STORAGE ALLOCATION.

ADDRESS	LENGTH	BINARY CONTROL CARDS.
0	133	IDENT MISC
133		END

BLOCKS	TYPE	ADDRESS	LENGTH
ABSOLUTE*	ABSOLUTE	0	170
PROGRAM*	LOCAL	0	133
EMISC	COMMON	0	77

ENTRY POINTS.

E.MKCCD	0	L.CGEN	7	RESTORE	40	Z.LSYS	100				
L.MKCCD	13	DSPCLOX	1	CHKPTR	51	SPYPPNT	122				
E.NWTMP	13	DSPSCLX	14	CAPCHK	56	SPYQPNT	123				
L.NWTMP	7	TIMDT	51	CHNGWD	63	SPYTMFA	124				
E.CAGEN	22	E.TIMDT	47	?.ESYS	72	SPYTMFS	125				
L.CAGEN	16	L.TIMDT	30	?.ASYS	75	Z.SPEC	1				
E.CGEN	40	SAVREG	30	?.SPSYS	76	Z.SWPTM	2				

EXTERNAL SYMBOLS.

SYSRET	DISASTR	AUTHCNT	S.IDLTM	S.SWPTM	S.TIME	NEGPAR	NOAUTH
PUTCAP	E.ERROR	S.MASTR	S.USRTM	S.CHARG	NEGIX	NEGPT	E.ECS
GETCAP	CLASCNT	S.QUANT	S.SYSTM	S.DATE	BIGPT	PACKBUF	

```
                        IDENT   MISC
                *
                * ACTIONS FOR CLASS CODES, CLOCKS, MISC
                *
                * SYSTEM ACTIONS CONTAINED HEREIN -
                *       MKCLSCD   MAKE A CLASS CODE
                *       NWTMP     SET TEMPORARY PART OF CLASS CODE
                *       CAGEN     CREATE CAPABILITY GENERATING OPERATION
                *       CGEN      CREATE CAPABILITY OF SPECIFIED TYPE
                *       DSPCLOX   DISPLAY USER CLOCKS
                *       DSPSCLX   DISPLAY SYSTEM CLOCKS
                *       TIMDT     DISPLAY TIME AND DATE
                *       SAVREG    SAVE USER REGISTERS
                *       RESTORE   RESTORE USER REGISTERS
                *
                * EXTERNAL SUBROUTINES CONTAINED HEREIN-
                *       CHKPTR    CHECK LEGALITY OF USER-PROPOSED BUFFER
                *       CAPCHK    CHECK LEGALITY OF USER-PROPOSED C-LIST INDEX
                *       Z.VARIOUS CODE TO TIME VARIOUS PARTS OF THE SYSTEM
                *
                        EXT     SYSRET,PUTCAP,GETCAP,MISASTR,E.ERROR
0               ECSMAC  XTEXT
                CBLOCK  MICRO   1,,*/EMISC/*
0               INTSYS  XTEXT
0               PROCSYM XTEXT
0               TYPES   XTEXT
0               ERRNUMS XTEXT
                RECS    MACRO   X
                +       RE      X
                        RJ      =XE.ECS
                RECS    ENDM
                WECS    MACRO   X
                +       WE      X
                        RJ      =XE.ECS
                WECS    ENDM
```

```
      0                                        ECSCODE  MKCCD
                                       *
                                               EXT       CLASCNT
                                       *
                                       *
      51  5111000066                   MKCLSCD SA1      B1+P.PARAM        . C-LIST INDEX
                    6120000001                 SB2      1
      52  6170000053                           SB7       MKCLSCD1
                    0400000056 +               EQ        CAPCHK      . CHECK OUT PROPOSED INDEX
      53  7100000000 X                 MKCLSCD1 SX0      CLASCNT             READ LAST CLASS CODE FROM BUFFER
                    5101000050                 SA0      B1+P.SCR2
      54  0110000001                           RECS     1
      55  54200                                SA2      A0
              43773                            MX7      59
                    37727                      IX7      X2-X7
                          20736                LX7      30
      56  0327000000 +                         NG       X7,BADNEWS
                    5171000001                 SA7      B1+1              . STORE INTO SCRATCH AREA
      57  20736                                LX7      30
              54720                            SA7      A2
      60  0120000001                   +       WE       1                   WRITE OUT CLASS COUNT
                    0100000000 X               RJ       E.ECS
      61  66510                                SB5      B1
              43752                            MX7      42
                    7120001737                 SX2      T.CLSCD
      62  12727                                BX7      X2+X7
              56710                            SA7      B1                . STORE FIRST WORD OF CLASS CODE
                    6160000000 X               SB6      SYSRET            . *RETURN* LINK FROM PUTCAP
      63  5111000066                           SA1       B1+P.PARAM           . INDEX
                    0400000000 X               EQ       PUTCAP
      64                                       ENDECS   MKCCD
      0  0100000000 X                  BADNEWS RJ        DISASTR
```

```
     13                                    ECSCODE  NWTMP
                                *
                                *
                                *                     SET TEMPORARY PART OF CLASS CODE
                                *
                                *                              AP1 = C: CLASS CODE (OB.TEMP)
                                *                              AP2 = D: INDEX TO RETURN NEW CLASS CODE
                                *                              AP3 = D: NEW TEMPORARY PART (30 BITS)
                                *
                                *
     51  5111000070             NWTMP      SA1      B1+P.PARAM+2          CHECK C-LIST INDEX
                6120000002                 SB2      2
     52  6170000053                        SB7      NWTMP2
                0400000056 +               EQ       CAPCHK    . TEXT PROPOSED INDEX
     53  5121000067             NWTMP2     SA2      B1+P.PARAM+1          DATA PART OF CLASS CODE
                43636                      MX6      30
                     11226                 BX2      X2*X6
     54  5131000071                        SA3      B1+P.PARAM+3          NEW TEMPORARY PART
                15336                      BX3      -X6*X3
                     12632                 BX6      X3+X2
     55  54620                             SA6      A2
                                *
             6151000046                    SB5      B1+P.PARAM            ABS ADDR OF CAPABILITY
     56  6160000000 X                      SB6      SYSRET                X1 = INDEX FOR NEW CLASS CODE
                5111000070                 SA1      B1+P.PARAM+2
     57  0200000000 X                      JP       PUTCAP
                                *
     60                                    ENDECS   NWTMP
```

```
     22                                    ECSCODE   CAGEN
                                           EXT       AUTHCNT
                                 *
                                 *                   PARAMETERS-
                                 *                   AP1 = D! INDEX TO RETURN AUTHORIZATION (ITS A CAPABILITY)
                                 *
                                 *                   THE RETURNED CAP IS OF A SPECIAL TYPE AND MAY BE
                                 *                   PRESENTED FOR MANUFACTURING YOUR OWN PRIVATE TYPE
                                 *                   OF CAPABILITY.  THE SECOND WORD OF THE AUTHORIZATION
                                 *                   IS THE TYPE OF CAPABILITY WHICH WILL BE MANUFACTURED
                                 *                   UNDER THIS AUTHORIZATION.
                                 *
     51  5111000066                        SA1       B1+P.PARAM              CHECK OUT C-LIST INDEX
                   6120000001              SB2       1
     52  6170000053                        SB7       CAPAGEN1
                   0400000056 +            EQ        CAPCHK
     53  7100000000 X            CAPAGEN1  SX0       AUTHCNT                 READ LAST AUTHORIZATION THAT
                   5101000050              SA0       B1+P.SCR2               WAS PASSED OUT
     54  0110000001                        RECS      1
     55  7140000011                        SX4       9
                   54200                   SA2       A0                      GET LAST AUTH ISSUED
     56  37227                   CAPAGEN3  IX2       X2-X7                   FIND THE NEXT ONE
              47322                        CX3       X2
                   37334                   IX3       X3-X4
     57  0313000056                        NZ        X3,CAPAGEN3
                   10622                   BX6       X2                      GOT ONE
                        21222              AX2       18
     60  0312000066                        NZ        X2,HORRORS              BUT ITS OUT OF RANGE
                   54620                   SA6       A2                      PUT THE NEW ONE BACK
     61  0120000001                        WECS      1
     62  5161000001                        SA6       B1+1                    SAVE IT FOR PUTCAP
                   7120001773              SX2       T.CAUTH                 GENERATE THE FIRST WORD
     63  43652                             MX6       42                      OF THE CAPABILITY AUTHORIZATION
              12626                        BX6       X2+X6
                   56610                   SA6       B1
                        66510              SB5       B1                      ADDRESS OF CAP FOR PUTCAP
     64  6160000000 X                      SB6       SYSRET
                   5111000066              SA1       B1+P.PARAM
     65  0400000000 X                      EQ        PUTCAP                  GIVE HIM HIS SHINY NEW AUTHORIZATION
     66  6140000000              HORRORS   ERROR     0*NOAUTH   . NO MORE AUTHORIZATIONS AVAILABLE
     67                                    ENDECS    CAGEN
```

```
     40                                      ECSCODE   CGEN
                               *
                               *                       PARAMETERS-
                               *                       AP1 = D! INDEX FOR RETURN OF CAPABILITY
                               *                       AP2 = C! A CAPABILITY CREATING AUTHORIZATION
                               *                       AP3 = D! DATA WORD TO BE USED AS SECOND WORD OF
                               *                                RETURNED CAPABILITY
                               *
                               *                       A CAPABILITY WITH ALL OPTION BITS ON, OF THE TYPE SPECIFIED
                               *                       IN THE AUTHORIZATION, AND WITH SECOND WORD EQUAL
                               *                       TO THE PROVIDED DATA WORD IS RETURNED TO THE USER.
                               *
     51  5111000066                          SA1       B1+P.PARAM           CHECK OUT C-LIST INDEX
                   6120000001                SB2       1
     52  6170000053                          SB7       CAPGENI
                   0400000056 +              EQ        CAPCHK
     53  5121000070            CAPGENI       SA2       B1+P.PARAM+2         GET THE TYPE FOR THE NEW CAP
                   43662                     MX6       42
                        12662                BX6       X6+X2                BOY * THERE BETTER HADNT BE
     54  56610                               SA6       B1                   ANY EXTRA BITS IN THE AUTHORIZATION
              5121000071                     SA2       B1+P.PARAM+3         GET THE SECOND WORD OF THE CAP
                        10622                BX6       X2
     55  5161000001                          SA6       B1+1
                   66610                     SB5       B1                   ADDRESS OF NEW CAP FOR PUTCAP
     56  6160000000 X                        SB6       SYSRET
                   5111000066                SA1       B1+P.PARAM
     57  0400000000 X                        EQ        PUTCAP               GIVE IT TO HIM AND SPLIT
     60                                      ENDECS    CGEN
```

```
                                        EXT     S.MASTR,S.QUANT
                                        ENTRY   DSPCLOX
 1  5111000066              DSPCLOX     SA1     R1+P.PARAM
              617n000004 +              SB7     DSPCLOX1            TAKE RETLINK AND RUFSIZ
 2  6160000005                         SB6     5                   TO CHKPTR
              612n000001                SB2     1
 3  0400000051 +                       EQ      CHKPTR
 4  5150000000 X            DSPCLOX1   SA5     S.MASTR             REAL TIME CLOCK
              10655                     BX6     X5
                   54600                SA6     A0
 5  5151000137                         SA5     R1+P.USRTIM         USER CLOCK
              10655                     BX6     X5
 6  5066000001                         SA6     A6+1
              5151000140                SA5     R1+P.SYSTIM         SYSTEM CLOCK
 7  10655                              BX6     X5
         5066000001                     SA6     A6+1
10  5151000141                         SA5     R1+P.SWPTIM         SWAPPING CLOCK
              10655                     BX6     X5
11  5066000001                         SA6     A6+1
              5150000000 X              SA5     S.QUANT             QUANTUM CLOCK
12  10655                              BX6     X5
         5066000001                     SA6     A6+1
13  0200000000 X                       JP      SYSRET
```

```
                                        EXT     S.MASTR,S.IDLTM,S.USRTM,S.SYSTM,S.SWPTM,S.CHARG
                                        ENTRY   DSPSCLX
14  5111000066                  DSPSCLX SA1     B1+P.PARAM          . CHECK OUT THE BUFFER
                6170000017 +            SB7     DSPSCLX1
15  6160000006                          SB6     6
                6120000001              SB2     1
16  0400000051 +                        EQ      CHKPTB
17  5140000000 X                DSPSCLX1 SA4     S.MASTR    . MOVE REAL TIME
                10644                   BX6     X4
                    54600               SA6     A0
20  5150000000 X                        SA5     S.IDLTM    . MOVE THE IDLE TIME
                10645                   BX6     X5
21  5066000001                          SA6     A6+1
                5150000000 X            SA5     S.USRTM    . MOVE THE USER TIME
22  10655                               BX6     X5
        5066000001                      SA6     A6+1
23  5150000000 X                        SA5     S.SYSTM    . MOVE THE SYSTEM TIME
                10645                   BX6     X5
24  5066000001                          SA6     A6+1
                5150000000 X            SA5     S.SWPTM    . MOVE THE SWAPPING TIME
25  10655                               BX6     X5
        5066000001                      SA6     A6+1
26  5150000000 X                        SA5     S.CHARG    . CALCULATE THE INTERRUPT TIME
                37645                   IX6     X4-X5
27  5066000001                          SA6     A6+1
    0400000000 X                        EQ      SYSRET
```

```
                                *
                                *
                                *
                                *       USER X6 = TIME  (HH:MM:SS)
                                *       USER X7 = DATE  (MM/DD/YY)
                                *
                                *       BOTH ARE IN SYSTEXT ASCII
                                *
                                *
                                        ENTRY   TIMDT
     47                                 ECSCODE TIMDT
                                *
                                        EXT     S.DATE,S.TIME
                                *
L    51  5110000001 X           TIMDT   SA1     S.TIME+1        . GET SECONDS
                   5027000001           SA2     A1+1            . GET TENS OF SECONDS
L    52  7211000020                      SX1     X1+ASCII0       . MAKE ASCII
                   7227000020           SX2     X2+ASCII0
L    53  20207                           LX2     7
             12621                      BX6     X2+X1           . SECONDS IN X6
                   5017000001           SA1     A2+1            . GET MINUTES
L    54  7211000020                      SX1     X1+ASCII0       . MAKE ASCII
                   5027000001           SA2     A1+1            . GET TENS OF MINUTES
L    55  7222000020                      SX2     X2+ASCII0
                   20207                LX2     7
                        12221           BX2     X2+X1
L    56  20225                          LX2     21              . POSITION MINUTES
             12642                      BX6     X6+X2           . ADD TO X6
                   5017000001           SA1     A2+1            . GET HOURS
L    57  6160000060                      SB6     TIMDTI          . RETURN
                   0400000074           EQ      TIMDT.          . CONVERT BASE 10
L    60  20252                  TIMDTI  LX2     42              . POSITION HOURS
             12626                      BX6     X2+X6           . ADD TO X6
                                *
                   5111000000 X         SA1     S.DATE          . GET DAY
L    61  6160000062                      SB6     TIMDT2
                   0400000074           EQ      TIMDT.          . CONVERT BASE 10
L    62  20225                  TIMDT2  LX2     21              . POSITION DAY
             10722                      BX7     X2              . START IN X7
                   5011000001           SA1     A1+1            . GET MONTH
L    63  6160000064                      SB6     TIMDT3
                   0400000074           EQ      TIMDT.          . CONVERT
L    64  20252                  TIMDT3  LX2     42              . POSITION
             12772                      BX7     X7+X2           . ADD TO X7
                   5011000001           SA1     A1+1            . GET YEAR
L    65  6160000066                      SB6     TIMDT4
                   0400000074           EQ      TIMDT.          . CONVERT
L    66  12772                  TIMDT4  BX7     X7+X2           . ADD TO X7
                   5110000072           SA1     TIMDTC          . GET COLON MASK
                        12661           BX6     X6+X1           . ADD COLONS TO TIME
L    67  5120000073                      SA2     TIMDTS          . GET SLASH MASK
                   12772                BX7     X7+X2           . ADD SLASHES TO DATE
L    70  5161000160                      SA6     B1+P.XPACK+14       . USER X6
```

```
                  5171000161            SA7       B1+P.XPACK+15       . USER X7
      71   0400000000 X                 EQ        SYSRET    . RETURN
                               *
                               *
      72   0000001500000015000000  TIMDTC VFD    4/0,14/0,7/32B,14/0,7/32B,14/0        . COLONS
      73   0000000740000000740000  TIMDTS VFD    4/0,14/0,7/17B,14/0,7/17B,14/0        . SLASHES
                               *
                          20   ASCII0   EQU       20B
                               *
      74   7120000000          TIMDT.   SX2       0
                  7130000012            SX3       10
      75   37413               TIMDT.1  IX4       X1-X3    . SUBTRACT 10
              0334000077                NG        X4,TIMDT.2          . DONE ON NEG
                       10144            BX1       X4       . REPLACE X1
      76   7222000001                   SX2       X2+1     . INCREMENT ANSWER
                  0400000075            EQ        TIMDT.1  . LOOP
                               *
      77   7211000020          TIMDT.2  SX1       X1+ASCII0 . ANSWER IN ASCII
                  7222000020            SX2       X2+ASCII0
     100   20207                        LX2       7
              12221                     BX3       X2+X1
                  0260000000            JP        B6       . RETURN
                               *
                               *
     101                                ENDECS    TIMDT
```

```
                                        ENTRY   SAVREG
30  5111000066              SAVREG      SA1     B1+P.PARAM      . CM ADDRESS
                6160000020              SB6     16              . LENGTH OF EXCHANGE JUMP PACKAGE
31  6170000032 +                        SB7     SAVREGT         . GO CHECK FOR LEGAL BUFFER
                0400000051 +            EQ      CHKPTR
32  64200                   SAVREGT     SB2     A0              . MOVE BUFFER ADDR TO B2
          5101000142                    SA0     B1+P.XPACK
33  7100000000 X                        SX0     =XPACKBUF
34  0120000020                          WECS    16
35  56020                               SA6     B2
36  0110000020                          RECS    16
37  0400000000 X                        EQ      SYSRET
```

RESTORE THE A,B,AND X REGISTERS

```
                                        ENTRY   RESTORE
                                *       CALL RESTORE(D:  ADDRESS OF SAVE AREA)
                                *       ERROR IF ADDRESS THROUGH ADDRESS+15 NOT IN SUBPROC FL
40  5111000066                  RESTORE SA1     B1+P.PARAM      A1 = D:  ADDRESS OF SAVE AREA
              6160000020                SB6     16              TAKE BUF ADDR AND SIZE FOR CHECKING
41  6170000042 +                       SB7     RESTORE3
              0400000051 +              EQ      CHKPTR
42  74100                       RESTORE3 SX1     A0              MOVE BUFFER ADDR FO X1
          43030                         MX0     60-36
              6120000007                SB2     7
43  6131000142                          SB3     B1+P.XBACK
              6140000017                SB4     15
44  53214                       RESTORE1 SA2     X1+B4           MOVE
          46000                         NO
              10622                     BX6     X2              AN
                  56634                 SA6     B3+B4             X-REGISTER
45  6144777776                          SB4     B4-1
              0724000044 +              GT      B4,B2,RESTORE1
46  53214                       RESTORE2 SA2     X1+B4           MOVE
          15620                         BX6     -X0*X2           AN
              56334                     SA3     B3+B4             A-
                  11303                 BX3     X0*X3               AND
47  12636                               BX6     X3+X6                R-REGISTER
          54630                         SA6     A3                     PAIR
              6144777776                SB4     B4-1
50  0640000046 +                        PL      B4,RESTORE2
              0400000000 x              EQ      SYSRET
```

```
                                  *
                                  *          ENTRY PARAMETERS -
                                  *
                                  *          X1 = BUFFER POINTER RELATIVE TO USER RA
                                  *               (JUST LIKE THE USER SUPPLIES IT)
                                  *          B6 = SIZE OF BUFFER
                                  *          B2 = MODIFIER, IN CASE OF ERROR
                                  *          B7 = RETURN LINK
                                  *
                                  *          AT EXIT -
                                  *
                                  *          A0 = ABSOLUTE ADDRESS OF BUFFER
                                  *          BUT THE APPROPRIATE ERROR IS GENERATED IF
                                  *          THE POINTER OR SIZE IS NEGATIVE OR IF THE
                                  *          BUFER EXCEEDS THE USERS CORE
                                  *
                                            ENTRY     CHKPTR
51   0331000065 +                 CHKPTR    NG        X1,NEGPTR             ERROR IF POINTER IS NEGATIVE
               0606000066 +                 LE        B6,B0,NEGSIZ          ERROR IF BUFFER SIZE NOT POS
52   5121000144                             SA2       B1+P.XPACK+2          GET USER FL
               21244                        AX2       36                    POSITION FL
                    67606                   SB6       -B6                   A BOX ON INCOMPLETE INST SETS
53   73226                                  SX2       X2+B6                 DECREMENT FL BU BUFSIZ
          37221                             IX2       X2-X1                 COMPARE WITH BUFADR
               0332000067 +                 NG        X2,BIGPTR             ERROR IF BUFFER EXCEEDS USER CORE
54   5121000143                             SA2       B1+P.XPACK+1          GET USER RA
               21244                        AX2       36                    POSITION IT
                    63620                   SB6       X2                    BOX AGAIN
55   53016                                  SA0       X1+B6                 GET ABSOLUTE BUFADR
          0270000000                        JP        B7                    EXIT
```

```
                                *
                                *       PARAMETERS -
                                *       X1 = INDEX TO CHECK
                                *       B2 = MODIFIER, IN CASE OF ERROR
                                *       B7 = RETURN LINK
                                *
                                        ENTRY   CAPCHK
56  0331000070 +                CAPCHK  NG      X1,NEGINDX          . INDEX OUGHTNT BE NEGATIVE
                5121000162
57  53221                               SA2     B1+P,CLIST
          37112                         SA2     B1+X2
                                        IX1     X1-X2
                0331000062 +            NG      X1,CAPCHKX  . ITS IN THE LOCAL CLIST
60  5022000002                  CAPCHKT SA2     A2+2        . LENGTH OF NEXT CLIST
                0302000071 +            ZR      X2,BIGINDX          . OOOPS, NO MORE CLISTS
61  37112                               IX1     X1-X2
                0321000040 +            PL      X1,CAPCHKT          . JUMP IF NOT IN THIS CLIST
62  0270000000                  CAPCHKX JP      B7          . EXIT - INDEX WAS JUST FINE
```

```
                                *
                                *                       THATS RIGHT. THIS OPERATION NO LONGER EXISTS
                                *
                                                ENTRY   CHNGWD
    63  7160000007              CHNGWD          SX6     E.OPER
                    7170000000                  SX7     E.IPO
    64  0400000000 *                           EQ      E.ERROR
    65  66420                   NEGPTR          ERROR   R2,NEGPT
    66  66420                   NEGSIZ          ERROR   R2,NEGPAR
    67  66420                   BIGPTR          ERROR   R2,BIGPT
    70  66420                   NEGINDX         ERROR   R2,NEGIX
    71  7170000005              BIGINDX         SX7     E.BIGIX
```

```
                                *
                                *
                                *                 HANDLES COLLECTION OF STATISTICS ABOUT ECS SYSTEM
                                *
                                          ENTRY   Z.ESYS,Z.ASYS,Z.SPSYS,Z.LSYS
                                *
                                *
                                *               Z.ESYS CALLED WHEN ENTERING ECS SYSTEM CODE
                                *                 RETURNS WITH CURRENT VALUE OF CHARGE CLOCK IN X1
                                *
                                *
                                *                 DESTROYS A1, X1, A6,X6
                                *
72  5110000000 X                Z.ESYS     SA1     S.CHARG
               1A6T1                        BX6     X1
73  5160000126 +                           SA6     SYSETM    RECORD TIME OF ENTRY
               7?6A777774                   SX6     -BASEACT  SET ACT TO UNKNOWN
74  5160000127 +                           SA6     SYSACT
               027?000000                   JP      B7
                                *
                                *
                                *               Z.ASYS CALLED TO SET TYPE OF SYSTEM ACTION
                                *                       (USED FOR NORMAL ACTIONS ONLY)
                                *
                                *               HAVE TYPE IN X6
                                *
                                *               DESTROYS A6
                                *
75  5160000127 +                 Z.ASYS     SA6     SYSACT
               027?000000                   JP      B7
                                *
                                *
                                *               Z.SPSYS CALLED TO SET A SPECIAL SYSTEM TYPE ACTION
                                *
                                *               HAVE TYPE NUMBER IN X6 ( POSITIVE)
                                *               DESTROYS X6, A6
                                *
76  14666                        Z.SPSYS    BX6     -X6
               5160000127 +                 SA6     SYSACT
77  0270000000                              JP      B7
                                *
                                *
                                *               Z.LSYS CALLED WHEN LEAVING SYSTEM
                                *               RETURNS CURRENT CHARGE CLOCK IN X1
                                *
                                *               DESTROYS LOTS OF REGISTERS
                                *               SAVES B1
                                *
100 5110000000 X                Z.LSYS     SA1     S.CHARG
               5120000132 +                 SA2     Z.SPYFG   SEE IF WE SHOULD DO ALL THE WORK
101 7130000001                              SX3     SPYTMRT
               1?2?3                        BX2     X2*X3
102 0312000103 +                            NZ      X2,Z.LSYS3          YES
               0270000000                   JP      B7          NO
```

```
                                     *
103  5120000126 +                    Z.LSYS3   SA2     SYSETM
               10611                           BX6     X1
                     54620                     SA6     A2          (JUST IN CASE, RESTRT TIMER)
104  37212                                     IX2     X1-X2       TIME INCREMENT
                                     *
          5130000127 +                         SA3     SYSACT      TYPE OF ACTION
105  7160777774                                SX6     -BASEACT
               54630                           SA6     A3          (JUST IN CASE, SET TO UNKNOWN ACTION)
                     37336                     IX3     X3-X6       INCREMENT BY MAX NEG VALUE
106  0333000111 +                              NG      X3,Z.LSYS1              ACTION TOO NEGATIVE
               20301                           LX3     1           DOUBLE IT TO ALLOW FOR COUNTS
107  5140000125 +                              SA4     SPYTMFS     GET FILE SIZE
               7244777776                      SX4     X4-1        ALLOW FOR 2 WORDS PER ENTRY
110  37434                                     IX4     X3-X4
          0334000112 +                         NG      X4,Z.LSYS2              IS IN RANGE
                                     *
111  76300                           Z.LSYS1   SX3     B0          ACT OUT OF RANGE, CALL IT UNKNOWN
                                     *
112  5140000124 +                    Z.LSYS2   SA4     SPYTMFA     GET ADDRESS OF FILE DATA BLOCK
               36034                           IX0     X3+X4       COMPUTE ADDRESS OF SUMMING WORD
113  5100000130 +                              SA0     SYSTMP      A TEMPORARY WORD
114  0110000002                                RECS    2           GET SUMMING WORD AND COUNT WORD
115  54300                                     SA3     A0
          36623                                IX6     X2+X3       NEW SUM
               54600                           SA6     A0
116  5033000001                                SA3     A3+1
               7140000001                      SX4     1
117  36634                                     IX6     X3+X4       COMPUTE NEW COUNT
          54630                                SA6     A3
120  0120000002                                WECS    2           WRITE BACK TO ECS
121  0270000000                                JP      B7          ALL DONE
                                     *
                                     *
                                     *
                                               ENTRY   SPYPPNT,SPYQPNT
                                               ENTRY   SPYTMFA,SPYTMFS
                                     *
122                                  SPYPPNT   BSSZ    1           ADDRESS OF FILE OF P-PROC PNTRS
123                                  SPYQPNT   BSSZ    1           ADDRESS OF INTERUPT QUEUE FOR SPY
                                     *
124                                  SPYTMFA   BSSZ    1           ADDRESS OF FILE FOR TIMEING INFO
125                                  SPYTMFS   BSSZ    1           SIZE OF TIMEING FILE
                                     *
126                                  SYSETM    BSSZ    1           CHARGE TIME WHEN SYSTEM ENTERED
127                                  SYSACT    BSSZ    1           CURRENT ACT
130                                  SYSTMP    BSSZ    2
                                     *
132  00000000000000000001            Z.SPYFG   VFD     60/SPYTMBT              HOLDS FLAG BITS FOR SPY
                                     *
                                     *
                                     *
                                     *
```

```
                        *                       FOLLOWING ARE DEF OF SPECIAL ACT CODES
                        *
                                ENTRY   Z.SPEC.Z.SWPTM
                        *
     1                          ORG     1
                        *
     1                  Z.SPEC  BSS     1       . SUBPROCESS ERROR CALL
     2                  Z.SWPTM BSS     1       . SWAP TIME
     3                  BASEACT BSS     1       .  UNKNOWN ACT
                        *
                        *
                                USE     *
                        *
                        *                       BIT DEFINITIONS FOR SPY FLAG WORD
                        *
                     1  SPYTMBT EQU     1B          ON FOR TIMEING
                        *
                        *
   133                          END

                 36445  STORAGE USED              997 STATEMENTS      355 SYMBOLS
                        6400 ASSEMBLY           5.893 SECONDS         237 REFERENCES
```

ASCII0	20		9/17	9/18	9/22	9/24	10/08 D	10/18	10/19	
AUTHCNT	0	EXTERNAL*	5/17							
BADNEWS	0	PROGRAM*	3/17	3/32 L						
BASEACT	3		16/17	17/08	18/09					
BIGINDX	71	PROGRAM*	14/14	15/12 L						
BIGPT	0	EXTERNAL*	15/11							
BIGPTR	67	PROGRAM*	13/25	15/10 L						
CAPAGEN1	53		5/15	5/17 L						
CAPAGEN3	56		5/22 L	5/25						
CAPCHK	56	PROGRAM*	3/09	4/14	5/16	6/16	14/07 E	14/08 L		
CAPCHKX	62	PROGRAM*	14/12	14/17 L						
CAPCHK1	60	PROGRAM*	14/13 L	14/16						
CAPGEN1	53		6/15	6/17 L						
CHKPTR	51	PROGRAM*	7/07	8/07	11/05	12/07	13/17 E	13/18 L		
CHNGWD	63	PROGRAM*	15/04 E	15/05 L						
CLASCNT	0	EXTERNAL*	3/10							
CMBUFF	50		3/02	4/02	5/02	6/02	9/12			
			3/32	4/29	5/42	6/29	10/26			
DISASTR	0	EXTERNAL*	3/32							
DSPCLOX	1	PROGRAM*	7/02 E	7/03 L						
DSPCLOX1	4	PROGRAM*	7/04	7/08 L						
DSPSCLX	14	PROGRAM*	8/02 E	8/03 L						
DSPSCLX1	17	PROGRAM*	8/04	8/08 L						
E.BIGIX	5		15/12							
E.CAGEN	22	EMISC	5/23 L							
E.CGEN	40	EMISC	5/36 L							
E.ECS	0	EXTERNAL*	3/13	3/22	5/20	5/37	11/10	11/12	17/24	17/35
E.ERROR	0	EXTERNAL*	15/07							
E.IP0	0		15/06							
E.MKCCD	0	EMISC	3/01 L							
E.NWTMP	13	EMISC	4/01 L							
E.OPER	7		15/05							
E.TIMDT	47	EMISC	9/11 L							
GETCAP	0	EXTERNAL*								
HORRORS	66		5/28	5/40 L						
L.CAGEN	16		5/42 D							
L.CGEN	7		6/29 D							
L.MKCCD	13		3/32 D							
L.NWTMP	7		4/29 D							
L.TIMDT	30		10/26 D							
MKCLSCD	51		3/06 L							
MKCLSCD1	53		3/08	3/10 L						
NEGINDX	70	PROGRAM*	14/08	15/11 L						
NEGIX	0	EXTERNAL*	15/12							
NEGPAR	0	EXTERNAL*	15/10							
NEGPT	0	EXTERNAL*	15/09							
NEGPTR	65	PROGRAM*	13/18	15/08 L						
NEGSIZ	66	PROGRAM*	13/19	15/09 L						
NOAUTH	0	EXTERNAL*	5/41							
NWTMP	51		4/11 L							
NWTMP2	53		4/13	4/15 L						
PACKBUF	0	EXTERNAL*	11/08							
PUTCAP	0	EXTERNAL*	3/30	4/26	5/39	6/27				

SYMBOLIC REFERENCE TABLE.

P.CLIST	162		14/09					
P.PARAM	66		3/06	4/15	4/25	6/13	6/26	11/02
			3/29	4/18	5/13	6/17	7/03	12/04
			4/11	4/23	5/38	6/21	8/03	
P.SCR2	50		3/11	5/18				
P.SWPTIM	141		7/17					
P.SYSTIM	140		7/14					
P.USRTIM	137		7/11					
P.XPACK	142		9/53 S	10/01 S	11/07	12/11	13/20	13/24
RESTORE	40	PROGRAM*	12/01 E	12/04 L				
RESTORE1	44	PROGRAM*	12/13 L	12/18				
RESTORE2	46	PROGRAM*	12/19 L	12/26				
RESTORE3	42	PROGRAM*	12/06	12/08 L				
SAVREG	30	PROGRAM*	11/01 E	11/02 L				
SAVREG1	32	PROGRAM*	11/04	11/06 L				
SPYPPNT	122	PROGRAM*	17/36 E	17/39 L				
SPYQPNT	123	PROGRAM*	17/36 E	17/40 L				
SPYTMRT	1		16/50	17/49	18/16 D			
SPYTMFA	124	PROGRAM*	17/20	17/37 E	17/42 L			
SPYTMFS	125	PROGRAM*	17/13	17/37 E	17/43 L			
SYSACT	127	PROGRAM*	16/18 S	16/28 S	16/38 S	17/07	17/46 L	
SYSETM	126	PROGRAM*	16/16 S	17/02	17/45 L			
SYSRET	0	EXTERNAL*	3/28	5/37	7/23	10/02	12/27	
			4/24	6/25	8/26	11/12		
SYSTMP	130	PROGRAM*	17/22	17/47 L				
S.CHARG	0	EXTERNAL*	8/23	16/14	16/48			
S.DATE	0	EXTERNAL*	9/35					
S.IDLTM	0	EXTERNAL*	8/11					
S.MASTR	0	EXTERNAL*	7/08	8/08				
S.QUANT	0	EXTERNAL*	7/20					
S.SWPTM	0	EXTERNAL*	8/20					
S.SYSTM	0	EXTERNAL*	8/17					
S.TIME	0	EXTERNAL*	9/15					
S.USRTM	0	EXTERNAL*	8/14					
TIMDT	51		9/10 E	9/15 L				
TIMDTC	72		9/49	10/05 L				
TIMDTS	73		9/51	10/06 L				
TIMDT1	60		9/30	9/32 L				
TIMDT2	62		9/36	9/38 L				
TIMDT3	64		9/41	9/43 L				
TIMDT4	66		9/46	9/48 L				
TIMDT.	74		9/31	9/37	9/42	9/47	10/10 L	
TIMDT.1	75		10/12 L	10/16				
TIMDT.2	77		10/13	10/18 L				
T.CAUTH	1773		5/32					
T.CLSCD	1737		3/25					
Z.ASYS	75	PROGRAM*	16/05 E	16/28 L				
Z.ESYS	72	PROGRAM*	16/05 E	16/14 L				
Z.LSYS	100	PROGRAM*	16/05 E	16/48 L				
Z.LSYS1	111	PROGRAM*	17/11	17/18 L				
Z.LSYS2	112	PROGRAM*	17/16	17/20 L				
Z.LSYS3	103	PROGRAM*	16/52	17/02 L				
Z.SPEC	1		18/03 E	18/07 L				

SYMBOLIC REFERENCE TABLE.

Z.SPSYS	76	PROGRAM*	16/05 E	16/37 L
Z.SPYFG	132	PROGRAM*	16/49	17/49 L
Z.SWPTM	2		18/03 E	18/08 L