	10/27 10/36
BUFPDT	0092		4/20	6/18	6/56 L	10/15	11/40		
			4/40	6/23	9/47	10/33			
BUFSTR	00A0		4/48	7/20 L	9/45				
BUMPO	0127		8/47	9/08	9/15	9/51 L	9/56		
CHECKL	012D		4/36	10/08 L	10/37				
DONRES	00ED		8/35	8/37 L					
DOWNLK	0110		9/24 L	9/35					
DRVLVL	0018		4/23	4/25 L					
ELU	0005	ABSOLUTE	3/05 Q	6/33	8/16	11/57			
ERCODE	001D	ABSOLUTE	3/16 Q	6/35					
ERFQST	0008	ABSOLUTE	3/07 Q	11/17					
ERRCNT	0192		11/59	12/06 L					
ESTAT1	0009	ABSOLUTE	3/08 Q	6/30	6/32				
EWES	0007	ABSOLUTE	3/06 Q	11/06	11/12	11/24	11/31		
EXIT	001A		4/16	4/27 L					
EXTEND	0060		5/47 L	5/54					
FDDPTH	0048	ABSOLUTE	3/17 Q	11/27					
FINDIT	005A		4/12	5/41 L	5/49	7/46	10/54		
GOADR	0126		9/46	9/50 Q					
GOTNUF	0150		10/25	10/35 L					
GOTOIT	0011		4/19 L	7/58					
GOT1	0026		4/31	4/34	4/36 L	8/50			
I	00FF	-SYSTEM-	4/04	4/21	5/19	6/24	7/48	9/04	9/33 11/28
			4/11	4/39	6/04	7/31	8/20	9/23	9/37 11/43
			4/19	4/45	6/19	7/45	8/44	9/30	10/52
IN	000F		4/18 L	6/21					
INCRMT	009E		4/49	7/17 L					
INTCNT	0187		11/16	11/47 L					
LABEL1	013C		10/17	10/19 L					
LABEL2	0141		10/22	10/24 L					
LABEL3	014B		10/30	10/32 L					
LASTER	0191		11/56	12/05 L					
LASTPT	0188		10/53	11/48 L					
LEVLIT	0068		4/05	5/59 L	6/08	6/10	7/38		
LEVLRT	006F		6/07	6/09 L					
LOG	018E	*EXTERNAL*	2/55 X	6/37	11/60				
LOG1A	00C9	*EXTERNAL*	2/54 X	7/59					
LOOP1	005D		5/44 L	5/52					
LOOP2	00CA		8/04 L	8/36					

LOOP3	00FE		8/59 L	9/18					
LPMSK	0003	ABSOLUTE	2/31 Q	3/19	9/54	11/19			
MASCON	0155		2/44 E	8/28	10/51 L				
MASDRV	0000		2/43 E	4/04 L	8/26	9/36			
MASERR	0189		2/45 E	8/30	11/56 L				
MASEXT	00B3		2/43 E	6/46	7/38 L	7/39			
MASLGN	000D	ABSOLUTE	3/09 Q	8/10	10/11	10/18	10/23	10/34	
			4/43	8/11	10/14	10/19	10/24		
MASSEC	000E	ABSOLUTE	3/10 Q	4/41	5/45	8/06	8/07	9/06	9/12
MAS300	00B3		2/47 E	7/39 Q					
MM1	0044		4/55	5/08 L					
MM2	004E		5/18 L						
MSKRNM	0003	ABSOLUTE	3/19 Q	5/34					
NOASGN	00DE		8/17	8/19	8/25 Q				
NOFIND	00BF		7/49	7/51 L					
NOQUE	010F		9/17	9/23 L					
NOSAME	00E8		8/09	8/13	8/33 L				
NOTFDD	017A		11/21	11/34 L					
NOTHIS	0063		5/46	5/50 L					
NOTIN	001B		4/14	4/28 L					
NOTINC	015D		10/56	11/04 Q	11/39				
NOTNUF	0143		10/20	10/26 L					
NUSED	0154		10/16	10/21	10/35	10/38 L			
NXTBUF	009D		4/28	5/21	7/15 L	7/53	8/21	8/42	
NXTQUE	009B		7/12 L	9/09	9/31				
NXTXCT	009C		7/13 L	8/37	8/48	8/58	9/16		
N1	0041		4/53	5/05 L					
N2	004B		5/15 L						
OCCPID	0107		8/60	9/11 L					
OCUPNT	0094		4/42	4/54	5/44	6/26	6/59 B	10/32	
OKIN	00C0		7/47	7/52 L					
OKIN1	017B		10/57	11/37 L					
OKIN2	00C6		7/58 L	8/23					
ONEBIT	0023	ABSOLUTE	2/32 Q	6/31					
ONEWAT	00F5		8/39	8/44 L					
OPLVL	0008	ABSOLUTE	3/18 Q	4/08	4/58	5/11	6/06	6/39	7/42
PRILVL	00EF	ABSOLUTE	2/35 Q	6/05					
QUE	00A2		7/23 B	8/38	8/46	8/59	9/05	9/32	
QUEJT	00FD		4/35	8/58 L	9/38	10/31			
QUEMM	00AA		7/25 B	9/07	9/11				
READ1	003C		4/56	4/57 L	7/17				
READ2	0046		5/10 L	7/17					
RELBYO	00B2		2/48 E	7/31 L					
ROCMP	0071		4/59	6/13 L					
RICMP	0073		5/12	6/14	6/15 L				
SAMLV1	0007		4/06	4/09	4/11 L				
SAMLV2	00B9		7/40	7/43	7/45 L				
SCRCHQ	0114		9/26	9/30 L					
SECNUM	0033	ABSOLUTE	3/20 Q	11/22	11/29				
SELCTF	0006	ABSOLUTE	3/21 Q	11/23	11/30				
SIGN	0097		4/46	7/06 L					
STAR1	0042		4/50	5/06 L					
STAR2	004C		5/16 L						
STRTUP	011E		4/26	9/44 L					
SWICUM	004F		5/09	5/19 L					
SWITCH	0053		4/32	5/20	5/31 L	5/37	5/50	8/41	
TAGY	0014		4/17	4/21 L					

COMPLETE REFERENCE MAP.

TAG000	00D1		8/08	8/10 L		
TAG001	00D5		8/12	8/14 Q		
TEMP	0037		4/44	4/52 Q	8/04	8/33
T18335	0044	ABSOLUTE	3/22 Q	11/20		
WILFIT	0136		10/12	10/14 L		

1

STORAGE ALLOCATION.

ADDRESS	LENGTH	BINARY CONTROL CARDS.			
0000	0053	NAM	TRVEC	DECK-ID M14 MSOS 5.0	SUMMARY
0053		END			

ENTRY POINT NAMES AND ADDRESSES.

AUTFA -- 0011	IUP -- 000E	LOADIN -- 001E	SWTCH -- 001D
AUTFB -- 0012	JBCFGZ -- 0026	LOCF -- 001B	TRANV -- 0000
AUTF9 -- 0010	JBCNCL -- 0020	LPTRS -- 001C	TRNVEC -- 0004
BATCLU -- 000D	JBCNFG -- 0036	MIBUF -- 0003	TRVEC -- 0000
COMPV4 -- 0044	JBPROE -- 0001	NSTACK -- 0005	UNPIO -- 000A
ERRMSG -- 0002	JKIN -- 001F	PARBV4 -- 0008	UNPIOF -- 000C
FILE1 -- 0017	JOBIND -- 0009	PRORET -- 0015	UNPTIM -- 000B
FILE2 -- 0018	JPRETN -- 0038	RECOV -- 0006	VINPV4 -- 0014
FILE3 -- 0019	JPRET1 -- 0037	RELS1A -- 0007	
FILE4 -- 001A	JPSWT -- 0016	SCHERR -- 003F	
INPTV4 -- 000F	LIBET -- 0005	SPASW -- 0013	

EXTERNAL SYMBOLS.

PROTEC

```
                                NAM  TRVEC        DECK-ID M14  MSOS 5.0            SUMMARY-116 TRVEC132    1
                              *  MASS STORAGE OPERATING SYSTEM VERSION 5.0                        TRVEC      3
                              *  SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                     TRVEC      4
                              *  COPYRIGHT CONTROL DATA CORPORATION 1976                          TRVEC      5


                              *  TRANSFER VECTOR                                                  TRVEC      7
                    0000 P       ENT   TRVEC                                                     TRVEC      8
                    0000 P       EQU   TRVEC(*)                                                  TRVEC      9


                    000C P       ENT  UNPIOF                                                     TRVEC     12
                    0008 P       ENT  PARBV4                                                     TRVEC     13
                    0044 P       ENT  COMPV4                                                     TRVEC     14
                    000F P       ENT  INPTV4                                                     TRVEC     15
                    003F P       ENT  SCHERR        SCHEDULER ERROR ENTRY            **MSOS 4.0 TRVEC     16
                    0009 P       ENT  JOBIND                                                     TRVEC     17
                    0005         ENT  NSTACK                                                     TRVEC     18
                    0000 P       ENT  TRANV                                                      TRVEC     19
                    000A P       ENT  UNPIO                                                      TRVEC     20
                    000E P       ENT   IUP                                                       TRVEC     21
                    0013 P       ENT  SPASW                                                      TRVEC     22
                    0005 P       ENT   LIBET                                                     TRVEC     23
                    0017 P       ENT   FILE1                                                     TRVEC     24
                    0018 P       ENT   FILE2                                                     TRVEC     25
                    0019 P       ENT   FILE3,FILE4                                               TRVEC     26
                    001A P
                    0006 P       ENT   RECOV                                                     TRVEC     27
                    001B P       ENT   LOCF,LPTRS                                                TRVEC     28
                    001C P
                    001D P       ENT   SWTCH                                                     TRVEC     29
                    001E P       ENT   LOADIN                                                    TRVEC     30
                    000B P       ENT  UNPTIM                                                     TRVEC     31
                    0014 P       ENT  VINPV4                                      **MSOS 4.0 TRVEC     32
                    000D P       ENT  BATCLU        BATCH CONTROL STATEMENT LU      116*4366 TRVEC132    2
                    0015 P       ENT  PRORET      RETURN LOC TO JPLOAD FOR PROTEC               TRVEC     33
                    0003 P       ENT  MIBUF                                                      TRVEC     34
                    0016 P       ENT  JPSWT                                                      TRVEC     35
                    0001 P       ENT  JBPROE                                                     TRVEC     36
                    0004 P       ENT  TRNVEC                                                     TRVEC     37
                    0007 P       ENT  RELS1A                                                     TRVEC     38
                    0002 P       ENT  ERRMSG                                                     TRVEC     39
                    0010 P       ENT  AUTF9                                                      TRVEC     40
                    0011 P       ENT  AUTFA                                                      TRVEC     41
                    0012 P       ENT  AUTFB                                                      TRVEC     42
                    001F P         ENT      JKIN                                                TRVEC     43
                    0026 P       ENT  JBCFGZ        JOB ABORT FLAG                            TRVEC     44
                                 EXT  PROTEC                                                     TRVEC     45
                    0005         EQU  NSTACK(5)     MAX NO. OF  STACKED REQUESTS                 TRVEC     46
                    00B9         EQU  AREQXT($B9)                                 **MSOS 4.0 TRVEC     47
                    0002         EQU  LPMSK($2)                                   **MSOS 4.0 TRVEC     48
                    0023         EQU  ONEBIT($23)                                 **MSOS 4.0 TRVEC     49

P0000  18FF          TRANV  NUM  $18FF                                                           TRVEC     51
P0001  0000          JBPROE NUM  $0          LOC. IN JOBENT TO PROCESS JOB PROC. MODULES         TRVEC     52
P0002  0000          ERRMSG NUM  0           ABS. ADDR. OF ERRM IN JOBENT                        TRVEC     53
P0003  0000          MIBUF  NUM  0           ADDRESS OF MIINP BUFFER IN JOBENT                   TRVEC     54
```

```
                P0004  0000          TRNVEC NUM  $0          ABS. ADDR. OF TRANTA BUFFER IN JOBENT          TRVEC    55
                P0005  0000          LIBET  NUM  $0000       ABS. ADDR. IN JOBENT THAT SCHEDULES LIBEDT.    TRVEC    56
                P0006  7FFF          RECOV  NUM  $7FFF       LOC IN JOBENT TO SCHED. RECOVR                 TRVEC    57
                P0007  0000          RELS1A NUM  0           LOC IN JOBENT TO RELEASE SPECIFIED FILE        TRVEC    58
                P0008  0000          PARBV4 NUM  0           PARAMETER BUFFER IN JOBENT FOR FILES           TRVEC    59

                                     ***   ANY ENTRIES TO TRVEC MUST BE MADE FOLLOWING THIS STATEMENT,      TRVEC    61
                                     ***   AS THE PRECEDING ENTRIES ARE PART OF A TABLE TRANSFER FROM JOBENT. TRVEC  62

                                     ************************************************************************ TRVEC  64

                P0009  0000          JOBIND NUM  0                                                          TRVEC    66
                P000A  0000          UNPIO  NUM  $0          SET IF UNPROTECTED I/O IS GOING ON.  DOES      TRVEC    67
                                     *                        NOT ALLOW JOB TO BE KILLED UNTIL ALL OF THE  TRVEC  68
                                     *                        UNPROTECTED I/O REQUESTS ARE COMPLETED.      TRVEC  69
                                     *                        AS EACH REQUEST TERMINATES THE COUNT IN UNPIO TRVEC  70
                                     *                        IS DECREMENTED                               TRVEC  71
                P000B  0000          UNPTIM NUM  0           NUMBER OF UNPROTECTED TIMER REQ. WAIT          TRVEC    72
                P000C  0000          UNPIOF NUM  0           FLAF FOR BUFFERING I/O REQUESTS                TRVEC    73
                P000D  0000          BATCLU NUM  0           BATCH CONTROL STATEMENT LU,*BATCH,LU  116*4366 TRVEC132  3
                P000E  18F9          IUP    NUM  $18F9       INPUT UNIT POINTER                             TRVEC    74
                P000F  0000          INPTV4 NUM  0           BOSS INPUT DEVICE-SET BY SPACE                 TRVEC    75
                P0010  0000          AUTF9  NUM  0           STD INPUT AT AUTOLOAD, SET BY RESTART          TRVEC    76
                P0011  0000          AUTFA  NUM  0           STD PUNCH AT AUTOLOAD, SET BY RESTART          TRVEC    77
                P0012  0000          AUTFB  NUM  0           STD LIST  AT AUTOLOAD, SET BY RESTART          TRVEC    78
                P0013  0000          SPASW  NUM  0                                                          TRVEC    79
                P0014  0000          VINPV4 NUM  0           INPUT ASSIGNED BY *V              **MSOS 4.0 TRVEC    80
                P0015  0000          PRORET NUM  $0          LOC. IN JOBPRO TO RETURN TO FROM PROT5         TRVEC    81
                P0016  0000          JPSWT  NUM  $0          TEMP LOC. FOR MIINP BUFFER ADDR. OR AN INDEX   TRVEC    82
                                     *                        TO THE TRANTA TABLE IN JOBPRO OR A NEG.      TRVEC  83
                                     *                        VALUE SET BY JOBENT OR JBKILL                TRVEC  84
                P0017  0000          FILE1  NUM   $0000    LOCATION OF JOBENT FILE                          TRVEC    85
                P0018  0000          FILE2  NUM   $0000    LOCATION OF JOBPRO FILE                          TRVEC    86
                P0019  0000          FILE3  NUM   $0000    LOC. OF THIRD FILE                               TRVEC    87
                P001A  0000          FILE4  NUM   $0000    LOC. OF FOURTH FILE                              TRVEC    88
                P001B  0000          LOCF   NUM   $0000    LOC. OF F IN PROTECT PROCESSOR                   TRVEC    89
                P001C  0000          LPTRS  NUM   $0000    LOC. OF PTRS IN PROTECT PROC.                    TRVEC    90
                P001D  0000          SWTCH  NUM   $0000    SWITCH TO LOCK-OUT JOBPROCESSOR                  TRVEC    91
                                     *                       WHILE LIBEDIT OR THE RECOVERY                 TRVEC  92
                                     *                       PROGRAM IS IN OPERATION.                      TRVEC  93
                P001E  0000          LOADIN NUM   $0000    PROTECT PROCESSOR FLAG TO LET                    TRVEC    94
                                     *                       LOADER READ AND WRITE ON MASS                 TRVEC  95
                                     *                       STORAGE.                                      TRVEC  96

                P001F  0000          JKIN     NUM      0                                                   TRVEC    98
                                     *          THIS CORE RESIDENT PROGRAM IS ENTERED                       TRVEC    99
                                     *          TO CANCEL JOB PROCESSING. IT SCHEDULES                      TRVEC   100
                                     *          THE MM RESIDENT JBKILL MODULE THEN SETS                     TRVEC   101
                                     *          THE JBCNFG NOT ZERO WHICH TELLS THE PROTECT                 TRVEC   102
                                     *          PROCESSOR TO QUIT HONORING REQUESTS FROM                    TRVEC   103
                                     *          UNPROTECTED CORE.                                           TRVEC   104

                         0020 P            ENT  JBCNCL                                                    TRVEC   106
                         0036 P            ENT  JBCNFG       JOB CANCEL FLAG                              TRVEC   107
                P0020  C816          JBCNCL LDA* JBCNFG       IF JBKILL HAS BEEN SCHEDULED, DONT REDO      TRVEC   108
                P0021  0116                 SAN  JKO                                                       TRVEC   109
                P0022  0005                 INQ  5                                          **MSOS 4.0 TRVEC   110
```

```
                P0023  0153                 SQN  JK                                                  TRVEC  111
                P0024  0CFA                 ENQ  -5          THE REQUEST TO CANCEL WAS FROM     **MSOS 4.0 TRVEC  112
      5         P0025  1809                 JMP* JK1         T5- DON"T ABORT JOB                        TRVEC  113
                P0026  0000          JBCFGZ ADC  0           JOB ABORT FLAG                             TRVEC  114
                P0027  C8FE          JK     LDA* JBCFGZ      IF A JOB IS ABORTING, DONT REDO            TRVEC  115
                P0028  011C          JKO    SAN  JBEXIT                                                 TRVEC  116
                P0029  E8DA                 LDQ* TRNVEC                                                 TRVEC  117
     10         P002A  C20C                 LDA- 12,0        IF NO JOB IN PROGRESS, DONT ABORT          TRVEC  118
                P002B  0109                 SAZ  JBEXIT                                                 TRVEC  119
                P002C  D8F9                 RAO* JBCFGZ      SET JOB ABORT FLAG                         TRVEC  120
                P002D  0P02                 SET  Q                                                      TRVEC  121
                P002E  C8F0          JK1    LDA* JKIN                                                   TRVEC  122
     15         P002F  D807                 RAO* JBCNFG      SET JOB CANCEL FLAG NON ZERO               TRVEC  123
                P0030  010A                 SAZ  JKNIN                                         **MSOS 4.0 TRVEC  124
                P0031  6803                 STA* JBJK                                                   TRVEC  125
                P0032  54F4                 RTJ- ($F4)       SCHEDULE MM PROG AT LVL                    TRVEC  126
                P0033  5202                 NUM  $5202       TWO                               **MSOS 4.0 TRVEC  127
     20         P0034  0000          JBJK     NUM       0                                                TRVEC  128
                P0035  14EA          JBEXIT JMP- ($EA)       EXIT TO DISP                               TRVEC  129
                P0036  0000          JBCNFG ADC  0           JOB CANCEL FLAG                            TRVEC  130
                              0038 P        ENT  JPRETN,JPRET1                                          TRVEC  131
                              0037 P
     25         P0037  0000          JPRET1 ADC  0           SET UP BY T7 AND JPLOAD                    TRVEC  132
                P0038  0000          JPRETN 0    0           JPRETN MUST BE IN PRESET TABLE FOR PROTECT TRVEC  133
                P0039  0500                 IIN  0           PROCESSOR TO PASS THIS ON TO LOADER REQUESTOR TRVEC  134
                P003A  1CFC                 JMP* (JPRET1)    GO TO T7 OR JPLOAD                         TRVEC  135
                P003B  54F4          JKNIN  RTJ- ($F4)                                                  TRVEC  136
     30         P003C  2402                 NUM  $2402                                                  TRVEC  137
                P003D  7FFF X               ADC  PROTEC                                                 TRVEC  138
                P003E  14EA                 JMP- ($EA)                                         **MSOS 4.0 TRVEC  139
```

```
                                ********************************************************************** TRVEC   141
                                *                                                                    TRVEC   142
                                *          SCHEDULER ERROR RETURN TO USER                            TRVEC   143
                                *                                                                    TRVEC   144
                                ********************************************************************** TRVEC   145
     P003F    C4FF              SCHERR LDA- (I)          SET Q                        **MSOS 4.0 TRVEC   146
     P0040    A011                     AND- LPMSK+15     NEGATIVE                     **MSOS 4.0 TRVEC   147
     P0041    B032                     EOR- ONEBIT+15    ON RETURN                    **MSOS 4.0 TRVEC   148
     P0042    64FF                     STA- (I)          TO USER                      **MSOS 4.0 TRVEC   149
     P0043    14B9                     JMP- (AREQXT)                                  **MSOS 4.0 TRVEC   150
                                ********************************************************************** TRVEC   151
                                *                         ADDRESS COMPATE ROUTINE                    TRVEC   152
                                *                                                                    TRVEC   153
                                *          A.GT.Q         DIFFERENCE RETURNED IN A                   TRVEC   154
                                *          A.EQ.Q         A EQUAL 0                                  TRVEC   155
                                *          A.LT.Q         A SET TO FFFF                              TRVEC   156
                                *                                                                    TRVEC   157
     P0044    0B00              COMPV4 NOP  0                                                       TRVEC   158
     P0045    0500                     IIN  0                                                       TRVEC   159
     P0046    0132                     SAM  AUPPER       A IN UPPER BANK                            TRVEC   160
     P0047    0165                     SQP  BTHSAM       BOTH IN LOWER BANK                         TRVEC   161
     P0048    1808                     JMP* QBIGR        A IN LOWER  Q IN UPPER                     TRVEC   162
     P0049    0173              AUPPER SOM  BTHSAM       BOTH IN UPPER BANK                         TRVEC   163
     P004A    0852                     TCQ  Q            A IN UPPER  Q IN LOWER                     TRVEC   164
     P004B    0834                     AAQ  A            GET DIFFERENCE IN A                        TRVEC   165
     P004C    1805                     JMP* ABIGR                                                   TRVEC   166
     P004D    0852              BTHSAM TCQ  Q                                                       TRVEC   167
     P004E    0834                     AAQ  A            SUBTRACT Q FROM A                          TRVEC   168
     P004F    0121                     SAP  ABIGR                                                   TRVEC   169
     P0050    0804              QBIGR  SET  A            Q IS BIGGER                                TRVEC   170
     P0051    0400              ABIGR  EIN  0                                                       TRVEC   171
     P0052    1CF1                     JMP* (COMPV4)                                               TRVEC   172
                                ********************************************************************** TRVEC   173
     P0053                            END                                                          TRVEC   174

                          61017B STORAGE USED          175 STATEMENTS       55 SYMBOLS
                                 6400 ASSEMBLY       1.093 SECONDS        123 REFERENCES
```

COMPLETE REFERENCE MAP.

ABIGR	0051		5/29	5/32	5/34 L	
AREQXT	00B9	ABSOLUTE	2/52 Q	5/13		
AUPPER	0049		5/23	5/26 L		
AUTFA	0011		2/46 E	3/26 L		
AUTFB	0012		2/47 E	3/27 L		
AUTF9	0010		2/45 E	3/25 L		
BATCLU	000D		2/37 E	3/22 L		
BTHSAM	004D		5/24	5/26	5/30 L	
COMPV4	0044		2/16 E	5/21 L	5/35	
ERRMSG	0002		2/44 E	2/58 L		
FILE1	0017		2/26 E	3/34 L		
FILE2	0018		2/27 E	3/35 L		
FILE3	0019		2/28 E	3/36 L		
FILE4	001A		2/28 E	3/37 L		
I	00FF	-SYSTEM-	5/09	5/12		
INPTV4	000F		2/17 E	3/24 L		
IUP	000E		2/23 E	3/23 L		
JBCFGZ	0026		2/49 E	4/06 L	4/07	4/12
JBCNCL	0020		3/55 E	3/57 L		
JBCNFG	0036		3/56 E	3/57	4/15	4/22 L
JBEXIT	0035		4/08	4/11	4/21 L	
JBJK	0034		4/17	4/20 L		
JBPROE	0001		2/41 E	2/57 L		
JK	0027		3/60	4/07 L		
JKIN	001F		2/48 E	3/47 L	4/14	
JKNIN	003B		4/16	4/29 L		
JKO	0028		3/58	4/08 L		
JK1	002E		4/05	4/14 L		
JOBIND	0009		2/19 E	3/14 L		
JPRETN	0038		4/23 E	4/26 L		
JPRET1	0037		4/23 E	4/25 L	4/28	
JPSWT	0016		2/40 E	3/31 L		
LIBET	0005		2/25 E	3/04 L		
LOADIN	001E		2/34 E	3/43 L		
LOCF	001B		2/31 E	3/38 L		
LPMSK	0002	ABSOLUTE	2/53 Q	5/10		
LPTRS	001C		2/31 E	3/39 L		
MIBUF	0003		2/39 E	2/59 L		
NSTACK	0005	ABSOLUTE	2/20 E	2/51 Q		
ONEBIT	0023	ABSOLUTE	2/54 Q	5/11		
PARBV4	0008		2/15 E	3/07 L		
PRORET	0015		2/38 E	3/30 L		
PROTEC	003D	*EXTERNAL*	2/50 X	4/31		
QBIGR	0050		5/25	5/33 L		
RECOV	0006		2/30 E	3/05 L		
RELS1A	0007		2/43 E	3/06 L		
SCHERR	003F		2/18 E	5/09 L		
SPASW	0013		2/24 E	3/28 L		
SWTCH	001D		2/33 E	3/40 L		
TRANV	0000		2/21 E	2/56 L		
TRNVEC	0004		2/42 E	2/60 L	4/09	
TRVEC	0000		2/10 E	2/11 Q		
UNPIO	000A		2/22 E	3/15 L		
UNPIOF	000C		2/14 E	3/21 L		
UNPTIM	000B		2/35 E	3/20 L		
VINPV4	0014		2/36 E	3/29 L		

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

0000 0112 NAM JOBENT DECK-ID M64 MSOS 5.0 SUMMARY
0112 END

BLOCKS	TYPE	ADDRESS	LENGTH
JOBENT	PROGRAM*	0000	0112
FILL	LOCAL	001A	0012
DRV	LOCAL	002C	0001

ENTRY POINT NAMES AND ADDRESSES.

JBENT -- 0000 JBPRO -- 00A7 MIPBUF -- 0008

EXTERNAL SYMBOLS.

AFILV4	INPTV4	JKIN	JPCHGE	JPSWT	NAMEV4	SWTCH	T5
BATCLU	IUP	JLGOV4	JPFLV4	JPT13	NUMLU	TRANV	T7
FILE1	JBCNFG	JOBIND	JPLOAD	LIBEDT	RCOVER	T11	
FILE2	JCRDV4	JOBPRO	JPSTV4	MIB	RESTOR	T3	

```
                                NAM  JOBENT        DECK-ID M64  MSOS 5.0              SUMMARY-116 JOBENT132  1
                          *     MASS STORAGE OPERATING SYSTEM VERSION 5.0                        JOBENT      3
                          *     SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                     JOBENT      4
                          *     COPYRIGHT CONTROL DATA CORPORATION 1976                          JOBENT      5

                          *     PROGRAM BASE- MSOS 3.0 JOBENT                          **MSOS 4.0 JOBENT      7

                          *     JOB PROCESSOR CONTROL MODULE                                     JOBENT     10

                          ***************************************************                    JOBENT     12

                    0000 P        ENT   JBENT                                                    JOBENT     14
                    00A7 P        ENT  JBPRO                                                     JOBENT     15
                    0008 P        ENT  MIPBUF                                                    JOBENT     16

                                  EXT  FILE1,FILE2                                               JOBENT     18
                                  EXT  JBCNFG        JOB CANCEL FLAG                             JOBENT     19
                                  EXT  MIB                                                       JOBENT     20
                                  EXT   JOBIND                                                   JOBENT     21
                                  EXT   SWTCH                                                    JOBENT     22
                                  EXT   LIBEDT,RCOVER                                            JOBENT     23
                                  EXT  JPSWT         TEMP. LOC. FOR MIINP BUFFER ADR. OR         JOBENT     24
                          *                           AN INDEX TO THE TRANTA TABLE OR           JOBENT     25
                          *                           A NEG. VALUE SET BY JOBENT OR JBKILL      JOBENT     26
                                  EXT  JOBPRO,JPLOAD,JPCHGE,JPT13                                JOBENT     27
                                  EXT  JLGOV4,JCRDV4,JPFLV4,NAMEV4                       **MSOS 4.0 JOBENT     28
                                  EXT  JPSTV4,AFILV4                                     **MSOS 4.0 JOBENT     29
                                  EXT  IUP                                               **MSOS 4.0 JOBENT     30
                                  EXT  INPTV4                                            **MSOS 4.0 JOBENT     31
                                  EXT  BATCLU        (TRVEC)                               116*4366 JOBENT132  2
                                  EXT  NUMLU                                               116*4366 JOBENT132  3
                                  EXT  RESTOR                                                    JOBENT     32
                                  EXT  TRANV                                                     JOBENT     33
                                  EXT  JKIN                                                      JOBENT     34
                                  EXT*  T3                                                       JOBENT     35
                                  EXT*  T5                                                       JOBENT     36
                                  EXT*  T7                                                       JOBENT     37
                                  EXT*  T11                                                      JOBENT     38

                    00EA          EQU   DISP($EA)                                                JOBENT     40
                    0022          EQU  ZERO($22)                                                 JOBENT     41
                    00F4          EQU  AMONI($F4),ADISP($EA)                               116*4366 JOBENT132  4
                    00EA
                    0046          EQU  TEN($46)                                            116*4366 JOBENT132  5
                    000A          EQU  H00FF($A)                                           116*4366 JOBENT132  6
                    0011          EQU  H7FFF($11)                                        **MSOS 4.0 JOBENT     42
                    0024          EQU  L(36)         INPUT BUFFER LENGTH                 **MSOS 4.0 JOBENT     43

P0000  C8FE       JBENT  NUM   $C8FE      ENTRY POINT                                            JOBENT     45
                  ****                    NOTICE - THE INSTRUCTION  LDA*                         JOBENT     46
                  ****                     *-1  CAN NOT BE ASSEMBLED                             JOBENT     47
                  ****                     BECAUSE IT REFERENCES A LOC.                          JOBENT     48
                  ****                     OUTSIDE THE PROGRAM                                   JOBENT     49
```

```
                P0001  6C75                    STA*  (F1)       STORE LOCATION OF JOBENT FILE                    JOBENT    50
                P0002  683B                    STA* ENTTBL        STORE FWA OF JOBENT IN ENTRY POINT TABLE      JOBENT    51
     5
                P0003  4878                    STQ* SAVBUF         SAVE MIINP BUFFER ADDRESS          **MSOS 4.0 JOBENT    53
                P0004  1804                    JMP* BUFF1                                                       JOBENT    54
                P0005  4A50          ERRM      ALF  1,JP                                          **MSOS 4.0 JOBENT    55
                P0006  2020                    ALF  1,                                            **MSOS 4.0 JOBENT    56
    10          P0007  2C20                    ALF  1,,                                           **MSOS 4.0 JOBENT    57

                                               ************************************************************************ JOBENT    59

                                               *      AFTER THE INITIAL PASS THROUGH JOBENT THIS AREA WILL BE           JOBENT    61
    15                                         *      OVERLAID BY THE MIPBUF BUFFER.                                   JOBENT    62

                P0008  0C08          BUFF1     ENQ  LENGTH        LOAD Q WITH THE LENGTH OF ENTRY POINT TABLE    JOBENT    64
                P0009  CA34          LOOP      LDA* ENTTBL,Q      PICK UP RELATIVE ENTRY POINT ADDRESS           JOBENT    65
                P000A  8833                    ADD* ENTTBL        ADD FWA OF JOBENT                              JOBENT    66
    20          P000B  6600  7FFF X            STA  TRANV,Q       STORE IN TRVEC                                 JOBENT    67
                P000D  0DFE                    INQ  -1                                                           JOBENT    68
                P000E  0141                    SQZ  OUT                                                          JOBENT    69
                P000F  18F9                    JMP* LOOP                                                         JOBENT    70
                P0010  E0E9          OUT       LDQ- $E9           ADDR OF EXTENDED CORE TABLE                    JOBENT    71
    25          P0011  E209                    LDQ- 9,Q           ADDR OF RCTV IN MONI                **MSOS 4.0 JOBENT    72
                P0012  C865                    LDA* JB1           IF THERE IS NO                      **MSOS 4.0 JOBENT    73
                P0013  A011                    AND- H7FFF         T7 MODULE DON"T TRY                 **MSOS 4.0 JOBENT    74
                P0014  B011                    EOR- H7FFF                                             **MSOS 4.0 JOBENT    75
                P0015  0111                    SAN  1                                                 **MSOS 4.0 JOBENT    76
    30          P0016  1819                    JMP* BUFF2+2       AND LINK                            **MSOS 4.0 JOBENT    77
                P0017  CC5F                    LDA* (F1)                                                         JOBENT    78
                P0018  0977                    INA  JB1-JBENT                                                    JOBENT    79
                P0019  1814                    JMP* BUFF2                                             **MSOS 4.0 JOBENT    80

    35                         0012            EQU  ENDB(*-BUFF1)                                     **MSOS 4.0 JOBENT    82
                P001A          0012            BZS  FILL(L-ENDB)                                      **MSOS 4.0 JOBENT    83
                P002C          0001            BZS  DRV(1)        WORD FOR DRIVERS ON SHORT READ      **MSOS 4.0 JOBENT    84
                                               ************************************************************************ JOBENT    85

    40                                         *      THIS AREA WILL BE OVERLAID BY THE TRNTBL BUFFER.                 JOBENT    87

                P002D  884A          BUFF2     ADD* JB1                                                          JOBENT    89
                P002E  6207                    STA-  7,Q          LOADER REQUEST                                 JOBENT    90
                P002F  CC47                    LDA*  (F1)                                                        JOBENT    91
    45          P0030  0978                    INA   JB2-JBENT                                                   JOBENT    92
                P0031  8847                    ADD*  JB2                                                         JOBENT    93
                P0032  620B                    STA-  11,Q       CORE REQUEST                                  JOBENT    94
                P0033  CC43                    LDA*  (F1)                                                        JOBENT    95
                P0034  0979          BPS       INA  JB3-JBENT                                                    JOBENT    96
    50          P0035  8844          RI        ADD* JB3                                                          JOBENT    97
                P0036  6203          LOADEP    STA- 3,Q           STATUS REQUEST                                 JOBENT    98
                P0037  CC3F                    LDA* (F1)                                                         JOBENT    99
                P0038  097A                    INA  JB4-JBENT                                                    JOBENT   100
                P0039  8841          JFLG      ADD* JB4                                               **MSOS 4.0 JOBENT   101
    55          P003A  6205                    STA- 5,Q           EXIT REQUEST                                   JOBENT   102

                P003B  0A00                    ENA  0             THIS IS THE LAST LOCATION OF TRANTA **MSOS 4.0 JOBENT   104
                                               *                  TABLE BUFFER.. NEXT 22 LOCATIONS    **MSOS 4.0 JOBENT   105
                                               *                  ARE  3 WORDS--JOB NAME.  3 WORDS--  **MSOS 4.0 JOBENT   106
```

```
                                *                       ACCOUNT NUMBER..  16 WORDS PARAMETER**MSOS 4.0 JOBENT    107
                                *                       BUFFER FOR FILES                    **MSOS 4.0 JOBENT    108
 5   P003C   180A               JNAME  JMP* BRL                                             **MSOS 4.0 JOBENT    109

                                *                       TABLE OF ENTRY POINTS TO JOBENT     **MSOS 4.0 JOBENT    111
     P003D   0000               ENTTBL NUM  0           FWA OF JOBENT                       **MSOS 4.0 JOBENT    112
     P003E   00A7                      ADC  JBPRO-JBENT SCHEDULE J P  MODULES  (JBPTROE)    **MSOS 4.0 JOBENT    113
10   P003F   0005                      ADC  ERRM-JBENT  J03 J04 ERRORS (ERRMSG)            **MSOS 4.0 JOBENT    114
     P0040   0008                      ADC  MIPBUF-JBENT LOCAL INPUT BUFFER        (MIBUF) **MSOS 4.0 JOBENT    115
     P0041   002D                      ADC  TRNTBL-JBENT TRANSFER TABLE ADDRESS (TRNVEC)    **MSOS 4.0 JOBENT    116
     P0042   00C3               FILTAB ADC  LIB-JBENT   SCHEDULE LIBEDT                     **MSOS 4.0 JOBENT    117
     P0043   00DF                      ADC  RECOVR-JBENT SCHEDULE RCOVER  (RECOV)          **MSOS 4.0 JOBENT    118
15   P0044   00C2                      ADC  SAVQ1-JBENT  INDEX PASSED TO J.P. POUTINES                  JOBENT    119
     P0045   0042                      ADC  FILTAB-JBENT FILE PARAMETER TABLE (PARBV4)      **MSOS 4.0 JOBENT    120
                     0008              EQU  LENGTH(*-ENTTBL-1)                             **MSOS 4.0 JOBENT    121

20                                  ************************************************************************ JOBENT    124

     P0046   68ED               BRL    STA* BPS         CLEAR THESE THREE LOCATIONS IN WHAT **MSOS 4.0 JOBENT    126
     P0047   68ED                      STA* RI          BE THE TRNTBL BUFFER BEFORE SCHEDULING        JOBENT    127
     P0048   68ED                      STA* LOADEP       JOBPRO                               JOBENT    128
25   P0049   68EF                      STA* JFLG                                             **MSOS 4.0 JOBENT    129
     P004A   0804                      SET  A           SET FIRST WORD TO INDICATE NO       **MSOS 4.0 JOBENT    130
     P004B   68F0                      STA* JNAME       JOB NAME YET                        **MSOS 4.0 JOBENT    131
     P004C   E82F                      LDQ* SAVBUF      PICK UP MIINP BUFFER ADDRESS                 JOBENT    132
     P004D   4C73                      STQ* (JBST)      SAVE INPUT BUFFER ADDRESS IN TRVEC   61*1295  JOBENT    133
30   P004E   40FF                      STQ- I           SAVE BUFFER ADDRESS IN I REG.                JOBENT    134
     P004F   0C23                      ENQ  L-1                                              **MSOS 4.0 JOBENT    135
     P0050   C6FF               MVBUF  LDA- (I),Q       TRANSFER MIINP BUFFER TO BUFFER IN JOBENT    JOBENT    136
     P0051   6AB6                      STA* MIPBUF,Q    STORE IN MIPBUF LOCAL                        JOBENT    137
     P0052   0DFE                      INQ  -1                                               JOBENT    138
35   P0053   0171                      SQM  1                                                JOBENT    139
     P0054   18FB                      JMP* MVBUF                                            JOBENT    140
                                * LOAD AND GO SECTOR NUMBER                                  JOBENT    141
     P0055   0A01                      ENA  1                                                JOBENT    142
     P0056   60E4                      STA- $E4                                              JOBENT    143
40
     P0057   C400   7FFF X             LDA  INPTV4      RESET CONTROL INPUT DEVICE          **MSOS 4.0 JOBENT    145
     P0059   6400   7FFF X             STA  IUP                                            **MSOS 4.0 JOBENT    146
     P005B   6400   7FFF X      ABATCL STA+ BATCLU      SET BATCH CONTROL STATEMENT LU = SYS. 116*4366 JOBENT132   7
                                *                       CONTROL LU                           116*4366 JOBENT132   8
45   P005D   C103                      LDA- 3,I                                              116*4366 JOBENT132   9
     P005E   0900                      INA  0                                                116*4366 JOBENT132  10
     P005F   0111                      SAN  JOB070      SENSE LU SPECIFIED                   116*4366 JOBENT132  11
     P0060   1841                      JMP* JOB130       GO PROCESS *BATCH                   116*4366 JOBENT132  12
     P0061   C105               JOB070 LDA- 5,I                                              116*4366 JOBENT132  13
50   P0062   E104                      LDQ- 4,I                                              116*4366 JOBENT132  14
     P0063   0F68                      LRS  8                                                116*4366 JOBENT132  15
     P0064   0900                      INA  0                                                116*4366 JOBENT132  16
     P0065   0101                      SAZ  JOB080      SENSE 2 DIGITS OR LESS               116*4366 JOBENT132  17
     P0066   182A                      JMP* JP05ER                                           116*4366 JOBENT132  18
55   P0067   0814               JOB080 TRQ  A                                                116*4366 JOBENT132  19
     P0068   0900                      INA  0           (PREVIOUS SIGN EXTENSION WILL RESULT 116*4366 JOBENT132  20
                                *                       IN $FFFF                             116*4366 JOBENT132  21
     P0069   0116                      SAN  JOB082      SENSE 2 DIGITS                       116*4366 JOBENT132  22
     P006A   E103                      LDQ- 3,I                                              116*4366 JOBENT132  23
```

```
                P006B  0F68                LRS  8                                          116*4366 JOBENT132  24
                P006C  0F48                ARS  8              (ADJUST FOR 1 DIGITS)      116*4366 JOBENT132  25
     5          P006D  B000  3000          EOR  =N$3000                                    116*4366 JOBENT132  26
                P006F  1804                JMP* JOB084                                     116*4366 JOBENT132  27
                P0070  0F68          JOB082 LRS  8                                          116*4366 JOBENT132  28
                P0071  E103                 LDQ- 3,I                                       116*4366 JOBENT132  29
                P0072  0F68                 LRS  8                                         116*4366 JOBENT132  30
    10          P0073  0DD3          JOB084 INQ  -$2C                                       116*4366 JOBENT132  31
                P0074  0147                 SOZ  JOB090        SENSE DELIMITER A COMMA     116*4366 JOBENT132  32
                P0075  181B                 JMP* JP05ER                                    116*4366 JOBENT132  33
                P0076  7FFF X        F1     ADC  FILE1                                     116*4366 JOBENT132  34
                P0077  7FFF X        JB1    ADC  T7                                        116*4366 JOBENT132  35
    15          P0078  7FFF X        JB2    ADC  T11                                       116*4366 JOBENT132  36
                P0079  7FFF X        JB3    ADC  T3                                        116*4366 JOBENT132  37
                P007A  7FFF X        JB4    ADC  T5                                        116*4366 JOBENT132  38
                P007B  0000          SAVBUF NUM  0                                         116*4366 JOBENT132  39
                P007C  9000  3030    JOB090 SUB  =N$3030                                   116*4366 JOBENT132  40
    20          P007E  0C00                 ENQ  0                                         116*4366 JOBENT132  41
                P007F  3000  0100           DVI  =N$100                                    116*4366 JOBENT132  42
                P0081  481F                 STQ* TEMP1                                     116*4366 JOBENT132  43
                P0082  2046                 MUI- TEN                                       116*4366 JOBENT132  44
                P0083  881D                 ADD* TEMP1                                     116*4366 JOBENT132  45
    25          P0084  681C                 STA* TEMP1                                     116*4366 JOBENT132  46
                P0085  09FD                 INA  -2                                        116*4366 JOBENT132  47
                P0086  0121                 SAP  JOB110        SENSE LU NOT=1(ALLOVATOR)   116*4366 JOBENT132  48
                P0087  1809          JOB100 JMP* JP05ER                                    116*4366 JOBENT132  49
                P0088  9000  7FFF X  JOB110 SUB  =XNUMLU                                   116*4366 JOBENT132  50
    30          P008A  0125                 SAP  JP05ER        SENSE LU .GT. MAX.          116*4366 JOBENT132  51
                P008B  C815                 LDA* TEMP1                                     116*4366 JOBENT132  52
                P008C  6400  005A X         STA+ IUP           UPDATE CONTROL STATEMENT LU 116*4366 JOBENT132  53
                P008E  6CCD                 STA* (ABATCL+1)    SET BATCH CONTROL STATEMENT LU 116*4366 JOBENT132  54
                P008F  1812                 JMP* JOB130                                    116*4366 JOBENT132  55
    35                                 *      ERROR STATEMENT AFTER MI                     116*4366 JOBENT132  56
                P0090  54F4          JP05ER RTJ- (AMONI)       OUTPUT JP05 ERROR           116*4366 JOBENT132  57
                P0091  0D00          PARMER NUM  $0D00                                     116*4366 JOBENT132  58
                P0092  0007                 ADC  JOB125-PARMER                             116*4366 JOBENT132  59
                P0093  0000                 ADC  0,$18FC,2                                 116*4366 JOBENT132  60
    40          P0094  18FC
                P0095  0002
                P0096  000D                 ADC  JP05-PARMER                               116*4366 JOBENT132  61
                P0097  14EA                 JMP- (ADISP)                                   116*4366 JOBENT132  62
                P0098  0844          JOB125 CLR  A             CLEAR MIB TO ALLOW MI       116*4366 JOBENT132  63
    45          P0099  6400  7FFF X         STA+ MIB                                       116*4366 JOBENT132  64
                P009B  54F4                 RTJ- (AMONI)       RELEASE JOBENT              116*4366 JOBENT132  65
                P009C  1901                 NUM  $1901                                     116*4366 JOBENT132  66
                P009D  FF63                 ADC  (JBENT-*+1)                               116*4366 JOBENT132  67
                P009E  4A50          JP05   ALF  2,JP05                                    116*4366 JOBENT132  68
    50          P009F  3035
                P00A0  0000          TEMP1  NUM  0                                         116*4366 JOBENT132  69
                P00A1  E8D9          JOB130 LDQ* SAVBUF                                    116*4366 JOBENT132  70
                P00A2  40FF                 STQ- I                                         116*4366 JOBENT132  71
                P00A3  0C03                 ENQ  3                                     **MSOS 4.0 JOBENT    147
    55          P00A4  481E          SJBPRO STQ* SAVQ1                                             JOBENT    148
                P00A5  C80E                 LDA* JBPADR        SCHEDULE JOBPRO         **MSOS 4.0 JOBENT    149
                P00A6  1804                 JMP* JBPR00                                           JOBENT    150
                P00A7  481B          JBPR0  STO* SAVQ1         SAVE INDEX TO PROPER ROUTINE WITHIN THE JOBENT  151
                                   *                           SCHEDULED MODULE OR AN EXECUTION ADDRESS JOBENT  152
```

```
P00A8  0822          TRA  Q            MOVE INDEX FOR PROPER MODULE TO Q REG.          JOBENT   153
P00A9  CA09          LDA* TBL,Q        Q REG.  0=JPT13, 1=JOBPRO, 2=JPLOAD,           JOBENT   154
                     *                 3=JPCHGE, 4=RESTOR, 5=JLGOV4       **MSOS 4.0 JOBENT   155
                     *                 6=JCRDV4, 7=JBFLV4, 8=NAMEC4       **MSOS 4.0 JOBENT   156
                     *                 9=JPSTV4, 10=AFILV4                **MSOS 4.0 JOBENT   157
P00AA  6806          JBPROO STA* SCHADR                                               JOBENT   158
                     *      RELEASE FILES TWO AND THREE                               JOBENT   159
P00AB  5800  0054          RTJ  MRELF    RELEASE SPECIFIED FILE                       JOBENT   160
P00AD  E815                LDQ* SAVQ1    INDEX TO LOC IN SCHEDULED MODULE TO BEGIN    JOBENT   161
                     *                   EXECUTION OR AN EXECUTION ADDRESS.           JOBENT   162
P00AE  54F4          SCHED  RTJ- ($F4)                                                JOBENT   163
P00AF  1200                 NUM  $1200                                                JOBENT   164
P00B0  0000          SCHADR ADC  0                                                    JOBENT   165
P00B1  14EA                 JMP- (DISP)                                              JOBENT   166
                     *                   5 CARDS DELETED                116*4366 JOBENT132  72


P00B2  FFFF X        TBL    ADC  (JPT13)                                             JOBENT   175
P00B3  FFFF X        JBPADR ADC  (JOBPRO)                                            JOBENT   176
P00B4  FFFF X               ADC  (JPLOAD)                                            JOBENT   177
P00B5  FFFF X               ADC  (JPCHGE)                                            JOBENT   178
P00B6  FFFF X               ADC  (RESTOR)                                            JOBENT   179
P00B7  FFFF X               ADC  (JLGOV4)                              **MSOS 4.0 JOBENT   180
P00B8  FFFF X               ADC  (JCRDV4)                              **MSOS 4.0 JOBENT   181
P00B9  FFFF X               ADC  (JPFLV4)                              **MSOS 4.0 JOBENT   182
P00BA  FFFF X               ADC  (NAMEV4)                              **MSOS 4.0 JOBENT   183
P00BB  FFFF X               ADC  (JPSTV4)                              **MSOS 4.0 JOBENT   184
P00BC  FFFF X               ADC  (AFILV4)                              **MSOS 4.0 JOBENT   185

P00FD  7FFF X        F2     ADC   FILE2                                              JOBENT   187
P00BE  7FFF X        SWT    ADC   SWTCH                                             JOBENT   188
P00BF  7FFF X        JB     ADC   JOBIND                                            JOBENT   189
P00C0  7FFF X        JBST   ADC  JPSWT                                  61*1295   JOBENT   190

P00C1  0000          SAVI   NUM  0                                                   JOBENT   192
P00C2  0000          SAVQ1  NUM  0                                                   JOBENT   193
                     *                   1 CARD DELETED                 116*4366 JOBENT132  73
                 0008 P          EQU  MIPBUF(BUFF1)                                  JOBENT   195
                 002D P           EQU TRNTBL(BUFF2)                                  JOBENT   196

                     ****************************************************           JOBENT   198

                     *  THIS ROUTINE RELEASES FILE3 (PROTEC) IF PRESENTLY           JOBENT   200
                     *  INCORE, RELEASES FILE2 (JOB PROC. MODS.) AND SCHEDULES      JOBENT   201
                     * LIBEDIT WITH THE RETURN LOCATION STORED IN Q.                JOBENT   202

                     ****************************************************           JOBENT   204


P00C3  582E          LIB    RTJ*  REL    RELEASE OUTSTANDING FILES                  JOBENT   206
P00C4  ECB1                 LDQ*  (F1)                                              JOBENT   207
P00C5  F000  00CC           ADQ  =XLB2-JBENT                                        JOBENT   208
```

```
                P00C7  54F4            RTJ-  ($F4)     SCHDLE LIBEDT                                  JOBENT   209
                P00C8  1200     TWLVE  NUM   $1200                                                    JOBENT   210
                P00C9  FFFF X          ADC   (LIBEDT)                                                 JOBENT   211
                P00CA  14EA            JMP-  (DISP)                                                   JOBENT   212


                                ************************  RETURN FROM LIBEDT  ********************     JOBENT   215

                P00CB  D813            RAO*  SAVQ         THIS MUST REMAIN BEFORE TAG LB2    **MSOS 4.0 JOBENT   217
                P00CC  0A01     LB2    ENA   1                                                        JOBENT   218
                P00CD  60E4            STA-  $E4          RESET LOAD AND GO ON RETURN FROM LIBEDT      JOBENT   219
                P00CE  D400  009A X    RAO   MIB          SET MIB FLAG TO LOCK OUT OTHER ENTRIES       JOBENT   220
                P00D0  0A00            ENA   0                                                        JOBENT   221
                P00D1  6CEC            STA*  (SWT)       CLEAR SWITCH FOR JP LOCK-OUT.                JOBENT   222
                P00D2  6800  FF62      STA   LOADEP       CLEAR LOADER IN CORE FLAG        116*4366 JOBENT132  74
                P00D4  0802            SET   Q                                                        JOBENT   224
                P00D5  4CEA            STQ*  (JBST)                                       **MSOS 4.0 JOBENT   225
                P00D6  4CE8            STQ*  (JB)         RESET J.P. IN CORE FLAG          **MSOS 4.0 JOBENT   226
                P00D7  C807            LDA*  SAVQ                                         **MSOS 4.0 JOBENT   227
                P00D8  0111            SAN   1                                            **MSOS 4.0 JOBENT   228
                P00D9  18C9            JMP*  SJBPRO-1                                     **MSOS 4.0 JOBENT   229
                P00DA  0A00            ENA   0            LIBEDT IS TERMINATING           **MSOS 4.0 JOBENT   230
                P00DB  6803            STA*  SAVQ         ABNORMALLY                      **MSOS 4.0 JOBENT   231
                P00DC  0C06            ENQ   6            TELL JOBPRO TO                  **MSOS 4.0 JOBENT   232
                P00DD  18C6            JMP*  SJBPRO       ABORT JOB                       **MSOS 4.0 JOBENT   233

                P00DE  0000     SAVQ   NUM   $0000                                                    JOBENT   235

                                *  THIS ROUTINE RELEASES FILE3 (PROTEC) IF PRESENTLY                    JOBENT   237
                                *  INCORE, RELEASES FILE2 (JOB PROC. MODS.) AND SCHEDULES RECOVERY      JOBENT   238
                                * WITH THE RETURN LOCATION STORED IN LOCATION $EE.                      JOBENT   239

                P00DF  5812     RECOVR RTJ*  REL          RELEASE ANY UNUSED FILES         **MSOS 4.0 JOBENT   241
                P00E0  EC95            LDQ*  (F1)                                                     JOBENT   242
                P00E1  F000  00E8      ADQ   =XRC2-JBENT  SET RETURN IN $EE TO RC2                    JOBENT   243
                P00E3  40EE            STQ-  $EE                                                      JOBENT   244
                P00E4  54F4            RTJ-  ($F4)                                                    JOBENT   245
                P00E5  1200            NUM   $1200                                                    JOBENT   246
                P00E6  FFFF X          ADC   (RCOVER)                                                 JOBENT   247
                P00E7  14EA            JMP-  (DISP)                                                   JOBENT   248

                P00E8  0500     RC2    IIN   0            RETURN FROM RECOVERY PROGRAM     **MSOS 4.0 JOBENT   250
                P00E9  0A00            ENA   0                                                        JOBENT   251
                P00EA  6800  FF49      STA   RI           CLEAR RECOVERY SWITCH              116*4366 JOBENT132  75
                P00EC  6800  FF46      STA   BPS          BREAKPOINT SWITCH                  116*4366 JOBENT132  76
                P00EE  6800  FF46      STA   LOADEP       LOADER FLAG                        116*4366 JOBENT132  77
                P00F0  18DD            JMP*  LB4                                            **MSOS 4.0 JOBENT   255


                P00F1  0000     REL    ADC   0            RELEASE FILE2, FILE3 ROUTINE IF THEY"RE IN   JOBENT   257
                P00F2  0500            IIN   0                                                        JOBENT   258
                P00F3  C400  7FFF X    LDA   JBCNFG       IF CANCEL FLAG SET - GO AWAY AND LET IT      JOBENT   259
                P00F5  0101            SAZ   G01            TAKE OVER.  IF NOT SET, CONTINUE ON        JOBENT   260
                P00F6  14EA            JMP-  ($EA)                                                    JOBENT   261
                P00F7  6CC7     G01    STA*  (JB)         SET JOB PROCESSOR NOT ACTIVE                 JOBENT   262
                P00F8  6400  7FFF X    STA   JKIN                                                     JOBENT   263
```

```
         P00FA  0804              SET  A          SET LIBEDT IN FLAG                  JOBENT  264
         P00FB  6CC2              STA* (SWT)                                          JOBENT  265
    5    P00FC  0400              EIN  0                                              JOBENT  266
         P00FD  0802              SET  Q          RELEASE AREA 3                      JOBENT  267
         P00FE  5802              RTJ* MRELF                                          JOBENT  268
         P00FF  1CF1              JMP* (REL)                                          JOBENT  269
         P0100  0B00     MRELF    NOP  0                                              JOBENT  270
   10    P0101  0143              SQZ  LOPER      DON"T RELEASE 3 IF T13 OR JLGOV4    JOBENT  271
         P0102  0DFA              INQ  -5         ARE BEING  CALLED                   JOBENT  272
         P0103  0141              SQZ  LOPER      PROTEC IS THERE                     JOBENT  273
         P0104  0C01              ENQ  1          SET TO RELEASE FILE3 AND FILE2      JOBENT  274
         P0105  CEB7     LOPER    LDA* (F2),Q                                         JOBENT  275
   15    P0106  0106              SAZ  CK         IF ALREADY RELEASED - TO NEXT ONE   JOBENT  276
         P0107  6805              STA* REL1       NOT RELEASED - RELEASE IT           JOBENT  277
         P0108  0844              CLR  A                                              JOBENT  278
         P0109  6EB3              STA* (F2),Q     ZERO FLAG                           JOBENT  279
         P010A  54F4              RTJ- ($F4)                                          JOBENT  280
   20    P010B  1800              ADC  $1800      RELEASE                             JOBENT  281
         P010C  0000     REL1     ADC  0                                              JOBENT  282
         P010D  0142     CK       SQZ  CONT       ALL COMPLETED - LEAVE               JOBENT  283
         P010E  0DFE              INQ  -1                                             JOBENT  284
         P010F  18F5              JMP* LOPER      NO - TRY AGAIN                      JOBENT  285
   25    P0110  1CEF     CONT     JMP* (MRELF)                                        JOBENT  286

         P0111  0000     SAVA     NUM  0                                              JOBENT  288
         P0112                    END                                                 JOBENT  289
```

64124B STORAGE USED 354 STATEMENTS 107 SYMBOLS
6400 ASSEMBLY 1.979 SECONDS 281 REFERENCES

COMPLETE REFERENCE MAP.

ABATCL	005B		4/43 L	5/33						
ADISP	00EA	ABSOLUTE	2/47 Q	5/43						
AFILV4	00BC	*EXTERNAL*	2/32 X	6/33						
AMONI	00F4	ABSOLUTE	2/47 Q	5/36	5/46					
BATCLU	005C	*EXTERNAL*	2/35 X	4/43						
BPS	0034		3/49 L	4/22	7/47					
BRL	0046		4/05	4/22 L						
BUFF1	0008		3/07	3/17 L	3/35	6/45				
BUFF2	002D		3/30	3/33	3/42 L	6/46				
CK	010D		8/15	8/22 L						
CONT	0110		8/22	8/25 L						
DISP	00EA	ABSOLUTE	2/45 Q	6/16	7/06	7/42				
DRV	002C		3/37 B							
ENDB	0012	ABSOLUTE	3/35 Q	3/36						
ENTTBL	003D		3/04	3/18	3/19	4/08 L	4/17			
ERRM	0005		3/08 L	4/10						
FILE1	0076	*EXTERNAL*	2/21 X	5/13						
FILE2	00BD	*EXTERNAL*	2/21 X	6/36						
FILL	001A		3/36 B							
FILTAB	0042		4/13 L	4/16						
F1	0076		2/60	3/31	3/44	3/48	3/52	5/13 L	6/58	7/36
F2	00BD		6/36 L	8/14	8/18					
GO1	00F7		7/56	7/58 L						
H00FF	000A	ABSOLUTE	2/50 Q							
H7FFF	0011	ABSOLUTE	2/51 Q	3/27	3/28					
I	00FF	-SYSTEM-	4/30	4/32	5/53					
INPIV4	0058	*EXTERNAL*	2/34 X	4/41						
IUP	008D	*EXTERNAL*	2/33 X	4/42	5/32					
JB	00BF		6/38 L	7/20	7/58					
JBCNFG	00F4	*EXTERNAL*	2/22 X	7/55						
JBENT	0000		2/17 E	3/45	4/09	4/12	4/15	6/59		
			2/55 L	3/49	4/10	4/13	4/16	7/37		
			3/32	3/53	4/11	4/14	5/48			
JBPADR	00B3		5/56	6/24 L						
JBPRO	00A7		2/18 E	4/09	5/58 L					
JBPR00	00AA		5/57	6/08 L						
JBST	00C0		4/29	6/39 L	7/19					
JB1	0077		3/26	3/32	3/42	5/14 L				
JB2	0078		3/45	3/46	5/15 L					
JB3	0079		3/49	3/50	5/16 L					
JB4	007A		3/53	3/54	5/17 L					
JCRDV4	00B8	*EXTERNAL*	2/31 X	6/29						
JFLG	0039		3/54 L	4/25						
JKIN	00F9	*EXTERNAL*	2/39 X	7/59						
JLGOV4	00B7	*EXTERNAL*	2/31 X	6/28						
JNAME	003C		4/05 L	4/27						
JOBIND	00BF	*EXTERNAL*	2/24 X	6/38						
JOBPRO	00B3	*EXTERNAL*	2/30 X	6/24						
JOB070	0061		4/47	4/49 L						
JOB080	0067		4/53	4/55 L						
JOB082	0070		4/58	5/07 L						
JOB084	0073		5/06	5/10 L						
JOB090	007C		5/11	5/19 L						
JOB100	0087		5/28 L							
JOB110	00P8		5/27	5/29 L						
JOB125	0098		5/38	5/44 L						
JOB130	00A1		4/48	5/34	5/52 L					

COMPLETE REFERENCE MAP.

JPCHGE	00B5	*EXTERNAL*	2/30 X	6/26				
JPFLV4	00B9	*EXTERNAL*	2/31 X	6/30				
JPLOAD	00B4	*EXTERNAL*	2/30 X	6/25				
JPSTV4	00BB	*EXTERNAL*	2/32 X	6/32				
JPSWT	00C0	*EXTERNAL*	2/27 X	6/39				
JPT13	00B2	*EXTERNAL*	2/30 X	6/23				
JP05	009E		5/42	5/49 L				
JP05ER	0090		4/54	5/12	5/28	5/30	5/36 L	
L	0024	ABSOLUTE	2/52 Q	3/36	4/31			
LB2	00CC		6/59	7/12 L				
LB4	00CE		7/14 L	7/49				
LENGTH	0008	ABSOLUTE	3/17	4/17 Q				
LIB	00C3		4/13	6/57 L				
LIBEDT	00C9	*EXTERNAL*	2/26 X	7/05				
LOADEP	0036		3/51 L	4/24	7/17	7/48		
LOOP	0009		3/18 L	3/23				
LOPER	0105		8/10	8/12	8/14 L	8/24		
MIB	00CF	*EXTERNAL*	2/23 X	5/45	7/14			
MIPBUF	0008		2/19 E	4/11	4/33	6/45 Q		
MRELF	0100		6/10	8/07	8/09 L	8/25		
MVBUF	0050		4/32 L	4/36				
NAMEV4	00BA	*EXTERNAL*	2/31 X	6/31				
NUMLU	0089	*EXTERNAL*	2/36 X	5/29				
OUT	0010		3/22	3/24 L				
PARMER	0091		5/37 L	5/38	5/42			
RCOVER	00E6	*EXTERNAL*	2/26 X	7/41				
RC2	00E8		7/37	7/44 L				
RECOVR	00DF		4/14	7/35 L				
REL	00F1		6/57	7/35	7/53 L	8/08		
REL1	010C		8/16	8/21 L				
RESTOR	00B6	*EXTERNAL*	2/37 X	6/27				
RI	0035		3/50 L	4/23	7/46			
SAVA	0111		8/27 L					
SAVBUF	007B		3/06	4/28	5/18 L	5/52		
SAVI	00C1		6/42 L					
SAVQ	00DE		7/11	7/21	7/25	7/29 L		
SAVQ1	00C2		4/15	5/55	5/58	6/11	6/43 L	
SCHADR	00B0		6/08	6/15 L				
SCHED	00AE		6/13 L					
SJBPRO	00A4		5/55 L	7/23	7/27			
SWT	00BE		6/37 L	7/16	8/04			
SWTCH	00BE	*EXTERNAL*	2/25 X	6/37				
TBL	00B2		6/04	6/23 L				
TEMP1	00A0		5/22	5/24	5/25	5/31	5/51 L	
TEN	0046	ABSOLUTE	2/49 Q	5/23				
TRANV	000C	*EXTERNAL*	2/38 X	3/20				
TRNTBL	002D		4/12	6/46 Q				
TWLVE	00C8		7/04 L					
T11	0078	*EXTERNAL*	2/43 X	5/15				
T3	0079	*EXTERNAL*	2/40 X	5/16				
T5	007A	*EXTERNAL*	2/41 X	5/17				
T7	0077	*EXTERNAL*	2/42 X	5/14				
ZERO	0022	ABSOLUTE	2/46 Q					

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

```
0000    023D        NAM    JOBPRO      DECK-ID M69  MSOS 5.0          SUMMAR
023D                END
```

BLOCKS	TYPE	ADDRESS	LENGTH
JOBPRO	PROGRAM*	0000	023D
SM1	LOCAL	0163	0024

ENTRY POINT NAMES AND ADDRESSES.

JOBTWO -- 0000 J03T -- 009F RF3 -- 00D6 R1 -- 00B7

EXTERNAL SYMBOLS.

BATCLU	FILE2	IUP	JBPROE	LOG1A	NSTACK	THREE	TWO
BATLST	FILE3	JBCFGZ	JOBIND	MIB	ONE	TRANV	VINPV4
ERRMSG	INPTV4	JBCNFG	JPSWT	MIBUF	RECOV	TRNVEC	

```
                                NAM  JOBPRO        DECK-ID M69  MSOS 5.0              SUMMARY-132 JOBPRO0132   1
                           *    MASS STORAGE OPERATING SYSTEM VERSION 5.0                          JOBPRO      3
                           *    SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                       JOBPRO      4
                           *    COPYRIGHT CONTROL DATA CORPORATION 1976                            JOBPRO      5

                           ************************************************                       JOBPRO      7

                           *    JOB PROCESSOR SECONDARY CONTROL MODULE                **MSOS 4.0 JOBPRO      9

                           ************************************************                       JOBPRO     11

                    0000 P         ENT   JOBTWO                                                  JOBPRO     13
                    00D6 P         ENT   RF3                                                     JOBPRO     14
                    009F P         ENT   JO3T          ERROR RETURN FROM DUMMY 1,2,3    **MSOS 4.1** JOBPRO     15
                    00B7 P         ENT   RI                                                      JOBPRO     16

                                   EXT   TRNVEC        ABS. ADDRESS OF TRANTA BUFFER IN JOBENT    JOBPRO     18
                                   EXT   JBPROE         ENTRY POINT TO JOBENT  (TRVEC)            JOBPRO     19
                                   EXT   MIBUF         ADDR. OF JOBENT MIBUF  (TRVEC)             JOBPRO     20
                                   EXT   JPSWT         SWITCH IN TRVEC   SET BY JOBENT           JOBPRO     21
                                   EXT   JBCNFG        JOB CANCEL FLAG                            JOBPRO     22
                                   EXT   RECOV                                                    JOBPRO     23
                                   EXT   ERRMSG                                                   JOBPRO     24
                                   EXT   FILE2                                                    JOBPRO     25
                                   EXT   NSTACK                                                   JOBPRO     26
                                   EXT   TRANV                                                    JOBPRO     27
                                   EXT   IUP                                                      JOBPRO     28
                                   EXT   MIB                                                      JOBPRO     29
                                   EXT   FILE3                                                    JOBPRO     30
                                   EXT   JOBIND                                     **MSOS 4.0 JOBPRO     31
                                   EXT   INPTV4                                     **MSOS 4.0 JOBPRO     32
                                   EXT   LOG1A                                      **MSOS 4.0 JOBPRO     33
                                   EXT   BATCLU        (TRVEC)                        116*4366 JOBPRO0132   2
                                   EXT   VINPV4                                                   JOBPRO     34
                                   EXT*  ONE,TWO,THREE                                            JOBPRO     35
                                   EXT   JBCFGZ                                                   JOBPRO     36
                    000A           EQU   HFF($A)                                                  JOBPRO     37
                    0011           EQU   H7FFF($11),HFFFF($12)                                    JOBPRO     38
                    0012
                                   EXT   BATLST                                      132*5184 JOBPRO0132   3
                    0002           EQU   LPMSK(2)                                    132*5184 JOBPRO0132   4
                    00B9           EQU   REQXT($B9)                                               JOBPRO     39

                    00EA           EQU   DISP($EA)                                                JOBPRO     41
                    0022           EQU   ZERO($22)                                  **MSOS 4.0 JOBPRO     42

P0000  C8FE        JOBTWO NUM   $C8FE      ENTRY POINT                                            JOBPRO     44
P0001  6C4D               STA*  (F2)                                                            JOBPRO     45
P0002  481F        JP1    STQ* SAVQ2        SAVE Q REG.                                        JOBPRO     46
P0003  6800  00AB         STA  TRANTA                                      **MSOS 4.0 JOBPRO     47
P0005  8000  00AF         ADD  =XTRANTA-JOBTWO                             **MSOS 4.0 JOBPRO     48
P0007  6400  7FFF X       STA  TRANV        ADD. OF JOBPRO TRANTA TABLE STORED                   JOBPRO     49
                          *                   IN TRVEC.                                          JOBPRO     50
P0009  0A07               ENA  7                                                                 JOBPRO     51
```

```
                P000A  8400  7FFF X        ADD  TRNVEC                                    **MSOS 4.0 JOBPRO   52
                P000C  60FF                STA- I                                                    JOBPRO   53
                P000D  0CF9                ENQ  -6                                        **MSOS 4.0 JOBPRO   54
                P000E  C4FF          LOOP  LDA- (I)       MOVE CONTENTS OF BPI, RI, AND LOADEP**MSOS 4.0 JOBPRO   55
                P000F  6A00  00AC          STA  TRANTA+13,Q AND ERROR NUMBER,STACK ADDR. JOB FLA**MSOS 4.0 JOBPRO   56
                P0011  D0FF                RAO- I                                                    JOBPRO   57
                P0012  0D01                INQ  1                                         **MSOS 4.0 JOBPRO   58
                P0013  0141                SQZ  OUT2                                                 JOBPRO   59
                P0014  18F9                JMP* LOOP                                                 JOBPRO   60
                P0015  E80C          OUT2  LDQ* SAVQ2                                               JOBPRO   61
                P0016  017B                SQM  JB-*-1     SKIP IF Q IS SET NEG.                     JOBPRO   62
                P0017  C400  7FFF X        LDA  JOBIND                                    **MSOS 4.0 JOBPRO   63
                             0018 P        EQU  JOBI(*-1)                                 **MSOS 4.0 JOBPRO   64
                P0019  0115                SAN  OUT3A                                     **MSOS 4.0 JOBPRO   65
                P001A  0804          OUT2A SET  A          EITHER INITIAL CALL OR BACK FROM **MSOS 4.0 JOBPRO   66
                                     *                     LIBEDT OR RECOVERY               **MSOS 4.0 JOBPRO   67
                P001B  6CFC                STA* (JOBI)                                    **MSOS 4.0 JOBPRO   68
                P001C  EA00  0092    OUT3  LDQ  TRANTA,Q                                  **MSOS 4.0 JOBPRO   69
                P001E  1AE1                JMP* JOBTWO,Q   JUMP THROUGH THE ADDRESS IN THE TRANTA     JOBPRO   70
                                     *                      TABLE TO THE PROPER ROUTINE.              JOBPRO   71
                P001F  012C          OUT3A SAP  JBP                                       **MSOS 4.0 JOBPRO   72
                P0020  18FB                JMP* OUT3                                      **MSOS 4.0 JOBPRO   73
                P0021  0000          SAVQ2 NUM  0                                                    JOBPRO   74
                P0022  E400  7FFF X  JB    LDQ  JPSWT      JPSWT IS SET NEG. AFTER RETURN FROM       JOBPRO   75
                                     *                      LIBEDT AND RECOVERY.  JOBENT STORES THE   JOBPRO   76
                                     *                      MIINP BUFFER ADDRESS IN HERE.  IF A NEW   JOBPRO   77
                                     *                      J P STMT. IS READ IN BY JOBPRO, THE ADDRESS JOBPRO   78
                                     *                      OF MIBUF IN JOBENT IS STORED IN INPBUF    JOBPRO   79
                                     *                      AT TAG RD3.                               JOBPRO   80
                P0024  4800  008C          STQ  INPBUF     STORE MIINP BUFFER ADDR IN TRANTA TA**MSOS 4.0 JOBPRO   81
                P0026  0168                SQP  JBPRO-*-1                                            JOBPRO   82
                P0027  0844                CLR  A                                                    JOBPRO   83
                P0028  6C00  00A3          STA  (MIB1)     CLEAR MIB SWITCH                 **MSOS 4.0 JOBPRO   84
                P002A  1800  00AC          JMP  JOBP       TYPE "J" AND INPUT CONTROL STATEMENT      JOBPRO   85
                P002C  0822          JBP   TRA  Q          T7 OR JPLOAD TERMINATED ON A CONTROL**MSOS 4.0 JOBPRO   86
                                     *                      STATEMENT. JOBIND IS BUFFER ADDRESS **MSOS 4.0 JOBPRO   87
                                     *                      OF CONTROL STATEMENT.            **MSOS 4.0 JOBPRO   88
                P002D  0804                SET  A                                         **MSOS 4.0 JOBPRO   89
                P002E  6CE9                STA* (JOBI)     RESET FOR NORMAL CONTROL CARD PROC. **MSOS 4.0 JOBPRO   90
                P002F  1800  0132    JBPRO JMP  SSI        STATEMENT ALREADY INPUT, MOVE TO SM BUF   JOBPRO   91

                P0031  4B2C          JPTAB ALF   1,K,     K  JP REQ. NO. 0                          JOBPRO   93
                P0032  42FF                NUM   $42FF     B  JP REQ. NO. 1                          JOBPRO   94
                P0033  55FF                NUM   $55FF     U  JP REQ. NO. 2                          JOBPRO   95
                P0034  56FF                NUM   $56FF     V  JP REQ. NO. 3                          JOBPRO   96
                P0035  5AFF                NUM   $5AFF     Z  JP REQ. NO. 4                          JOBPRO   97
                P0036  5352                ALF   1,SR      SR JP REQ. NO. 5                          JOBPRO   98
                P0037  FFFF                NUM   $FFFF     *  JP REQ. NO. 6                          JOBPRO   99
                P0038  454F                ALF   1,EO      EO JP REQ. NO. 7                 **MSOS 4.0 JOBPRO  100
                P0039  562C                ALF   1,V,      V, JP REQ. NO. 8                          JOBPRO  101
                P003A  4353                ALF   1,CS      CS JP REQ. NO. 9                 **MSOS 4.0 JOBPRO  102
                P003B  4144                ALF   1,AD        AD JP REQ. NO. A                        JOBPRO  103
                P003C  4253                ALF   1,BS        BS JP REQ. NO. B                        JOBPRO  104
                P003D  522C                ALF   1,R,        R, JP REQ. NO. C                        JOBPRO  105
                P003E  4A4F                ALF   1,JO        JO JP REQ. NO. D                        JOBPRO  106
                P003F  4354                ALF   1,CT        CT JP REQ. NO. E                        JOBPRO  107
                P0040  5041                ALF   1,PA        PA JP REQ. NO. F                        JOBPRO  108
```

```
                P0041  554E                ALF  1,UN          UN JP REQ. NO. 10                          JOBPRO  109
                P0042  4649                ALF  1,FI          FI JP REQ. NO. 11                          JOBPRO  110
            5   P0043  5055                ALF  1,PU          PU JP REQ. NO. 12                          JOBPRO  111
                P0044  4D4F                ALF  1,MO          MO JP REQ. NO. 13                          JOBPRO  112
                P0045  5245                ALF  1,RE          RE JP REQ. NO. 14                          JOBPRO  113
                P0046  4445                ALF  1,DE          DE JP REQ. NO. 15                          JOBPRO  114
                P0047  434C                ALF  1,CL          CL JP REQ. NO. 16                          JOBPRO  115
           10   P0048  4F50                ALF  1,OP          OP JP REQ. NO. 17                          JOBPRO  116
                P0049  31FF                NUM  $31FF          1 JP REQ. NO. 18                          JOBPRO  117
                P004A  32FF                NUM  $32FF          2 JP REQ. NO. 19                          JOBPRO  118
                P004B  33FF                NUM  $33FF          3 JP REQ. NO. 1A                          JOBPRO  119
                P004C        0000  JPTABL  BSS   JPTABL(0)                                               JOBPRO  120
           15   P004C  0000        SAVQ    NUM   $0000                                                   JOBPRO  121
                P004D  0000        TEMP    NUM   0                                    **MSOS 4.0 JOBPRO  122
                P004E  7FFF X      F2      ADC   FILE2                                **MSOS 4.0 JOBPRO  123

                P004F  E522        JOBP4   LDQ-  ($22),I    GET FIRST TWO WORDS.                       JOBPRO  125
           20   P0050  C101                LDA-  1,I                                                    JOBPRO  126
                P0051  0FE8                LLS   8                                                      JOBPRO  127
                P0052  48FA                STQ*  TEMP        SAVE SECOND AND THIRD CHAR.                JOBPRO  128
                P0053  A00A                AND-  $A          CHECK FOR ASTERICK                         JOBPRO  129
                P0054  09D5                INA   -$2A                                                   JOBPRO  130
           25   P0055  0101                SAZ   1                                                      JOBPRO  131
                P0056  1849                JMP*  JO3T                                                   JOBPRO  132
                P0057  C864                LDA*  TRANTA+12     IS A JOB IN PROGRESS       **MSOS 4.0 JOBPRO  133
                P0058  011E                SAN   JOLK          YES                        **MSOS 4.0 JOBPRO  134
                P0059  C8DB                LDA*  JPTAB+4       LET AN *Z THRU             **MSOS 4.0 JOBPRO  135
           30   P005A  B8F2                EOR*  TEMP                                     **MSOS 4.0 JOBPRO  136
                P005B  0107                SAZ   JOLKA1                                               JOBPRO  137
                P005C  B810                EOR*  HEXDF         TEST FOR BLANK                         JOBPRO  138
                P005D  0105                SAZ   JOLKA1                                               JOBPRO  139
                P005E  C8DF        JCHK    LDA*  JPTAB+13      NO-BUT MAY BE A JOB CARD                 JOBPRO  140
           35   P005F  B8ED                EOR*  TEMP                                     **MSOS 4.0 JOBPRO  141
                P0060  010D                SAZ   JOLKA         LET JCRDV4 DO THE REST OF THE CHECK **MSOS 4.0 JOBPRO  142
                P0061  C8D7                LDA*  JPTAB+8       V, ALLOWED TO START INPUT           **MSOS 4.0 JOBPRO  143
                P0062  B8EA                EOR*  TEMP          FROM OTHER THAN STANDARD            **MSOS 4.0 JOBPRO  144
                P0063  010A        JOLKA1  SAZ   JOLKA                                              **MSOS 4.0 JOBPRO  145
           40   P0064  C000  3135          LDA   =N$3135                                            **MSOS 4.0 JOBPRO  146
                P0066  183B                JMP*  JO3T1         ABORT THE JOB                       **MSOS 4.0 JOBPRO  147
                P0067  C806        JOLK    LDA*  TTYEOF        *G - EOF FOR TTY                    **MSOS 4.0 JOBPRO  148
                P0068  0874                EAQ   A                                                **MSOS 4.0 JOBPRO  149
                P0069  0114                SAN   JOLKA                                            **MSOS 4.0 JOBPRO  150
           45   P006A  1800  0182          JMP   TERMA         TERMINATE JOB                      **MSOS 4.0 JOBPRO  151
                P006C  00DF        HEXDF   NUM   $DF                                                    JOBPRO  152
                P006D  47FF        TTYEOF  NUM   $47FF                                      **MSOS 4.0 JOBPRO  153
                P006E  0C1A        JOLKA   ENQ   JPTABL-JPTAB-1  SEARCH THE TABLE          **MSOS 4.0 JOBPRO  154
                P006F  CAC1        RETRY   LDA*  JPTAB,Q     CHECK FOR REQUEST WORD.                    JOBPRO  155
           50   P0070  B8DC                EOR*  TEMP                                                   JOBPRO  156
                P0071  0105                SAZ   JOBP6-*-1                                              JOBPRO  157
                P0072  B8F9                EOR*  HEXDF                                                  JOBPRO  158
                P0073  0103                SAZ   JOBP6-*-1                                              JOBPRO  159
                P0074  0DFE                INQ   -1                                                     JOBPRO  160
           55   P0075  0171                SQM   1                                                      JOBPRO  161
                P0076  18F8                JMP*  RETRY         LOOP AROUND FOR NEXT STATEMENT         JOBPRO  162
                P0077  4842        JOBP6   STQ*  QREG          REQUEST NUMBER             **MSOS 4.0 JOBPRO  163
                P0078  5800  00DE          RTJ   JBKMIB        CHECK FOR JOB CANCEL       **MSOS 4.0 JOBPRO  164
                P007A  582A                RTJ*  MVTBL         MOVE TRANTA TABLE TO JOBENT **MSOS 4.0 JOBPRO  165
```

```
                P007B  E83E                    LDQ* QREG                                    **MSOS 4.0 JOBPRO  166
                P007C  0A00                    ENA  0                                       **MSOS 4.0 JOBPRO  167
           5    P007D  017E                    SQM  IDXTBL      JPLOAD CONTROL STATEMENT    **MSOS 4.0 JOBPRO  168
                P007E  0151                    SQN  1                                       **MSOS 4.0 JOBPRO  169
                P007F  1813                    JMP* IDXTBL+6    K                           **MSOS 4.0 JOBPRO  170
                P0080  0DF7                    INQ  -8                                                 JOBPRO  171
                P0081  0161                    SQP  1                                       **MSOS 4.0 JOBPRO  172
          10    P0082  017B                    SQM  IDXTBL+2    *,B,SR,U,V,Z,EOF            **MSOS 4.0 JOBPRO  173
                P0083  0DFB                    INQ  -4                                                 JOBPRO  174
                P0084  0161                    SQP  1                                       **MSOS 4.0 JOBPRO  175
                P0085  017C                    SQM  IDXTBL+6    CSY,V,ADR,ADF,BSR,BSF                  JOBPRO  176
                P0086  014A                    SQZ  IDXTBL+5    R                           **MSOS 4.0 JOBPRO  177
          15    P0087  0DFB                    INQ  -4                                      **MSOS 4.0 JOBPRO  178
                P0088  0177                    SQM  IDXTBL+4    JOB,CTO,PAUS                **MSOS 4.0 JOBPRO  179
                P0089  0DF7                    INQ  -8                                      **MSOS 4.0 JOBPRO  180
                P008A  0174                    SQM  IDXTBL+3    REWIND,FILES                **MSOS 4.0 JOBPRO  181
                P008B  1833                    JMP* JOBP9       1,2,3                     **MSOS 4.1** JOBPRO  182
          20    P008C  09F7            IDXTBL  INA  -8          JPLOAD                      **MSOS 4.0 JOBPRO  183
                P008D  0901                    INA  1           AFILV4                      **MSOS 4.0 JOBPRO  184
                P008E  0902                    INA  2           JPSTV4                      **MSOS 4.0 JOBPRO  185
                P008F  0901                    INA  1           JPFLV4                      **MSOS 4.0 JOBPRO  186
                P0090  0902                    INA  2           JCRDB4                      **MSOS 4.0 JOBPRO  187
          25    P0091  0901                    INA  1           RESTOR                      **MSOS 4.0 JOBPRO  188
                P0092  0903                    INA  3           JPCHGE                      **MSOS 4.0 JOBPRO  189
                P0093  0C00.           JBPEX   ENQ  0                                       **MSOS 4.0 JOBPRO  190
                P0094  6806                    STA* INDEX                                   **MSOS 4.0 JOBPRO  191
                P0095  C400  7FFF X            LDA  JBPROE                                  **MSOS 4.0 JOBPRO  192
          30    P0097  60FF                    STA- I                                       **MSOS 4.0 JOBPRO  193
                P0098  C802                    LDA* INDEX                                   **MSOS 4.0 JOBPRO  194
                P0099  14FF                    JMP- (I)                                     **MSOS 4.0 JOBPRO  195
                P009A  0000            INDEX   NUM  0                                       **MSOS 4.0 JOBPRO  196
                P009B  5832            TERM    RTJ* RELFIL                                  **MSOS 4.0 JOBPRO  197
          35    P009C  0A07                    ENA  7           A JOB IS ABNORMALLY TERMINATING SO **MSOS 4.0 JOBPRO  198
                P009D  0802                    SET  Q           SCHEDULE FILE MOD TO CLOSE OPEN JOB **MSOS 4.0 JOBPRO  199
                P009E  18F5                    JMP* JBPEX+1     FILES- RETURN WILL BE AT CLSDON **MSOS 4.0 JOBPRO  200


          40    P009F  C000  3033      JO3T    LDA  =N$3033     SET UP 03 ERROR CODE        **MSOS 4.0 JOBPRO  203
                P00A1  EC05            JO3T1   LDQ* (TRNTB)     JOBENT TRANTA TABLE         **MSOS 4.0 JOBPRO  204
                P00A2  620A                    STA- 10,Q        STORE ERROR IN TRANTA ERROR WORD **MSOS 4.0 JOBPRO  205
                P00A3  18F7                    JMP* TERM                                    **MSOS 4.0 JOBPRO  206
                                       *****      THIS ROUTINE MOVES THE TRANTA TABLE TO JOBENT  ********      JOBPRO  207
          45
                P00A4  0000            MVTBL   NUM  0                                                  JOBPRO  209
                P00A5  C400  000B X            LDA  TRNVEC      GET TRN TBL ADDR IN JOBENT  **MSOS 4.0 JOBPRO  210
                             00A6 P            EQU  TRNTB(*-1)                              **MSOS 4.0 JOBPRO  211
                P00A7  60FF                    STA- I            FROM TRVEC AND SAVE        **MSOS 4.0 JOBPRO  212
          50    P00A8  0C0E                    ENQ  LENGTH                                             JOBPRO  213
                P00A9  CA06            MOVE    LDA* TRANTA,Q    TRANSFER TRANTA TABLE TO JOBENT        JOBPRO  214
                P00AA  66FF                    STA- (I),Q                                   **MSOS 4.0 JOBPRO  215
                P00AB  0142                    SQZ  2                                                  JOBPRO  216
                P00AC  0DFE                    INQ  -1                                                 JOBPRO  217
          55    P00AD  18FB                    JMP* MOVE                                               JOBPRO  218
                P00AE  1CF5                    JMP* (MVTBL)                                            JOBPRO  219
```

```
                                *  VECTOR TABLE FOR JOB PROCESSOR                                    JOBPRO   221
5
        P00AF   7FFF            TRANTA NUM  $7FFF          0 - ABSOLUTE LOCATION OF JOBTWO           JOBPRO   223
        P00B0   002F                   ADC  JBPRO-JOBTWO  1 - RETURN WHEN STATEMENT ALREADY INPUT   JOBPRO   224
        P00B1   0000            INPBUF NUM  0               2 - ABS. ADDR. OF INPUT BUFFER IN JOBENT  JOBPRO   225
10      P00B2   00D7                   ADC  JOBP-JOBTWO   3 - RETURN WHEN NO STATEMENT - "J" PRINTED  JOBPRO   226
        P00B3   0197                   ADC  CLSDON-JOBTWO 4-RETURN AFTER FILES CLOSED       **MSOS 4.0 JOBPRO   227
        P00B4   0003                   ADC  FILHD-JOBTWO  5-ROUTINE FOR FILE MODS           **MSOS 4.0 JOBPRO   228
        P00B5   009B                   ADC  TERM-JOBTWO   6-START ABNORMAL JOB TERMINATION  **MSOS 4.0 JOBPRO   229
        P00B6   0000            BPS    NUM  0             7 - BREAKPOINT SWITCH                     JOBPRO   230
15      P00B7   0000            RI     NUM  0             8 - RECOVERY ON/OFF SWITCH                JOBPRO   231
        P00B8   0000            LOADEP NUM  0             9 - LOADER ENTRY POINT                    JOBPRO   232
        P00B9   0000            QREG   NUM  0            10 - REQUEST NUMBER                        JOBPRO   233
        P00BA   0000            STCK   NUM  0            11 - LOCATION OF PROTECT PROCESSOR REQ STACK JOBPRO   234
        P00BB   0000            JFLG   NUM  0            12-INDICATES IF A JOB IS IN PROGRESS**MSOS 4.0 JOBPRO   235
20      P00BC   7FFF X          NN     ADC  NSTACK        13 - NO. OF ENTRIES IN PROTEC STACK       JOBPRO   236
        P00BD   00D6                   ADC  RF3-JOBTWO    14 - RETURN TO RELEASE FILE 3 "OUTPUT J"  JOBPRO   237
                        000E           EQU  LENGTH(*-TRANTA-1)                       **MSOS 4.0 JOBPRO   238

25      P00BE   CA0A            JOBP9  LDA* TABLE,Q    GET ADDRESS OF PROGRAM                    JOBPRO   240
        P00BF   0834                   AAQ  A                                                    JOBPRO   241
        P00C0   0902                   INA  TABLE-JOBP10                                         JOBPRO   242
        P00C1   6805                   STA* JOBP10                                               JOBPRO   243
        P00C2   C800    00C5           LDA  SSI1          RESTORE INPUT BUFFER POINTER           JOBPRO   244
30      P00C4   60FF                   STA- I                                                    JOBPRO   245
        P00C5   5800                   RTJ* *                                                    JOBPRO   246
        P00C6   0000            JOBP10 NUM  $0000                                                JOBPRO   247
        P00C7   1810                   JMP* JOBP       GET NEXT STATEMENT                        JOBPRO   248

35      P00C8   7FFF X          TABLE  ADC  ONE           RELATIVE TRANSFER TABLE                 JOBPRO   250
        P00C9   7FFF X                 ADC  TWO           USERS PROGRAMS.                         JOBPRO   251
        P00CA   7FFF X                 ADC  THREE                                                 JOBPRO   252
                                * USER CAN ADD PROGRAM NAMES HERE.                                 JOBPRO   253

40      P00CB   7FFF X          F3     ADC  FILE3                                    **MSOS 4.0 JOBPRO   255
        P00CC   7FFF X          MIB1   ADC  MIB                                                   JOBPRO   256

        P00CD   0B00            RELFIL NOP  0                                                     JOBPRO   258
        P00CE   5800    0088           RTJ  JBKMIB                                               JOBPRO   259
45      P00D0   0842                   CLR  Q                                                    JOBPRO   260
        P00D1   4CFA                   STQ* (MIB1)        CLEAR MIB FLAG                         JOBPRO   261
        P00D2   1CFA                   JMP* (RELFIL)      RTS                                    JOBPRO   262

50
        P00D3   58F9            FILHD  RTJ* RELFIL                                               JOBPRO   264
        P00D4   0A00                   ENA  0                                        **MSOS 4.0 JOBPRO   265
        P00D5   18B7                   JMP* IDXTBL+1      SCHEDULE THE SECOND PORTION OF         **MSOS 4.0 JOBPRO   266
                                *                         THE FILE HANDLER                       **MSOS 4.0 JOBPRO   267
55      P00D6   58F6            RF3    RTJ* RELFIL                                               JOBPRO   268
        P00D7   CC00    0155    JOBP   LDA  (IUPP)        CHECK FOR TYPE OF INPUT                **MSOS 4.0 JOBPRO   269
        P00D9   682B                   STA* READLU                                               JOBPRO   270
        P00DA   A00A                   AND- $A            MEDIUM                                 JOBPRO   271
        P00DB   90FD                   SUB- $FD           INPUT COMMENT DEVICE                   **MSOS 4.0 JOBPRO   272
```

```
                P00DC  0103                SAZ  JOBP1          YES                                **MSOS 4.0 JOBPRO  273
                P00DD  80FD                ADD- $FD                                                **MSOS 4.0 JOBPRO  274
           5    P00DE  9000  00FD          SUB  =N$FD                                              **MSOS 4.0 JOBPRO  275
                P00E0  6873          JOBP1 STA* COMSW                                              **MSOS 4.0 JOBPRO  276
                P00E1  011B                SAN  JOBP61         DON"T PRINT A -J- ON THE LIST DEVICE**MSOS 4.0 JOBPRO  277
                P00E2  587A          WRIT  RTJ* JBKILL         CHECK FOR JOB CANCEL FLAG SET                 JOBPRO  278
                P00E3  54F4                RTJ- ($F4)          OUTPUT J                                      JOBPRO  279
          10    P00E4  0D00                ADC  $D00,WRIT1-WRIT-2                                  **MSOS 4.0 JOBPRO  280
                P00E5  0007
                P00E6  0000          WRITHD ADC  0                                                       JOBPRO  281
                P00E7  18FC          WRITLU ADC   $18FC,$2                                               JOBPRO  282
                P00E8  0002
          15    P00E9  0070                ADC   WRITO-*+5                                             JOBPRO  283
                P00EA  14EA                JMP- (DISP)                                             **MSOS 4.0 JOBPRO  284
                P00EB  0161          WRIT1 SQP  JOBP61                                             **MSOS 4.0 JOBPRO  285
                P00EC  18F5                JMP* WRIT                                                    JOBPRO  286
                P00ED  CC00  FF5F    JOBP61 LDA  (F2)           FIND ABS. LOC. OF SM                 **MSOS 4.0 JOBPRO  287
          20    P00EF  8000  0163          ADD  =XSM1-JOBTWO                                           JOBPRO  288
                P00F1  60FF                STA-  I                                                     JOBPRO  289
                P00F2  CC29                LDA* (STABUF)       GET ADDRESS INPUT BUF IN JOBENT      **MSOS 4.0 JOBPRO  290
                P00F3  6804                STA* SET+1                                                **MSOS 4.0 JOBPRO  291
                P00F4  0AFF                ENA  -0             SET BUFFER TO $FFFF                          JOBPRO  292
          25    P00F5  0C23                ENQ- L-1                                                    JOBPRO  293
                P00F6  6600  0000    SET   STA+ 0,Q            STORE IN MIBUF IN JOBENT             **MSOS 4.0 JOBPRO  294
                P00F8  6A6B                STA* SM1,Q          STORE IN LOCAL BUFFER                        JOBPRO  295
                P00F9  0DFE                INQ   -1                                                    JOBPRO  296
                P00FA  0171                SQM  READR                                                  JOBPRO  297
          30    P00FB  18FA                JMP*  SET                                                   JOBPRO  298
                P00FC  5860          READR RTJ* JBKILL         CHECK FOR JOB CANCEL FLAG SET                JOBPRO  299
                P00FD  C400  7FFF X        LDA  MIBUF          SET BUFFER ADDRESS IN CASE                   JOBPRO  300
                P00FF  6807                STA* READLU+2       MONITOR IS IN UPPER BANK                     JOBPRO  301
                P0100  54F4                RTJ- ($F4)          READ JP STATEMENT                            JOBPRO  302
          35    P0101  0800          REDPAR NUM  $800,0                                                  JOBPRO  303
                P0102  0000
                P0103  0000          RDTHD  ADC  0                                                       JOBPRO  304
                P0104  0000          READLU ADC  0,L+1,(MIBUF)                                           JOBPRO  305
                P0105  0025
          40    P0106  80FE X
                P0107  C8FB          RD2   LDA* RDTHD          CHECK FOR COMPLETION OF I/O                  JOBPRO  306
                P0108  0101                SAZ  RD1                                                    JOBPRO  307
                P0109  18FD                JMP*  RD2                                                   JOBPRO  308
                P010A  C8F9          RD1   LDA* READLU         CHECK FOR I/O ERROR                          JOBPRO  309
          45    P010B  012E                SAP  RD3            IF A READ ERROR,                             JOBPRO  310
                P010C  0FC4                ALS  4                                                  **MSOS 4.0 JOBPRO  311
                P010D  0139                SAM  RD1A           TTY ERROR                           **MSOS 4.0 JOBPRO  312
                P010E  0C00                ENQ  0                                                  **MSOS 4.0 JOBPRO  313
                P010F  0FEC                LLS  12                                                 **MSOS 4.0 JOBPRO  314
          50    P0110  E600  7FFF X        LDQ  LOG1A,Q        PSYTAB OF INPUT DEVICE              **MSOS 4.0 JOBPRO  315
                P0112  C20C                LDA- 12,Q           LOOK FOR EOF                        **MSOS 4.0 JOBPRO  316
                P0113  0FC4                ALS  4                                                  **MSOS 4.0 JOBPRO  317
                P0114  0122                SAP  RD1A                                               **MSOS 4.0 JOBPRO  318
                P0115  1800  00D7          JMP  TERMA          EOF--TERMINATE JOB                  **MSOS 4.0 JOBPRO  319
          55    P0117  1800  0116    RD1A  JMP  RESTR          RESTORE INPUT ON FAILURE            **MSOS 4.0 JOBPRO  320


                P0119  8106 X        SM1A  ADC  (MIBUF)         ABS ADDR. OF INPUT BUFFER IN JOBENT          JOBPRO  322
```

```
                P011A  E400  0119 X  RD3    LDQ  MIBUF                                  **MSOS 4.0 JOBPRO  324
                             011B P         EQU  STABUF(*-1)                           **MSOS 4.0 JOBPRO  325
     5          P011C  1846                 JMP* SSI          TRANSFER MIINP BUFFER                JOBPRO  326
                P011D  0C23          SMCKS  ENQ  L-1                                             JOBPRO  327
                P011E  CCFC                 LDA* (STABUF)     ADDR. OF INPUT BUFFER IN JOBENT  **MSOS 4.0 JOBPRO  328
                P011F  6810                 STA* SMCKS2+1                                      **MSOS 4.0 JOBPRO  329
                P0120  681E                 STA* SMCKS3+1                                      **MSOS 4.0 JOBPRO  330
    10          P0121  CA42          SMCKS1 LDA* SM1,Q        GET WORD FROM STATEMENT BUFFER       JOBPRO  331
                P0122  B012                 EOR- HFFFF        IS WORD $FFFF                      JOBPRO  332
                P0123  0108                 SAZ  BCKGND       YES, STORE INTO BUFFERS            JOBPRO  333
                P0124  CA3F                 LDA* SM1,Q        NO                                 JOBPRO  334
                P0125  B000  20FF           EOR  =N$20FF      IS WORD $20FF                      JOBPRO  335
    15          P0127  0104                 SAZ  BCKGND       YES, FILL ENTIRE WORD WITH $FFFF   JOBPRO  336
                P0128  CA3B                 LDA* SM1,Q        NO                                 JOBPRO  337
                P0129  B000  2020           EOR  =N$2020      IS WORD $2020                      JOBPRO  338
                P012B  0117                 SAN  SMX          NO, MUST HAVE A VALID CHARACTER    JOBPRO  339
                P012C  C012          BCKGND LDA- HFFFF        YES, FILL ENTIRE WORD WITH $FFFF   JOBPRO  340
    20          P012D  6A36                 STA* SM1,Q        IN LOCAL BUFFER                    JOBPRO  341
                P012E  6600  0000    SMCKS2 STA+ 0,Q          AND IN JOBENT BUFFER               JOBPRO  342
                P0130  0DFE                 INQ  -1                                             JOBPRO  343
                P0131  0141                 SQZ  SMX                                            JOBPRO  344
                P0132  18EE                 JMP* SMCKS1       LOOP                               JOBPRO  345
    25          P0133  CA30          SMX    LDA* SM1,Q        IS LOWER CHARACTER A SPACE ($20)   JOBPRO  346
                P0134  A00A                 AND- HFF                                            JOBPRO  347
                P0135  B028                 EOR- $28          ($0020)                           JOBPRO  348
                P0136  0102                 SAZ  SMX1         YES, BACKGROUND LOWER CHARACTER    JOBPRO  349
                P0137  CA2C                 LDA* SM1,Q        NO, ENTIRE WORD IS VALID TO PROCESS JOBPRO  350
    30          P0138  1805                 JMP* SMCKS3                                         JOBPRO  351
                P0139  CA2A          SMX1   LDA* SM1,Q        PUT $FF INTO LOWER CHARACTER       JOBPRO  352
                P013A  A01A                 AND- $1A          ($FF00)                           JOBPRO  353
                P013B  B00A                 EOR- HFF                                            JOBPRO  354
                P013C  6A27          SMX1A  STA* SM1,Q                                          JOBPRO  355
    35          P013D  6600  0000    SMCKS3 STA+ 0,Q                                           JOBPRO  356
                P013F  C814          SMY    LDA*  COMSW                                         JOBPRO  357
                P0140  010F                 SAZ  JJOBP4-*-1                                     JOBPRO  358
                P0141  E823                 LDQ* SM1+1                                         **MSOS 4.0 JOBPRO  359
                P0142  C823                 LDA* SM1+2                                         **MSOS 4.0 JOBPRO  360
    40          P0143  0F68                 LRS  8                                             **MSOS 4.0 JOBPRO  361
                P0144  9812                 SUB* B            DON"T COPY A JOB CARD            **MSOS 4.0 JOBPRO  362
                P0145  010A                 SAZ  JJOBP4       JCRDV4 WILL DO IT                **MSOS 4.0 JOBPRO  363
                P0146  54F4                 RTJ-  ($F4)                                         JOBPRO  364
                P0147  0D00          SMWRIT ADC  $D00,0,0,$18FB,L   COPY SM BUFFER TO LIST OUTPUT JOBPRO  365
    45          P0148  0000
                P0149  0000
                P014A  18FB
                P014B  0024
                P014C  001C                 ADC  SM1-SMWRIT                                     JOBPRO  366
    50          P014D  C8FB          SMW1   LDA* SMWRIT+2                                       JOBPRO  367
                P014E  0101                 SAZ  JJOBP4                                         JOBPRO  368
                P014F  18FD                 JMP*  SMW1                                          JOBPRO  369
                P0150  580C          JJOBP4 RTJ* JBKILL       CHECK FOR JOB CANCEL FLAG SET      JOBPRO  370
                P0151  1800  FEFC           JMP   JOBP4                                         JOBPRO  371
    55          P0153  0000          COMSW  NUM  0                                              JOBPRO  372
                P0154  4A20          WRITO  ALF  1,J                                            JOBPRO  373
                P0155  0DFF                 NUM  $0DFF                                          JOBPRO  374

                P0156  422C          B      ALF  1,B,                                          **MSOS 4.0 JOBPRO  376
```

```
                                    *  THIS SUBROUTINE CHECKS FOR JOB CANCEL FLAG SET AND, IF CLEAR, SETS    JOBPRO  378
                                    *   MIB FLAG FOR JOB LOCKOUT.                                            JOBPRO  379

 P0157  0000                        JBKMIB ADC  0                                                            JOBPRO  381
 P0158  5804                               RTJ* JBKILL       CHECK FOR JOB CANCEL FLAG SET                  JOBPRO  382
 P0159  D400  00CC X                       RAO  MIB          NOT SET  SET MIB SWITCH          **MSOS 4.0 JOBPRO  383
              015A P                       EQU  MIBFLG(*-1)                                   **MSOS 4.0 JOBPRO  384
 P015B  1CFB                               JMP* (JBKMIB)     RETURN TO SENDER                             JOBPRO  385
                                    *  THIS SUBROUTINE CHECKS THE JOB CANCEL FLAG.  IF SET, IT EXITS TO      JOBPRO  386
                                    *      THE DISP. TO WAIT FOR JOBKILL                                     JOBPRO  387

 P015C  0000                        JBKILL ADC  0                                                            JOBPRO  389
 P015D  C400  7FFF X                       LDA  JBCNFG       CHECK FOR JOB KILL MODULE ACTIVE               JOBPRO  390
 P015F  0101                               SAZ  RETURN                                                      JOBPRO  391
 P0160  14EA                               JMP- ($EA)                                                       JOBPRO  392
 P0161  1CFA                        RETURN JMP* (JBKILL)     NOT ACTIVE- RETURN WITH INHIBITED INTERRUPTS   JOBPRO  393


                                    * THIS ROUTINE SAVES THE JOB PROCESSOR STATEMENT                         JOBPRO  396
                                    * DEFINE BY LOCATION SPECIFIED IN Q REGISTER.                            JOBPRO  397

              0024                         EQU  L(36)                                         **MSOS 4.0 JOBPRO  399
 P0162  5826                        SSI    RTJ* SSI1         MOVE STATEMENT TO INTERNAL BUFFER              JOBPRO  400
 P0163        0024                         BSS  SM1(L)       STATEMENT BUFFER                               JOBPRO  401
 P0187  FFFF                               NUM  $FFFF                                                       JOBPRO  402
 P0188  0000                        SSI1   0    0            ABS LOCATION OF SM1 BUFFER                     JOBPRO  403
 P0189  C8FE                               LDA* SSI1                                                        JOBPRO  404
 P018A  60FF                               STA- I            I POINTS TO BEGINNING OF INPUT BUFFER          JOBPRO  405
 P018B  480B                               STQ* BUFPTR       SET BUFPTR TO POINT TO SOURCE BUFFER           JOBPRO  406
 P018C  4800  FF23                         STQ  INPBUF                                                      JOBPRO  407
 P018E  0C23                               ENQ  L-1                                                         JOBPRO  408
 P018F  CE07                        LOP1   LDA* (BUFPTR),Q   PICK-UP FROM USERS                           JOBPRO  409
 P0190  66FF                               STA- (I),Q        INTO LOCAL                                     JOBPRO  410
 P0191  0142                               SQZ  OUT1         IF Q ZERO - DONE                               JOBPRO  411
 P0192  0DFE                               INQ  -1                                                          JOBPRO  412
 P0193  18FB                               JMP* LOP1         NEXT WORD                                      JOBPRO  413
 P0194  4CC5                        OUT1   STQ* (MIBFLG)     CLEAR MIB SWITCH                 **MSOS 4.0 JOBPRO  414
 P0195  1887                               JMP* SMCKS        GET LOCAL BUFFER AND BUFFER IN JOBENT          JOBPRO  415
                                    *                        BACKGROUNDED                                   JOBPRO  416
 P0196  0000                        BUFPTR ADC  0            POINTER TO USERS BUFFER                        JOBPRO  417
```

```
                                ************************************************************          JOBPRO   419
                                *      THIS AREA IS ENTERED AFTER TERM LOGIC HAS CALLED FILE  **MSOS 4.0 JOBPRO   420
                                *      MODULE TO CLOSE JOB FILES FOR ABNORMAL TERM.           **MSOS 4.0 JOBPRO   421
                                ************************************************************MSOS 4.0 JOBPRO   422
 P0197  C800  FF20      CLSDON LDA  TRANTA+10     ERROR CODE                                 **MSOS 4.0 JOBPRO   423
 P0199  0122                   SAP  J             MINUS FOR *T RESPONSE TO                             JOBPRO   424
 P019A  C800  009B             LDA  NAME+2        LOADER ERROR                                         JOBPRO   425
 P019C  E400  7FFF X    J      LDQ  ERRMSG        PICK UP ADDRESS OF ERRM IN JOBENT                    JOBPRO   426
 P019E  4815                   STQ* JSTART        STORE IN WRITE REQ.                                  JOBPRO   427
 P019F  6623                   STA- ($23),0       STORE CORRECT ERROR NO. IN SM IN JOBENT              JOBPRO   428
 P01A0  0D27                   INQ  L+3           Q POINTS TO MIPBUF+1 IN JOBENT             **MSOS 4.0 JOBPRO   429
                        *                         MIPBUF IN JOBENT                                     JOBPRO   430
 P01A1  40FF                   STQ- I                                                                  JOBPRO   431
 P01A2  0CD8                   ENQ  -L-3                                                  **MSOS 4.0 JOBPRO   432
 P01A3  C722            J1     LDA- (ZERO),B      CHECK FOR A NULL CHARACTER                 **MSOS 4.0 JOBPRO   433
 P01A4  0864                   TCA  A                                                                  JOBPRO   434
 P01A5  0104                   SAZ  J2A                                                   **MSOS 4.0 JOBPRO   435
 P01A6  D80C                   RAO* JN                                                    **MSOS 4.0 JOBPRO   436
 P01A7  0D01                   INQ  1                                                     **MSOS 4.0 JOBPRO   437
 P01A8  0141                   SQZ  J2A                                                   **MSOS 4.0 JOBPRO   438
 P01A9  18F9                   JMP* J1                                                              JOBPRO   439

 P01AA  5802            J2A    RTJ* WRERR         WRITE ERROR MESSAGE                                  JOBPRO   441
 P01AB  180E                   JMP* ERRAG                                                           JOBPRO   442
 P01AC  0B00            WRERR  NOP  0                                                               JOBPRO   443
 P01AD  54F4                   RTJ- ($F4)                                                           JOBPRO   444
 P01AE  0C00                   NUM  $C00,$0,$0,$18FC                                                JOBPRO   445
 P01AF  0000
 P01B0  0000
 P01B1  18FC
 P01B2  0000            JN     NUM  $0000                                                           JOBPRO   446
 P01B3  0000            JSTART ADC  0               STARTING ADDRESS OF MIPBUF IN JOBENT             JOBPRO   447
 P01B4  C8FB                   LDA* JN-2          WAIT FOR COMPLETION                                  JOBPRO   448
 P01B5  0101                   SAZ  1                                                               JOBPRO   449
 P01B6  18FD                   JMP* *-2                                                             JOBPRO   450
 P01B7  E8F9                   LDQ* JN-1          CHECK FOR ERROR ON WRITTING                       JOBPRO   451
                        *                           2 CARDS DELETED                                  JOBPRO   452
 P01B8  1CF3                   JMP* (WRERR)                                                         JOBPRO   453
 P01B9  C000  18FB      ERRAG  LDA  =N$18FB                                                         JOBPRO   454
 P01BB  68F5                   STA* JN-1                                                            JOBPRO   455
 P01BC  C0FC                   LDA- $FC             LU OF COMMENT DEVICE                            JOBPRO   456
 P01BD  90FB                   SUB- $FB             LU OF STD.PRINT DEVICE                          JOBPRO   457
 P01BE  0101                   SAZ  GONXT1          IF.EQ.PRINT MESSAGE ONLY ONCE                   JOBPRO   458
 P01BF  58EC                   RTJ* WRERR                                                           JOBPRO   459
 P01C0  D8F0            GONXT1 RAO* JN-1                                                            JOBPRO   460
 P01C1  0A00                   ENA  0                                                     **MSOS 4.0 JOBPRO   461
 P01C2  68EF                   STA* JN              CLEAR WORD COUNT                      **MSOS 4.0 JOBPRO   462
 P01C3  CC6A                   LDA* (IUPP)          INPUT DEVICE                          **MSOS 4.0 JOBPRO   463
 P01C4  6805                   STA* MLU                                                   **MSOS 4.0 JOBPRO   464
 P01C5  54F4                   RTJ- ($F4)           GET THE NEXT JOB                      **MSOS 4.0 JOBPRO   465
 P01C6  1C00                   NUM  $1C00,0         SKIP TO EOF ON INPUT UNIT             **MSOS 4.0 JOBPRO   466
 P01C7  0000
 P01C8  0000            TH     NUM  0                                                     **MSOS 4.0 JOBPRO   467
 P01C9  0000            MLU    NUM  0                                                     **MSOS 4.0 JOBPRO   468
 P01CA  5000                   NUM  $5000                                                 **MSOS 4.0 JOBPRO   469
 P01CB  C8FC                   LDA* TH                                                    **MSOS 4.0 JOBPRO   470
```

```
                P01CC  0101                SAZ  1                                    **MSOS 4.0 JOBPRO   471
                P01CD  18FD                JMP* *-2                                  **MSOS 4.0 JOBPRO   472
     5          P01CE  E400  00A6 X        LDQ  TRNVEC       ADDRESS OF TRANTA TABLE IN JOBENT  **MSOS 4.0 JOBPRO   473
                       01CF P              EQU  TRATBL(*-1)                          **MSOS 4.0 JOBPRO   474
                P01D0  C20F                LDA- 15,Q                                 **MSOS 4.0 JOBPRO   475
                P01D1  0135                SAM  ABOR         NO JOB NAME             **MSOS 4.0 JOBPRO   476
                P01D2  6862                STA* NAME                                 **MSOS 4.0 JOBPRO   477
    10          P01D3  C210                LDA- 16,Q                                 **MSOS 4.0 JOBPRO   478
                P01D4  6861                STA* NAME+1                               **MSOS 4.0 JOBPRO   479
                P01D5  C211                LDA- 17,Q                                 **MSOS 4.0 JOBPRO   480
                P01D6  6860                STA* NAME+2                               **MSOS 4.0 JOBPRO   481
                P01D7  0AFF          ABOR  ENA  -0           CLEAR JOB NAME          **MSOS 4.0 JOBPRO   482
    15          P01D8  620F                STA- 15,Q         CLEAR JOB NAME          **MSOS 4.0 JOBPRO   483
                P01D9  5802                RTJ* ABERR                                          JOBPRO   484
                P01DA  180B                JMP* TERM1+1                                        JOBPRO   485
                P01DB  0B00          ABERR NOP  0                                              JOBPRO   486
                P01DC  54F4          ABORT RTJ- ($F4)                                **MSOS 4.0 JOBPRO   487
    20          P01DD  0D00                ADC  $D00,TERM1-ABORT-1,0,$18FC,8                   JOBPRO   488
                P01DE  0007
                P01DF  0000
                P01E0  18FC
                P01E1  0008
    25          P01E2  0057                ADC  NAME-ABORT-1                       **MSOS 4.0 JOBPRO   489
                P01E3  14EA                JMP- (DISP)                             **MSOS 4.0 JOBPRO   490
                P01E4  1CF6          TERM1 JMP* (ABERR)                                        JOBPRO   491
                P01E5  C000  18FB          LDA  =N$18FB                                        JOBPRO   492
                P01E7  68F8                STA* ABORT+4                                        JOBPRO   493
    30          P01E8  C0FC                LDA- $FC          LU OF COMMENT DEVICE              JOBPRO   494
                P01E9  90FB                SUB- $FB          LU OF STD.PRINT DEVICE            JOBPRO   495
                P01EA  0101                SAZ  GONXT2       IF.EQ.PRINT LESSAGE ONLY ONCE     JOBPRO   496
                P01EB  58EF                RTJ* ABERR                                          JOBPRO   497
                P01EC  D8F3          GONXT2 RAO* ABORT+4                                       JOBPRO   498
    35          P01ED  0A01          TERMA ENA  1                                    **MSOS 4.0 JOBPRO   499
                P01EE  60E4                STA- $E4                                **MSOS 4.0 JOBPRO   500
                P01EF  C0C1                LDA- $C1                                          JOBPRO   501
                P01F0  6809                STA* SECT+1                                       JOBPRO   502
                P01F1  54F4          STRTM RTJ- ($F4)        WRITE *T ON SCRATCH UNIT          JOBPRO   503
    40          P01F2  0D00                NUM  $D00,0                                       JOBPRO   504
                P01F3  0000
                P01F4  0000          THR   NUM  0,$8C2,0                                     JOBPRO   505
                P01F5  08C2
                P01F6  0000
    45          P01F7  004A                ADC  STRTEE-STRTM-1                               JOBPRO   506
                P01F8  0000          SECT  NUM  0,0                                          JOBPRO   507
                P01F9  0000
                P01FA  C8F9                LDA* THR                                          JOBPRO   508
                P01FB  0101                SAZ  1                                            JOBPRO   509
    50          P01FC  18FD                JMP* *-2                                          JOBPRO   510
                P01FD  E0FB                LDQ- $FB                          132*5184 JOBPRO0132    5
                P01FE  480D                STQ* WEOFB+4                      132*5184 JOBPRO0132    6
                P01FF  E600  0111 X        LDQ  LOGIA,Q      GET PHYSTAB ADDRESS             132*5184 JOBPRO0132    7
                P0200  C208                LDA- 8,Q          GET EQUIPMENT CLAS, TYPE        132*5184 JOBPRO0132    8
    55        * P0202  A010                AND- LPMSK+14                             132*5184 JOBPRO0132    9
                P0203  0F44                ARS  4                                    132*5184 JOBPRO0132   10
                P0204  9000  028A          SUB  =N$28A       IS LIST = BATCH OUTPUT DEVICE   132*5184 JOBPRO0132   11
                P0206  0119                SAN  NOEOF                                132*5184 JOBPRO0132   12
                P0207  54F4          WEOFB RTJ- ($F4)        WRITE EOF TO LIST DEVICE        132*5184 JOBPRO0132   13
```

```
                P0208  1D00                    ADC  $1D00                                    132*5184 JOBPRO132  14
                P0209  0000                    ADC  0                                       132*5184 JOBPRO132  15
 5              P020A  0000             TR3    ADC  0                                       132*5184 JOBPRO132  16
                P020B  0000                    ADC  0                                       132*5184 JOBPRO132  17
                P020C  2000                    NUM  $2000                                   132*5184 JOBPRO132  18
                P020D  C8FC             TRL    LDA* TR3                                     132*5184 JOBPRO132  19
                P020E  0101                    SAZ  NOEOF                                   132*5184 JOBPRO132  20
10              P020F  18FD                    JMP* TRL                                     132*5184 JOBPRO132  21
                              0210 P    NOEOF  EQU  NOEOF(*)                                132*5184 JOBPRO132  22
                P0210  0A00                    ENA  0                                     **MSOS 4.0 JOBPRO     511
                P0211  ECBD                    LDQ* (TRATBL)                              **MSOS 4.0 JOBPRO     512
                P0212  620C                    STA- 12,Q        CLEAR JOB IN PROGRESS FLAG **MSOS 4.0 JOBPRO     513
15              P0213  6800  FEA6              STA  TRANTA+12                             **MSOS 4.0 JOBPRO     514
                P0215  6400  7FFF X           STA  JBCFGZ      CLEAR JOB ABORT FLAG                 JOBPRO     515
                P0217  6800  FE9F             STA  TRANTA+9    CLEAR LOADER IN CORE FLAG            JOBPRO     516
                P0219  6800  FE9B             STA  TRANTA+7    CLEAR BREAKPOINT SWITCH              JOBPRO     517
                P021B  6400  7FFF X           STA  VINPV4      CLEAR *V,LU WHEN THE JOB ABORTS      JOBPRO     518
20              P021D  C400  7FFF X           LDA+ BATCLU      BATCH CONTROL STATEMENT LU    116*4366 JOBPRO132  23
                P021F  6C0E                    STA* (IUPP)                                **MSOS 4.0 JOBPRO     520
                P0220  C800  FE95      RSET    LDA  RI                                    **MSOS 4.0 JOBPRO     521
                P0222  0108                    SAZ  GETMOR                                **MSOS 4.0 JOBPRO     522
                P0223  0802                    SET  Q                                     **MSOS 4.0 JOBPRO     523
25              P0224  0A00                    ENA  0                                     **MSOS 4.0 JOBPRO     524
                P0225  6800  FE90              STA  RI                                    **MSOS 4.0 JOBPRO     525
                P0227  C400  7FFF X           LDA  RECOV       SCHEDULE RCOVER           **MSOS 4.0 JOBPRO     526
                P0229  60FF                    STA- I           THRU JOBENT               **MSOS 4.0 JOBPRO     527
                P022A  14FF                    JMP- (I)                                   **MSOS 4.0 JOBPRO     528
30              P022B  1800  FEA9      GETMOR  JMP  RF3         GET ANOTHER JOB           **MSOS 4.0 JOBPRO     529
                P022D  7FFF X          IUPP    ADC  IUP                                   **MSOS 4.0 JOBPRO     530
                P022E  C000  18FD      RESTR   LDA  =N$18FD                               *390      JOBPRO     531
                              022F P           EQU  COMDEV(*-1)                           **MSOS 4.0 JOBPRO     532
                P0230  6CFC                    STA* (IUPP)                                          JOBPRO     533
35              P0231  1800  FEA4              JMP  JOBP                                            JOBPRO     534
                P0233  0000             SAVIT  ADC  0                                               JOBPRO     535
                P0234  204A             NAME   ALF  3, JOB                                 **MSOS 4.0 JOBPRO     536
                P0235  4F42
                P0236  2020
40              P0237  2041                    ALF  5, ABORTED                            **MSOS 4.0 JOBPRO     537
                P0238  424F
                P0239  5254
                P023A  4544
                P023B  2020
45              P023C  2A54             STRTEE ALF  1,*T                                            JOBPRO     538
                P023D                          END                                                  JOBPRO     539


                       67773B STORAGE USED          559 STATEMENTS      160 SYMBOLS
                              6400 ASSEMBLY       4.765 SECONDS         449 REFERENCES
```

COMPLETE REFERENCE MAP.

ABERR	01DB		11/16	11/18 L	11/27	11/33				
ABOR	01D7		11/08	11/14 L						
ABORT	01DC		11/19 L	11/20	11/25	11/29	11/34			
B	0156		8/41	8/59 L						
BATCLU	021E	*EXTERNAL*	2/37 X	12/20						
BATLST	7FFF	*EXTERNAL*	2/44 X							
BCKGND	012C		8/12	8/15	8/19 L					
BPS	00B6		6/14 L							
BUFPTR	0196		9/34	9/37	9/45 L					
CLSDON	0197		6/11	10/08 L						
COMDEV	022F		12/33 Q							
COMSW	0153		7/06	8/36	8/55 L					
DISP	00EA	ABSOLUTE	2/48 Q	7/16	11/26					
ERRAG	01B9		10/27	10/42 L						
ERRMSG	019D	*EXTERNAL*	2/27 X	10/11						
FILE2	004E	*EXTERNAL*	2/28 X	4/17						
FILE3	00CB	*EXTERNAL*	2/33 X	6/40						
FILNO	00D3		6/12	6/51 L						
F2	004E		2/53	4/17 L	7/19					
F3	00CB		6/40 L							
GETMOR	022B		12/23	12/30 L						
GONXT1	01C0		10/46	10/48 L						
GONXT2	01EC		11/32	11/34 L						
HEXOF	006C		4/32	4/46 L	4/52					
HFF	000A	ABSOLUTE	2/41 Q	8/26	8/33					
HFFFF	0012	ABSOLUTE	2/42 Q	8/11	8/19					
H7FFF	0011	ABSOLUTE	2/42 Q							
I	00FF	-SYSTEM-	3/04	3/08	5/32	5/52	7/21	9/38	12/28	
			3/06	5/30	5/49	6/30	9/33	10/16	12/29	
IDXTBL	008C		5/05	5/10	5/14	5/18	6/53			
			5/07	5/13	5/16	5/20 L				
INDEX	009A		5/28	5/31	5/33 L					
INPBUF	00B1		3/32	6/09 L	9/35					
INPTV4	7FFF	*EXTERNAL*	2/35 X							
IUP	022D	*EXTERNAL*	2/31 X	12/31						
IUPP	022D		6/56	10/51	12/21	12/31 L	12/34			
J	019C		10/09	10/11 L						
JB	0022		3/13	3/26 L						
JBCFGZ	0216	*EXTERNAL*	2/40 X	12/16						
JBCNFG	015E	*EXTERNAL*	2/25 X	9/18						
JBKILL	015C		7/08	7/31	8/53	9/09	9/17 L	9/21		
JBKMIB	0157		4/58	6/44	9/08 L	9/12				
JBP	002C		3/23	3/37 L						
JBPEX	0093		5/27 L	5/37						
JBPRO	002F		3/33	3/42 L	6/08					
JBPROE	0096	*EXTERNAL*	2/22 X	5/29						
JCHK	005E		4/34 L							
JFLG	00BB		6/19 L							
JJOBP4	0150		8/37	8/42	8/51	8/53 L				
JN	01B2		10/21	10/34 L	10/36	10/39	10/43	10/48	10/50	
JOBI	0018		3/15 Q	3/19	3/41					
JOBIND	0018	*EXTERNAL*	2/34 X	3/14						
JOBP	00D7		3/36	6/10	6/33	6/56 L	12/35			
JOBP1	00E0		6/60	7/06 L						
JOBP10	00C6		6/27	6/28	6/32 L					
JOBP4	004F		4/19 L	8/54						
JOBP6	0077		4/51	4/53	4/57 L					

JOBP61	00ED		7/07	7/17	7/19 L			
JOBP9	00BE		5/19	6/25 L				
JOBTWO	0000		2/16 E	2/56	6/08	6/11	6/13	7/20
			2/52 L	3/21	6/10	6/12	6/21	
JOLK	0067		4/28	4/42 L				
JOLKA	006E		4/36	4/39	4/44	4/48 L		
JOLKA1	0063		4/31	4/33	4/39 L			
JO3T	009F		2/18 E	4/26	5/40 L			
JO3T1	00A1		4/41	5/41 L				
JPSWT	0023	*EXTERNAL*	2/24 X	3/26				
JPTAB	0031		3/44 L	4/29	4/34	4/37	4/48	4/49
JPTABL	004C		4/14 B	4/48				
JP1	0002		2/54 L					
JSTART	01B3		10/12	10/35 L				
J1	01A3		10/18 L	10/24				
J2A	01AA		10/20	10/23	10/26 L			
L	0024	ABSOLUTE	7/25	8/06	9/27 Q	9/36	10/17	
			7/38	8/47	9/29	10/14		
LENGTH	000E	ABSOLUTE	5/50	6/22 Q				
LOADEP	00B8		6/16 L					
LOG1A	0200	*EXTERNAL*	2/36 X	7/50	11/53			
LOOP	000E		3/06 L	3/11				
LOP1	018F		9/37 L	9/41				
LPMSK	0002	ABSOLUTE	2/45 Q	11/55				
MIB	015A	*EXTERNAL*	2/32 X	6/41	9/10			
MIBFLG	015A		9/11 Q	9/42				
MIBUF	011B	*EXTERNAL*	2/23 X	7/32	7/39	7/58	7/60	
MIB1	00CC		3/35	6/41 L	6/46			
MLU	01C9		10/52	10/57 L				
MOVE	00A9		5/51 L	5/55				
MVTBL	00A4		4/59	5/46 L	5/56			
NAME	0234		10/10	11/09	11/11	11/13	11/25	12/37 L
NN	00BC		6/20 L					
NOEOF	0210		11/58	12/09	12/11 Q			
NSTACK	00BC	*EXTERNAL*	2/29 X	6/20				
ONE	00C8	*EXTERNAL*	2/39 X	6/35				
OUT1	0194		9/39	9/42 L				
OUT2	0015		3/10	3/12 L				
OUT2A	001A		3/17 L					
OUT3	001C		3/20 L	3/24				
OUT3A	001F		3/16	3/23 L				
QREG	00B9		4/57	4/60	6/17 L			
RDTHD	0103		7/37 L	7/41				
RD1	010A		7/42	7/44 L				
RD1A	0117		7/47	7/53	7/55 L			
RD2	0107		7/41 L	7/43				
RD3	011A		7/45	7/60 L				
READLU	0104		6/57	7/33	7/38 L	7/44		
READR	00FC		7/29	7/31 L				
RECOV	0228	*EXTERNAL*	2/26 X	12/27				
REDPAR	0101		7/35 L					
RELFIL	00CD		5/34	6/43 L	6/47	6/51	6/55	
REQXT	00B9	ABSOLUTE	2/46 Q					
RESTR	022E		7/55	12/32 L				
RETRY	006F		4/49 L	4/56				
RETURN	0161		9/19	9/21 L				
RF3	00D6		2/17 E	6/21	6/55 L	12/30		

COMPLETE REFERENCE MAP.

RI	00B7		2/19 E	6/15 L	12/22	12/26				
RSET	0220		12/22 L							
SAVIT	0233		12/36 L							
SAVQ	004C		4/15 L							
SAVQ2	0021		2/54	3/12	3/25 L					
SECT	01F8		11/38	11/46 L						
SET	00F6		7/23	7/26 L	7/30					
SMCKS	011D		8/06 L	9/43						
SMCKS1	0121		8/10 L	8/24						
SMCKS2	012E		8/08	8/21 L						
SMCKS3	013D		8/09	8/30	8/35 L					
SMWRIT	0147		8/44 L	8/49	8/50					
SMW1	014D		8/50 L	8/52						
SMX	0133		8/18	8/23	8/25 L					
SMX1	0139		8/28	8/31 L						
SMX1A	013C		8/34 L							
SMY	013F		8/36 L							
SM1	0163		7/20	8/10	8/16	8/25	8/31	8/38	8/49	
			7/27	8/13	8/20	8/29	8/34	8/39	9/29 B	
SM1A	0119		7/58 L							
SSI	0162		3/42	8/05	9/28 L					
SSI1	0188		6/29	9/28	9/31 L	9/32				
STABUF	011B		7/22	8/04 Q	8/07					
STCK	00BA		6/18 L							
STRTEE	023C		11/45	12/45 L						
STRTM	01F1		11/39 L	11/45						
TABLE	00C8		6/25	6/27	6/35 L					
TEMP	004D		4/16 L	4/22	4/30	4/35	4/38	4/50		
TERM	009B		5/34 L	5/43	6/13					
TERMA	01ED		4/45	7/54	11/35 L					
TERM1	01E4		11/17	11/20	11/27 L					
TH	01C8		10/56 L	10/59						
THR	01F4		11/42 L	11/48						
THREE	00CA	*EXTERNAL*	2/39 X	6/37						
TRANTA	00AF		2/55	3/07	4/27	6/07 L	10/08	12/17		
			2/56	3/20	5/51	6/22	12/15	12/18		
TRANV	0008	*EXTERNAL*	2/30 X	2/57						
TRATBL	01CF		11/06 Q	12/13						
TRL	020D		12/08 L	12/10						
TRNTB	00A6		5/41	5/48 Q						
TRNVEC	01CF	*EXTERNAL*	2/21 X	2/60	5/47	11/05				
TR3	020A		12/05 L	12/08						
TTYEOF	006D		4/42	4/47 L						
TWO	00C9	*EXTERNAL*	2/39 X	6/36						
VINPV4	021C	*EXTERNAL*	2/38 X	12/19						
WEOFB	0207		11/52	11/59 L						
WRERR	01AC		10/26	10/28 L	10/41	10/47				
WRIT	00E2		7/08 L	7/10	7/18					
WRITHD	00E6		7/12 L							
WRITLU	00E7		7/13 L							
WRITO	0154		7/15	8/56 L						
WRITJ	00FB		7/10	7/17 L						
ZERO	0022	ABSOLUTE	2/49 Q	10/18						

1

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

```
0000    01A8        NAM  D1711        DECK-ID B27  PERIPH. DRIVERS 1.0B  SUMMARY-106
01A8                END
```

ENTRY POINT NAMES AND ADDRESSES.

C1711 -- 0042 E1711 -- 0000 I1711 -- 0004

EXTERNAL SYMBOLS.

ALTDEV LOG MAKEQ MI RLAQ RQAQ


```
                        NAM  D1711        DECK-ID B27  PERIPH. DRIVERS 1.0B  SUMMARY-106 D1711    2
                    *       1711 TELETYPE AND 713-10/711-100/713-120 CRT DRIVER          D1711    3
                    *   PERIPHERAL DRIVERS 1.0B                                          D1711    4
                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                     D1711    5
                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                          D1711    6

                    *                                                                    D1711    8
                    *P1711  ADC  $520A        00  SCHEDULER CALL                         D1711    9
                    *       ADC  CI1711       01  INITIATOR ADDRESS                      D1711   10
                    *       ADC  CC1711       02  CONTINUATOR ADDRESS                    D1711   11
                    *       ADC  CE1711       03  TIMEOUT ERROR ADDRESS                  D1711   12
                    *       NUM  -1           04  DIAGNOSTIC CLOCK                       D1711   13
                    *       NUM  0            05  LOGICAL UNIT                           D1711   14
                    *       NUM  0            06  PARAMETER LOCATION                     D1711   15
                    *       NUM  $0091        07  CONVERTER, EQUIPMENT, STATION          D1711   16
                    *       ADC  $3006+I713   08  REQUEST STATUS                        D1711   17
                    *       NUM  0            09  DRIVER STATUS                          D1711   18
                    *       NUM  0            10  CURRENT LOCATION                       D1711   19
                    *       NUM  0            11  LAST LOCATION PLUS ONE                 D1711   20
                    *       NUM  0            12  DEVICE STATUS                          D1711   21
                    *       NUM  0            13  ERROR CODE AND STARTING LOCATION       D1711   22
                    *       NUM  $7FFF        14  RESERVED                               D1711   23
                    *       NUM  0            15  RESERVED FOR FNR AND CMR               D1711   24
                    *       NUM  0            16  DRIVER FLAGS                           D1711   25
                    *       NUM  1            17  HARDWARE PARITY CHECK FLAG             D1711   26
                    *       ADC  U1711        18  DIAG LU                                D1711   27

0004 P                  ENT  I1711,C1711,E1711                                           D1711   29
0042 P
0000 P

                        EXT  ALTDEV                                                      D1711   30
                        EXT  MAKEQ                                                       D1711   31
                        EXT  MI                                                          D1711   32
                        EXT  LOG          ERROR LOGGING ENTRY            **MSOS 4.1**  D1711   33
                        EXT  RQAQ         REQUEST A/Q ALLOCATOR                        D1711   34
                        EXT  RLAQ         RELEASE A/Q ALLOCATOR                        D1711   35

                    *       DRIVER MAY BE USED FOR 1713 IF ONLY KEYBOARD IS USED         D1711   37
                    ***   PHYSICAL DEVICE TABLE WORDS                                    D1711   38
```

```
                0004    EQU  TIME(4)      DIAG. CLOCK TIME                          D1711   40
                0005    EQU  LU(5)        LOGICAL UNIT                              D1711   41
                0006    EQU  REQAD(6)     REQUES ADDRESS                            D1711   42
                0007    EQU  CALL(7)      HARDWARE ADDRESS                          D1711   43
                0008    EQU  ERRTAB(8)    REQUEST STATUS                            D1711   44
                0009    EQU  SWITCH(9)    SWITCH WORD                               D1711   45
                000A    EQU  CORE(10)     CORE ADDRESS                              D1711   46
                000B    EQU  LASTP1(11)   LAST CORE LOCATION + 1                    D1711   47
                000C    EQU  STATUS(12)   HARDWARE STATUS                           D1711   48
                000D    EQU  ERRCOD(13)   ERROR CODE (THIS DRIVER NEVER MASS MEM.)  D1711   49
                000D    EQU  COREIN(13)                                             D1711   50
                000F    EQU  TEMP(15)     TEMP STORAGE                              D1711   51
                0010    EQU  FLAG(16)                                               D1711   52
```

```
                000B        EQU  TMPWRD(11)                                    D1711  53
                0011        EQU  PARFLG(17)   ;0=HARDWARE PARITY CHECK  MSOS4.1 D1711  54
                0012        EQU  DIAGLU(18)   DIAGNOSTIC LU  **MSOS 4.1** D1711  55

                      ***   ERROR CODES                                      D1711  57

                0000        EQU  TIMERR(0)    TIME OUT ERROR                 D1711  59
                0001        EQU  LOSDAT(1)    LOST DATA                      D1711  60
                0002        EQU  ALARM(2)     ALARM                          D1711  61
                0003        EQU  PARERR(3)    PARITY ERROR                   D1711  62
                0005        EQU  INTREJ(5)    INTERNAL REJECT  *MSOS V4 D1711  63
                0006        EQU  EXTREJ(6)    EXTERNAL REJECT  *MSOS V4 D1711  64
```

```
                        ***  MASKS                                                    D1711   66
5
                        001A      EQU  XFF00($1A)                                     D1711   68
                        0022      EQU  ZERO($22)                                     D1711   69
                        0002      EQU  LPMSK(2)       *MSOS V4.0                     D1711   70
10                      000C      EQU  TFORM(12)      *MSOS V4.0                     D1711   71
                        0008      EQU  H003F(8)       *MSOS V4.0                     D1711   72
                        0016      EQU  HFFF0($16)                                    D1711   73
                        0025      EQU  BIT2($25)      *MSOS V4.0                     D1711   74
                        0026      EQU  BIT3($26)      *MSOS V4.0                     D1711   75
15                      002A      EQU  BIT7($2A)      MSOS4.1                        D1711   76
                        0028      EQU  B5A3($28)                                     D1711   77
                        002C      EQU  BIT9($2C)                                     D1711   78
                        002E      EQU  BIT11($2E)                                    D1711   79
                        0031      EQU  BIT14($31)                                    D1711   80
20                      0021      EQU  BIT15($21)                                    D1711   81

                        ***  TIME OUT VALUES ARE IN SECONDS                           D1711   83

                        003C      EQU  INPVAL(60)     KEYBOARD INPUT TIMEOUT PERIOD  D1711   85
25                      0002      EQU  OUTVAL(2)      KEYBOARD OUTPUT TIMEOUT PERIOD D1711   86

                        00B5      EQU  AFNR($B5)      FIND NEXT REQUEST              D1711   88
                        00B6      EQU  ACOMPR($B6)    COMPLETE REQUEST               D1711   89
                        00EA      EQU  DISPAD($EA)    DISPATCHER                     D1711   90
```

```
                P0000  40FF          E1711  STQ- I          DIAGNOSTIC TIMER ERROR ENTRY     **MSOS 4.1** D1711   92
                P0001  0A00                 ENA  TIMERR                                                    D1711   93
                P0002  1864                 JMP* SETCOD                                                    D1711   94

                P0003  0118          WREOAL NUM  $118        WRITE MODE,ALARM/EOP INT.                      D1711   96

                                     ***    DRIVER INITIATOR ENTRY                                          D1711   98

                P0004  40FF          I1711  STQ- I          INITIATOR ENTRY                  **MSOS 4.1** D1711  100
                P0005  54B5                 RTJ- (AFNR)                                                    D1711  101
                P0006  187A                 JMP* CLROUT     CLEAR AND EXIT                                 D1711  102
                                     *                      2 CARDS DELETED FOR PSR 83*2129                D1711  103
                P0007  582E                 RTJ* CLEAR      CLEAR DEVICE                                   D1711  104
                P0008  0AF7                 ENA  -8                                                        D1711  105
                P0009  A109                 AND- SWITCH,I   CLEAR PASS SWITCH BIT 3                        D1711  106
                P000A  6109                 STA- SWITCH,I                                                  D1711  107
                P000B  C10A                 LDA- CORE,I     SET REPEAT LOCATION                            D1711  108
                P000C  610D                 STA- COREIN,I                                                  D1711  109
                P000D  E107                 LDQ- CALL,I     SELECT WRITE MODE AND              *MSOS V4 D1711  110
                P000E  C8F4                 LDA* WREOAL     INTERRUPT ON EOP OR ALARM                      D1711  111
                P000F  0353                 OUT  ERROR-*                                                   D1711  112
                P0010  E106                 LDQ- REQAD,I    REQUEST ADDRESS                    *MSOS V4 D1711  113
                P0011  C622                 LDA- (ZERO),Q   *MSOS V4.0                                     D1711  114
                P0012  0F49                 ARS  9          *MSOS V4.0                                     D1711  115
                P0013  A007                 AND- LPMSK+5    GET REQUEST CODE                   *MSOS V4 D1711  116
                P0014  09F1                 INA  -14        CHECK CODE FOR MOTION REQUEST      *MSOS V4 D1711  117
                P0015  011A                 SAN  SENULL     SKIP IF NOT MC                     *MSOS V4 D1711  118
                P0016  610A                 STA- CORE,I     *MSOS V4.0                                     D1711  119
                P0017  610B                 STA- LASTP1,I   *MSOS V4.0                                     D1711  120
                P0018  C204                 LDA- 4,Q        GET PARAMETER STRING               *MSOS V4 D1711  121
                P0019  0122                 SAP  P3-*-1     SKIP IF NOT ITER. TYPE PARA.       *MSOS V4 D1711  122
                P001A  A000  7000           AND  =N$7000    GET ONLY PARA. IF ITER.            *MSOS V4 D1711  123
                P001C  A016          P3     AND- HFFF0      GET THREE PARAMETERS               *MSOS V4 D1711  124
                P001D  610B                 STA- TMPWRD,I   SAVE PARA. LIST                    *MSOS V4 D1711  125
                P001E  1800  009A           JMP  MOTREQ     PROCESS MOTION REQUEST             *MSOS V4 D1711  126
                P0020  0A01          SENULL ENA  1                                                         D1711  127
                P0021  A109                 AND- SWITCH,I   CHECK IF READ OR WRITE                         D1711  128
                P0022  0102                 SAZ  SENBEL     SKIP IF READ MODE TO OUTPUT BELL    MSOS4.1 D1711  129
                P0023  1800  00A7           JMP  AWRITE     GO PREP. FOR WRITE                             D1711  130
                P0025  0A07          SENBEL ENA  $07         BELL CHARACTER                      MSOS4.1 D1711  131

                P0026  E107          SENDCH LDQ- CALL,I     OUTPUT ROUTINE                                 D1711  133
                P0027  0DFE                 INQ  -1                                                        D1711  134
                P0028  033A          OUTOUT OUT  ERROR-*                                                   D1711  135

                P0029  0A00          EXIT   ENA  0                                                         D1711  137
                P002A  6800  010A           STA  ROFLAG                                                    D1711  138
                P002C  E107                 LDQ- CALL,I                                                    D1711  139
                P002D  0235                 INP  ERROR-*                                                   D1711  140
                P002E  610C                 STA- STATUS,I   SAVE STATUS                                    D1711  141
                P002F  A02C                 AND- BIT9       READ MODE BIT                                  D1711  142
                P0030  0C02                 ENQ  OUTVAL     OUTPUT TIME OUT PERIOD                         D1711  143
```

```
P0031 0101          SAZ  SETIME     SKIP IF WRITE MODE                    D1711  144
P0032 0C3C          ENQ  INPVAL     INPUT TIMEOUT PERIOD                  D1711  145
P0033 4104 SETIME   STQ- TIME,I     SET CLOCK                             D1711  146
P0034 14EA          JMP- (DISPAD)   GO TO DISPATCHER                      D1711  147
P0035 0000 CLEAR    NUM  0          SUBROUTINE TO CLEAR DEVICE            D1711  148
P0036 E107          LDQ- CALL,I                                           D1711  149
P0037 0DFE          INQ  -1                                               D1711  150
P0038 0201          INP  1          READ TO CLEAR DATA IF ANY             D1711  151
P0039 0B00          NOP  0                                                D1711  152
P003A 0001          INQ  1                                                D1711  153
P003B 0A03          ENA  3                                                D1711  154
P003C 0301          OUT  1          CLEAR CONTROLLER AND INT.             D1711  155
P003D 0B00          NOP  0                                                D1711  156
P003E 0201          INP  1          READ STATUS                           D1711  157
P003F 0B00          NOP  0                                                D1711  158
P0040 610C          STA- STATUS,I   A = STATUS, Q = DIRECTOR CODE          D1711  159
P0041 1CF3          JMP* (CLEAR)    RETURN                                D1711  160
```

```
                                  ***   DRIVER CONTINUATOR ENTRY                                    D1711   162
5
        P0042   40FF              C1711 STQ- I          CONTINUATOR                **MSOS 4.1** D1711   164
        P0043   E107                    LDQ- CALL,I                                              D1711   165
        P0044   021F                    INP  ERROR-*    GET STATUS                               D1711   166
10      P0045   610C                    STA- STATUS,I                                            D1711   167
        P0046   0A06                    ENA  6                                                   D1711   168
        P0047   031B                    OUT  ERROR-*    CLEAR AND SELECT DATA INTERRUPT          D1711   169
        P0048   C10C                    LDA- STATUS,I                                            D1711   170
        P0049   A02E                    AND- BIT11      CHECK FOR MANUAL INTERRUPT               D1711   171
15      P004A   0111                    SAN  GOMAN      SKIP IF MANUAL INTERRUPT                 D1711   172
        P004B   1833                    JMP* NOMAN                                               D1711   173
        P004C   C110              GOMAN LDA- FLAG,I     MI BEFORE                                D1711   174
        P004D   0101                    SAZ  TAGIT1     NO                                       D1711   175
                                  *                     2 CARDS DELETED (FOR 97*3168)            D1711   176
20      P004E   14EA                    JMP- (DISPAD)   YES, WAIT FOR COMPLETION                 D1711   177
        P004F   D110              TAGIT1 RAO- FLAG,I     SET FLAG                                 D1711   178
        P0050   5400   7FFF X           RTJ  RQAQ       REQUEST A/Q ALLOCATION                   D1711   179
        P0052   40FF                    STQ- I                                                   D1711   180
                                  *                     1 CARD DELETED (FOR 97*3168)             D1711   181
25      P0053   0A00                    ENA  0          RESET FLAG                               D1711   182
        P0054   6110                    STA- FLAG,I                                              D1711   183
        P0055   C4FF                    LDA- (I)        PICKUP SCHEDULER CALL FROM PHYSTB        D1711   184
        P0056   6802                    STA* SCHCAL     MAKE UP SCHEDULER CALL                   D1711   185
        P0057   54F4                    RTJ- ($F4)      SCHEDULE MI                              D1711   186
30      P0058   1200              SCHCAL NUM  $1200                                               D1711   187
        P0059   7FFF X                 ADC  MI                                                  D1711   188
        P005A   5400   7FFF X           RTJ  RLAQ       RELEASE A/Q                              D1711   189
        P005C   40FF                    STQ- I                                                   D1711   190
        P005D   0A28                    ENA  B5A3                                                D1711   191
35      P005E   A10C                    AND- STATUS,I   CHECK FOR DATA OR ALARM                  D1711   192
        P005F   0111                    SAN  JNOMAN     SKIP IF DATA OR ALARM                    D1711   193
                                  *                     2 CARDS DELETED                          D1711   194
                                  *                     1 CARD DELETED (FOR 97*3168)             D1711   195
        P0060   14EA                    JMP- (DISPAD)   EXIT                                     D1711   196
40      P0061   181D              JNOMAN JMP* NOMAN                                               D1711   197


        P0062   1803              ERROR  JMP* INTRNL     *MSOS V4.0                               D1711   199
        P0063   0A06                     ENA  EXTREJ     EXTERNAL REJECT 6          *MSOS V4 D1711   200
45      P0064   1802                     JMP* SETCOD     *MSOS V4.0                               D1711   201
        P0065   0A05              INTRNL ENA  INTREJ     INTERNAL REJECT 5          *MSOS V4 D1711   202
        P0066   E105              SETCOD LDQ- LU,I                                               D1711   203
        P0067   0FA6                     QLS  6                                                  D1711   204
        P0068   0874                     EAQ  A                                                  D1711   205
50      P0069   610D                     STA- ERRCOD,I                                           D1711   206
        P006A   C031                     LDA- BIT14                                              D1711   207
        P006B   B108                     EOR- ERRTAB,I                                           D1711   208
        P006C   6108                     STA- ERRTAB,I                                           D1711   209
        P006D   58C7                     RTJ* CLEAR     CLEAR DEVICE                             D1711   210
55      P006E   C105                     LDA- LU,I                                               D1711   211
        P006F   0111                     SAN  1         EXIT IF NOT ASSIGNED                     D1711   212
        P0070   14EA                     JMP- (DISPAD)                                           D1711   213
        P0071   5400   7FFF X           RTJ  MAKEQ                                              D1711   214
        P0073   0AFE                     ENA  -1                                                 D1711   215
```

```
                P0074  6104                    STA- TIME,I      CLEAR TIME                                  D1711  216
                                             *                 2 CARDS DELETED (FOR 97*3168)               D1711  217
                                                                                                           D1711  218
          5     P0075  E10D                    LDQ- ERRCOD,I                                               D1711  219
                P0076  C105                    LDA- LU,I        DO NOT REPORT ERROR          **MSOS 4.1** D1711  220
                P0077  9112                    SUB- DIAGLU,I    ON DIAGNOSTIC LU             **MSOS 4.1** D1711  221
                P0078  0111                    SAN  LOGIT       **MSOS 4.1**                              D1711  222
                P0079  182A                    JMP* COMPRQ      **MSOS 4.1**                              D1711  223
         10     P007A  5400  7FFF X  LOGIT     RTJ+ LOG         LOG ERROR IN EF              **MSOS 4.1** D1711  224
                P007C  1400  7FFF X            JMP+ ALTDEV                                                 D1711  225
                P007E  C105                    LDA- LU,I                                                   D1711  226
                P007F  0112                    SAN  NOMAN1-*-1                                             D1711  227
                P0080  58B4                    RTJ* CLEAR       CLEAR AND EXIT                             D1711  228
         15     P0081  14EA                    JMP- (DISPAD)    EXIT
```

```
                P0082  0A20           NOMAN1 ENA  $20          ALARM BIT                          *MSOS V4 D1711  230
      5         P0083  A10C                  AND- STATUS,I     CHECK FOR ALARM                    *MSOS V4 D1711  231
                P0084  0117                  SAN  ALRINT       SKIP IF ALARM INTERRUPT            *MSOS V4 D1711  232
                P0085  C109                  LDA- SWITCH,I     CHECK FOR MOTION REQUEST           *MSOS V4 D1711  233
                P0086  0121                  SAP  CHKD-*-1     SKIP IF NOT MOTION REQUEST         *MSOS V4 D1711  234
                P0087  185E                  JMP* MOTRTN       MOTION REQUEST RETURN              *MSOS V4 D1711  235
     10         P0088  0A08           CHKD   ENA  8            DATA BIT                           *MSOS V4 D1711  236
                P0089  A10C                  AND- STATUS,I     CHECK FOR DATA INTERRUPT           *MSOS V4 D1711  237
                P008A  010F                  SAZ  DONE         SKIP IF NOT                                 D1711  238
                P008B  181B                  JMP* NOTDON       PROCESS DATA INTERRUPT             *MSOS V4 D1711  239
                P008C  0A40           ALRINT ENA  $40          BIT 6                              *MSOS V4 D1711  240
     15         P008D  A10C                  AND- STATUS,I     CHECK FOR LOST DATA                         D1711  241
                P008E  0117                  SAN  A1           SKIP IF LOST DATA                           D1711  242
                P008F  C111                  LDA- PARFLG,I     CHECK FOR HARDWARE PARITY CHECK             D1711  243
                P0090  0103                  SAZ  A0           SKIP IF NOT                                 D1711  244
                P0091  C02A                  LDA- BIT7                                                     D1711  245
     20         P0092  A10C                  AND- STATUS,I     CHECK FOR PARITY ERROR                      D1711  246
                P0093  0114                  SAN  A2           SKIP IF PARITY ERROR                        D1711  247
                P0094  0A02           A0     ENA  ALARM                                                    D1711  248
                P0095  18D0                  JMP* SETCOD       *MSOS V4.0                                  D1711  249
                P0096  0A01           A1     ENA  LOSDAT       LOST DATA ERROR 1                  *MSOS V4 D1711  250
     25         P0097  18CE                  JMP* SETCOD       *MSOS V4.0                                  D1711  251
                P0098  0A03           A2     ENA  PARERR       PARITY ERROR 3                              D1711  252
                P0099  18CC                  JMP* SETCOD                                                   D1711  253
                                      *                        3 CARDS DELETED                             D1711  254
                P009A  E107           DONE   LDQ- CALL,I       NO,CLEAR                                    D1711  255
     30         P009B  0A02                  ENA  2            INTERRUPTS                                  D1711  256
                P009C  03C5                  OUT  ERROR-*                                                  D1711  257
                P009D  0AFE                  ENA  -1           CLEAR TIME                                  D1711  258
                P009E  6104                  STA- TIME,I                                                   D1711  259
                P009F  02C2                  INP  ERROR-*      SAVE STATUS                                 D1711  260
     35         P00A0  610C                  STA- STATUS,I                                                 D1711  261
                P00A1  5400  0072 X          RTJ  MAKEQ                                                    D1711  262
                P00A3  54B6           COMPRQ RTJ- (ACOMPR)     GO TO COMPLETE THE STATUS          **MSOS 4.1** D1711  263
                                      *                        2 CARDS DELETED (FOR 97*3168)               D1711  264
                P00A4  1800  FF5F            JMP  I1711+1      **MSOS 4.1**                                D1711  265
```

```
                                ***   PROCESS DATA INTERRUPT                                  D1711   267
5
        P00A6   0A01            NOTDON ENA  1                                                 D1711   269
        P00A7   A109                   AND- SWITCH,I      OPERATION                         D1711   270
        P00A8   0101                   SAZ  1                                               D1711   271
10      P00A9   1822                   JMP* AWRITE        YES                               D1711   272
        P00AA   0A02                   ENA  2             NO,BUSY                           D1711   273
        P00AB   A10C                   AND- STATUS,I                                        D1711   274
        P00AC   0102                   SAZ  NFREAD                                          D1711   275
        P00AD   1800    0093           JMP  READ                                            D1711   276
15      P00AF   E107            NFREAD LDQ- CALL,I        CLEAR INT.AND                     D1711   277
        P00B0   0A02                   ENA  2             SET READ MODE                     D1711   278
        P00B1   03B0                   OUT  ERROR-*       SELECT INT.ON                     D1711   279
        P00B2   C803                   LDA* B9A4A2        DATA AND ALARM                    D1711   280
        P00B3   1800    FF73           JMP  OUTOUT                                          D1711   281
20      P00B5   0214            B9A4A2 NUM  $214                                            D1711   282
```

```
                                   ***   PROCESS MOTION REQUEST                                    D1711   284
5
        P00B6   C109               NXTMCR LDA- SWITCH,I    *MSOS V4.0                            D1711   286
        P00B7   B021                      EOR- BIT15       CLEAR BIT 15 FROM          *MSOS V4 D1711   287
        P00B8   6109                      STA- SWITCH,I    PREVIOUS MOTION REQUEST    *MSOS V4 D1711   288
10      P00B9   C10B               MOTREQ LDA- TMPWRD,I    GET PARAMETER STRING       *MSOS V4 D1711   289
        P00BA   0842                      CLR  Q           *MSOS V4.0                            D1711   290
        P00BB   0FE4                      LLS  4           GET ONE PARA. FROM STRING  *MSOS V4 D1711   291
        P00BC   0146                      SQZ  TRMMCR      SKIP IF ZERO PARA          *MSOS V4 D1711   292
        P00BD   610B                      STA- TMPWRD,I    SAVE REMAINDER OF STRING   *MSOS V4 D1711   293
15      P00BE   0DFD                      INQ  -2          IS IT WEOF                 *MSOS V4 D1711   294
        P00BF   0144                      SQZ  TOPFRM      SKIP IF WEOF               *MSOS V4 D1711   295
        P00C0   0DFD                      INQ  -2          IS IT REWIND/UNLOAD        *MSOS V4 D1711   296
        P00C1   0141                      SQZ  TRMMCR      SKIP IF YES                *MSOS V4 D1711   297
        P00C2   18F6                      JMP* MOTREQ      GET NEXT PARAMETER         *MSOS V4 D1711   298
20      P00C3   18D6               TRMMCR JMP* DONE        *MSOS V4.0                            D1711   299

                                   ***   TOP OF FORM                                *MSOS V4.0 D1711   301

25      P00C4   C109              TOPFRM LDA- SWITCH,I    *MSOS V4.0                            D1711   303
        P00C5   A008                      AND- H003F       SAVE LOWER SWITCHS         *MSOS V4 D1711   304
        P00C6   B000   81C0               EOR  =N$81C0     SET BIT 15 AND NULL COUNT FOR 7 *MSOS V4 D1711   305
        P00C8   6109                      STA- SWITCH,I    INTO SWITCH                *MSOS V4 D1711   306
        P00C9   0A0C                      ENA  TFORM       ASCII TOP OF FORM (0C)     *MSOS V4 D1711   307
30      P00CA   180E                      JMP* TOSND       OUTPUT TOP OF FORM         *MSOS V4 D1711   308
```

```
P00CB  0A02          AWRITE ENA  2            FORMATTED                                  D1711  310
P00CC  A109                 AND- SWITCH,I                                              D1711  311
P00CD  0822                 TRA  Q            Q = 0 IF UNFORMATTED                     D1711  312
P00CE  0A10                 ENA  $10          1ST CHAR.                                D1711  313
P00CF  A109                 AND- SWITCH,I                                              D1711  314
P00D0  0119                 SAN  NOT1ST-*-1                                            D1711  315
P00D1  0A10                 ENA  $10          YES,CLEAR 1ST                            D1711  316
P00D2  0151                 SQN  1            SKIP IF FORMATTED                        D1711  317
P00D3  0A30                 ENA  $30          RESET LINE FEED FLAGIF UNFORMATTED       D1711  318
P00D4  B109                 EOR- SWITCH,I     CHAR.SWITCH                              D1711  319
P00D5  6109                 STA- SWITCH,I     SEND OUT A                               D1711  320
P00D6  014E                 SQZ  NOCONT-*-1   CONTINUE IF UNFORMATTED                  D1711  321
P00D7  0A0D                 ENA  $D           MARRIAGE                                 D1711  322
P00D8  1800  FF4C    TOSND  JMP  SENDCH       RETURN                                   D1711  323
P00DA  014A          NOT1ST SQZ  NOCONT-*-1   SKIP IF UNFORMATTED          58*1183     D1711  324
P00DB  0A20                 ENA  $20          58*1183                                  D1711  325
P00DC  A109                 AND- SWITCH,I     SET                                      D1711  326
P00DD  0117                 SAN  NOCONT-*-1                                            D1711  327
P00DE  585A                 RTJ* CHKTYP       CHECK IF TTY OR DISPLAY.    *MSOS V4.1   D1711  328
P00DF  C858                 LDA* BIT6T9       DISPLAY9                    *MSOS V4.1   D1711  329
P00E0  0920                 INA  $20          TTY.                        *MSOS V4.1   D1711  330
P00E1  B109                 EOR- SWITCH,I     AND SEND OUT                             D1711  331
P00E2  6109                 STA- SWITCH,I     A LINE FEED                              D1711  332
P00E3  0A0A                 ENA  $A                                                    D1711  333
P00E4  18F3                 JMP* TOSND        TO SENDCH                                D1711  334

                            ***  RETURN FROM TOP OF FORM                               D1711  336
       00E5 P               EQU  MOTRTN(*)    *MSOS V4.0                               D1711  337

P00E5  C109          NOCONT LDA- SWITCH,I     ANY CANCELS                              D1711  339
P00E6  A850                 AND* BIT6A7       TO BE SENT                               D1711  340
P00E7  0108                 SAZ  NOSPCC-*-1                                            D1711  341
P00E8  C109                 LDA- SWITCH,I     DECREMENT                                D1711  342
P00E9  09BF                 INA  -$40         CANCEL COUNT                             D1711  343
P00EA  6109                 STA- SWITCH,I                                              D1711  344
P00EB  584D                 RTJ* CHKTYP       CHECK IF TTY OR DISPLAY.    *MSOS V4.1   D1711  345
P00EC  1802                 JMP* SEND0I       DISPLAY.                    *MSOS V4.1   D1711  346
P00ED  0A7F                 ENA  $7F          TTY.                        *MSOS V4.1   D1711  347
P00EE  1800  FF36    SEND0I JMP  SENDCH       GO OUTPUT CHARACTER.        *MSOS V4.1   D1711  348
P00F0  C109          NOSPCC LDA- SWITCH,I     *MSOS V4.0                               D1711  349
P00F1  0121                 SAP  1            SKIP IF NOT MOTION            *MSOS V4   D1711  350
P00F2  18C3                 JMP* NXTMCR       GET NEXT PARAMETER            *MSOS V4   D1711  351
P00F3  A026                 AND- BIT3         CHECK COMPLETION SWITCH BIT   *MSOS V4   D1711  352
P00F4  0101                 SAZ  1                                                     D1711  353
P00F5  18A4                 JMP* DONE         YES,FINISHED                             D1711  354
P00F6  F10A                 LDQ- CORE,I       NO,PICK UP                               D1711  355
P00F7  E622                 LDQ- (ZERO),Q     DATA WORD                                D1711  356
P00F8  0A04                 ENA  4            UPPER CHAR.                              D1711  357
P00F9  A109                 AND- SWITCH,I                                              D1711  358
P00FA  0111                 SAN  LOWER-*-1                                             D1711  359
P00FB  0F28                 QRS  8            YES,SHIFT                                D1711  360
P00FC  0A7F          LOWER  ENA  $7F          NO,CLEAR                                 D1711  361
P00FD  08B6                 LAQ  A,Q          UPPER CHAR.                              D1711  362
P00FE  09FC                 INA  -3           IS IT AN E.O.T.                          D1711  363
```

```
                P00FF  0111                    SAN  NOTEOT       NO                                        D1711  364
                P0100  1899                    JMP* DONE         YES, FINISHED                             D1711  365
          5     P0101  0814          NOTEOT    TRQ  A                                                      D1711  366
                P0102  0112                    SAN  NOTNUL-*-1   NULL                                      D1711  367
                P0103  0A7F                    ENA  $7F          YES,SUBSTITUTE                            D1711  368
                P0104  0C7F                    ENQ  $7F          CANCEL                                    D1711  369
                P0105  09F2          NOTNUL    INA  -$D          CARRIAGE RET.                             D1711  370
         10     P0106  0114                    SAN  NOTCR-*-1                                              D1711  371
                P0107  5831                    RTJ* CHKTYP       CHECK IF TTY OR DISPLAY.     *MSOS V4.1   D1711  372
                P0108  C82F                    LDA* BIT6T9       DISPLAY.                     *MSOS V4.1   D1711  373
                P0109  0920                    INA  $20          TTY.                         *MSOS V4.1   D1711  374
                P010A  1808                    JMP* GOTCR        CONTROL                                   D1711  375
         15     P010B  0901          NOTCR     INA  1            NO,FORM OUT                               D1711  376
                P010C  0104                    SAZ  GOTTAB-*-1                                             D1711  377
                P010D  0901                    INA  1            NO,VERTICAL                               D1711  378
                P010E  0102                    SAZ  GOTTAB-*-1   TAB                                       D1711  379
                P010F  0902                    INA  2            NO,HORIZONTAL                             D1711  380
         20     P0110  0113                    SAN  NOCR-*-1     TAB                                       D1711  381
                P0111  C825          GOTTAB    LDA* BIT6A7       YES,MODIFY                                D1711  382
                P0112  B109          GOTCR     EOR- SWITCH,I     SWITCH                                    D1711  383
                P0113  6109                    STA- SWITCH,I                                               D1711  384
                P0114  0814          NOCR      TRQ  A            OUTPUT                                    D1711  385
         25     P0115  0980                    INA  -$7F         TEST FOR RUBOUT                           D1711  386
                P0116  0112                    SAN  NOCR1        SKIP IF NOT A RUBOUT CHARACTER            D1711  387
                P0117  D81E                    RAO* ROFLAG       SET RUBOUT PRESENT FLAG                   D1711  388
                P0118  1807                    JMP* RUBOUT       DON"T OUTPUT A RUBOUT                     D1711  389
                P0119  0A00          NOCR1     ENA  0            RESET RUBOUT PRESENT FLAG                 D1711  390
         30     P011A  681B                    STA* ROFLAG                                                 D1711  391
                P011B  0814                    TRQ  A            RESTORE ORIGINAL CHARACTER                D1711  392
                P011C  E107                    LDQ- CALL,I                                                 D1711  393
                P011D  0DFE                    INQ  -1           CHARACTER                                 D1711  394
                P011E  032F                    OUT  TOEROR-*                                               D1711  395
         35     P011F  C10A          RUBOUT    LDA- CORE,I       LAST WORD                                 D1711  396
                P0120  910B                    SUB- LASTP1,I                                               D1711  397
                P0121  0109                    SAZ  COMPLT-*-1                                             D1711  398
                P0122  0A04                    ENA  4            NO,REVERSE                                D1711  399
                P0123  B109                    EOR- SWITCH,I     UPPER LOWER                               D1711  400
         40     P0124  6109                    STA- SWITCH,I     SWITCH                                    D1711  401
                P0125  A025                    AND- BIT2         NOW SET FOR                               D1711  402
                P0126  0118                    SAN  GOGODI       UPPER                                     D1711  403
                P0127  D10A                    RAO- CORE,I       YES,INCREMENT                             D1711  404
                P0128  C10A                    LDA- CORE,I       CORE LOCATION                             D1711  405
         45     P0129  910B                    SUB- LASTP1,I     NOW LAST                                  D1711  406
                P012A  0114                    SAN  GOGODI-*-1   NO                                        D1711  407
                P012B  0A08          COMPLT    ENA  8            YES,SET                                   D1711  408
                P012C  B109                    EOR- SWITCH,I     COMPLETED BIT                             D1711  409
                P012D  6109                    STA- SWITCH,I     AND EXIT                                  D1711  410
         50     P012E  1805                    JMP* GOGODO                                                 D1711  411
                P012F  C806          GOGODI    LDA* ROFLAG       RUBOUT PRESENT FLAG SET                   D1711  412
                P0130  0102                    SAZ  GOGODO       NO                                        D1711  413
                P0131  1800  FF10              JMP  C1711+1      YES, GO GET THE NEXT CHARACTER            D1711  414
                P0133  1800  FEF4    GOGODO    JMP  EXIT                                                   D1711  415
         55     P0135  0000          ROFLAG    NUM  0            RUBOUT FLAG PRESENT                       D1711  416
                P0136  03C0          BIT6A7    NUM  $3C0                                                   D1711  417
                P0137  00C0          BIT6T9    NUM  $C0          *MSOS V4.1                                D1711  418
                P0138  0000          CHKTYP    NUM  0            ROUTINE CHECKS FOR TTY OR DISPLAY *MSOS V4.1 D1711 419
                P0139  C108                    LDA- ERRTAB,I     FETCH TYPE CODE FROM PDT.         *MSOS V4.1 D1711 420
```

```
                P013A  0F44                ARS  4           *MSOS V4.1                                D1711  421
                P013B  A009                AND- LPMSK+7     SAVE ONLY THE TYPE CODE.          *MSOS V4.1 D1711  422
                P013C  09FB                INA  -4          *MSOS V4.1                                D1711  423
                P013D  0101                SAZ  1           *MSOS V4.1                                D1711  424
                P013E  D8F9                RAO* CHKTYP      RETURN AT +2 IF TTY. A = 0.       *MSOS V4.1 D1711  425
                P013F  0844                CLR  A           **MSOS 4.1**                              D1711  426
                P0140  1CF7                JMP* (CHKTYP)    *MSOS V4.1                                D1711  427
                P0141  0DFE          READ  INQ  -1          INPUT A CHAR                              D1711  428
                P0142  0A00                ENA  0                                                     D1711  429
                P0143  020A                INP  TOEROR-*                                              D1711  430
                P0144  610F                STA- TEMP,I                                                D1711  431
                P0145  C111                LDA- PARFLG,I                                              D1711  432
                P0146  011B                SAN  NOPAR       SKIP IF HARDWARE PARITY CHECK             D1711  433
                P0147  C10F                LDA- TEMP,I                                                D1711  434
                P0148  710F                SPA- TEMP,I                                                D1711  435
                P0149  0118                SAN  NOPAR-*-1   PARITY OK                                 D1711  436
                P014A  0A03                ENA  PARERR      PARITY ERROR 3                    *MSOS V4 D1711  437
                P014B  1800  FF19          JMP  SETCOD      *MSOS V4.0                                D1711  438
                P014D  1803          TOEROR JMP* TR5        *MSOS V4.0                                D1711  439
                P014E  1800  FF13          JMP  ERROR+1     EXTERNAL REJECT                   *MSOS V4 D1711  440
                P0150  1800  FF10    TR5   JMP  ERROR       INTERNAL REJECT                   *MSOS V4 D1711  441
                P0152  0A7F          NOPAR ENA  $7F         YES,STRIP                                 D1711  442
                P0153  A10F                AND- TEMP,I      PARITY BIT                                D1711  443
                P0154  0822                TRA  Q                                                     D1711  444
                P0155  0A02                ENA  2           FORMATTED                                 D1711  445
                P0156  A109                AND- SWITCH,I                                              D1711  446
                P0157  010D                SAZ  ZIFORM-*-1                                            D1711  447
                P0158  0814                TRQ  A           YES,                                      D1711  448
                P0159  09F5                INA  -$A         LINE FEED                                 D1711  449
                P015A  0109                SAZ  PASSIT-*-1  YES,IGNORE IT                             D1711  450
                P015B  09FC                INA  -3          NO,CARRIAGE                               D1711  451
                P015C  0111                SAN  1           RETURN                                    D1711  452
                P015D  1833                JMP* CARRET      YES                                       D1711  453
                P015E  098D                INA  -$72        NO,CANCEL                                 D1711  454
                P015F  0111                SAN  1                                                     D1711  455
                P0160  1843                JMP* CANCEL      YES                                       D1711  456
                P0161  0A10                ENA  $10         NO,PASS SWITCH                            D1711  457
                P0162  A109                AND- SWITCH,I    SET                                       D1711  458
                P0163  0101                SAZ  1                                                     D1711  459
                P0164  181F          PASSIT JMP* TGODIS     YES,EXIT                                  D1711  460
                P0165  0814          ZIFORM TRQ  A          *MSOS V4.1                                D1711  461
                P0166  099E                INA  -$61        LOWER CASE A                      *MSOS V4.1 D1711  462
                P0167  0133                SAM  ZIFORN      SKIP IF LESS THAN LOWER CASE A.   *MSOS V4.1 D1711  463
                P0168  09E5                INA  -$1A        CHECK RANGE TO LOWER CASE Z.      *MSOS V4.1 D1711  464
                P0169  0121                SAP  ZIFORN      SKIP IF ABOVE LOWER CASE CHARACTERS*MSOS V4.1 D1711  465
                P016A  0DDF                INQ  -$20        DROP LOWER CASE BIT.              *MSOS V4.1 D1711  466
                P016B  0A04          ZIFORN ENA  4          CHECK IF UPPER CHARACTER.         *MSOS V4.1 D1711  467
                P016C  A109                AND- SWITCH,I                                              D1711  468
                P016D  0113                SAN  LOWLOW-*-1                                            D1711  469
                P016E  0AFF                ENA  -0          YES                                       D1711  470
                P016F  0FF8                LLS  24                                                    D1711  471
                P0170  1805                JMP* TOSTO                                                 D1711  472
                P0171  0814          LOWLOW TRQ  A          NO                                        D1711  473
                P0172  B01A                EOR- XFF00                                                 D1711  474
                P0173  E10A                LDQ- CORE,I                                                D1711  475
                P0174  A622                AND- (ZERO),Q                                              D1711  476
                P0175  E10A          TOSTO LDQ- CORE,I                                                D1711  477
```

```
                P0176  6622                    STA- (ZERO),Q                                                  D1711  478
                P0177  C10A                    LDA- CORE,I          LAST LOC                                  D1711  479
     5          P0178  910B                    SUB- LASTP1,I                                                  D1711  480
                P0179  010D                    SAZ  TGETOU-*-1      YES,GETOUT                                D1711  481
                P017A  0A04                    ENA  4               +NO,REVERSE                               D1711  482
                P017B  B109                    EOR- SWITCH,I        UPPER-LOWER                               D1711  483
                P017C  6109                    STA- SWITCH,I        SWITCH                                    D1711  484
    10          P017D  A025                    AND- BIT2            CHECK IF UPPER                 *MSOS V4   D1711  485
                P017E  0114                    SAN  TGODIS          SKIP IF UPPER                  *MSOS V4   D1711  486
                P017F  D10A                    RAO- CORE,I          YES,INCREMENT                             D1711  487
                P0180  C10A                    LDA- CORE,I          CORE LOCATION                             D1711  488
                P0181  910B                    SUB- LASTP1,I        NOW LAST                                  D1711  489
    15          P0182  0101                    SAZ  NGODIS-*-1                                                D1711  490
                P0183  18AB            TGODIS  JMP* GOGODI          TO EXIT                        *MSOS V4   D1711  491
                P0184  0A02            NGODIS  ENA  2                                                         D1711  492
                P0185  A109                    AND- SWITCH,I                                                  D1711  493
                P0186  0115                    SAN  NOG-*-1                                                   D1711  494
    20          P0187  0A08            TGETOU  ENA  8               SELECT EOT                                D1711  495
                P0188  E107                    LDQ- CALL,I          INTERRUPT                                 D1711  496
                P0189  03C3                    OUT  TOEROR-*                                                  D1711  497
                                       *                           1 CARD DELETED                            D1711  498
                P018A  18A4                    JMP* GOGODI          TO EXIT                        *MSOS V4   D1711  499
    25          P018B  003C                    ADC  INPVAL                                                    D1711  500
                P018C  0A10            NOG     ENA  $10             TURN ON PASS                              D1711  501
                P018D  B109                    EOR- SWITCH,I        SWITCH                                    D1711  502
                P018E  6109                    STA- SWITCH,I                                                  D1711  503
                P018F  18F3                    JMP* TGODIS                                                    D1711  504
    30          P0190  0A20            CARRET  ENA  $20             CANCEL SWITCH                             D1711  505
                P0191  A109                    AND- SWITCH,I        SET                                       D1711  506
                P0192  0111                    SAN  1                                                         D1711  507
                P0193  18F3                    JMP* TGETOU          NO                                        D1711  508
                P0194  0ACB                    ENA  -$34            YES,CLEAR PASS                            D1711  509
    35          P0195  A109                    AND- SWITCH,I        CANCEL AND                                D1711  510
                P0196  6109                    STA- SWITCH,I        LOWER                                     D1711  511
                P0197  E10D                    LDQ- COREIN,I        INITIALIZE                                D1711  512
                P0198  410A                    STQ- CORE,I          CORE LOCATION                             D1711  513
                P0199  0804            MORUB   SET  A               TO ALL ONES                               D1711  514
    40          P019A  6622                    STA- (ZERO),Q                                                  D1711  515
                       019B P          MORUBO  EQU  MORUBO(*)                                                 D1711  516
                P019B  C10B                    LDA- LASTP1,I                                                  D1711  517
                                       *                           PSR 89*2925 DELETED                       D1711  518
                P019C  0874                    EAQ  A                                                         D1711  519
    45          P019D  0104                    SAZ  MORUB1          SKIP IF ALL DATA ERASED                   D1711  520
                P019E  0804                    SET- A                                                         D1711  521
                P019F  6622                    STA- (ZERO),Q                                                  D1711  522
                P01A0  0D01                    INQ  1                                                         D1711  523
                P01A1  18F9                    JMP* MORUBO                                                    D1711  524
    50                 01A2 P          MORUB1  EQU  MORUB1(*)                                                 D1711  525
                P01A2  18E0                    JMP* TGODIS                                                    D1711  526
                P01A3  0ACF            CANCEL  ENA  -$30            CANCEL-SET                                D1711  527
                P01A4  A109                    AND- SWITCH,I        PASS AND                                  D1711  528
                P01A5  0930                    INA  $30             CANCEL SWITCH                             D1711  529
    55          P01A6  6109                    STA- SWITCH,I                                                  D1711  530
                P01A7  18DB                    JMP* TGODIS                                                    D1711  531
                P01A8                          END                                                            D1711  532
```

67375B STORAGE USED 531 STATEMENTS 125 SYMBOLS
6400 ASSEMBLY 4.324 SECONDS 412 REFERENCES

COMPLETE REFERENCE MAP.

ACOMPR	00B6	ABSOLUTE	4/28 Q	9/37					
AFNR	00B5	ABSOLUTE	4/27 Q	5/15					
ALARM	0002	ABSOLUTE	3/13 Q	9/22					
ALRINT	008C		9/06	9/14 L					
ALTDEV	007D	*EXTERNAL*	2/35 X	8/11					
AWRITE	00CB		5/44	10/10	12/04 L				
A0	0094		9/18	9/22 L					
A1	0096		9/16	9/24 L					
A2	0098		9/21	9/26 L					
BIT11	002E	ABSOLUTE	4/18 Q	7/14					
BIT14	0031	ABSOLUTE	4/19 Q	7/51					
BIT15	0021	ABSOLUTE	4/20 Q	11/08					
BIT2	0025	ABSOLUTE	4/13 Q	13/41	15/10				
BIT3	0026	ABSOLUTE	4/14 Q	12/48					
BIT6A7	0136		12/36	13/21	13/56 L				
BIT6T9	0137		12/23	13/12	13/57 L				
BIT7	002A	ABSOLUTE	4/15 Q	9/19					
BIT9	002C	ABSOLUTE	4/17 Q	5/58					
B5A3	0028	ABSOLUTE	4/16 Q	7/34					
B9A4A2	00B5		10/18	10/20 L					
CALL	0007	ABSOLUTE	2/50 Q	5/48	6/08	9/29	13/32		
			5/24	5/55	7/08	10/15	15/21		
CANCEL	01A3		14/38	15/52 L					
CARRET	0190		14/35	15/30 L					
CHKD	0088		9/08	9/10 L					
CHKTYP	0138		12/22	12/41	13/11	13/58 L	14/07	14/09	
CLEAR	0035		5/18	6/07 L	6/19	7/54	8/14		
CLROUT	0080		5/16	8/14 L					
COMPLT	012B		13/37	13/47 L					
COMPRQ	00A3		8/09	9/37 L					
CORE	000A	ABSOLUTE	2/53 Q	5/33	13/35	13/44	14/59	15/12	15/38
			5/22	12/51	13/43	14/57	15/04	15/13	
COREIN	000D	ABSOLUTE	2/57 Q	5/23	15/37				
C1711	0042		2/32 E	7/07 L	13/53				
DIAGLU	0012	ABSOLUTE	3/05 Q	8/07					
DISPAD	00EA	ABSOLUTE	4/29 Q	6/06	7/20	7/39	7/57	8/15	
DONE	009A		9/12	9/29 L	11/20	12/50	13/04		
ERRCOD	000D	ABSOLUTE	2/56 Q	7/50	8/05				
ERROR	0062		5/26	5/56	7/12	9/31	10/17	14/23	
			5/50	7/09	7/43 L	9/34	14/22		
ERRTAB	0008	ABSOLUTE	2/51 Q	7/52	7/53	13/59			
EXIT	0029		5/53 L	13/54					
EXTREJ	0006	ABSOLUTE	3/16 Q	7/44					
E1711	0000		2/33 E	5/04 L					
FLAG	0010	ABSOLUTE	2/59 Q	7/17	7/21	7/26			
GOGODI	012F		13/42	13/46	13/51 L	15/16	15/24		
GOGODO	0133		13/50	13/52	13/54 L				
GOMAN	004C		7/15	7/17 L					
GOTCR	0112		13/14	13/22 L					
GOTTAB	0111		13/16	13/18	13/21 L				
HFFF0	0016	ABSOLUTE	4/12 Q	5/38					
H003F	0008	ABSOLUTE	4/11 Q	11/26					
I	00FF	-SYSTEM-	5/04	5/14	7/07	7/23	7/27	7/33	
INPVAL	003C	ABSOLUTE	4/24 Q	6/04	15/25				
INTREJ	0005	ABSOLUTE	3/15 Q	7/46					
INTRNL	0065		7/43	7/46 L					
I1711	0004		2/32 E	5/14 L	9/39				

JMOMAN	0061		7/36	7/40 L					
LASTP1	000B	ABSOLUTE	2/54 Q	5/34	13/36	13/45	15/05	15/14	15/42
LOG	007B	*EXTERNAL*	2/38 X	8/10					
LOGIT	007A		8/08	8/10 L					
LOSDAT	0001	ABSOLUTE	3/12 Q	9/24					
LOWER	00FC		12/55	12/57 L					
LOWLOW	0171		14/51	14/55 L					
LPMSK	0002	ABSOLUTE	4/09 Q	5/30	14/04				
LU	0005	ABSOLUTE	2/48 Q	7/47	7/55	8/06	8/12		
MAKEQ	00A2	*EXTERNAL*	2/36 X	7/58	9/36				
MI	0059	*EXTERNAL*	2/37 X	7/31					
MORUB	0199		15/39 L						
MORUB0	019B		15/41 Q	15/49					
MORUB1	01A2		15/45	15/50 Q					
MOTREQ	00B9		5/40	11/10 L	11/19				
MOTRTN	00E5		9/09	12/32 Q					
NFREAD	00AF		10/13	10/15 L					
NGODIS	0184		15/15	15/17 L					
NOCONT	00E5		12/15	12/18	12/21	12/35 L			
NOCR	0114		13/20	13/24 L					
NOCR1	0119		13/26	13/29 L					
NOG	018C		15/19	15/26 L					
NOMAN	007E		7/16	7/40	8/12 L				
NOMAN1	0082		8/13	9/04 L					
NOPAR	0152		14/15	14/18	14/24 L				
NOSPCC	00F0		12/37	12/45 L					
NOTCR	010B		13/10	13/15 L					
NOTDON	00A6		9/13	10/07 L					
NOTEOT	0101		12/60	13/05 L					
NOTMUL	0105		13/06	13/09 L					
NOTIST	00DA		12/09	12/18 L					
NXTMCR	00B6		11/07 L	12/47					
OUTOUT	0028		5/50 L	10/19					
OUTVAL	0002	ABSOLUTE	4/25 Q	5/59					
PARERR	0003	ABSOLUTE	3/14 Q	9/26	14/19				
PARFLG	0011	ABSOLUTE	3/04 Q	9/17	14/14				
PASSIT	0164		14/32	14/42 L					
P3	001C		5/36	5/38 L					
READ	0141		10/14	14/10 L					
REQAD	0006	ABSOLUTE	2/49 Q	5/27					
RLAQ	005B	*EXTERNAL*	2/40 X	7/32					
ROFLAG	0135		5/54	13/27	13/30	13/51	13/55 L		
RQAQ	0051	*EXTERNAL*	2/39 X	7/22					
RUBOUT	011F		13/28	13/35 L					
SCHCAL	0058		7/28	7/30 L					
SENBEL	0025		5/43	5/45 L					
SENDCH	0026		5/48 L	12/17	12/44				
SENDO1	00EE		12/42	12/44 L					
SENULL	0020		5/32	5/41 L					
SETCOD	0066		5/06	7/45	7/47 L	9/23	9/25	9/27	14/20
SETIME	0033		5/60	6/05 L					
STATUS	000C	ABSOLUTE	2/55 Q	6/18	7/13	9/05	9/15	9/35	
			5/57	7/10	7/35	9/11	9/20	10/12	
SWITCH	0009	ABSOLUTE	2/52 Q	11/07	12/13	12/38	13/39	14/50	15/31
			5/20	11/09	12/14	12/40	13/40	15/08	15/35
			5/21	11/25	12/20	12/45	13/48	15/09	15/36
			5/42	11/28	12/25	12/54	13/49	15/18	15/53

			9/07	12/05	12/26	13/22	14/28	15/27	15/55
			10/08	12/08	12/35	13/23	14/40	15/28	
TAGIT1	004F		7/18	7/21 L					
TEMP	000F	ABSOLUTE	2/58 Q	14/13	14/16	14/17	14/25		
TFORM	000C	ABSOLUTE	4/10 Q	11/29					
TGETOU	0187		15/06	15/20 L	15/33				
TGODIS	0183		14/42	15/11	15/16 L	15/29	15/51	15/56	
TIME	0004	ABSOLUTE	2/47 Q	6/05	7/60	9/33			
TIMERR	0000	ABSOLUTE	3/11 Q	5/05					
TMPWRD	000B	ABSOLUTE	2/60 Q	5/39	11/10	11/14			
TOEROR	014D		13/34	14/12	14/21 L	15/22			
TOPFRM	00C4		11/16	11/25 L					
TOSMD	00D8		11/30	12/17 L	12/28				
TOSTO	0175		14/54	14/59 L					
TRMMCR	00C3		11/13	11/18	11/20 L				
TR5	0150		14/21	14/23 L					
WREOAL	0003		5/09 L	5/25					
XFF00	001A	ABSOLUTE	4/07 Q	14/56					
ZERO	0022	ABSOLUTE	4/08 Q	5/28	12/52	14/58	14/60	15/40	15/47
ZIFORM	0165		14/29	14/43 L					
ZIFORN	016B		14/45	14/47	14/49 L				

1

STORAGE ALLOCATION.

ADDRESS LENGTH BINARY CONTROL CARDS.

0000 0023 NAM DUMMY DECK-ID M30 MSOS 5.0 SUMMARY
0023 END

ENTRY POINT NAMES AND ADDRESSES.

CDUMMY -- 0001 IDUMMY -- 0000

EXTERNAL SYMBOLS.

DUMALT LOG1 LOG1A

```
                                        NAM  DUMMY        DECK-ID M30  MSOS 5.0              SUMMARY-110 DUMMY     2
                                    *   DUMMY DEVICE DRIVER                                                DUMMY     3
                                    *   MASS STORAGE OPERATING SYSTEM VERSION 5.0                          DUMMY     4
                                    *   SMALL SYSTEMS DIVISION, LA JOLLA, CALIFORNIA                       DUMMY     5
                                    *   COPYRIGHT CONTROL DATA CORPORATION 1976                            DUMMY     6

                                    ********************************************************************** DUMMY     8
                                    *   THERE ARE TWO FUNCTIONS THAT THIS DRIVER IS DESIGNED TO PERFORM.*  DUMMY     9
                                    *   IT CAN FUNCTION AS A NORMAL DRIVER WITH A LOGICAL UNIT TO DO    *  DUMMY    10
                                    *   -DO NOTHING- FUNCTIONS, OR IT CAN FUNCTION AS AN ALTERNATE      *  DUMMY    11
                                    *   FOR A LOGICAL UNIT SO THAT DEVICE FAILURES FOR THE UNIT WILL    *  DUMMY    12
                                    *   BE LOGGED ON THE COMMENT DEVICE BUT REQUIRE NO OPERATOR RESPONSE*  DUMMY    13
                                    *   AND REPORT AN ERROR TO THE CALLER.                              *  DUMMY    14
                                    ********************************************************************** DUMMY    15

                                    *   DRIVER ENTRY POINTS                                                DUMMY    17
                          0000 P        ENT  IDUMMY      DUMMY INITIATOR ENTRY                             DUMMY    18
                          0001 P        ENT  CDUMMY      DUMMY CONTINUATOR ENTRY                           DUMMY    19
                          0002 P        ENT  EDUMMY      DUMMY ERROR ENTRY                                 DUMMY    20

                                    *   DRIVER EXTERNAL POINTS                                             DUMMY    22
                                        EXT  LOG1        LOG1 TABLE IN SYSDAT                              DUMMY    23
                                        EXT  DUMALT      DUMMY LOGICAL UNIT                                DUMMY    24
                                        EXT  LOG1A       LOG1A TABLE IN SYSDAT                             DUMMY    25

                                    *   DRIVER EQUIVALENCES                                                DUMMY    27
                          00B5          EQU  AFNR($B5)   ADDRESS OF FIND NEXT REQUEST                     DUMMY    28
                          00EA          EQU  ADISP($EA)  ADDRESS OF DISPATCHER                             DUMMY    29
                          0005          EQU  ELU(5)                                  **MSOS 4.1**          DUMMY    30
                          0033          EQU  ZROBIT($33) TABLE OF COMPLEMENT SINGLE BIT MASKS              DUMMY    31
                          0002          EQU  LPMSK($2)   TABLE OF RIGHT JUSTIFIED MASKS                   DUMMY    32
                          0009          EQU  ESTAT1(9)   PDT STATUS 1 WORD                                DUMMY    33
                          0023          EQU  ONEBIT($23) TABLE OF SINGLE BIT MASKS                         DUMMY    34
                          00B6          EQU  ACOMPR($B6) ADDRESS OF COMPLETE REQUEST                       DUMMY    35
                          00F4          EQU  AMONI($F4)  ADDRESS OF MONITOR                                DUMMY    36

    P0000 40FF            IDUMMY STQ- I          SAVE ADDRESS OF PDT IN I-REG.                           DUMMY    38
    P0001 54B5            CDUMMY RTJ- (AFNR)     LOOK FOR MORE REQUESTS                                  DUMMY    39
    P0002 14EA            EDUMMY JMP- (ADISP)    NO REQUESTS--EXIT TO DISPATCHER                         DUMMY    40
    P0003 E105                   LDQ- ELU,I      GET LOGICAL UNIT NUMBER                                 DUMMY    41
    P0004 C600  7FFF X           LDA+ LOG1A,Q    GET PDT ADDRESS FOR THIS LU                             DUMMY    42
    P0006 90FF                   SUB- I          MINUS MY PDT ADDRESS                                    DUMMY    43
    P0007 0113                   SAN  ASALT      SKIP IF REQUEST AS ALTERNATE DEVICE                     DUMMY    44
    P0008 54B6                   RTJ- (ACOMPR)   COMPLETE REQUEST                                        DUMMY    45
    P0009 1FF7                   JMP* CDUMMY     GO TO SEE IF MORE REQUESTS                              DUMMY    46
    P000A 7FFF X          LUDUMY ADC  DUMALT     DUMMY LOGICAL UNIT                                      DUMMY    47
    P000B 0500            ASALT  IIN  0          LOCK OUT OTHER CHANGES TO LOG1                          DUMMY    48
    P000C CE16                   LDA* (ALOG1),Q  GET LOG1 ENTRY FOR REQUESTED L.U.                       DUMMY    49
    P000D A040                   AND- ZROBIT+13  RESTORE UNIT                                            DUMMY    50
    P000E A03F                   AND- ZROBIT+12  CLEAR MESSAGE FLAG BIT                                  DUMMY    51
                                 *               1 CARD DELETED                                          DUMMY    52
    P000F 6E13                   STA* (ALOG1),Q  MODIFY LOG1 ENTRY                                       DUMMY    53
```

```
                P0010  E600  0005 X        LDQ+ LOG1A,Q      MAKE Q-REG. POINT TO FAILED L.U. PDT          DUMMY  54
                P0012  C109               LDA- ESTAT1,I                                                 DUMMY  55
            5   P0013  A011               AND- LPMSK+15                                                 DUMMY  56
                P0014  B032               EOR- ONEBIT+15    SET ERROR INDICATOR IN V-FIELD              DUMMY  57
                P0015  6109               STA- ESTAT1,I                                                 DUMMY  58
                P0016  480A               STQ* ADRPHY       SAVE ADDRESS OF FAILED L.U. PDT             DUMMY  59
                P0017  54B6               RTJ- (ACOMPR)     COMPLETE REQUEST                            DUMMY  60
           10   P0018  0500               IIN  0            LOCK OUT OTHER ENTRIES TO FAILED DRIVER     DUMMY  61
                P0019  E807               LDQ* ADRPHY                                                   DUMMY  62
                P001A  C205               LDA- ELU,Q        IS DRIVER BUSY (L.U. NOT ZERO)              DUMMY  63
                P001B  0115               SAN  BUSY         SKIP IF BUSY                                DUMMY  64
                P001C  C105               LDA- ELU,I        SET BUSY SO ANY NEW REQUESTS WILL           DUMMY  65
           15   P001D  6205               STA- ELU,Q          BE THREADED                               DUMMY  66
                P001E  54F4               RTJ- (AMONI)      PART 1 INDIRECT REQUEST                     DUMMY  67
                P001F  2000               NUM  $2000                                                    DUMMY  68
                P0020  0000       ADRPHY  NUM  0            PDT ADDRESS OF FAILED DRIVER                DUMMY  69
                P0021  18DF       BUSY    JMP* CDUMMY       GO TO LOOK FOR MORE REQUESTS                DUMMY  70
           20   P0022  7FFF X     ALOG1   ADC  LOG1                                                     DUMMY  71
                P0023                     END                                                           DUMMY  72

                          56747B STORAGE USED          71 STATEMENTS      20 SYMBOLS
                                 6400 ASSEMBLY      0.515 SECONDS        52 REFERENCES
```

COMPLETE REFERENCE MAP.

ACOMPR	00B6	ABSOLUTE	2/40 Q	2/51	3/09		
ADISP	00EA	ABSOLUTE	2/34 Q	2/46			
ADRPHY	0020	.	3/08	3/11	3/18 L		
AFNR	00B5	ABSOLUTE	2/33 Q	2/45			
ALOG1	0022		2/55	2/59	3/20 L		
AMONI	00F4	ABSOLUTE	2/41 Q	3/16			
ASALT	000B		2/50	2/54 L			
BUSY	0021		3/13	3/19 L			
CDUMMY	0001		2/22 E	2/45 L	2/52	3/19	
DUMALT	000A	*EXTERNAL*	2/28 X	2/53			
EDUMMY	0002		2/23 E	2/46 L			
ELU	0005	ABSOLUTE	2/35 Q	2/47	3/12	3/14	3/15
ESTAT1	0009	ABSOLUTE	2/38 Q	3/04	3/07		
I	00FF	-SYSTEM-	2/44	2/49			
IDUMMY	0000		2/21 E	2/44 L			
LOG1	0022	*EXTERNAL*	2/27 X	3/20			
LOG1A	0011	*EXTERNAL*	2/29 X	2/48	2/60		
LPMSK	0002	ABSOLUTE	2/37 Q	3/05			
LUDUMY	000A		2/53 L				
ONEBIT	0023	ABSOLUTE	2/39 Q	3/06			
ZROBIT	0033	ABSOLUTE	2/36 Q	2/56	2/57		

S2)W=::L:

```
0032                    *
0033                    *
0034                    *       MESSAGE
0035 P0027 5052         MSG     ALF  Z,PRESENT TIME- Z
     P0028 4553
     P0029 454E
     P002A 5420
     P002B 5449
     P002C 4D45
     P002D 2D20
0036 P002E 3030         HRMSG   ALF  Z,00:00:00Z
     P002F 3A30
     P0030 303A
     P0031 3030
0037       0008                 EQU  MSGL(*-MSG)
0038                    *
0039 P0032 0000         INC     NUM  0              NUMBER OF TIMES THROUGH THE PROGRAM
0040                            END

  PGM=  0033 (    51)   COM = 0000 (     0)   DAT = 0000 (     0)
```

E Q U I V A L E N C E S

DEF.LINE	NAME	VALUE		REFERENCED AT LINE NUMBER
0000	I	00FF	(000255)	
0006	ADISP	00EA	(000234)	0023, 0029
0007	LIST	00FB	(000251)	0022
0008	PRI	0005	(000005)	0022, 0022, 0028
0037	MSGL	000B	(000011)	0022

S Y M B O L S

DEF.LINE	NAME	ADDRESS	REFERENCED AT LINE NUMBER
0009	GO	0000	0030
0010	LOOP1	0000	0028
0024	ENWRT	001B	0022
0030	ENDPRG	0024	0027, 0030
0035	MSG	0027	0022, 0037
0036	HRMSG	002E	0012, 0017, 0018, 0021
0039	INC	0032	0024, 0025

E X T E R N A L S

DEF.LINE	NAME	VALUE	REFERENCED AT LINE NUMBER
0002	HORTO	0001	0010
0003	MINTO	0006	0013
0004	SECON	000F	0019
0005	CONVER	0011	0011, 0014, 0020

*** A L P H A B E T I C A L S O R T O F S Y M B O L S ***

ADISP	0006	CONVER	0005	ENDPRG	0030	ENWRT	0024	GO	0009
HORTO	0002	HRMSG	0036	I	0000	INC	0039	LIST	0007
LOOP1	0010	MINTO	0003	MSG	0035	MSGL	0037	PRI	0008
SECON	0004								

1

```
0001                        NAM  HANG          SET UP SCHSTK, INTSTK, VOLATILE, AND LOG2
0002                 G01    SCHDLE G02-G01-1,4,X,0
0002 P0000 54F4
0002 P0001 1304
0002 P0002 0003
0003                        DISP
0003 P0003 14EA
0004                 G02    SCHDLE G03-G02-1,5,X,0
0004 P0004 54F4
0004 P0005 1305
0004 P0006 0003
0005                        DISP
0005 P0007 14EA
0006                 *
0007                 *
0008                 G03    SCHDLE G01-G03-1,1,X,0
0008 P0008 54F4
0008 P0009 1301
0008 P000A 7FF6
0009 P000B 580D             RTJ* R1-1
0010 P000C 5817             RTJ* R2-1
0011 P000D 5821             RTJ* R3-1
0012                 G04    SCHDLE G04-G04-1,5,X,0
0012 P000E 54F4
0012 P000F 1305
0012 P0010 7FFF
0013                        DISP
0013 P0011 14EA
0014                 *
0015 P0012 5806      C1     RTJ* R1-1
0016                        DISP
0016 P0013 14EA
0017                 *
0018 P0014 580F      C2     RTJ* R2-1
0019                        DISP
0019 P0015 14EA
0020                 *
0021 P0016 5819      C3     RTJ* R3-1
0022                        DISP
0022 P0017 14EA
```

```
0024 P0018 0000          NUM  0              ENTRY POINT
0025               R1    FREAD 8,C1-R1-1,BUF,96,B,3,6,,X,0
0025 P0019 54F4
0025 P001A 0936
0025 P001B 7FF7
     P001C 0000
0025 P001D 0008
0025 P001E 0060
     P001F 0037 P
0026 P0020 0000          NUM  0,0
     P0021 0000
0027 P0022 1CF5          JMP* (R1-1)
0028               *
0029               ********************************************************************************
0030               *
0031 P0023 0000          NUM  0              ENTRY POINT
0032               R2    FREAD 8,C2-R2-1,BUF,96,B,3,6,,X,0
0032 P0024 54F4
0032 P0025 0936
0032 P0026 7FEE
     P0027 0000
0032 P0028 000P
0032 P0029 0060
     P002A 0037 P
0033 P002B 0000          NUM  0,0
     P002C 0000
0034 P002D 1CF5          JMP* (R2-1)
0035               *
0036               ********************************************************************************
0037               *
0038 P002E 0000          NUM  0              ENTRY POINT
0039               R3    FREAD 6,C3-R3-1,MBF,96,B,3,6,,X,0
0039 P002F 54F4
0039 P0030 0936
0039 P0031 7FE5
     P0032 0000
0039 P0033 0006
0039 P0034 0060
     P0035 0097 P
0040 P0036 1CF7          JMP* (R3-1)
0041               *
0042               *
0043 P0037 0060   BUF    BSS  BUF(96)
0044 P0097 0060   MBF    BSS  MBF(96)
0045                     END

  PGM=  00F7 (   247)   COM = 0000 (     0)   DAT = 0000 (     0)
```

E Q U I V A L E N C E S

DEF.LINE	NAME	VALUE	REFERENCED AT LINE NUMBER
0000	I	00FF (000255)	

S Y M B O L S

DEF.LINE	NAME	ADDRESS	REFERENCED AT LINE NUMBER
0002	G01	0000	0002, 0008
0004	G02	0004	0002, 0004
0008	G03	0008	0004, 0008
0012	G04	000E	0012, 0012
0015	C1	0012	0025
0018	C2	0014	0032
0021	C3	0016	0039
0025	R1	0019	0009, 0015, 0025, 0027
0032	R2	0024	0010, 0018, 0032, 0034
0039	R3	002F	0011, 0021, 0039, 0040
0043	BUF	0037	0025, 0032
0044	MBF	0097	0039

*** A L P H A B E T I C A L S O R T O F S Y M B O L S ***

BUF	0043	C1	0015	C2	0018	C3	0021	G01	0002
G02	0004	G03	0008	G04	0012	I	0000	MBF	0044
R1	0025	R2	0032	R3	0039				

1

```
0001                        NAM  WDISK          WRITE IN DISK SCRATCH AREA
0002                TOASC   MAC  H,A
0003                        EXT* HEXASC
0004                        RTJ  HEXASC
0005                        ADC* 'H','A'
0006                        EMC
0007                        ENT  FIRST
0008 P0000 0060   BUFF      BSS  BUFF(96)
0009       0000 P           ORG  BUFF
0010 P0000 C0C1   FIRST     LDA- $C1            GET START OF SCRATCH
0011 P0001 6819             STA* CSA
0012 P0002 0842   LOOP      CLR  Q
0013 P0003 5818   C1        RTJ* CKREQ
0014 P0004 0000             NUM  0              ERROR COUNTER
0015                FW1     FWRITE 8,C1,BUFF,96,B,0,5,,,1
0015 P0005 54F4
0015 P0006 4C05
0015 P0007 0003 P
     P0008 0000
0015 P0009 0008
0015 P000A 0060
     P000B 0000 P
0016 P000C 0000             ADC  0,0            SECTOR ADDRESS
     P000D 0000



0018 P000E 0842             CLR  Q
0019 P000F 580C   C2        RTJ* CKREQ
0020                FW2     FWRITE 8,C2,BUFF,96,B,0,5,,,1
0020 P0010 54F4
0020 P0011 4C05
0020 P0012 000F P
     P0013 0000
0020 P0014 0008
0020 P0015 0060
     P0016 0000 P
0021 P0017 0000             ADC  0,0            SECTOR ADDRESS
     P0018 0000
0022 P0019 18E8             JMP* LOOP
0023 P001A 0000   CSA       NUM  0              CURRENT SECTOR ADDRESS
```

```
0025        0009          EQU  ILSB(9),ITHD(4)
            0004
0026 P001B 0000   CKREQ   NUM  0
0027 P001C 0844           CLR  A
0028 P001D 0FE2           LLS  2
0029 P001E 0111           SAN  ERROR
0030 P001F 181E           JMP* OK
0031 P0020 0CFA   ERROR   RAO* (CKREQ)
0032 P0021 ECF9           LDQ* (CKREQ)
0033 P0022 0DFA           INQ  -5
0034 P0023 0161           SOP  PRNTIT
0035 P0024 1825           JMP* EXIT           RETRY THE REQUEST
0036 P0025 8000   PRNTIT  ADD  =A=0           PRINT ERROR MESSAGE
     P0026 3D30
0037 P0027 6815           STA* EMSG+4
0038 P0028 E8F2           LDQ* CKREQ
0039 P0029 C209           LDA- ILSB,Q
0040 P002A 680D           STA* SEC
0041                      TOASC SEC,EMSG+1
0041 P002B 5800 X
     P002C 7FFF X
0041 P002D 000A
     P002E 000B
0042              EWR     FWRITE 4,ECOMP,EMSG,5,A,0,5,,,1
0042 P002F 54F4
0042 P0030 4C05
0042 P0031 003D P
     P0032 0000
0042 P0033 1004
0042 P0034 0005
     P0035 0038 P
0043                      DISP
0043 P0036 14EA
0044 P0037 0000   SEC     NUM  0
0045 P0038 533D   EMSG    ALF  5,S=0000 Q=0
     P0039 3030
     P003A 3030
     P003B 2051
     P003C 3D30
0046        003D P ECOMP  EQU  ECOMP(*)



0048 P003D 0844   OK      CLR  A
0049 P003E 6CDC           STA* (CKREQ)
0050 P003F E8DB           LDQ* CKREQ
0051 P0040 C204           LDA- ITHD,Q
0052 P0041 0101           SAZ  NOTBSY
0053                      DISP
0053 P0042 14EA
0054 P0043 C8D6   NOTBSY  LDA* CSA
0055 P0044 6209           STA- ILSB,Q
```

```
0056 P0045 9400 X       SUB  MAXSEC
     P0046 7FFF X
0057                    EXT  MAXSEC
0058 P0047 0123         SAP  DONE
0059 P0048 D8D1         RAO* CSA
0060 P0049 DPD1  EXIT   RAO* CKREQ
0061 P004A 1CD0         JMP* (CKREQ)



0063 P004B 0111  DONE   SAN  ALLDON
0064                    DISP
0064 P004C 14EA
0065             ALLDON FWRITE 4,DONE2,MSG,2,A,0,5,,,1
0065 P004D 54F4
0065 P004E 4C05
0065 P004F 0055 P
     P0050 0000
0065 P0051 1004
0065 P0052 0002
     P0053 0058 P
0066                    DISP
0066 P0054 14EA
0067             DONE2  RELEAS  FIRST,DISP,,1
0067 P0055 54F4
0067 P0056 5801
0067 P0057 0000 P
0068 P0058 444F  MSG    ALF  2,DONE
     P0059 4E45
0069                    END  FIRST
```

PGM= 005A (90) COM = 0000 (0) DAT = 0000 (0)

E Q U I V A L E N C E S

DEF.LINE	NAME	VALUE		REFERENCED AT LINE NUMBER
0000	I	00FF	(000255)	
0025	ILSB	0009	(000009)	0039, 0055
0025	ITHD	0004	(000004)	0051

S Y M B O L S

DEF.LINE	NAME	ADDRESS	REFERENCED AT LINE NUMBER
0007	FIRST	0000	0007, 0067
0008	BUFF	0000	0009, 0015, 0020
0012	LOOP	0002	0022
0013	C1	0003	0015
0015	FW1	0005	
0019	C2	000F	0020
0020	FW2	0010	
0023	CSA	001A	0011, 0054, 0059
0026	CKREQ	001B	0013, 0019, 0031, 0032, 0038, 0049 0050, 0060, 0061
0031	ERROR	0020	0029
0036	PRNTIT	0025	0034
0042	EWR	002F	
0044	SEC	0037	0040, 0041
0045	EMSG	0038	0037, 0041, 0042
0046	ECOMP	003D	0042
0048	OK	003D	0030
0054	NOTBSY	0043	0052
0060	EXIT	0049	0035
0063	DONE	004B	0058
0065	ALLDON	004D	0063
0067	DONE?	0055	0065
0068	MSG	0058	0065

E X T E R N A L S

DEF.LINE	NAME	VALUE	REFERENCED AT LINE NUMBER
0041	HEXASC	002C	0041
0057	MAXSEC	0046	0056

*** A L P H A B E T I C A L S O R T O F S Y M B O L S ***

ALLDON	0065	BUFF	0008	C1	0013	C2	0019	CKREQ	0026
CSA	0023	DONE	0063	DONE2	0067	ECOMP	0046	EMSG	0045
ERROR	0031	EWR	0042	EXIT	0060	FIRST	0007	FW1	0015
FW2	0020	HEXASC	0041	I	0000	ILSB	0025	ITHD	0025
LOOP	0012	MAXSEC	0057	MSG	0068	NOTBSY	0054	OK	0048
PRNTIT	0036	SEC	0044						

1

```
0001                        NAM  RHA          CONVERT HEX NUMBER TO ASCII (2 WORDS)
0002                C2DIG   MAC
0003                        RTJ* CNVDIG
0004                        QLS  8
0005                        STQ* (ANSAD)
0006                        RTJ* CNVDIG
0007                        ADQ* (ANSAD)
0008                        STQ* (ANSAD)
0009                        EMC
0010                        ENT  EEAHEX
0011                        ENT  HEXASC
0012 P0000 0001             BSS  ANSAD
0013       0001 P HEXASC    EQU  HEXASC(*)
0014 P0001 0000   EEAHEX    NUM  0
0015 P0002 ECFE             LDQ* (EEAHEX)
0016 P0003 CEFD             LDA* (EEAHEX),Q
0017 P0004 D8FC             RAO* EEAHEX
0018 P0005 ECFB             LDQ* (EEAHEX)
0019 P0006 F8FA             ADO* EFAHEX
0020 P0007 48F8             STQ* ANSAD
0021 P0008 D8F8             RAO* EEAHEX
0022                        C2DIG
0022 P0009 580E
0022 P000A 0FA8
0022 P000B 4CF4
0022 P000C 580B
0022 P000D FCF2
0022 P000E 4CF1
0023 P000F D8F0             RAO* ANSAD
0024                        C2DIG
0024 P0010 5807
0024 P0011 0FA8
0024 P0012 4CED
0024 P0013 5804
0024 P0014 FCEB
0024 P0015 4CEA
0025 P0016 1CEA             JMP* (EEAHEX)
0026                C       *
0027 P0017 0000   CNVDIG    NUM  0
0028 P0018 0842             CLR  Q
0029 P0019 0FE4             LLS  4
0030 P001A 0DF5             INQ  -10
0031 P001B 0171             SOM  1
0032 P001C 0D07             INQ  7
0033 P001D 0D3A             INQ  10+$30
0034 P001E 1CF8             JMP* (CNVDIG)
0035                        END
```

PGM= 001F (31) COM = 0000 (0) DAT = 0000 (0)

E Q U I V A L E N C E S

DEF.LINE	NAME	VALUE	REFERENCED AT LINE NUMBER
0000	I	00FF (000255)	

S Y M B O L S

DEF.LINE	NAME	ADDRESS	REFERENCED AT LINE NUMBER
0010	EEAHEX	0001	0010, 0015, 0016, 0017, 0018, 0019 0021, 0025
0011	HEXASC	0001	0011
0012	ANSAD	0000	0020, 0022, 0022, 0022, 0023, 0024 0024, 0024
0027	CNVDIG	0017	0022, 0022, 0024, 0024, 0034

*** A L P H A B E T I C A L S O R T O F S Y M B O L S ***

ANSAD	0012	CNVDIG	0027	EEAHEX	0010	HEXASC	0011	I	0000

1
S?)W=
READY.

EVALUATION FORM

Course/Seminar Name _____ Date of Attendance From _____ To _____

Instructor _____ Location _____

Please place a rating in the box for each area and then add comments explaining your rating.

Rating Key

Excellent	*5*
Very Good	*4*
Good	*3*
Fair	*2*
Poor	*1*

The Course/Seminar

* How well did the course/seminar cover the stated objectives? ☐
* To what degree will the course/seminar be helpful in improving on-the-job performance? ☐
* To what extent were the handout materials and visuals helpful in aiding your understanding of the topic? ☐
* What is your overall rating of the organization and content of the course/seminar? ☐

The Instructor

* How do you rate the instructor's knowledge of the material and ability to answer questions? ☐
* How effective was the instructor in presenting the material in an understandable manner? ☐
* How effective was the instructor in generating and sustaining interest in the course/seminar? ☐
* How do you rate the instructor's responsiveness to the needs of participants? ☐
* What is your overall rating of the instructor? ☐

The Facilities

* How do you rate the appropriateness of the facilities to the topic and means of presentation? ☐
* To what extent were the facilities comfortable, well-lighted and heated or cooled? ☐
* How convenient was the location of the facility? ☐

EVALUATION FORM

Page 2

General Comments

* What changes in the course/seminar would you make if you were the instructor?

* Would you recommend this course/seminar to others in your company or department? Why?

* Please list colleagues or associates who should receive advance notices of similar courses/seminars.

1) Name _____
Organization _____
Address _____
_____
Bus. Tel. No. _____

2) Name _____
Organization _____
Address _____
_____
Bus. Tel. No. _____

3) Name _____
Organization _____
Address _____
_____
Bus. Tel. No. _____

4) Name _____
Organization _____
Address _____
_____
Bus. Tel. No. _____

* Should this course be offered at your company site? If so, who should be contacted to manage it?

* If we may use your comments in future descriptions of the course/seminar, please sign below.

Signature _____

(Optional)

PARTICIPANT INFORMATION FORM

In order for our seminars/courses to be most effective, they need to take into account the characteristics, needs and objectives of the people who attend them. The information asked for below will assist us in keeping our presentations relevant to the participants and in developing and scheduling new presentations that will meet participant needs. Please complete this form and leave it with the presenter at the next break.

Seminar/Course Title _____ **Date of Presentation** _____

Name _____ **Field or Type of Business** _____

Title _____ **Years of Experience** _____

Business Address _____ **Supervisor's Title** _____

_____ **Last professional degree** _____

_____

List your three primary objectives in attending this seminar.

1. _____
2. _____
3. _____

Will this course/seminar be credited toward certification/training requirements? _____

Rank in order of importance in your choice of this seminar session.

Instructor _____ **Date** _____ **Location** _____ **Employer's Preference** _____

Previous courses/seminars attended relating to this topic.

1. _____
2. _____
3. _____

Topics for additional courses/seminars in which you would be interested.

1. _____
2. _____
3. _____

What trade journals/magazines do you regularly read or subscribe to in order to keep abreast in your profession?

1. _____
2. _____
3. _____

How did you become aware of this course/seminar?

Schedule/Catalogue _____,

Direct Mail Brochure _____,

Recommendations of Supervisor _____,

Recommendation of Colleague _____,

Corporate Training Department _____,

Other _____ .

COMMENT SHEET

MANUAL TITLE: CYBER 18/1700 MSOS ANALYSIS LISTINGS

PUBLICATION NO.: QA4020-1 **REVISION:** B

NAME: _____

COMPANY: _____

STREET ADDRESS: _____

CITY: _____ **STATE:** _____ **ZIP CODE:** _____

This form is not intended to be used as an order blank. Control Data Corporation welcomes your evaluation of this manual. Please indicate any errors, suggested additions or deletions, or general comments below (please include page number references).

CUT ALONG LINE

AA3419 REV. 4/79 PRINTED IN U.S.A.

NO POSTAGE STAMP NECESSARY IF MAILED IN U.S.A.

FOLD ON DOTTED LINES AND STAPLE

STAPLE

STAPLE

FOLD

FOLD

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 8241 MINNEAPOLIS, MINN.

POSTAGE WILL BE PAID BY

CONTROL DATA CORPORATION
National Coordinator
Bloomington Facility (MNA02B)
5001 West 80th Street
Bloomington, Minnesota 55437
Attn: Curtis Vicha

CUT ALONG LINE

FOLD

FOLD

CONTROL DATA SEMINARS

an education service of
CONTROL DATA CORPORATION

CORPORATE HEADQUARTERS
P.O. BOX 0
MINNEAPOLIS, MINNESOTA 55440