```
                                                        .REM &


                        IDENTIFICATION
                        --------------
          PRODUCT CODE:     AC-T708B-MC

          PRODUCT NAME:     CZKDLBO KDJ11 FLOATING POINT DIAGNOSTIC

          PRODUCT DATE:     15-MAR-84

          MAINTAINER:       DIAGNOSTIC ENGINEERING

          AUTHORS:          HENRY ENMAN, JIM PITTMAN, BARRY IRRGANG



                                                                &
```

```
                                                                ,REM &
                                        HISTORY
                                        -------

        OCT 83  REV. A          FIRST RELEASE
        FEB-84  REV. B          CORRECTIONS MADE TO:
                                1. CORRECT VECTOR AREA MAINTENANCE PROBLEM
                                2. TURN CACHE MEMORY SYSTEM OFF DURING NON-CACHE TESTS.
                                3. ENSURE THAT CPU ERROR REGISTER IS CLEARED AFTER
                                   COMPLETION OF TEST THAT MIGHT CAUSE IT TO BE SET.
                                4. SAVE PC AND CONTENTS OF R6 ON UNEXPECTED INTERRUPTS


                                                                &
```

```
   610  001176  123456                    TAB1:   .WORD   123456
   611  001200  000000                            .WORD   000000
   612  001202  000000                            .WORD   0
   613  001204  000001                            .WORD   1
   614  001206  055555                    TAB2:   .WORD   055555
   615  001210  177777                            .WORD   177777
   616  001212  145671                            .WORD   145671
   617  001214  100000                            .WORD   100000
   618  001216  003000                    TAB3:   .WORD   003000
   619  001220  123456                            .WORD   123456
   620  001222  000000                            .WORD   0
   621  001224  000000                            .WORD   0
   622  001226  055555                    TAB4:   .WORD   55555
   623  001230  177777                            .WORD   -1
   624  001232  000000                            .WORD   0
   625  001234  000000                            .WORD   0
   626  001236  043243                    TAB5:   .WORD   43243
   627  001240  000000                            .WORD   0
   628  001242  000000                            .WORD   0
   629  001244  000000                            .WORD   0
   630  001246  162400                    TAB5A:  .WORD   162400
   631  001250  000000                            .WORD   0
   632  001252  000000                            .WORD   0
   633  001254  000000                            .WORD   0
   634  001256  000000                    TAB6:   .WORD   0
   635  001260  000000                            .WORD   0
   636  001262  000000                            .WORD   0
   637  001264  000000                            .WORD   0
   638  001266  047050                    TAB6A:  .WORD   47050
   639  001270  010000                            .WORD   10000
   640  001272  000000                            .WORD   0
   641  001274  000000                            .WORD   0
   642  001276  000200                    TAB7:   .WORD   200
   643  001300  000000                            .WORD   0
   644  001302  000000                            .WORD   0
   645  001304  000000                            .WORD   0
   646  001306  000200                    TAB8:   .WORD   200
   647  001310  000000                            .WORD   0
   648  001312  000000                            .WORD   0
   649  001314  000001                            .WORD   1
   650  001316  000400  000000  000000    TAB9:   .WORD   400,0,0,0
   651  001324  000000
   652  001326  030000                    TAB10:  .WORD   30000
   653  001330  003000                            .WORD   3000
   654  001332  000000                            .WORD   0
   655  001334  000000                            .WORD   0
   656  001336  016400                    TAB11:  .WORD   16400
   657  001340  000000                            .WORD   0
   658  001342  000000                            .WORD   0
   659  001344  000000                            .WORD   0
   660  001346  030000  003000  000002    TAB11A: .WORD   30000,3000,2,0
   661  001354  000000
   662  001356  016100  000000  000000    TAB12:  .WORD   16100,0,0,1
   663  001364  000001
   664  001366  016200                    TAB13:  .WORD   16200
   665  001370  000000                            .WORD   0
```

```
666  001372  000000                              .WORD   0
667  001374  000001                              .WORD   1
668  001376  030000  003000  000000  TAB13B:     .WORD   30000,3000,0,140000
669  001404  140000
670  001406  030000                  TAB14:      .WORD   30000
671  001410  000000                              .WORD   0
672  001412  000000                              .WORD   0
673  001414  000000                              .WORD   0
674  001416  024700                  TAB15:      .WORD   24700
675  001420  000000                              .WORD   0
676  001422  000000                              .WORD   0
677  001424  000000                              .WORD   0
678  001426  025000                  TAB16:      .WORD   25000
679  001430  175363                              .WORD   175363
680  001432  123456                              .WORD   123456
681  001434  123456                              .WORD   123456
682  001436  030000                  TAB17:      .WORD   30000
683  001440  007020                              .WORD   7020
684  001442  000000  000000                      .WORD   0,0
685  001446  023456                  TAB18:      .WORD   23456
686  001450  000000                              .WORD   0
687  001452  000000                              .WORD   0
688  001454  000001                              .WORD   1
689  001456  100200  000000  000000  TAB21:     .WORD   100200,0,0,0
690  001464  000000
691  001466  100400  000000  000000  TAB22:     .WORD   100400,0,0,0
692  001474  000000
693  001476  000200  000000  000000  TAB23:     .WORD   200,0,0,1
694  001504  000001
695  001506  062400  000000  000000  TAB24:     .WORD   62400,0,0,0
696  001514  000000
697  001516  001100  000000  000000  TAB25:     .WORD   1100,0,0,0
698  001524  000000
699  001526  100600  000000  000000  TAB26:     .WORD   100600,0,0,0
700  001534  000000
701  001536  001000  000000  000000  TAB27:     .WORD   1000,0,0,0
702  001544  000000
703  001546  000600  000000  000000  TAB28:     .WORD   600,0,0,0
704  001554  000000
705  001556  010100  000000  000000  TAB29:     .WORD   10100,0,0,0
706  001564  000000
707  001566  010100  000000  002000  TAB29A:    .WORD   10100,0,2000,0
708  001574  000000
709
710  001576  000500  000000  000000  TAB30:     .WORD   500,0,0,0
711  001604  000000
712  001606  100400  000000  000000  TAB31:     .WORD   100400,0,0,0
713  001614  000000
714  001616  016000  000000  000000  TAB32:     .WORD   16000,0,0,0
715  001624  000000
716  001626  011600  000000  000000  TAB33:     .WORD   11600,0,0,0
717  001634  000000
718  001636  000640  000000  000000  TAB34:     .WORD   640,0,0,0
719  001644  000000
720  001646  077600  000000  000000  TAB40:     .WORD   77600,0,0,0
721  001654  000000
```

F1


```
127                 *--- ---*-------*-------*-------*-------*-------*---- --*-------*
128
129                 THE SOFTWARE SWITCH REGISTER HAS NO EFFECT ON THE OPERATION OF
130                 THIS DIAGNOSTIC.
131
132                 2.3   OPERATION UNDER APT
133
134                 THERE ARE NO ABNORMALITIES IN THE EXECUTION OF THIS DIAGNOSTIC
135                 WHEN OPERATING IN AN APT ENVIRONMENT. PROBLEMS CAUSED BY THE
136                 ASYNCHRONOUS HALTS OF THE DIAGNOSTIC BY THE APT MONITOR HAVE
137                 NOT BEEN NOTED.
138
139
140                 3.0   ERROR INFORMATION
141
142                 ERRORS WILL CAUSE THE FOLLOWING ERROR MESSAGE TO BE PRINTED:
143
144                               ERROR DURING FPP TESTING
145                               ERROR # = (UNIQUE ERROR NUMBER)
146                               ERROR PC = (PC AT TIME OF ERROR)
147
148                 THE ERROR WILL THEN BE REPORTED TO APT AND THE PROGRAM
149                 WILL HALT.
150
151                 4.0   PROGRESS REPORT
152
153                 AT THE END OF EACH PASS THE DIAGNOSTIC NAME AND PASS COUNT ARE PRINTED.
154
155
```

```
                                        .SBTTL  GLOBAL TEXT SECTION

                                        ;++
                                        ; THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
                                        ; MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
                                        ; MORE THAN ONE TEST.
                                        ;--

                                        ;
                                        ; FORMAT STATEMENTS USED IN PRINT CALLS
                                        ;

001766  005015  040503  044103  ERRMSG::.ASCIZ  <CR><LF>/CACHE SYSTEM ERROR/
001774  020105  054523  052123
002002  046505  042440  051123
002010  051117     000
002013     015  042412  051122  FPPERR: .ASCIZ  <CR><LF>/ERROR DURING FPP TESTING/
002020  051117  042040  051125
002026  047111  020107  050106
002034  020120  042524  052123
002042  047111  000107
002046  005015  051105  047522  ERR1:   .ASCIZ  <CR><LF>/ERROR # =/
002054  020122  020043  000075
002062  005015  051105  047522  ERR2:   .ASCIZ  <CR><LF>/ERROR PC =/
002070  020122  041520  036440
002076     000
002077     015  020012  020040  $CRLF:  .ASCIZ  <CR><LF>/   /
002104     000
002106                             .EVEN
```

H2


```
                        .SBTTL  GLOBAL ERROR REPORT SECTION

                        ;++
                        ; THE GLOBAL ERROR REPORT SECTION CONTAINS MESSAGE PRINTING AREAS
                        ; USED BY MORE THAN TEST TO OUTPUT ADDITIONAL ERROR INFORMATION.
                        ;--
```

```
                        .SBTTL  GLOBAL SUBROUTINES SECTION

                        ;++
                        ; THE GLOBAL SUBROUTINES SECTION CONTAINS THE SUBROUTINES
                        ; THAT ARE USED IN MORE THAN ONE TEST.
                        ;--
                        ;FPP COMMON SUBROUTINES
002106  012600          WLDTRP: MOV     (SP)+,R0            ;SAVE PC
002110  012605                  MOV     (SP)+,R5            ;SAVE STATUS AND RESTORE STACK
002112  104000                  ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
002114  000001                  .WORD   1                   ;UNIQUE ERROR NUMBER
002116  002013                  .WORD   FPFERR              ;ADDRESS OF ERROR MESSAGE
002120  000110                  JMP     (R0)                ;GO BACK INLINE
                        ;
                        ;
                        ;
002122  000000          TRPFLG: .WORD   0
002124  000207          ERRFP:  RTS     R7
002126  000207          ERR:    RTS     R7
                        ;
                        ;
                        ;
                        ;
                        ;
                        ;SUBROUTINE DATA VERFICATION -
                        ;
                        ; CALLED BY     JSR     R7,DATVER
                        ;
                        ;INPUT:         (R4)=EXPECTED DATA
                        ;               (R1)=RECEIVED DATA
                        ;
                        ;THIS ROUTINE VERIFIES THAT THE 4 CONSECTIVE WORDS STARTING WITH (R4) ARE
                        ;EQUAL TO THE FOUR WORDS ADDRESSED BY (R1). THE CONTENTS OF R4, AND R1 ARE NOT
                        ;DISTURBED.
                        ;LOCATION "COUNT" . IF NOT EQUAL TO 0 SIGNIFIES DATA ERROR
                        ;IF THE STATUS IS FLOATING MODE, THE LAST TWO BYTES OF RECEIEVED
                        ;ARE SIMPLY CHECKED FOR ZEROS
                        ;

002130  010446          DATVFR: MOV     R4,-(SP)            ;SAVE R4
002132  010146                  MOV     R1,-(SP)                    ;SAVE R1
002134  012767  000003  176676          MOV     #3,COUNT            ;SET UP ITERATION COUNT
002142  000167  000012                  JMP     DAT1                ;
                        ;
002146  010446          DATVER: MOV     R4,-(SP)            ;SAVE R4
002150  010146                  MOV     R1,-(SP)            ;SAVE R1
002152  012767  000005  176660          MOV     #5,COUNT            ;SET UP ITERATION COUNT
002160  005367  176654  DAT1:   DEC     COUNT
002164  001402                  BEQ     2$                  ;BRANCH IF DONE
002166  022421                  CMP     (R4)+,(R1)+                 ;
002170  01[illegible]            BEQ     DAT1
002172  012[illegible]  2$:     MOV     (SP)+,R1            ;RESTORE R1
002174  012604                  MOV     (SP)+,R4            ;RESTORE R4
002176  000207                  RTS     R7                  ;GO BACK TO CALLING ROUTINE
                                                            ;IF DATA ERROR, COUNT NE 0
```

```
000030                  EMTVEC= 30              ;;EMULATOR TRAP (EMT) **ERROR**
000034                  TRAPVEC=34              ;;"TRAP" TRAP
000060                  TKVEC=  60              ;;TTY KEYBOARD VECTOR
000064                  TPVEC=  64              ;;TTY PRINTER VECTOR
000240                  PIRQVEC=240             ;;PROGRAM INTERRUPT REQUEST VECTOR
                        .SBTTL  MEMORY MANAGEMENT DEFINITIONS

                        ;*KT11 VECTOR ADDRESS

000250                  MMVEC=  250

                        ;*KT11 STATUS REGISTER ADDRESSES

177572                  SR0=    177572
177574                  SR1=    177574
177576                  SR2=    177576
172516                  SR3=    172516

                        ;*USER "I" PAGE DESCRIPTOR REGISTERS

177600                  UIPDR0= 177600
177602                  UIPDR1= 177602
177604                  UIPDR2= 177604
177606                  UIPDR3= 177606
177610                  UIPDR4= 177610
177612                  UIPDR5= 177612
177614                  UIPDR6= 177614
177616                  UIPDR7= 177616

                        ;*USER "D" PAGE DESCRIPTOR REGISTORS

177620                  UDPDR0= 177620
177622                  UDPDR1= 177622
177624                  UDPDR2= 177624
177626                  UDPDR3= 177626
177630                  UDPDR4= 177630
177632                  UDPDR5= 177632
177634                  UDPDR6= 177634
177636                  UDPDR7= 177636

                        ;*USER "I" PAGE ADDRESS REGISTERS

177640                  UIPAR0= 177640
177642                  UIPAR1= 177642
177644                  UIPAR2= 177644
177646                  UIPAR3= 177646
177650                  UIPAR4= 177650
177652                  UIPAR5= 177652
177654                  UIPAR6= 177654
177656                  UIPAR7= 177656

                        ;*USER "D" PAGE ADDRESS REGISTERS

177660                  UDPAR0= 177660
177662                  UDPAR1= 177662
177664                  UDPAR2= 177664
```

```
                        ;R5=FPP POINTER
                        ;R1=TEMPORARY COUNTER
                        ;R2=POINTER TO EXPECTED DATA
                        ;R3=POINTER TO RECEIVED DATA
                        ;R4=ODD/EVEN COUNTER
                        ;;*************************************************************
002422                  TST1:
002422  005267  176356          INC     $TESTN                  ;INCREMENT TEST NUMBER
002426  170011                  SETD
002430  005005          MBT?:   CLR     R5                      ;SETUP FPP ACC POINTER
002432  012702  001066          MOV     #BTEXP,R2               ;POINT TO TEST DATA
002436  012703  001076          MOV     #BTRES,R3               ;POINT TO RECEIVED DATA
002442  170400          MBT2A:  CLRD    AC0                     ;SETUP FPP REGISTER VALUES
002444  174012                  STD     AC0,(R2)                ;CLEAR EXPECTED VALUE
002446  005004                  CLR     R4
002450  170400          BTGO:   CLRD    AC0                     ;SETUP FPP REGISTER VALUES
002452  170401                  CLRD    AC1
002454  170402                  CLRD    AC2
002456  170403                  CLRD    AC3
002460  170404                  CLRD    AC4
002462  170405                  CLRD    AC5
                        
002464  010501                  MOV     R5,R1                   ;GET FPP AC NUMBER INTO R1
002466  070127  000014          MUL     #14,R1                  ;ALLOW 10 LOCATIONS FOR OPERATION
002472  062701  002500          ADD     #MAC0,R1                ;SETUP JMP LOCATION
002476  000111                  JMP     (R1)
002500  172467  176362  MAC0:   LDD     BTEXP,AC0               ;LOAD TEST DATA INTO TEST REGISTER
002504  174067  176366  MAC0A:  STD     AC0,BTRES               ;SAVE TEST RESULT
002510  000167  000074          JMP     MACE                    ;GET OUT
002514  172567  176346  MAC1:   LDD     BTEXP,AC1               ;LOAD TEST DATA INTO TEST REGISTER
002520  174167  176352          STD     AC1,BTRES               ;SAVE TEST RESULT
002524  000167  000060          JMP     MACE                    ;GET OUT
002530  172667  176332  MAC2:   LDD     BTEXP,AC2               ;LOAD TEST DATA INTO TEST REGISTER
002534  174267  176336          STD     AC2,BTRES               ;SAVE TEST RESULT
002540  000167  000044          JMP     MACE                    ;GET OUT
002544  172767  176316  MAC3:   LDD     BTEXP,AC3               ;LOAD TEST DATA INTO TEST REGISTER
002550  174367  176322          STD     AC3,BTRES               ;SAVE TEST RESULT
002554  000167  000030          JMP     MACE                    ;GET OUT
002560  172467  176302  MAC4:   LDD     BTEXP,AC0
002564  174004                  STD     AC0,AC4                 ;LOAD TEST DATA INTO TEST REGISTER
002566  172404                  LDD     AC4,AC0                 ;SAVE TEST RESULT
002570  000167  177710          JMP     MAC0A                   ;GET OUT
002574  172467  176266  MAC5:   LDD     BTEXP,AC0               ;LOAD TEST DATA INTO TEST XFER REGISTER
002600  174005                  STD     AC0,AC5                 ;LOAD TEST REGISTER
002602  172405                  LDD     AC5,AC0                 ;STORE RESULT INTO XFER FPP REGISTER
002604  000167  177674          JMP     MAC0A                   ;GET OUT
002610  026767  176252  176260  MACE:   CMP     BTEXP,BTRES
002616  001014                  BNE     BTER                    ;BRANCH IF REGISTER ERROR
002620  026767  176244  176252          CMP     BTEXP+2,BTRES+2
002626  001010                  BNE     BTER
002630  026767  176236  176244          CMP     BTEXP+4,BTRES+4
002636  001004                  BNE     BTER
002640  026767  176230  176236          CMP     BTEXP+6,BTRES+6
002646  001403                  BEQ     MBT8                    ;GOOD RESULT
002650                  BTER:
002650  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
```

```
                                        .WORD   2                       ;UNIQUE ERROR NUMBER
                                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;FPP AC LOADED INCORRECTLY
                                ;NOW VERIFY THE OTHER REGISTERS REMAINED ZERO
002656                          MBT8:
002656  005001                        CLR     R1                      ;CLEAR TEMPORARY COUNTER
002660  005705                        TST     R5                      ;SEE IF R0 UNDER TEST
002662  001413                        BEQ     MBT8A                   ;BRANCH IF TEST ING R0
002664  020527  000004                CMP     R5,#4                   ;SEE IF TESTING FPP REGISTER >R4
002670  100010                        BPL     MBT8A                   ;SKIP R0 TESTING
002672  174067  176200                STD     AC0,BTRES               ;SAVE AC TEST RESULT
002676  004767  000246                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
002702  001403                        BEQ     MBT8A                   ;BRANCH IF EXPECTED RESULT
002704  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
002706  000003                        .WORD   3                       ;UNIQUE ERROR NUMBER
002710  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC0
002712  020527  000001        MBT8A:  CMP     R5,#1                   ;SEE IF R1 UNDER TEST
002716  001410                        BEQ     MBT8B                   ;BRANCH IF R1 UNDER TEST
002720  174167  176152                STD     AC1,BTRES               ;SAVE AC TEST RESULT
002724  004767  000220                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
002730  001403                        BEQ     MBT8B                   ;BRANCH IF GOOD
002732  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
002734  000004                        .WORD   4                       ;UNIQUE ERROR NUMBER
002736  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC1
002740  020527  000002        MBT8B:  CMP     R5,#2                   ;SEE IF TESTING FPP REGISTER AC2
002744  001410                        BEQ     MBT8C                   ;BRANCH IF R2 UNDER TEST
002746  174267  176124                STD     AC2,BTRES               ;SAVE AC TEST RESULT
002752  004767  000172                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
002756  001403                        BEQ     MBT8C                   ;BRANCH IF GOOD
002760  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
002762  000005                        .WORD   5                       ;UNIQUE ERROR NUMBER
002764  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC2
002766  020527  000003        MBT8C:  CMP     R5,#3                   ;SEE IF R3 UNDER TEST
002772  001410                        BEQ     MBT8D                   ;BRANCH IF R3 UNDER TEST
002774  174367  176076                STD     AC3,BTRES               ;SAVE AC TEST RESULT
003000  004767  000144                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
003004  001403                        BEQ     MBT8D                   ;BRANCH IF GOOD
003006  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
003010  000006                        .WORD   6                       ;UNIQUE ERROR NUMBER
003012  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC3
003014  020527  000004        MBT8D:  CMP     R5,#4                   ;SEE IF R4 UNDER TEST
003020  001411                        BEQ     MBT8E                   ;BRANCH IF R4 UNDER TEST
003022  172404                        LDD     AC4,AC0                 ;MOVE REGISTER CONTENT
003024  174067  176046                STD     AC0,BTRES               ;SAVE AC TEST RESULT
003030  004767  000114                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
003034  001403                        BEQ     MBT8E                   ;BRANCH IF GOOD
003036  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
003040  000007                        .WORD   7                       ;UNIQUE ERROR NUMBER
003042  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC4
003044  020527  000005        MBT8E:  CMP     R5,#5                   ;SEE IF R0 UNDER TEST
003050  001411                        BEQ     MBT8F                   ;BRANCH IF R0 UNDER TEST
```

```
                                ;MISCELANEOUS DEFINITIONS
177546                          BEVENT= 177546          ;BEVENT CONTROL REGISTER
177560                          RCSR=   177560
177562                          RBUF=   177562
177564                          XCSR=   177564
177566                          XBUF=   177566
000000                          ERRTN=  HALT
000001                          $TSTNU=1
000001                          ERRNUM= 1               ;INITIALIZE ERROR NUMBER COUNTER
002000                          AUSWR=  2000            ;SWR FOR APT- NO BEVENT TESTING


                                ;THIS EQUATE DEFINES THE BOTTOM OF THE PROGRAM STACK POINTER
001000                                  STBOT=  1000
000000                          .ASECT
                                .SBTTL  TRAP CATCHER

000000                                  .=0
                                ;*ALL UNUSED LOCATIONS OF THE VECTOR AREA CONTAIN
                                ;*A ".+2, IOT" SEQUENCE TO CATCH AND PROCESS ILLEGAL
                                ;*TRAPS AND INTERRUPTS THAT MIGHT OCCUR.
                                ;*THE IOT TRAP WHICH IS TAKEN ON THE ILLEGAL TRAP/INT
                                ;*TRAPS TO THE $SCOPE ROUTINE WHICH (IF THE RETURN PC IS
                                ;*LESS THAN 1002) JUMPS TO THE $ERROR ROUTINE.
                                ;*THE $ERROR ROUTINE WILL REPORT THE ERROR AS FOLLOWS:
                                ;*      PC=YYYYYY UNEXPECTED TRAP TO XXX
                                ;*AND RETURN TO THE PROGRAM AT PC=YYYYYY+2
                                ;*WHERE XXX=LOCATION OF ILLEGAL TRAP
                                ;*      YYYYYY=PC AT TIME OF TRAP
                                ;*NOTE: IF THE PROCESSOR IS NOT AN 11/05 THE PROGRAM
                                ;*      CAN BE STARTED AT ADDRESS 0 AS WELL AS ADDRESS 200.

000000  000000                $40CAT: HALT                    ;;HALT
000002  000737                        BR      .-100           ;;BRANCH TO 177700 & TIME OUT (NOT ON
                                                                ;;11/05)
000004  002200                        .WORD   START           ;;VECTOR TO STARTING ADDRESS
000006  000340                        .WORD   340             ;;WITH PRIORITY LEVEL 7
        000174                          .=174
000174  00000C                DISPREG:.WORD   0               ;;SOFTWARE DISPLAY REGISTER
000176  000000                SWREG:  .WORD   0               ;;SOFTWARE SWITCH REGISTER
                                .SBTTL  STARTING ADDRES(ES)
000200  000137  002200                JMP     @#START ;;GO TO START OF PROGRAM
                                .SBTTL  ACT11 HOOKS


                                ;;**************************************************************
                                ;HOOKS REQUIRED BY ACT11
        000204                          $SVPC=.                 ;SAVE PC
        000046                          .=46
000046  036362                          $ENDAD                  ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .$EOP
        000052                          .=52
000052  000000                          .WORD   0               ;;2)SET LOC.52 TO ZERO
        000204                          .=$SVPC                 ;; RESTORE PC
                                .SBTTL  APT PARAMETER BLOCK


                                ;;**************************************************************
                                ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
```

```
1055  003210  005004                    CLR     R4
1056  003212  012702  001066            MOV     #BTEXP,R2               ;POINT TO TEST DATA
1057  003216  012703  001076            MOV     #BTRES,R3               ;POINT TO RECEIVED DATA
1058  003222  012767  000051  175636    MOV     #51,BTEXP               ;SETUP EXPECTED DATA
1059  003230  012767  000052  175632    MOV     #52,BTEXP+2             ;
1060  003236  012767  000053  175626    MOV     #53,BTEXP+4             ;
1061  003244  012767  000054  175622    MOV     #54,BTEXP+6             ;
1062  003252  172467  175610            LDD     BTEXP,AC0               ;MOVE DATA TEMPORARILY
1063  003256  174005                    STD     AC0,AC5                 ;PUT DATA INTO TEST REGISTER
1064  003260  004567  000240            JSR     R5,SUBT                 ;SUBTRACT TEN FROM EACH EXPECTED DATA
1065  003264  172467  175576            LDD     BTEXP,AC0               ;MOVE DATA TEMPORARILY
1066  003270  174004                    STD     AC0,AC4                 ;MOVE DATA INTO TEST REGISTER
1067  003272  004567  000226            JSR     R5,SUBT                 ;SUBTRACT 10 FROM TEST DATA WORDS
1068  003276  172767  175564            LDD     BTEXP,AC3               ;STORE INTO TEST REGISTER
1069  003302  004567  000216            JSR     R5,SUBT                 ;GET NEXT SET OF UNIQUE DATA WORDS
1070  003306  172667  175554            LDD     BTEXP,AC2               ;STORE INTO TEST REGISTER
1071  003312  004567  000206            JSR     R5,SUBT                 ;GET NEXT SET OF TEST DATAS
1072  003316  172567  175544            LDD     BTEXP,AC1               ;LOAD TEST REGISTER
1073  003322  004567  000176            JSR     R5,SUBT                 ;GET NEXT SET OF TEST WORDS
1074  003326  172467  175534            LDD     BTEXP,AC0               ;LOAD FINAL TEST REGISTER
1075                                                                    ;ALL REGISTER CONTAIN UNIQUE TEST WORDS
1076  003332  174067  175540            STD     AC0,BTRES               ;STORE AC0,RESULT
1077  003336  004567  000246            JSR     R5,BFA                  ;CHECK RESULT
1078  003342  001403                    BEQ     3FAC1                   ;BRANCH IF GOOD
1079  003344  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1080  003346  000011                    .WORD   11                      ;UNIQUE ERROR NUMBER
1081  003350  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1082                                                            ;BAD AC0
1083  003352  004567  000200  BFAC1:    JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1084  003356  174167  175514            STD     AC1,BTRES               ;STORE AC1 RESULT
1085  003362  004567  ^00222            JSR     R5,BFA                  ;CHECK RESULT
1086  003366  001403                    BEQ     BFAC2                   ;BRANCH IF GOOD
1087  003370  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1088  003372  000012                    .WORD   12                      ;UNIQUE ERROR NUMBER
1089  003374  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1090                                                            ;BAD RESULT AC1
1091  003376  004567  000154  BFAC2:    JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1092  003402  174267  175470            STD     AC2,BTRES               ;STORE AC2 RESULT
1093  003406  004567  000176            JSR     R5,BFA                  ;CHECK RESULT
1094  003412  001403                    BEQ     BFAC3                   ;BRANCH IF GOOD
1095  003414  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1096  003416  000013                    .WORD   13                      ;UNIQUE ERROR NUMBER
1097  003420  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1098                                                            ;BAD AC2 RESULT
1099  003422  004567  000130  BFAC3:    JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1100  003426  174367  175444            STD     AC3,BTRES               ;SAVE TEST RESULT
1101  003432  004567  000152            JSR     R5,BFA                  ;CHECK RESULT
1102  003436  001403                    BEQ     BFAC4                   ;BRANCH IF GOOD
1103  003440  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1104  003442  000014                    .WORD   14                      ;UNIQUE ERROR NUMBER
1105  003444  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1106                                                            ;BAD AC3 RESULT
1107  003446  004567  000104  BFAC4:    JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1108  003452  172704                    LDD     AC4,AC3                 ;SAVE TEMPORARY
1109  003454  174367  175410            STD     AC3,BTRES               ;STORE AC4 RESULT
1110  003460  004567  000124            JSR     R5,BFA                  ;CHECK RESULT
```

```
                        .SBTTL  GLOBAL DATA SECTION

                        ;**
                        ; THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
                        ; IN MORE THAN ONE TEST.
                        ;--
                        .SBTTL  APT MAILBOX-ETABLE

                        ;;*****************************************************************
                        .EVEN
001000                  $MAIL:                  ;;APT MAILBOX
001000  000000          $MSGTY: .WORD   AMSGTY  ;;MESSAGE TYPE CODE
001002  000000          $FATAL: .WORD   AFATAL  ;;FATAL ERROR NUMBER
001004  000000          $TESTN: .WORD   ATESTN  ;;TEST NUMBER
001006  000000          $PASS:  .WORD   APASS   ;;PASS COUNT
001010  000000          $DEVCT: .WORD   ADEVCT  ;;DEVICE COUNT
001012  000000          $UNIT:  .WORD   AUNIT   ;;I/O UNIT NUMBER
001014  000000          $MSGAD: .WORD   AMSGAD  ;;MESSAGE ADDRESS
001016  000000          $MSGLG: .WORD   AMSGLG  ;;MESSAGE LENGTH
001020                  $ETABLE:                ;;APT ENVIRONMENT TABLE
001020     000          $ENV:   .BYTE   AENV    ;;ENVIRONMENT BYTE
001021     000          $ENVM:  .BYTE   AENVM   ;;ENVIRONMENT MODE BITS
001022  000000          $SWREG: .WORD   ASWREG  ;;APT SWITCH REGISTER
001024  002000          $USWR:  .WORD   AUSWR   ;;USER SWITCHES
001026  000000          $CPUOP: .WORD   ACPUOP  ;;CPU TYPE,OPTIONS
                        ;*                      BITS 15-11=CPU TYPE
                        ;*                              11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
                        ;*                              11/70=06,PDQ=07,Q=10
                        ;*                      BIT 10=REAL TIME CLOCK
                        ;*                      BIT  9=FLOATING POINT PROCESSOR
                        ;*                      BIT  8=MEMORY MANAGEMENT
001030                  $ETEND:
                        .MEXIT

                        ;THESE LOCATIONS ARE USED IN MORE THAN ONE TEST TO STORE VECTOR DATA
                        ;WHEN THE TEST NEEDS TO HAVE AN ERROR CONDITION RESPOND DIFFERENTLY
                        ;FROM THE DEFAULT RESPONCE.
001030  000000          SLOC00: .WORD   0
001032  000000          SLOC01: .WORD   0

                        ;THESE LOCATIONS ARE USED IN MORE THAN ONE TEST TO STORE WORKING DATA.
001034  000000          EXPDAT: .WORD   0               ;STORES EXPECTED (GOOD) DATA FOR COMPARISONS
001036  000000          RECDAT: .WORD   0               ;STORES RECIEVED DATA TO BE VERIFIED
001040  000000          COUNT:  .WORD   0               ;ERROR INDICATOR FOR FLOATING POINT TESTS
001042  000000          FLAG:   .WORD   0               ;USED TO STORE "FLAG" CONDITIONS
001044  000000          ERRCNT: .WORD   0               ;STORAGE FOR ERROR COUNT
001046  177570          SWR:    .WORD   DSWR            ;STORAGE FOR SWITCH REGISTER ADDRESS
001050  177570          DISPLAY:.WORD   DDISP           ;STORAGE FOR DISPLAY REGISTER ADDRESS
001052  000000          $ERFLG: .WORD   0               ;ERROR FLAG
                        ;THESE LOCATIONS ARE USED BY MORE THAN ONE TEST AS LOOP COUNTERS
001054  000000          DCOUNT: .WORD   0
001056  000000          ALLCTR: .WORD   0
001060  000000          LOOPIN: .WORD   0
001062  000000          SAVSP1: .WORD   0               ;STORAGE FOR UNEXPECTED TRAP DATA
001064  000000          SAVSP2: .WORD   0               ;       "       "       "       "
```

```
                                
                                
001066  000004                  BTEXP:  .BLKW   4               ;STORES EXPONENT DURING BIT TESTS
001076  000004                  BTRES:  .BLKW   4               ;STORES RECIEVED DATA FOR BIT TESTS
001106  000001                  RECFEC: .BLKW   4               ;RECIEVED FLOATING POINT EXCEPTION CODE
001116  000004                  RECST:  .BLKW   4               ;RECIEVED FLOATING POINT STATUS
001126  000004                  RECDST: .BLKW   4               ;DESTINATION ADDRESS FOR FLOATING POINT TESTS
                                
                                
                                
                                
                                
                                ;!!!!!!THIS IS IT. THE PROGRAM TEST LOCATION AND WRITE BUFFER!!!!!!!!!!!!!!!!!!
001136                          TSTLOC:
001136  000020                          .BLKW   20
```

```
   610  001176  123456                    TAB1:   .WORD   123456
   611  001200  000000                            .WORD   000000
   612  001202  000000                            .WORD   0
   613  001204  000001                            .WORD   1
   614  001206  055555                    TAB2:   .WORD   055555
   615  001210  177777                            .WORD   177777
   616  001212  145671                            .WORD   145671
   617  001214  100000                            .WORD   100000
   618  001216  003000                    TAB3:   .WORD   003000
   619  001220  123456                            .WORD   123456
   620  001222  000000                            .WORD   0
   621  001224  000000                            .WORD   0
   622  001226  055555                    TAB4:   .WORD   55555
   623  001230  177777                            .WORD   -1
   624  001232  000000                            .WORD   0
   625  001234  000000                            .WORD   0
   626  001236  043243                    TAB5:   .WORD   43243
   627  001240  000000                            .WORD   0
   628  001242  000000                            .WORD   0
   629  001244  000000                            .WORD   0
   630  001246  162400                    TAB5A:  .WORD   162400
   631  001250  000000                            .WORD   0
   632  001252  000000                            .WORD   0
   633  001254  000000                            .WORD   0
   634  001256  000000                    TAB6:   .WORD   0
   635  001260  000000                            .WORD   0
   636  001262  000000                            .WORD   0
   637  001264  000000                            .WORD   0
   638  001266  047050                    TAB6A:  .WORD   47050
   639  001270  010000                            .WORD   10000
   640  001272  000000                            .WORD   0
   641  001274  000000                            .WORD   0
   642  001276  000200                    TAB7:   .WORD   200
   643  001300  000000                            .WORD   0
   644  001302  000000                            .WORD   0
   645  001304  000000                            .WORD   0
   646  001306  000200                    TAB8:   .WORD   200
   647  001310  000000                            .WORD   0
   648  001312  000000                            .WORD   0
   649  001314  000001                            .WORD   1
   650  001316  000400  000000  000000    TAB9:   .WORD   400,0,0,0
   651  001324  000000
   652  001326  030000                    TAB10:  .WORD   30000
   653  001330  003000                            .WORD   3000
   654  001332  000000                            .WORD   0
   655  001334  000000                            .WORD   0
   656  001336  016400                    TAB11:  .WORD   16400
   657  001340  000000                            .WORD   0
   658  001342  000000                            .WORD   0
   659  001344  000000                            .WORD   0
   660  001346  030000  003000  000002    TAB11A: .WORD   30000,3000,2,0
   661  001354  000000
   662  001356  016100  000000  000000    TAB12:  .WORD   16100,0,0,1
   663  001364  000001
   664  001366  016200                    TAB13:  .WORD   16200
   665  001370  000000                            .WORD   0
```

E2


```
666  001372  000000                              .WORD   0
667  001374  000001                              .WORD   1
668  001376  030000  003000  000000  TAB13B:     .WORD   30000,3000,0,140000
669  001404  140000
670  001406  030000                  TAB14:      .WORD   30000
671  001410  000000                              .WORD   0
672  001412  000000                              .WORD   0
673  001414  000000                              .WORD   0
674  001416  024700                  TAB15:      .WORD   24700
675  001420  000000                              .WORD   0
676  001422  000000                              .WORD   0
677  001424  000000                              .WORD   0
678  001426  025000                  TAB16:      .WORD   25000
679  001430  175363                              .WORD   175363
680  001432  123456                              .WORD   123456
681  001434  123456                              .WORD   123456
682  001436  030000                  TAB17:      .WORD   30000
683  001440  007020                              .WORD   7020
684  001442  000000  000000                      .WORD   0,0
685  001446  023456                  TAB18:      .WORD   23456
686  001450  000000                              .WORD   0
687  001452  000000                              .WORD   0
688  001454  000001                              .WORD   1
689  001456  100200  000000  000000  TAB21:      .WORD   100200,0,0,0
690  001464  000000
691  001466  100400  000000  000000  TAB22:      .WORD   100400,0,0,0
692  001474  000000
693  001476  000200  000000  000000  TAB23:      .WORD   200,0,0,1
694  001504  000001
695  001506  062400  000000  000000  TAB24:      .WORD   62400,0,0,0
696  001514  000000
697  001516  001100  000000  000000  TAB25:      .WORD   1100,0,0,0
698  001524  000000
699  001526  100600  000000  000000  TAB26:      .WORD   100600,0,0,0
700  001534  000000
701  001536  001000  000000  000000  TAB27:      .WORD   1000,0,0,0
702  001544  000000
703  001546  000600  000000  000000  TAB28:      .WORD   600,0,0,0
704  001554  000000
705  001556  010100  000000  000000  TAB29:      .WORD   10100,0,0,0
706  001564  000000
707  001566  010100  000000  002000  TAB29A:     .WORD   10100,0,2000,0
708  001574  000000
709
710  001576  000500  000000  000000  TAB30:      .WORD   500,0,0,0
711  001604  000000
712  001606  100400  000000  000000  TAB31:      .WORD   100400,0,0,0
713  001614  000000
714  001616  016000  000000  000000  TAB32:      .WORD   16000,0,0,0
715  001624  000000
716  001626  011600  000000  000000  TAB33:      .WORD   11600,0,0,0
717  001634  000000
718  001636  000640  000000  000000  TAB34:      .WORD   640,0,0,0
719  001644  000000
720  001646  077600  000000  000000  TAB40:      .WORD   77600,0,0,0
721  001654  000000
```

F2


```
722  001656  100200  000000  000000  TAB41:  .WORD  100200,0,0,1
723  001664  000001
724  001666  000340  000000  000000  TAB42:  .WORD  340,0,0,0
725  001674  000000
726  001676  000077  177777  177777  TAB43:  .WORD  77,177777,177777,177776
727  001704  177776
728  001706  000577  177777  177777  TAB45:  .WORD  577,-1,-1,-1
729  001714  177777
730  001716  000577  177777  000000  TAB46:  .WORD  577,-1,0,0
731  001724  000000
732  001726  173737  124242  052525  TAB47:  .WORD  173737,124242,052525,12346
733  001734  012346
734  001736  000000  000000  052525  TAB47A: .WORD  0,0,052525,12346
735  001744  012346
736  001746  173737  124242  000000  TAB48:  .WORD  173737,124242,0,0
737  001754  000000
738  001756  000600  000000  000000  TAB49:  .WORD  600,0,0,0
739  001764  000000
```

```
                                        .SBTTL  GLOBAL TEXT SECTION

                                        ;++
                                        ; THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
                                        ; MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
                                        ; MORE THAN ONE TEST.
                                        ;--

                                        ;
                                        ; FORMAT STATEMENTS USED IN PRINT CALLS
                                        ;

001766  005015  040503  044103  ERRMSG::.ASCIZ  <CR><LF>/CACHE SYSTEM ERROR/
001774  020105  054523  052123
002002  046505  042440  051122
002010  051117     000
002013     015  042412  051122  FPPERR: .ASCIZ  <CR><LF>/ERROR DURING FPP TESTING/
002020  051117  042040  051125
002026  047111  020107  050106
002034  020120  042524  052123
002042  047111  000107
002046  005015  051105  047522  ERR1:   .ASCIZ  <CR><LF>/ERROR # =/
002054  020122  020043  000075
002062  005015  051105  047522  ERR2:   .ASCIZ  <CR><LF>/ERROR PC =/
002070  020122  041520  036440
002076     000
002077     015  020012  020040  $CRLF:  .ASCIZ  <CR><LF>/   /
002104     000
002106                             .EVEN
```

H2


```
                        .SBTTL  GLOBAL ERROR REPORT SECTION

                        ;++
                        ; THE GLOBAL ERROR REPORT SECTION CONTAINS MESSAGE PRINTING AREAS
                        ; USED BY MORE THAN TEST TO OUTPUT ADDITIONAL ERROR INFORMATION.
                        ;--
```

```
                        .SBTTL  GLOBAL SUBROUTINES SECTION

                        ;**
                        ; THE GLOBAL SUBROUTINES SECTION CONTAINS THE SUBROUTINES
                        ; THAT ARE USED IN MORE THAN ONE TEST.
                        ;--
                        ;FPP COMMON SUBROUTINES
002106  012600          WLDTRP: MOV     (SP)+,R0                ;SAVE PC
002110  012605                  MOV     (SP)+,R5                ;SAVE STATUS AND RESTORE STACK
002112  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
002114  000001                  .WORD   1                       ;UNIQUE ERROR NUMBER
002116  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
002120  000110                  JMP     (R0)                    ;GO BACK INLINE
                        ;
                        ;
                        ;
002122  000000          TRPFLG: .WORD   0
002124  000207          ERRFP:  RTS     R7
002126  000207          ERR:    RTS     R7
                        ;
                        ;
                        ;
                        ;
                        ;
                        ;SUBROUTINE DATA VERFICATION -
                        ;
                        ; CALLED BY     JSR     R7,DATVER
                        ;
                        ;INPUT:         (R4)=EXPECTED DATA
                        ;               (R1)=RECEIVED DATA
                        ;
                        ;THIS ROUTINE VERIFIES THAT THE 4 CONSECTIVE WORDS STARTING WITH (R4) ARE
                        ;EQUAL TO THE FOUR WORDS ADDRESSED BY (R1). THE CONTENTS OF R4, AND R1 ARE NOT
                        ;DISTURBED.
                        ;LOCATION "COUNT" , IF NOT EQUAL TO 0 SIGNIFIES DATA ERROR
                        ;IF THE STATUS IS FLOATING MODE, THE LAST TWO BYTES OF RECEIEVED
                        ;ARE SIMPLY CHECKED FOR ZEROS
                        ;

002130  010446          DATVFR: MOV     R4,-(SP)                ;SAVE R4
002132  010146                  MOV     R1,-(SP)                        ;SAVE R1
002134  012767  000003  176676          MOV     #3,COUNT                ;SET UP ITERATION COUNT
002142  000167  000012                  JMP     DAT1                    ;
                        ;
002146  010446          DATVER: MOV     R4,-(SP)                ;SAVE R4
002150  010146                  MOV     R1,-(SP)                ;SAVE R1
002152  012767  000005  176660          MOV     #5,COUNT                ;SET UP ITERATION COUNT
002160  005367  176654  DAT1:   DEC     COUNT
002164  001402                  BEQ     2$                      ;BRANCH IF DONE
002166  022421                  CMP     (R4)+,(R1)+                     ;
002170  01[illegible]            BEQ     DAT1
002172  012[illegible]  2$:     MOV     (SP)+,R1                ;RESTORE R1
002174  012604                  MOV     (SP)+,R4                ;RESTORE R4
002176  000207                  RTS     R7                      ;GO BACK TO CALLING ROUTINE
                                                                ;IF DATA ERROR, COUNT NE 0
```

```
                                START:
002200  012737  000014  177746            MOV     #14,@#CCR               ;SET CACHE TO FORCE MISS
                                .SBTTL  INITIALIZE THE COMMON TAGS
002206  012706  001000                    MOV     #STACK,SP               ;;SETUP THE STACK POINTER
                                ;;INITIALIZE A FEW VECTORS
002212  012737  040046  000030            MOV     #$ERROR,@#EMTVEC        ;;EMT VECTOR FOR ERROR ROUTINE
002220  012737  000340  000032            MOV     #340,@#EMTVEC+2         ;;LEVEL 7
002226  012737  037530  000034            MOV     #$TRAP,@#TRAPVEC        ;;TRAP VECTOR FOR TRAP CALLS
002234  012737  000340  000036            MOV     #340,@#TRAPVEC+2        ;LEVEL 7
002242  005067  176540                    CLR     $PASS                   ;;CLEAR THE PASS COUNT
002246  016767  034056  034046            MOV     $ENDCT,$EOPCT           ;;SETUP END-OF-PROGRAM COUNTER
002254  105067  176572                    CLRB    $ERFLG                  ;;CLEAR THE ERROR FLAG
                                ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
                                ;;EQUAL TO A "-1", SETUP FOR A SOFTWARE SWITCH REGISTER.
002260  013746  000004                    MOV     @#ERRVEC,-(SP)          ;;SAVE ERROR VECTOR
002264  012737  002320  000004            MOV     #64$,@#ERRVEC           ;;SET UP ERROR VECTOR
002272  012767  177570  176546            MOV     #DSWR,SWR               ;;SETUP FOR A HARDWARE SWICH REGISTER
002300  012767  177570  176542            MOV     #DDISP,DISPLAY          ;;AND A HARDWARE DISPLAY REGISTER
002306  022777  177777  176532            CMP     #-1,@SWR                ;;TRY TO REFERENCE HARDWARE SWR
002314  001012                            BNE     66$                     ;;BRANCH IF NO TIMEOUT TRAP OCCURRED
                                                                        ;;AND  THE HARDWARE SWR IS NOT = -1
002316  000403                            BR      65$                     ;;BRANCH IF NO TIMEOUT
002320  012716  002326            64$:    MOV     #65$,(SP)               ;;SET UP FOR TRAP RETURN
002324  000002                            RTI
002326  012767  000176  176512    65$:    MOV     #SWREG,SWR              ;;POINT TO SOFTWARE SWR
002334  012767  000174  176506            MOV     #DISPREG,DISPLAY
002342  012637  000004            66$:    MOV     (SP)+,@#ERRVEC          ;;RESTORE ERROR VECTOR

                                .MACRO  $$SETMAIL       ?$ARG1
                                        CLR     $PASS                   ;;CLEAR PASS COUNT
                                        BITB    #APTSIZE,$ENVM          ;;TEST USER SIZE UNDER APT
                                        BEQ     $ARG1                   ;;YES,USE NON-APT SWITCH
                                        MOV     #$SWREG,SWR             ;;NO,USE APT SWITCH REGISTER
                                $ARG1:
                                .ENDM   $$SETMAIL
002346  005067  176434                    CLR     $PASS                   ;;CLEAR PASS COUNT
002352  132767  000200  176441            BITB    #APTSIZE,$ENVM          ;;TEST USER SIZE UNDER APT
002360  001403                            BEQ     67$                     ;;YES,USE NON-APT SWITCH
002362  012767  001022  176456            MOV     #$SWREG,SWR             ;;NO,USE APT SWITCH REGISTER
002370                          67$:
002370  012737  040046  000020            MOV     #$ERROR,@#IOTVEC        ;;SET UP IOT VECTORS
002376  012737  000340  000022            MOV     #340,@#IOTVEC+2         ;;TO GO TO ERROR ROUTINE
002404  005037  177766                    CLR     @#177766                ;CLEAR CPU ERROR REGISTER
002410  005067  176370            RESTART: CLR    $TESTN                  ;RESET $TESTN TO ZERO
002414  012767  000014  177746            MOV     #14,@#CCR               ;SET CACHE TO FORCE MISS

                                ;*****************************************************************************
                                .SBTTL  FLOATING POINT TESTS
                                ;*****************************************************************************
                                ;                       BEGIN FLOATING POINT TESTING
                                ;*****************************************************************************
                                ;*****************************************************************************
002422                          MBT1:
                                ;;*************************************************************
                                ;*TEST 1        FPP REGISTER BIT TESTS
                                ;;*************************************************************
```

```
                                ;R5=FPP POINTER
                                ;R1=TEMPORARY COUNTER
                                ;R2=POINTER TO EXPECTED DATA
                                ;R3=POINTER TO RECEIVED DATA
                                ;R4=ODD/EVEN COUNTER
                                ;;*************************************************************
002422                          TST1:
002422  005267  176356                  INC     $TESTN                  ;INCREMENT TEST NUMBER
002426  170011                          SETD
002430  005005                MBT2:     CLR     R5                      ;SETUP FPP ACC POINTER
002432  012702  001066                  MOV     #BTEXP,R2               ;POINT TO TEST DATA
002436  012703  001076                  MOV     #BTRES,R3               ;POINT TO RECEIVED DATA
002442  170400                MBT2A:    CLRD    AC0                     ;SETUP FPP REGISTER VALUES
002444  174012                          STD     AC0,(R2)                ;CLEAR EXPECTED VALUE
002446  005004                          CLR     R4
002450  170400                BTGO:     CLRD    AC0                     ;SETUP FPP REGISTER VALUES
002452  170401                          CLRD    AC1
002454  170402                          CLRD    AC2
002456  170403                          CLRD    AC3
002460  170404                          CLRD    AC4
002462  170405                          CLRD    AC5
                                
002464  010501                          MOV     R5,R1                   ;GET FPP AC NUMBER INTO R1
002466  070127  000014                  MUL     #14,R1                  ;ALLOW 10 LOCATIONS FOR OPERATION
002472  062701  002500                  ADD     #MAC0,R1                ;SETUP JMP LOCATION
002476  000111                          JMP     (R1)
002500  172467  176362        MAC0:     LDD     BTEXP,AC0               ;LOAD TEST DATA INTO TEST REGISTER
002504  174067  176366        MAC0A:    STD     AC0,BTRES               ;SAVE TEST RESULT
002510  000167  000074                  JMP     MACE                    ;GET OUT
002514  172567  176346        MAC1:     LDD     BTEXP,AC1               ;LOAD TEST DATA INTO TEST REGISTER
002520  174167  176352                  STD     AC1,BTRES               ;SAVE TEST RESULT
002524  000167  000060                  JMP     MACE                    ;GET OUT
002530  172667  176332        MAC2:     LDD     BTEXP,AC2               ;LOAD TEST DATA INTO TEST REGISTER
002534  174267  176336                  STD     AC2,BTRES               ;SAVE TEST RESULT
002540  000167  000044                  JMP     MACE                    ;GET OUT
002544  172767  176316        MAC3:     LDD     BTEXP,AC3               ;LOAD TEST DATA INTO TEST REGISTER
002550  174367  176322                  STD     AC3,BTRES               ;SAVE TEST RESULT
002554  000167  000030                  JMP     MACE                    ;GET OUT
002560  172467  176302        MAC4:     LDD     BTEXP,AC0
002564  174004                          STD     AC0,AC4                 ;LOAD TEST DATA INTO TEST REGISTER
002566  172404                          LDD     AC4,AC0                 ;SAVE TEST RESULT
002570  000167  177710                  JMP     MAC0A                   ;GET OUT
002574  172467  176266        MAC5:     LDD     BTEXP,AC0               ;LOAD TEST DATA INTO TEST XFER REGISTER
002600  174005                          STD     AC0,AC5                 ;LOAD TEST REGISTER
002602  172405                          LDD     AC5,AC0                 ;STORE RESULT INTO XFER FPP REGISTER
002604  000167  177674                  JMP     MAC0A                   ;GET OUT
002610  026767  176252  176260  MACE:   CMP     BTEXP,BTRES
002616  001014                          BNE     BTER                    ;BRANCH IF REGISTER ERROR
002620  026767  176244  176252          CMP     BTEXP+2,BTRES+2
002626  001010                          BNE     BTER
002630  026767  176236  176244          CMP     BTEXP+4,BTRES+4
002636  001004                          BNE     BTER
002640  026767  176230  176236          CMP     BTEXP+6,BTRES+6
002646  001403                          BEQ     MBT8                    ;GOOD RESULT
002650                          BTER:
002650  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
```

```
                                        .WORD   2                       ;UNIQUE ERROR NUMBER
                                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;FPP AC LOADED INCORRECTLY
                                ;NOW VERIFY THE OTHER REGISTERS REMAINED ZERO
002656                          MBT8:
002656  005001                        CLR     R1                      ;CLEAR TEMPORARY COUNTER
002660  005705                        TST     R5                      ;SEE IF RO UNDER TEST
002662  001413                        BEQ     MBT8A                   ;BRANCH IF TEST ING RO
002664  020527  000004                CMP     R5,#4                   ;SEE IF TESTING FPP REGISTER >R4
002670  100010                        BPL     MBT8A                   ;SKIP RO TESTING
002672  174067  176200                STD     AC0,BTRES               ;SAVE AC TEST RESULT
002676  004767  000246                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
002702  001403                        BEQ     MBT8A                   ;BRANCH IF EXPECTED RESULT
002704  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
002706  000003                        .WORD   3                       ;UNIQUE ERROR NUMBER
002710  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC0
002712  020527  000001        MBT8A:  CMP     R5,#1                   ;SEE IF R1 UNDER TEST
002716  001410                        BEQ     MBT8B                   ;BRANCH IF R1 UNDER TEST
002720  174167  176152                STD     AC1,BTRES               ;SAVE AC TEST RESULT
002724  004767  000220                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
002730  001403                        BEQ     MBT8B                   ;BRANCH IF GOOD
002732  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
002734  000004                        .WORD   4                       ;UNIQUE ERROR NUMBER
002736  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC1
002740  020527  000002        MBT8B:  CMP     R5,#2                   ;SEE IF TESTING FPP REGISTER AC2
002744  001410                        BEQ     MBT8C                   ;BRANCH IF R2 UNDER TEST
002746  174267  176124                STD     AC2,BTRES               ;SAVE AC TEST RESULT
002752  004767  000172                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
002756  001403                        BEQ     MBT8C                   ;BRANCH IF GOOD
002760  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
002762  000005                        .WORD   5                       ;UNIQUE ERROR NUMBER
002764  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC2
002766  020527  000003        MBT8C:  CMP     R5,#3                   ;SEE IF R3 UNDER TEST
002772  001410                        BEQ     MBT8D                   ;BRANCH IF R3 UNDER TEST
002774  174367  176076                STD     AC3,BTRES               ;SAVE AC TEST RESULT
003000  004767  000144                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
003004  001403                        BEQ     MBT8D                   ;BRANCH IF GOOD
003006  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
003010  000006                        .WORD   6                       ;UNIQUE ERROR NUMBER
003012  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC3
003014  020527  000004        MBT8D:  CMP     R5,#4                   ;SEE IF R4 UNDER TEST
003020  001411                        BEQ     MBT8E                   ;BRANCH IF R4 UNDER TEST
003022  172404                        LDD     AC4,AC0                 ;MOVE REGISTER CONTENT
003024  174067  176046                STD     AC0,BTRES               ;SAVE AC TEST RESULT
003030  004767  000114                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
003034  001403                        BEQ     MBT8E                   ;BRANCH IF GOOD
003036  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
003040  000007                        .WORD   7                       ;UNIQUE ERROR NUMBER
003042  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC4
003044  020527  000005        MBT8E:  CMP     R5,#5                   ;SEE IF RO UNDER TEST
003050  001411                        BEQ     MBT8F                   ;BRANCH IF RO UNDER TEST
```

M2


```
 999  003052  172405                    LDD     AC5,AC0          ;MOVE REGISTER CONTENTS
1000  003054  174067  176016            STD     AC0,BTRES        ;SAVE AC TEST RESULT
1001  003060  004767  000064            JSR     R7,BTTST         ;VERIFY THAT CONTENTS REMAINED ZERO
1002  003064  001403                    BEQ     MBT8F            ;BRANCH IF GOOD
1003  003066  104000                    ERROR                    ;ALL ERRORS TO TRAP TO EMT VECTOR
1004  003070  000010                    .WORD   10               ;UNIQUE ERROR NUMBER
1005  003072  002013                    .WORD   FPPERR           ;ADDRESS OF ERROR MESSAGE
1006                                                         ;BAD AC5
1007  003074  005204          MBT8F:    INC     R4               ;INCREMENT PATTERN COUNTER
1008  003076  000241                    CLC
1009  003100  042704  177776            BIC     #177776,R4       ;  TEST FOR ODD /EVEN
1010  003104  001401                    BEQ     MBT8FG           ;BRANCH IF EVEN
1011  003106  000261                    SEC                      ;SET CARRY FOR TEST PATTERN SHIFT
1012  003110  006112          MBT8FG:   ROL     (R2)             ;ROTATE LSW OF TEST PATTERN
1013  003112  006162  000002            ROL     2(R2)            ;ROTATE 2 WORD OF TEST PATTERN
1014  003116  006162  000004            ROL     4(R2)            ;ROTATE 3 WORD OF TEST PATTERN
1015  003122  006162  000006            ROL     6(R2)            ;ROTATE 4 WORD OF TEST PATTERN
1016  003126  103402                    BCS     MBT8I            ;JUMP IF THROUGH WITH TEST PATTERN
1017  003130  000167  177314            JMP     BTGO             ;CONTINUE WITH NEW TEST PATTERN
1018
1019  003134  005205          MBT8I:    INC     R5               ;GO TO NEXT REGISTER TEST
1020  003136  020527  000006            CMP     R5,#6            ;SEE IF THROUGH TESTING
1021  003142  100016                    BPL     MBTE             ;JUMP IF THROUGH
1022  003144  000167  177272            JMP     MBT2A            ;CONTINUE TESTING WITH NEW PATTERN
1023                                    ;
1024                                    ;
1025  003150  005767  175722  BTTST:   TST     BTRES            ;VERIFY CONTENTS AS ZERO
1026  003154  001010                    BNE     BTTSTE           ;EXIT IF NOT ZERO
1027  003156  005767  175716            TST     BTRES+2          ;VERIFY CONTENTS AS ZERO
1028  003162  001005                    BNE     BTTSTE           ;EXIT IF NOT ZERO
1029  003164  005767  175712            TST     BTRES+4          ;VERIFY CONTENTS AS ZERO
1030  003170  001002                    BNE     BTTSTE           ;EXIT IF NOT ZERO
1031  003172  005767  175706            TST     BTRES+6          ;VERIFY CONTENTS AS ZERO
1032  003176  000207          BTTSTE:   RTS     R7               ;GO BACK TO CALLING ROUTINE
1033
1034
1035                                    ;
1036                                    ;
1037  003200                  MBTE:
1038
1039                                    ;
1040  003200                  MFACU:
1041                                    ;;*****************************************************************
1042                                    ;*TEST 2        TEST UNIQUENESS OF FPP ACCUMULATORS
1043                                    ;;*************************  ************************************
1044                                    ;THIS TEST LOADS UNIQUE PATTERNS INTO EACH ACCUMULATOR SIMULTANEOUSLY.
1045                                    ;R2=POINTER TO EXPECTED DATA
1046                                    ;R3=POINTER TO RECEIVED DATA
1047                                    ;;*****************************************************************
1048  003200                  TST2:
1049  003200  005267  175600            INC     $TESTN           ;INCREMENT TEST NUMBER
1050                                    ;
1051                                    ;
1052                                    ;
1053  003204  170011                    SETD
1054  003206  005000          MFA:      CLR     R0               ;SETUP FPP ACC POINTER
```

```
1055  003210  005004                        CLR     R4
1056  003212  012702  001066                MOV     #BTEXP,R2               ;POINT TO TEST DATA
1057  003216  012703  001076                MOV     #BTRES,R3               ;POINT TO RECEIVED DATA
1058  003222  012767  000051  175636        MOV     #51,BTEXP               ;SETUP EXPECTED DATA
1059  003230  012767  000052  175632        MOV     #52,BTEXP+2             ;
1060  003236  012767  000053  175626        MOV     #53,BTEXP+4             ;
1061  003244  012767  000054  175622        MOV     #54,BTEXP+6             ;
1062  003252  172467  175610                LDD     BTEXP,AC0               ;MOVE DATA TEMPORARILY
1063  003256  174005                        STD     AC0,AC5                 ;PUT DATA INTO TEST REGISTER
1064  003260  004567  000240                JSR     R5,SUBT                 ;SUBTRACT TEN FROM EACH EXPECTED DATA
1065  003264  172467  175576                LDD     BTEXP,AC0               ;MOVE DATA TEMPORARILY
1066  003270  174004                        STD     AC0,AC4                 ;MOVE DATA INTO TEST REGISTER
1067  003272  004567  000226                JSR     R5,SUBT                 ;SUBTRACT 10 FROM TEST DATA WORDS
1068  003276  172767  175564                LDD     BTEXP,AC3               ;STORE INTO TEST REGISTER
1069  003302  004567  000216                JSR     R5,SUBT                 ;GET NEXT SET OF UNIQUE DATA WORDS
1070  003306  172667  175554                LDD     BTEXP,AC2               ;STORE INTO TEST REGISTER
1071  003312  004567  000206                JSR     R5,SUBT                 ;GET NEXT SET OF TEST DATAS
1072  003316  172567  175544                LDD     BTEXP,AC1               ;LOAD TEST REGISTER
1073  003322  004567  000176                JSR     R5,SUBT                 ;GET NEXT SET OF TEST WORDS
1074  003326  172467  175534                LDD     BTEXP,AC0               ;LOAD FINAL TEST REGISTER
1075                                                                          ;ALL REGISTER CONTAIN UNIQUE TEST WORDS
1076  003332  174067  175540                STD     AC0,BTRES               ;STORE AC0,RESULT
1077  003336  004567  000246                JSR     R5,BFA                  ;CHECK RESULT
1078  003342  001403                        BEQ     BFAC1                   ;BRANCH IF GOOD
1079  003344  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1080  003346  000011                        .WORD   11                      ;UNIQUE ERROR NUMBER
1081  003350  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1082                                                                  ;BAD AC0
1083  003352  004567  000200        BFAC1:  JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1084  003356  174167  175514                STD     AC1,BTRES               ;STORE AC1 RESULT
1085  003362  004567  000222                JSR     R5,BFA                  ;CHECK RESULT
1086  003366  001403                        BEQ     BFAC2                   ;BRANCH IF GOOD
1087  003370  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1088  003372  000012                        .WORD   12                      ;UNIQUE ERROR NUMBER
1089  003374  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1090                                                                  ;BAD RESULT AC1
1091  003376  004567  000154        BFAC2:  JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1092  003402  174267  175470                STD     AC2,BTRES               ;STORE AC2 RESULT
1093  003406  004567  000176                JSR     R5,BFA                  ;CHECK RESULT
1094  003412  001403                        BEQ     BFAC3                   ;BRANCH IF GOOD
1095  003414  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1096  003416  000013                        .WORD   13                      ;UNIQUE ERROR NUMBER
1097  003420  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1098                                                                  ;BAD AC2 RESULT
1099  003422  004567  000130        BFAC3:  JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1100  003426  174367  175444                STD     AC3,BTRES               ;SAVE TEST RESULT
1101  003432  004567  000152                JSR     R5,BFA                  ;CHECK RESULT
1102  003436  001403                        BEQ     BFAC4                   ;BRANCH IF GOOD
1103  003440  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1104  003442  000014                        .WORD   14                      ;UNIQUE ERROR NUMBER
1105  003444  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1106                                                                  ;BAD AC3 RESULT
1107  003446  004567  000104        BFAC4:  JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1108  003452  172704                        LDD     AC4,AC3                 ;SAVE TEMPORARY
1109  003454  174367  175416                STD     AC3,BTRES               ;STORE AC4 RESULT
1110  003460  004567  000124                JSR     R5,BFA                  ;CHECK RESULT
```

```
1111  003464  001403                          BEQ     BFAC5                   ;BRANCH IF GOOD
1112  003466  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1113  003470  000015                          .WORD   15                      ;UNIQUE ERROR NUMBER
1114  003472  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1115                                                                  ;BAD AC4 RESULT
1116  003474  004567  000056          BFAC5:  JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1117  003500  172605                          LDD     AC5,AC2                 ;SAVE TEMPORARY COPY
1118  003502  174267  175370                  STD     AC2,BTRES               ;MOVE AC5 RESULT
1119  003506  004567  000076                  JSR     R5,BFA                  ;CHECK RESULT
1120  003512  001456                          BEQ     BFAE                    ;BRANCH IF GOOD
1121  003514  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1122  003516  000016                          .WORD   16                      ;UNIQUE ERROR NUMBER
1123  003520  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1124                                                                  ;BAD AC5 RESULT
1125  003522  000452                          BR      BFAE                    ;EXIT MODULE
1126
1127  003524  162767  000010  175334  SUBT:   SUB     #10,BTEXP                       ;UPDATE EXPECTED CONTENTS
1128  003532  162767  000010  175330          SUB     #10,BTEXP+2                     ;UPDATE EXPECTED CONTENTS
1129  003540  162767  000010  175324          SUB     #10,BTEXP+4                     ;UPDATE EXPECTED CONTENTS
1130  003546  162767  000010  175320          SUB     #10,BTEXP+6                     ;UPDATE EXPECTED CONTENTS
1131  003554  000205                          RTS     R5                      ;
1132  003556  062767  000010  175302  ADDT:   ADD     #10,BTEXP                       ;UPDATE EXPECTED CONTENTS
1133  003564  062767  000010  175276          ADD     #10,BTEXP+2                     ;UPDATE EXPECTED CONTENTS
1134  003572  062767  000010  175272          ADD     #10,BTEXP+4                     ;UPDATE EXPECTED CONTENTS
1135  003600  062767  000010  175266          ADD     #10,BTEXP+6                     ;UPDATE EXPECTED CONTENTS
1136  003606  000205                          RTS     R5                      ;
1137
1138  003610  026767  175252  175260  BFA:    CMP     BTEXP,BTRES             ;VERIFY CONTENTS
1139  003616  001013                          BNE     BFB                     ;EXIT IF NOT ZERO
1140  003620  026767  175244  175252          CMP     BTEXP+2,BTRES+2         ;VERIFY CONTENTS
1141  003626  001007                          BNE     BFB                     ;EXIT IF NOT ZERO
1142  003630  026767  175236  175244          CMP     BTEXP+4,BTRES+4         ;VERIFY CONTENTS
1143  003636  001003                          BNE     BFB                     ;EXIT IF NOT ZERO
1144  003640  026767  175230  175236          CMP     BTEXP+6,BTRES+6         ;VERIFY CONTENTS
1145  003646  000205                  BFB:    RTS     R5                      ;GO BACK TO CALLING ROUTINE
1146
1147
1148  003650                          BFAE:
1149
1150
1151
1152  003650                          TSFP1:
1153                                  ;;*****************************************************************
1154                                  ;*TEST 3         TEST LDFPS AND STFPS MODE 0
1155                                  ;;*****************************************************************
1156  003650                          TST3:
1157  003650  005267  175130                  INC     $TESTN                  ;INCREMENT TEST NUMBER
1158  003654  005037  002122                  CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1159  003660  012704  147757                  MOV     #147757,R4              ;SETUP DATA TO BE LOADED
1160  003664  004767  000032                  JSR     PC,LOST                 ;LOAD AND STORE FPS WITH DATA
1161  003670  012704  105252                  MOV     #105252,R4              ;SETUP DATA TO BE LOADED
1162  003674  004767  000022                  JSR     PC,LOST                 ;LOAD AND STORE FPS WITH DATA
1163  003700  012704  042505                  MOV     #42505,R4               ;SETUP DATA TO BE LOADED
1164  003704  004767  000012                  JSR     PC,LOST                 ;LOAD AND STORE FPS WITH DATA
1165  003710  005004                          CLR     R4                      ;SETUP DATA TO BE LOADED
1166  003712  004767  000004                  JSR     PC,LOST                 ;LOAD AND STORE FPS WITH DATA
```

```
                                        ;
003716  000167  000020                    JMP     FIN1
                                        ;
003722  170104                  LOST:     LDFPS   R4                      ;LOAD FPS WITH DATA
003724  170201                            STFPS   R1                      ;LOAD R1 WITH (FPS)
003726  020401                            CMP     R4,R1                   ;DID THE INSTRUCTIONS WORK
003730  001403                            BEQ     1$                      ;YES GO ON
003732  104000                            ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
003734  000017                            .WORD   17                      ;UNIQUE ERROR NUMBER
003736  002013                            .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;NO GO TO ERROR
003740  000207                  1$:       RTS     PC                      ;RETURN
003742                          FIN1:
                                        ;
003742                          TSFP2:
                                        ;;**************************************************************
                                        ;*TEST 4         TEST CFCC
                                        ;;**************************************************************
003742                          TST4:
003742  005267  175036                    INC     #TESTN                  ;INCREMENT TEST NUMBER
003746  005037  002122                    CLR     @#TRPFLG                ;CLEAR TRAP FLAG
003752  012704  000017                    MOV     #17,R4                  ;SETUP DATA TO BE LOADED
003756  004767  000032                    JSR     PC,TSF2                 ;LOAD FPS AND COPY CONDITION CODES TO PS
003762  012704  000012                    MOV     #12,R4                  ;SETUP DATA TO BE LOADED
003766  004767  000022                    JSR     PC,TSF2                 ;LOAD FPS AND COPY CONDITION CODES TO PS
003772  012704  000005                    MOV     #5,R4                   ;SETUP DATA TO BE LOADED
003776  004767  000012                    JSR     PC,TSF2                 ;LOAD FPS AND COPY CONDITION CODES TO PS
004002  005004                            CLR     R4                      ;SETUP DATA TO BE LOADED
004006  004767  000004                    JSR     PC,TSF2                 ;LOAD FPS AND COPY CONDITION CODES TO PS
                                        ;
004010  000167  000030                    JMP     FIN2
                                        ;
004014  170104                  TSF2:     LDFPS   R4                      ;LOAD FPS
004016  170000                            CFCC                            ;COPY CONDITION CODES TO PS
004020  013701  177776                    MOV     @#177776,R1             ;SAVE PS TO R1
004024  042701  177760                    BIC     #177760,R1              ;MASK OUT UNWANTED BITS
004030  020401                            CMP     R4,R1                   ;WAS CONDITION CODE BITS TRANSFERRED
                                                                        ;CORRECTLY
004032  001403                            BEQ     1$                      ;YES GO ON
004034  104000                            ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
004036  000020                            .WORD   20                      ;UNIQUE ERROR NUMBER
004040  002013                            .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;NO GO TO ERROR
004042  000207                  1$:       RTS     PC                      ;RETURN
004044                          FIN2:
                                        ;
004044                          TSFP3:
                                        ;;**************************************************************
                                        ;*TEST 5         TEST SETF, SETD, SETI, SETL
                                        ;;**************************************************************
004044                          TST5:
004044  005267  174734                    INC     #TESTN                  ;INCREMENT TEST NUMBER
004050  005037  002122                    CLR     @#TRPFLG                ;CLEAR TRAP FLAG
004054  012704  000200                    MOV     #200,R4                 ;SETUP DATA TO BE LOADED
```

```
1223  004060  170104                        LDFPS   R4                      ;LOAD FPS
1224  004062  170001                        SETF                            ;MAKE FD=0
1225  004064  170201                        STFPS   R1                      ;STORE FPS
1226  004066  020127  000000                CMP     R1,#0                   ;IS FD=0
1227  004072  001403                        BEQ     1$                      ;YES GO ON
1228  004074  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1229  004076  000021                        .WORD   21                      ;UNIQUE ERROR NUMBER
1230  004100  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1231                                                                  ;NO GO TO ERROR
1232  004102  170011              1$:       SETD                            ;MAKE FD=1
1233  004104  170201                        STFPS   R1                      ;STORE FPS
1234  004106  020104                        CMP     R1,R4                   ;IS FD=1
1235  004110  001403                        BEQ     2$                      ;YES GO ON
1236  004112  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1237  004114  000022                        .WORD   22                      ;UNIQUE ERROR NUMBER
1238  004116  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1239                                                                  ;NO GO TO ERROR
1240  004120  012704  000100      2$:       MOV     #100,R4                 ;SETUP DATA TO BE LOADED
1241  004124  170104                        LDFPS   R4                      ;LOAD FPS
1242  004126  170002                        SETI                            ;MAKE FL=0
1243  004130  170201                        STFPS   R1                      ;STORE FPS
1244  004132  020127  000000                CMP     R1,#0                   ;IS FL=0
1245  004136  001403                        BEQ     3$                      ;YES GO ON
1246  004140  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1247  004142  000023                        .WORD   23                      ;UNIQUE ERROR NUMBER
1248  004144  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1249                                                                  ;NO GO TO ERROR
1250  004146  170012              3$:       SETL                            ;MAKE FL=1
1251  004150  170201                        STFPS   R1                      ;STORE FPS
1252  004152  020104                        CMP     R1,R4                   ;IS FL=1
1253  004154  001403                        BEQ     4$                      ;YES GO ON
1254  004156  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1255  004160  000024                        .WORD   24                      ;UNIQUE ERROR NUMBER
1256  004162  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1257                                                                  ;NO GO TO ERROR
1258  004164              4$:
1259
1260                                        ;
1261  004164              TSFP4:
1262                                        ;;*****************************************************************
1263                                        ;*TEST 6         TEST ILLEGAL OP CODES AND STST
1264                                        ;;*****************************************************************
1265  004164              TST6:
1266  004164  005267  174614                INC     $TESTN                  ;INCREMENT TEST NUMBER
1267  004170  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1268  004174  012705  170003                MOV     #170003,R5              ;INIT OP CODE
1269  004200  013746  000244                MOV     @#244,-(SP)             ;SAVE FP VECTOR
1270  004204  012737  004340  000244        MOV     #ILLOP1,@#244           ;SETUP NEW VECTOR
1271  004212  013746  000004                MOV     @#4,-(SP)               ;SAVE TIME OUT VECTOR
1272  004216  012737  004424  000004        MOV     #TIMEOU,@#4             ;SETUP NEW VECTOR
1273  004224  013746  000010                MOV     @#10,-(SP)              ;SAVE ILLEGAL VECTOR
1274  004230  012737  004434  000010        MOV     #ILLOP2,@#10            ;SETUP NEW VECTOR
1275  004236  005003              D1:       CLR     R3                      ;
1276  004240  170103                        LDFPS   R3                      ;CLEAR FPS
1277  004242  005002                        CLR     R2                      ;
1278  004244  010537  004250                MOV     R5,@#D2                 ;SETUP THE ILLEGAL INST
```

```
1279  004250  000000              D2:   .WORD   0                       ;
1280  004252  170000              D3:   CFCC                            ;MEMORY WORDS TO BE USED WITH
1281  004254  005202                    INC     R2                      ;EXECUTION OF ILLEGAL OP CODE
1282  004256  005202                    INC     R2                      ;
1283  004260  170201                    STFPS   R1                      ;SAVE FPS
1284  004262  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1285  004264  000025                    .WORD   25                      ;UNIQUE ERROR NUMBER
1286  004266  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1287                                                          ;GO TO ERROR
1288  004270  022705  170010      D4:   CMP     #170010,R5              ;COMPUTE NEXT OP CODE
1289  004274  001003                    BNE     D5                      ;
1290  004276  012705  170013            MOV     #170013,R5              ;
1291  004302  000755                    BR      D1                      ;
1292  004304  022705  170077      D5:   CMP     #170077,R5              ;
1293  004310  001001                    BNE     D6                      ;
1294  004312  000402                    BR      D7                      ;
1295  004314  005205              D6:   INC     R5                      ;
1296  004316  000747                    BR      D1                      ;
1297  004320  012637  000010      D7:   MOV     (SP)+,@#10              ;RESTORE VECTORS
1298  004324  012637  000004            MOV     (SP)+,@#4               ;
1299  004330  012637  000244            MOV     (SP)+,@#244             ;
1300
1301                                    ;
1302  004334  000167  000104            JMP     FIN4
1303                                    ;
1304  004340  022716  004252      ILLOP1: CMP     #D3,(SP)                ;DID TRAP OCCUR ON TEST INST
1305  004344  001403                    BEQ     1$                      ;YES GO ON
1306  004346  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1307  004350  000026                    .WORD   26                      ;UNIQUE ERROR NUMBER
1308  004352  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1309                                                          ;NO GO TO ERROR
1310  004354  022626              1$:   CMP     (SP)+,(SP)+             ;CLEAN UP STACK
1311  004356  170201                    STFPS   R1                      ;STORE FPS
1312  004360  022701  100000            CMP     #100000,R1              ;IS FPS CORRECT
1313  004364  001403                    BEQ     2$                      ;YES GO ON
1314  004366  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1315  004370  000027                    .WORD   27                      ;UNIQUE ERROR NUMBER
1316  004372  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1317                                                          ;NO GO TO ERROR
1318  004374  005004              2$:   CLR     R4                      ;INT R4 TO A KNOWN STATE
1319  004376  170304                    STST    R4                      ;STORE FEC AT R4
1320                                                          ;IF THE DESTINATION MODE IS IMPROPERLY
1321                                                          ;DECODED AN ODD ADDRESS TRAP TO 4
1322                                                          ;SHOULD OCCUR
1323  004400  022704  000002            CMP     #2,R4                   ;IS FEC CORRECT
1324  004404  001002                    BNE     3$                      ;NO GO TO ERROR
1325  004406  000167  177656            JMP     D4                      ;YES GO ON
1326  004412                      3$:
1327  004412  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1328  004414  000030                    .WORD   30                      ;UNIQUE ERROR NUMBER
1329  004416  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1330                                                          ;GO TO ERROR
1331  004420  000167  177644            JMP     D4                      ;THEN GO ON
1332                                    ;
1333  004424                      TIMEOU:
1334  004424  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
```

```
1335  004426  000031                          .WORD   31                      ;UNIQUE ERROR NUMBER
1336  004430  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1337                                                                  ;ERROR BECAUSE OF TRAP TO 4
1338  004432  000006                          RTT                             ;RETURN
1339                                  ;
1340  004434                          ILLOP2:
1341  004434  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1342  004436  000032                          .WORD   32                      ;UNIQUE ERROR NUMBER
1343  004440  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1344                                                                  ;ERROR BECAUSE OF TRAP TO 10
1345  004442  000006                          RTT                             ;RETURN
1346  004444                          FIN4:
1347                                  ;
1348  004444                          TSFP5:
1349                                  ;;*****************************************************************
1350                                  ;*TEST 7         TEST FID (INTERRUPT DISABLE BIT)
1351                                  ;;*****************************************************************
1352  004444                          TST7:
1353  004444  005267  174334                  INC     $TESTN                  ;INCREMENT TEST NUMBER
1354  004450  005037  002122                  CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1355  004454  013746  000244                  MOV     @#244,-(SP)             ;SAVE FP VECTOR
1356  004460  012737  004544  000244          MOV     #ILL,@#244              ;SETUP NEW VECTOR
1357  004466  012703  040000                  MOV     #40000,R3               ;SETUP DATA TO BE LOADED
1358  004472  170103                          LDFPS   R3                      ;LOAD FPS, FID=1
1359  004474  170020                          .WORD   170020                  ;ILLEGAL FP INSTRUCTION
1360  004476  170000                          CFCC
1361  004500  170201                          STFPS   R1                      ;SEE IF ERROR WAS RECORDED IN FPS
1362  004502  022701  140000                  CMP     #140000,R1              ;
1363  004506  001403                          BEQ     1$                      ;YES GO ON
1364  004510  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1365  004512  000033                          .WORD   33                      ;UNIQUE ERROR NUMBER
1366  004514  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1367                                                                  ;NO GO TO ERROR
1368  004516  170304                  1$:     STST    R4                      ;SEE IF FEC=2
1369  004520  022704  000002                  CMP     #2,R4                   ;
1370  004524  001403                          BEQ     2$                      ;YES GO ON
1371  004526  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1372  004530  000034                          .WORD   34                      ;UNIQUE ERROR NUMBER
1373  004532  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1374                                                                  ;NO GO TO ERROR
1375  004534  012637  000244          2$:     MOV     (SP)+,@#244             ;RESTORE VECTOR
1376
1377                                  ;
1378  004540  000167  000010                  JMP     FIN5
1379                                  ;
1380  004544                          ILL:
1381  004544  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1382  004546  000035                          .WORD   35                      ;UNIQUE ERROR NUMBER
1383  004550  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1384                                                                  ;FID ERROR
1385  004552  000006                          RTT                             ;RETURN
1386  004554                          FIN5:
1387                                  ;
1388  004554                          TSFP6:
1389                                  ;;*****************************************************************
1390                                  ;*TEST 10        TEST LDD, STD FSRC AND FDST MODE 1
```

```
1391                                    ;;*****************************************************************
1392  004554                            TST10:
1393  004554  005267  174224                  INC     $TESTN                  ;INCREMENT TEST NUMBER
1394  004560  005037  002122                  CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1395  004564  005004                          CLR     R4                      ;SETUP TO LOAD DATA
1396  004566  170104                          LDFPS   R4                      ;CLEAR FPS
1397  004570  170011                          SETD                            ;SET FD TO 1
1398  004572  013746  000004                  MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1399  004576  012737  004750  000004          MOV     #TSF6,@#4               ;SETUP NEW VECTOR
1400  004604  012704  004740                  MOV     #TS6DAT,R4              ;SETUP POINTER TO DATA
1401  004610  172414                          LDD     (R4),AC0                ; TEST INSTRUCTION
1402  004612  020427  004740                  CMP     R4,#TS6DAT              ;IS R4 CORRECT
1403  004616  001403                          BEQ     1$                      ;YES GO ON
1404  004620  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1405  004622  000036                          .WORD   36                      ;UNIQUE ERROR NUMBER
1406  004624  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1407                                                                  ;NO GO TO ERROR
1408  004626  012701  004730          1$:     MOV     #TS6DA,R1               ;SETUP POINTER TO DATA
1409  004632  012703  000004                  MOV     #4,R3                   ;INIT COUNTER
1410  004636  022421                  2$:     CMP     (R4)+,(R1)+             ;WAS SOURCE DATA ALTERED
1411  004640  001403                          BEQ     3$                      ;NO GO ON
1412  004642  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1413  004644  000037                          .WORD   37                      ;UNIQUE ERROR NUMBER
1414  004646  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1415                                                                  ;YES GO TO ERROR
1416  004650  077306                  3$:     SOB     R3,2$                   ;ARE WE DONE
1417  004652  012704  001136                  MOV     #TSTLOC,R4              ;SETUP POINTER FOR DATA
1418  004656  174014                          STD     AC0,(R4)                ; TEST INSTRUCTION
1419  004660  020427  001136                  CMP     R4,#TSTLOC                      ;IS R4 CORRECT
1420  004664  001403                          BEQ     4$                      ;YES GO ON
1421  004666  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1422  004670  000040                          .WORD   40                      ;UNIQUE ERROR NUMBER
1423  004672  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1424                                                                  ;NO GO TO ERROR
1425  004674  012701  004730          4$:     MOV     #TS6DA,R1               ;SETUP POINTER TO DATA
1426  004700  012703  000004                  MOV     #4,R3                   ;INIT COUNTER
1427  004704  022421                  5$:     CMP     (R4)+,(R1)+             ;IS DESTINATION DATA CORRECT
1428  004706  001403                          BEQ     6$                      ;YES GO ON
1429  004710  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1430  004712  000041                          .WORD   41                      ;UNIQUE ERROR NUMBER
1431  004714  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1432                                                                  ;NO GO TO ERROR
1433  004716  077306                  6$:     SOB     R3,5$                   ;ARE WE DONE
1434  004720  012637  000004                  MOV     (SP)+,@#4               ;RESTORE VECTOR
1435
1436                                    ;
1437  004724  000167  000030                  JMP     FIN6
1438                                    ;
1439  004730  177777                  TS6DA:  .WORD   177777
1440  004732  000000                          .WORD   000000
1441  004734  052525                          .WORD   052525
1442  004736  125252                          .WORD   125252
1443  004740  177777                  TS6DAT: .WORD   177777
1444  004742  000000                          .WORD   000000
1445  004744  052525                          .WORD   052525
1446  004746  125252                          .WORD   125252
```

```
1447
1448  004750                          TSF6:
1449  004750  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1450  004752  000042                        .WORD   42                      ;UNIQUE ERROR NUMBER
1451  004754  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1452                                                                  ;ODD ADDRESS TRAP
1453  004756  000006                        RTT                             ;RETURN
1454  004760                          FIN6:
1455                                  ;
1456  004760                          TSFP7:
1457                                  ;;*****************************************************************
1458                                  ;*TEST 11       TEST LDD, LDF FSRC MODE 0
1459                                  ;;*****************************************************************
1460  004760                          TST11:
1461  004760  005267  174020                INC     $TESTN                  ;INCREMENT TEST NUMBER
1462  004764  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1463  004770  012704  000200                MOV     #200,R4                 ;SETUP TO LOAD FPS
1464  004774  170104                        LDFPS   R4                      ;LOAD FPS, FD=1
1465  004776  013746  000004                MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1466  005002  012737  005154  000004        MOV     #TSF7,@#4               ;SETUP NEW VECTOR
1467  005010  012704  005164                MOV     #TS7DA1,R4              ;SETUP POINTER TO DATA
1468  005014  172414                        LDD     (R4),AC0                ;CLEAR AC0
1469  005016  012701  005174                MOV     #TS7DA2,R1              ;SETUP POINTER TO DATA
1470  005022  172511                        LDD     (R1),AC1                ;LOAD AC1 WITH DATA
1471  005024  172401                        LDD     AC1,AC0                 ; TEST INSTRUCTION
1472  005026  012704  001136                MOV     #TSTLOC,R4              ;
1473  005032  174114                        STD     AC1,(R4)                ;CHECK IF AC1 HAS BEEN ALTERED
1474  005034  004767  000072                JSR     PC,CHECK7               ;
1475  005040  012704  001136                MOV     #TSTLOC,R4                      ;SETUP POINTERS FOR DATA
1476  005044  012701  005174                MOV     #TS7DA2,R1              ;
1477  005050  174014                        STD     AC0,(R4)                ;CHECK IF AC0 RECEIVED CORRECT DATA
1478  005052  004767  000054                JSR     PC,CHECK7               ;
1479  005056  012701  005164                MOV     #TS7DA1,R1              ;SETUP POINTER TO DATA
1480  005062  172511                        LDD     (R1),AC1                ;CLEAR AC1
1481  005064  170001                        SETF                            ;SET FD=0
1482  005066  172401                        LDF     AC1,AC0                 ; TEST INSTRUCTION
1483  005070  170011                        SETD                            ;SET FD=1
1484  005072  012704  001136                MOV     #TSTLOC,R4              ;SETUP POINTER TO DATA
1485  005076  174114                        STD     AC1,(R4)                ;CHECK IF AC1 HAS BEEN ALTERED
1486  005100  004767  000026                JSR     PC,CHECK7               ;
1487  005104  012704  005204                MOV     #TS7DA4,R4              ;SETUP POINTERS FOR DATA
1488  005110  012701  001136                MOV     #TSTLOC,R1                      ;
1489  005114  174011                        STD     AC0,(R1)                ;CHECK IF AC0 HAS CORRECT DATA
1490  005116  004767  000010                JSR     PC,CHECK7               ;
1491  005122  012637  000004                MOV     (SP)+,@#4               ;RESTORE VECTOR
1492
1493                                  ;
1494  005126  000167  000062                JMP     FIN7
1495                                  ;
1496  005132  012703  000004        CHECK7: MOV     #4,R3                   ;INIT COUNTER
1497  005136  022421                 CHK7:   CMP     (R4)+,(R1)+             ;IS DATA OK
1498  005140  001403                        BEQ     CHK7                    ;YES GO ON
1499  005142  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1500  005144  000043                        .WORD   43                      ;UNIQUE ERROR NUMBER
1501  005146  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1502                                                                  ;NO GO TO ERROR
```

```
1503  005150  077306              CHK7:   SOB     R3,CHK7                 ;ARE WE DONE
1504  005152  000207                      RTS     PC                      ;YES RETURN
1505                              ;
1506  005154                      TSF7:
1507  005154  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1508  005156  000044                      .WORD   44                      ;UNIQUE ERROR NUMBER
1509  005160  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1510                                                                ;ODD ADDRESS TRAP
1511  005162  000006                      RTT                             ;RETURN
1512                              ;
1513  005164  000000              TS7DA1: .WORD   0
1514  005166  000000                      .WORD   0
1515  005170  000000                      .WORD   0
1516  005172  000000                      .WORD   0
1517  005174  037641              TS7DA2: .WORD   37641
1518  005176  065121                      .WORD   65121
1519  005200  037373                      .WORD   37373
1520  005202  022265                      .WORD   22265
1521  005204  000000              TS7DA4: .WORD   0
1522  005206  000000                      .WORD   0
1523  005210  037373                      .WORD   37373
1524  005212  022265                      .WORD   22265
1525  005214                      FIN7:
1526                              ;
1527  005214                      TSFP10:
1528                              ;;*********************************************************************
1529                              ;*TEST 12       TEST STD, STF FDST MODE 0
1530                              ;;*********************************************************************
1531  005214                      TST12:
1532  005214  005267  173564              INC     $TESTN                  ;INCREMENT TEST NUMBER
1533  005220  005037  002122              CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1534  005224  012704  000200              MOV     #200,R4                 ;SETUP TO LOAD FPS
1535  005230  170104                      LDFPS   R4                      ;LOAD FPS, FD=1
1536  005232  013746  000004              MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1537  005236  012737  005410  000004      MOV     #TSF10,@#4              ;SETUP NEW VECTOR
1538  005244  012704  005420              MOV     #TS10D1,R4              ;SETUP POINTER TO DATA
1539  005250  172414                      LDD     (R4),AC0                ;CLEAR AC0
1540  005252  012701  005430              MOV     #TS10D2,R1              ;SETUP POINTER TO DATA
1541  005256  172511                      LDD     (R1),AC1                ;LOAD AC1 WITH DATA
1542  005260  174100                      STD     AC1,AC0                 ; TEST INSTRUCTION
1543  005262  012704  001136              MOV     #TSTLOC,R4              ;
1544  005266  174114                      STD     AC1,(R4)                ;CHECK IF AC1 HAS BEEN ALTERED
1545  005270  004767  000072              JSR     PC,CHEC10               ;
1546  005274  012704  001136              MOV     #TSTLOC,R4              ;SETUP POINTERS FOR DATA
1547  005300  012701  005430              MOV     #TS10D2,R1              ;
1548  005304  174014                      STD     AC0,(R4)                ;CHECK IF AC0 RECEIVED CORRECT DATA
1549  005306  004767  000054              JSR     PC,CHEC10               ;
1550  005312  012701  005420              MOV     #TS10D1,R1              ;SETUP POINTER TO DATA
1551  005316  172511                      LDD     (R1),AC1                ;CLEAR AC1
1552  005320  170001                      SETF                            ;SET FD=0
1553  005322  174100                      STF     AC1,AC0                 ; TEST INSTRUCTION
1554  005324  170011                      SETD                            ;SET FD=1
1555  005326  012704  001136              MOV     #TSTLOC,R4              ;SETUP POINTER TO DATA
1556  005332  174114                      STD     AC1,(R4)                ;CHECK IF AC1 HAS BEEN ALTERED
1557  005334  004767  000026              JSR     PC,CHEC10               ;
1558  005340  012704  005440              MOV     #TS10D4,R4              ;SETUP POINTERS FOR DATA
```

```
1559  005344  012701  001136          MOV     #TSTLOC,R1
1560  005350  174011                  STD     AC0,(R1)        ;CHECK IF AC0 HAS CORRECT DATA
1561  005352  004767  000010          JSR     PC,CHEC10       ;
1562  005356  012637  000004          MOV     (SP)+,@#4       ;RESTORE VECTOR
1563
1564                            ;
1565  005362  000167  000062          JMP     FIN10
1566                            ;
1567  005366  012703  000004  CHEC10: MOV     #4,R3           ;INIT COUNTER
1568  005372  022421           CH10:  CMP     (R4)+,(R1)+     ;IS DATA OK
1569  005374  001403                  BEQ     CHK10           ;YES GO ON
1570  005376  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
1571  005400  000045                  .WORD   45              ;UNIQUE ERROR NUMBER
1572  005402  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
1573                                                  ;NO GO TO ERROR
1574  005404  077306           CHK10: SOB     R3,CH10         ;ARE WE DONE
1575  005406  000207                  RTS     PC              ;YES RETURN
1576                            ;
1577  005410                   TSF10:
1578  005410  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
1579  005412  000046                  .WORD   46              ;UNIQUE ERROR NUMBER
1580  005414  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
1581                                                  ;ODD ADDRESS TRAP
1582  005416  000006                  RTT                     ;
1583                            ;
1584  005420  000000           TS10D1: .WORD   0
1585  005422  000000                  .WORD   0
1586  005424  000000                  .WORD   0
1587  005426  000000                  .WORD   0
1588  005430  177777           TS10D2: .WORD   177777
1589  005432  111236                  .WORD   111236
1590  005434  100045                  .WORD   100045
1591  005436  003651                  .WORD   3651
1592  005440  000000           TS10D4: .WORD   0
1593  005442  000000                  .WORD   0
1594  005444  100045                  .WORD   100045
1595  005446  003651                  .WORD   3651
1596  005450                   FIN10:
1597                            ;
1598  005450                   TSFP11:
1599                            ;;*************************************************************
1600                            ;*TEST 13        TEST FDST SINGLE OPERAND MODE 0
1601                            ;;*************************************************************
1602  005450                   TST13:
1603  005450  005267  173330          INC     $TESTN                  ;INCREMENT TEST NUMBER
1604  005454  005037  002122          CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1605  005460  012704  000200          MOV     #200,R4                 ;SETUP TO LOAD FPS
1606  005464  170104                  LDFPS   R4                      ;SET FD=1
1607  005466  012704  005550          MOV     #TS11D1,R4              ;SETUP POINTER TO DATA
1608  005472  172414                  LDD     (R4),AC0                ;LOAD ALL ONES TO AC0
1609  005474  170400                  CLRD    AC0                     ; TEST INSTRUCTION
1610  005476  170203                  STFPS   R3                      ;GET FPS
1611  005500  012704  001136          MOV     #TSTLOC,R4              ;
1612  005504  174014                  STD     AC0,(R4)                ;CHECK AC0 FOR ALL ZEROES
1613  005506  012701  000004          MOV     #4,R1                   ;INIT COUNTER
1614  005512  022427  000000  1$:     CMP     (R4)+,#0                ;
```

```
1615  005516  001403                        BEQ     2$                      ;OK GO ON
1616  005520  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1617  005522  000047                        .WORD   47                      ;UNIQUE ERROR NUMBER
1618  005524  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1619                                                                ;NO GO TO ERROR
1620  005526  077107                2$:     SOB     R1,1$                   ;ARE WE DONE
1621  005530  020327  000204              CMP     R3,#0204                ;CHECK FPS
1622  005534  001403                        BEQ     3$                      ;OK GO ON
1623  005536  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1624  005540  000050                        .WORD   50                      ;UNIQUE ERROR NUMBER
1625  005542  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1626                                                                ;NO GO TO ERROR
1627  005544                        3$:
1628
1629                                ;
1630  005544  000167  000010              JMP     FIN11
1631                                ;
1632  005550  177777                TS11D1: .WORD   177777
1633  005552  177777                        .WORD   177777
1634  005554  177777                        .WORD   177777
1635  005556  177777                        .WORD   177777
1636  005560                        FIN11:
1637                                ;
1638  005560                        TSFP12:
1639                                ;;*****************************************************************
1640                                ;*TEST 14       TEST FDST SOP MODE 0 WITH ILLEGAL AC7
1641                                ;;*****************************************************************
1642  005560                        TST14:
1643  005560  005267  173220              INC     $TESTN                  ;INCREMENT TEST NUMBER
1644  005564  005037  002122              CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1645  005570  012703  040200              MOV     #40200,R3               ;SETUP TO LOAD FPS
1646  005574  170103                      LDFPS   R3                      ;SET FID=1, AND FD=1
1647  005576  170407                      CLRD    AC7                     ; TEST INSTRUCTION
1648  005600  170204                      STFPS   R4                      ;GET FPS
1649  005602  170305                      STST    R5                      ;GET FEC
1650  005604  022704  140200              CMP     #140200,R4              ;IS FPS CORRECT
1651  005610  001403                      BEQ     1$                      ;YES GO ON
1652  005612  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1653  005614  000051                      .WORD   51                      ;UNIQUE ERROR NUMBER
1654  005616  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1655                                                              ;NO GO TO ERROR
1656  005620  022705  000002        1$:     CMP     #2,R5                   ;IS FEC CORRECT
1657  005624  001403                      BEQ     2$                      ;YES GO ON
1658  005626  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1659  005630  000052                      .WORD   52                      ;UNIQUE ERROR NUMBER
1660  005632  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1661                                                              ;NO GO TO ERROR
1662  005634                        2$:
1663
1664                                ;
1665  005634                        TSFP13:
1666                                ;;*****************************************************************
1667                                ;*TEST 15       TEST FDST SOP MODE 1
1668                                ;;*****************************************************************
1669  005634                        TST15:
1670  005634  005267  173144              INC     $TESTN                  ;INCREMENT TEST NUMBER
```

```
1671  005640  013746  000004          MOV     @#4,-(SP)           ;SAVE TIMEOUT VECTOR
1672  005644  012737  005774  000004  MOV     #TSF13,@#4          ;SETUP NEW VECTOR
1673  005652  005037  002122          CLR     @#TRPFLG            ;CLEAR TRAP FLAG
1674  005656  012702  000200          MOV     #200,R2             ;SETUP TO LOAD FPS
1675  005662  170102                  LDFPS   R2                  ;SET FD=1
1676  005664  012705  000004          MOV     #4,R5               ;INIT COUNTER
1677  005670  012704  001136          MOV     #TSTLOC,R4          ;SETUP POINTER TO TEST LOCATION
1678  005674  012724  177777  100$:   MOV     #177777,(R4)+       ;MOVE ALL ONES TO TEST LOCATION
1679  005700  077503                  SOB     R5,100$             ;ARE WE DONE
1680  005702  012702  001136          MOV     #TSTLOC,R2                  ;SETUP POINTER TO DATA
1681  005706  170412                  CLRD    (R2)                ; TEST INSTRUCTION
1682  005710  170203                  STFPS   R3                  ;GET FPS
1683  005712  020227  001136          CMP     R2,#TSTLOC                  ;WAS R2 ALTERED
1684  005716  001403                  BEQ     1$                  ;NO GO ON
1685  005720  104000                  ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
1686  005722  000053                  .WORD   53                  ;UNIQUE ERROR NUMBER
1687  005724  002013                  .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
1688                                                      ;YES GO TO ERROR
1689  005726  012701  000004  1$:     MOV     #4,R1               ;INIT COUNTER
1690  005732  022227  000000  2$:     CMP     (R2)+,#0            ;CHECK LOCATION FOR 0
1691  005736  001403                  BEQ     3$                  ;OK GO ON
1692  005740  104000                  ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
1693  005742  000054                  .WORD   54                  ;UNIQUE ERROR NUMBER
1694  005744  002013                  .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
1695                                                      ;NO GO TO ERROR
1696  005746  077107          3$:     SOB     R1,2$               ;ARE WE DONE
1697  005750  020327  000204          CMP     R3,#204             ;CHECK FPS
1698  005754  001403                  BEQ     4$                  ;OK GO ON
1699  005756  104000                  ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
1700  005760  000055                  .WORD   55                  ;UNIQUE ERROR NUMBER
1701  005762  002013                  .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
1702                                                      ;NO GO TO ERROR
1703  005764  012637  000004  4$:     MOV     (SP)+,@#4           ;RESTORE VECTOR
1704
1705                          ;
1706  005770  000167  000010          JMP     FIN13
1707                          ;
1708  005774                  TSF13:
1709  005774  104000                  ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
1710  005776  000056                  .WORD   56                  ;UNIQUE ERROR NUMBER
1711  006000  002013                  .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
1712                                                      ;ODD ADDRESS TRAP
1713  006002  000006                  RTT                         ;RETURN
1714                          ;
1715  006004                  FIN13:
1716                          ;
1717  006004                  TSFP14:
1718                          ;;*****************************************************************
1719                          ;*TEST 16        TEST FDST SOP MODE 2
1720                          ;;*****************************************************************
1721  006004                  TST16:
1722  006004  005267  172774          INC     $TESTN              ;INCREMENT TEST NUMBER
1723  006010  013746  000004          MOV     @#4,-(SP)           ;SAVE TIMEOUT VECTOR
1724  006014  012737  006150  000004  MOV     #TSF14,@#4          ;SETUP NEW VECTOR
1725  006022  005037  002122          CLR     @#TRPFLG            ;CLEAR TRAP FLAG
1726  006026  012702  000200          MOV     #200,R2             ;SETUP TO LOAD FPS
```

M3


```
1727  006032  170102                        LDFPS   R2              ;SET FD=1
1728  006034  012705  000004                MOV     #4,R5           ;INIT COUNTER
1729  006040  012704  001136                MOV     #TSTLOC,R4      ;SETUP POINTER TO TEST LOCATION
1730  006044  012724  177777      100$:     MOV     #177777,(R4)+   ;MOVE ALL ONES TO TEST LOCATION
1731  006050  077503                        SOB     R5,100$         ;ARE WE DONE
1732  006052  012702  001136                MOV     #TSTLOC,R2              ;SETUP POINTER TO DATA
1733  006056  170422                        CLRD    (R2)+           ; TEST INSTRUCTION
1734  006060  170203                        STFPS   R3              ;GET FPS
1735  006062  020227  001146                CMP     R2,#TSTLOC+10           ;IS R2 CORRECT
1736  006066  001403                        BEQ     1$              ;YES GO ON
1737  006070  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
1738  006072  000057                        .WORD   57              ;UNIQUE ERROR NUMBER
1739  006074  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
1740                                                        ;NO GO TO ERROR
1741  006076  012702  001136      1$:       MOV     #TSTLOC,R2              ;SETUP POINTER TO DATA
1742  006102  012701  000004                MOV     #4,R1           ;INIT COUNTER
1743  006106  022227  000000      2$:       CMP     (R2)+,#0        ;CHECK LOCATION FOR 0
1744  006112  001403                        BEQ     3$              ;YES GO ON
1745  006114  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
1746  006116  000060                        .WORD   60              ;UNIQUE ERROR NUMBER
1747  006120  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
1748                                                        ;NO GO TO ERROR
1749  006122  077107      3$:       SOB     R1,2$           ;ARE WE DONE
1750  006124  020327  000204                CMP     R3,#204         ;CHECK FPS
1751  006130  001403                        BEQ     4$              ;OK GO ON
1752  006132  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
1753  006134  000061                        .WORD   61              ;UNIQUE ERROR NUMBER
1754  006136  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
1755                                                        ;NO GO TO ERROR
1756  006140  012637  000004      4$:       MOV     (SP)+,@#4       ;RESTORE VECTOR
1757
1758                                        ;
1759  006144  000167  000010                JMP     FIN14
1760                                        ;
1761  006150                                TSF14:
1762  006150  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1763  006152  000062                        .WORD   62                      ;UNIQUE ERROR NUMBER
1764  006154  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1765                                                        ;ODD ADDRESS TRAP
1766  006156  000006                        RTT                             ;RETURN
1767                                        ;
1768  006160                                FIN14:
1769                                        ;
1770  006160                                TSFP15:
1771                                        ;;*****************************************************************
1772                                        ;*TEST 17        TEST FDST SOP MODE 3
1773                                        ;;*****************************************************************
1774  006160                                TST17:
1775  006160  005267  172620                INC     $TESTN                  ;INCREMENT TEST NUMBER
1776  006164  013746  000004                MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1777  006170  012737  006370  000004        MOV     #TSF15,@#4              ;SETUP NEW VECTOR
1778  006176  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1779  006202  012702  000200                MOV     #200,R2                 ;SETUP TO LOAD FPS
1780  006206  170102                        LDFPS   R2                      ;SET FD=1
1781  006210  012705  000011                MOV     #9.,R5                  ;INIT COUNTER
1782  006214  012704  001136                MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
```

```
1783  006220  012724  177777          100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
1784  006224  077503                          SOB     R5,100$                 ;ARE WE DONE
1785  006226  012737  001150  001136          MOV     #TSTLOC+12,@#TSTLOC             ;INIT TEST LOCATION
1786  006234  012702  001136                  MOV     #TSTLOC,R2                      ;SETUP POINTER TO DATA
1787  006240  170432                          CLRD    @(R2)+                  ; TEST INSTRUCTION
1788  006242  170203                          STFPS   R3                      ;GET FPS
1789  006244  020227  001140                  CMP     R2,#TSTLOC+2                    ;IS R2 CORRECT
1790  006250  001403                          BEQ     1$                      ;YES GO ON
1791  006252  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1792  006254  000063                          .WORD   63                      ;UNIQUE ERROR NUMBER
1793  006256  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1794                                                                  ;NO GO TO ERROR
1795  006260  012702  001136          1$:     MOV     #TSTLOC,R2                      ;SETUP POINTER TO DATA
1796  006264  022227  001150                  CMP     (R2)+,#TSTLOC+12                ;IS DATA CORRECT
1797  006270  001403                          BEQ     2$                      ;YES GO ON
1798  006272  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1799  006274  000064                          .WORD   64                      ;UNIQUE ERROR NUMBER
1800  006276  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1801                                                                  ;NO GO TO ERROR
1802  006300  012701  000004          2$:     MOV     #4,R1                   ;INIT COUNTER
1803  006304  022227  177777          3$:     CMP     (R2)+,#177777           ;IS LOCATION ALL ONES
1804  006310  001403                          BEQ     4$                      ;YES GO ON
1805  006312  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1806  006314  000065                          .WORD   65                      ;UNIQUE ERROR NUMBER
1807  006316  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1308                                                                  ;NO GO TO ERROR
1809  006320  077107                  4$:     SOB     R1,3$                   ;ARE WE DONE
1810  006322  012701  000004                  MOV     #4,R1                   ;INIT COUNTER
1811  006326  022227  000000          5$:     CMP     (R2)+,#0                ;IS LOCATION 0
1812  006332  001403                          BEQ     6$                      ;YES GO ON
1813  006334  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1814  006336  000066                          .WORD   66                      ;UNIQUE ERROR NUMBER
1815  006340  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1816                                                                  ;NO GO TO ERROR
1817  006342  077107                  6$:     SOB     R1,5$                   ;ARE WE DONE
1818  006344  020327  000204                  CMP     R3,#0204                ;CHECK FPS
1819  006350  001403                          BEQ     7$                      ;OK GO ON
1820  006352  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1821  006354  000067                          .WORD   67                      ;UNIQUE ERROR NUMBER
1822  006356  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1823                                                                  ;NO GO TO ERROR
1824  006360  012637  000004          7$:     MOV     (SP)+,@#4               ;RESTORE VECTOR
1825
1826                                  ;
1827  006364  000167  000010                  JMP     FIN15
1828                                  ;
1829  006370                          TSF15:
1830  006370  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1831  006372  000070                          .WORD   70                      ;UNIQUE ERROR NUMBER
1832  006374  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1833                                                                  ;ODD ADDRESS TRAP
1834  006376  000006                          RTT                             ;RETURN
1835                                  ;
1836  006400                          FIN15:
1837                                  ;
1838  006400                          TSFP16:
```

```
1839                                    ;;*****************************************************************
1840                                    ;*TEST 20       TEST FDST SOP MODE 4
1841                                    ;;*****************************************************************
1842  006400                            TST20:
1843  006400  005267  172400                   INC     @TESTN                  ;INCREMENT TEST NUMBER
1844  006404  013746  000004                   MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1845  006410  012737  006562  000004           MOV     #TSF16,@#4              ;SETUP NEW VECTOR
1846  006416  005037  002122                   CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1847  006422  012702  000200                   MOV     #200,R2                 ;SETUP TO LOAD FPS
1848  006426  170102                           LDFPS   R2                      ;SET FD=1
1849  006430  012705  000010                   MOV     #8.,R5                  ;INIT COUNTER
1850  006434  012704  001136                   MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
1851  006440  012724  177777           100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
1852  006444  077503                           SOB     R5,100$                 ;ARE WE DONE
1853  006446  012702  001146                   MOV     #TSTLOC+10,R2                   ;SETUP POINTER TO DATA
1854  006452  170442                           CLRD    -(R2)                   ; TEST INSTRUCTION
1855  006454  170203                           STFPS   R3                      ;GET FPS
1856  006456  020227  001136                   CMP     R2,#TSTLOC                      ;IS R2 CORRECT
1857  006462  001403                           BEQ     1$                      ;YES GO ON
1858  006464  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1859  006466  000071                           .WORD   71                      ;UNIQUE ERROR NUMBER
1860  006470  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1861                                                                    ;NO GO TO ERROR
1862  006472  012701  000004           1$:     MOV     #4,R1                   ;INIT COUNTER
1863  006476  022227  000000           2$:     CMP     (R2)+,#0                ;IS LOCATION 0
1864  006502  001403                           BEQ     3$                      ;YES GO ON
1865  006504  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1866  006506  000072                           .WORD   72                      ;UNIQUE ERROR NUMBER
1867  006510  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1868                                                                    ;NO GO TO ERROR
1869  006512  077107                   3$:     SOB     R1,2$                   ;ARE WE DONE
1870  006514  012701  000004                   MOV     #4,R1                   ;INIT COUNTER
1871  006520  022227  177777           4$:     CMP     (R2)+,#177777           ;IS LOCATION UNCHANGED
1872  006524  001403                           BEQ     5$                      ;YES GO ON
1873  006526  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1874  006530  000073                           .WORD   73                      ;UNIQUE ERROR NUMBER
1875  006532  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1876                                                                    ;NO GO TO ERROR
1877  006534  077107                   5$:     SOB     R1,4$                   ;ARE WE DONE
1878  006536  020327  000204                   CMP     R3,#204                 ;CHECK FPS
1879  006542  001403                           BEQ     6$                      ;OK GO ON
1880  006544  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1881  006546  000074                           .WORD   74                      ;UNIQUE ERROR NUMBER
1882  006550  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1883                                                                    ;NO GO TO ERROR
1884  006552  012637  000004           6$:     MOV     (SP)+,@#4               ;RESTORE VECTOR
1885
1886                                    ;
1887  006556  000167  000010                   JMP     FIN16
1888                                    ;
1889  006562                            TSF16:
1890  006562  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1891  006564  000075                           .WORD   75                      ;UNIQUE ERROR NUMBER
1892  006566  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1893                                                                    ;ODD ADDRESS TRAP
1894  006570  000006                           RTT                             ;RETURN
```

```
1895
1896  006572                                FIN16:
1897
1898  006572                                TSFP17:
1899                                        ;;*****************************************************************
1900                                        ;*TEST 21        TEST FDST SOP MODE 5
1901                                        ;;*****************************************************************
1902  006572                                TST21:
1903  006572  005267  172206                       INC     @TESTN                  ;INCREMENT TEST NUMBER
1904  006576  013746  000004                       MOV     @04,-(SP)               ;SAVE TIMEOUT VECTOR
1905  006602  012737  006776  000004               MOV     #TSF17,@04              ;SETUP NEW VECTOR
1906  006610  005037  002122                       CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1907  006614  012702  000200                       MOV     #200,R2                 ;SETUP TO LOAD FPS
1908  006620  170102                               LDFPS   R2                      ;SET FD=1
1909  006622  012705  000011                       MOV     #9.,R5                  ;INIT COUNTER
1910  006626  012704  001136                       MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
1911  006632  012724  177777               100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
1912  006636  077503                               SOB     R5,100$                 ;ARE WE DONE
1913  006640  012737  001150  001136               MOV     #TSTLOC+12,@#TSTLOC             ;INIT TEST LOCATION
1914  006646  012702  001140                       MOV     #TSTLOC+2,R2                    ;SETUP POINTER TO DATA
1915  006652  170452                               CLRD    @-(R2)                  ; TEST INSTRUCTION
1916  006654  170203                               STFPS   R3                      ;GET FPS
1917  006656  020227  001136                       CMP     R2,#TSTLOC                      ;IS R2 CORRECT
1918  006662  001403                               BEQ     1$                      ;YES GO ON
1919  006664  104000                               ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1920  006666  000076                               .WORD   76                      ;UNIQUE ERROR NUMBER
1921  006670  002013                               .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1922                                                                          ;NO GO TO ERROR
1923  006672  022227  001150               1$:     CMP     (R2)+,#TSTLOC+12                ;IS DATA CORRECT
1924  006676  001403                               BEQ     2$                      ;YES GO ON
1925  006700  104000                               ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1926  006702  000077                               .WORD   77                      ;UNIQUE ERROR NUMBER
1927  006704  002013                               .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1928                                                                          ;NO GO TO ERROR
1929  006706  012701  000004               2$:     MOV     #4,R1                   ;INIT COUNTER
1930  006712  022227  177777               3$:     CMP     (R2)+,#177777           ;IS LOCATION ALL ONES
1931  006716  001403                               BEQ     4$                      ;YES GO ON
1932  006720  104000                               ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1933  006722  000100                               .WORD   100                     ;UNIQUE ERROR NUMBER
1934  006724  002013                               .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1935                                                                          ;NO GO TO ERROR
1936  006726  077107                       4$:     SOB     R1,3$                   ;ARE WE DONE
1937  006730  012701  000004                       MOV     #4,R1                   ;INIT COUNTER
1938  006734  022227  000000               5$:     CMP     (R2)+,#0                ;IS LOCATION 0
1939  006740  001403                               BEQ     6$                      ;YES GO ON
1940  006742  104000                               ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1941  006744  000101                               .WORD   101                     ;UNIQUE ERROR NUMBER
1942  006746  002013                               .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1943                                                                          ;NO GO TO ERROR
1944  006750  077107                       6$:     SOB     R1,5$                   ;ARE WE DONE
1945  006752  020527  000204                       CMP     R5,#204                 ;CHECK FPS
1946  006756  001403                               BEQ     7$                      ;OK GO ON
1947  006760  104000                               ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1948  006762  000102                               .WORD   102                     ;UNIQUE ERROR NUMBER
1949  006764  002013                               .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1950                                                                          ;NO GO TO ERROR
```

```
1951  006766  012637  000004          7$:     MOV     (SP)+,@#4               ;RESTORE VECTOR
1952
1953                                  ;
1954  006772  000167  000010          JMP     FIN17
1955                                  ;
1956  006776                        TSF17:
1957  006776  104000                 ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
1958  007000  000103                 .WORD   103                             ;UNIQUE ERROR NUMBER
1959  007002  002013                 .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
1960                                                          ;ODD ADDRESS TRAP
1961  007004  000006                 RTT                                     ;RETURN
1962                                  ;
1963  007005                        FIN17:
1964                                  ;
1965  007006                        TSFP20:
1966                                  ;;*********************************************************************
1967                                  ;*TEST 22       TEST FDST SOP MODE 6
1968                                  ;;*********************************************************************
1969  007006                        TST22:
1970  007006  005267  171772          INC     $TESTN                          ;INCREMENT TEST NUMBER
1971  007012  005037  002122          CLR     @#FPFLG                         ;CLEAR TRAP FLAG
1972  007016  013746  000004          MOV     @#4,-(SP)                       ;SAVE TIMEOUT VECTOR
1973  007022  012737  007176  000004  MOV     #1$F20,@#4                      ;SETUP NEW VECTOR
1974  007030  012702  000200          MOV     #200,R2                         ;SETUP TO LOAD FPS
1975  007034  170102                  LDFPS   R2                              ;SET FD=1
1976  007036  012705  000010          MOV     #8.,R5                          ;INIT COUNTER
1977  007042  012704  001136          MOV     #$TSTLOC,R4                     ;SETUP POINTER TO TEST LOCATION
1978  007046  012724  177777  100$:   MOV     #177777,(R4)+                   ;INIT TEST LOCATION
1979  007052  077503                  SOB     R5,100$                         ;ARE WE DONE
1980  007054  012702  001137          MOV     #$TSTLOC+1,R2                           ;SETUP POINTER TO DATA
1981  007060  170452  000007          CLSD    7(R2)                           ; TEST INSTRUCTION
1982  007064  170203                  STFPS   R3                              ;GET FPS
1983  007066  020227  001137          CMP     R2,#$TSTLOC+1                           ;IS R2 CORRECT
1984  0070 2  001403                  BEQ     1$                              ;YES GO ON
1985  007074  104000                  ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
1986  007076  000104                  .WORD   104                             ;UNIQUE ERROR NUMBER
1987  007100  002013                  .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
1988                                                          ;NO GO TO ERROR
1989  007102  012702  001136  1$:     MOV     #$TSTLOC,R2                             ;SETUP POINTER TO DATA
1990  007106  012701  000004          MOV     #4,R1                           ;INIT COUNTER
1991  007112  022227  177777  2$:     CMP     (R2)+,#177777                   ;IS DATA CORRECT
1992  007116  001403                  BEQ     3$                              ;YES GO ON
1993  007120  104000                  ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
1994  007122  000105                  .WORD   105                             ;UNIQUE ERROR NUMBER
1995  007124  002013                  .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
1996                                                          ;NO GO TO ERROR
1997  007126  077107  3$:     SOB     R1,2$                           ;ARE WE DONE
1998  007130  012701  000004          MOV     #4,R1                           ;INIT COUNTER
1999  007134  022227  000000  4$:     CMP     (R2)+,#0                        ;IS DATA CORRECT
2000  007140  001403                  BEQ     5$                              ;YES GO ON
2001  007142  104000                  ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2002  007144  000106                  .WORD   106                             ;UNIQUE ERROR NUMBER
2003  007146  002013                  .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
2004                                                          ;NO GO TO ERROR
2005  007150  077107  5$:     SOB     R1,4$                           ;ARE WE DONE
2006  007152  020327  000204          CMP     R3,#0204                        ;IS FPS CORRECT
```

```
2007  007156  001403                          BEQ     6$                      ;YES GO ON
2008  007160  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2009  007162  000107                          .WORD   107                     ;UNIQUE ERROR NUMBER
2010  007164  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2011                                                                  ;NO GO TO ERROR
2012  007166  012637  000004          6$:     MOV     (SP)+,@#4               ;RESTORE VECTOR
2013
2014                                  ;
2015  007172  000167  000010                  JMP     FIN20
2016                                  ;
2017  007176                          TSF20:
2018  007176  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2019  007200  000110                          .WORD   110                     ;UNIQUE ERROR NUMBER
2020  007202  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2021                                                                  ;ODD ADDRESS TRAP
2022  007204  000006                          RTT                             ;RETURN
2023                                  ;
2024  007206                          FIN20:
2025                                  ;
2026  007206                          TSFP21:
2027                                  ;;*****************************************************************
2028                                  ;*TEST 23        TEST FDST SOP MODE 7
2029                                  ;;*****************************************************************
2030  007206                          TST23:
2031  007206  005267  171572                  INC     $TESTN                  ;INCREMENT TEST NUMBER
2032  007212  005037  002122                  CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2033  007216  013746  000004                  MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
2034  007222  012737  007420  000004          MOV     #TSF21,@#4              ;SETUP NEW VECTOR
2035  007230  012702  000200                  MOV     #200,R2                 ;SETUP TO LOAD FPS
2036  007234  170102                          LDFPS   R2                      ;SET FD=1
2037  007236  012705  000010                  MOV     #8.,R5                  ;INIT COUNTER
2038  007242  012704  001136                  MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2039  007246  012724  177777          100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
2040  007252  077503                          SOB     R5,100$                 ;ARE WE DONE
2041  007254  012737  001136  001146          MOV     #TSTLOC,@#TSTLOC+10     ;INIT TEST LOCATION
2042  007262  012702  001141                  MOV     #TSTLOC+3,R2            ;SETUP POINTER TO DATA
2043  007266  170472  000005                  CLRD    @5(R2)                  ;***TEST INSTRUCTION***
2044  007272  170203                          STFPS   R3                      ;GET FPS
2045  007274  020227  001141                  CMP     R2,#TSTLOC+3            ;IS R2 CORRECT
2046  007300  001403                          BEQ     1$                      ;YES GO ON
2047                                                                  ;NO GO TO ERROR
2048  007302  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2049  007304  000111                          .WORD   111                     ;UNIQUE ERROR NUMBER
2050  007306  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2051  007310  012702  001136          1$:     MOV     #TSTLOC,R2              ;SETUP POINTER TO DATA
2052  007314  012701  000004                  MOV     #4,R1                   ;INIT COUNTER
2053  007320  022227  000000          2$:     CMP     (R2)+,#0                ;IS DATA CORRECT
2054  007324  001403                          BEQ     3$                      ;YES GO ON
2055  007326  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2056  007330  000112                          .WORD   112                     ;UNIQUE ERROR NUMBER
2057  007332  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2058                                                                  ;NO GO TO ERROR
2059  007334  077107                  3$:     SOB     R1,2$                   ;ARE WE DONE
2060  007336  022227  001136                  CMP     (R2)+,#TSTLOC           ;IS DATA CORRECT
2061  007342  001403                          BEQ     4$                      ;YES GO ON
2062  007344  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
```

```
2063  007346  000113                        .WORD   113             ;UNIQUE ERROR NUMBER
2064  007350  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2065                                                          ;NO GO TO ERROR
2066  007352  012701  000003        4$:     MOV     #3,R1           ;INIT COUNTER
2067  007356  022227  177777        5$:     CMP     (R2)+,#177777   ;IS DATA CORRECT
2068  007362  001403                        BEQ     6$              ;YES GO ON
2069  007364  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2070  007366  000114                        .WORD   114             ;UNIQUE ERROR NUMBER
2071  007370  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2072                                                          ;NO GO TO ERROR
2073  007372  077107                6$:     SOB     R1,5$           ;ARE WE DONE
2074  007374  020327  000204                CMP     R3,#204         ;CHECK FPS
2075  007400  001403                        BEQ     7$              ;OK GO ON
2076  007402  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2077  007404  000115                        .WORD   115             ;UNIQUE ERROR NUMBER
2078  007406  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2079                                                          ;NO GO TO ERROR
2080  007410  012637  000004        7$:     MOV     (SP)+,@#4       ;RESTORE VECTOR
2081
2082                                ;
2083  007414  000167  000010                JMP     FIN21
2084                                ;
2085  007420                        TSF21:
2086  007420  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2087  007422  000116                        .WORD   116             ;UNIQUE ERROR NUMBER
2088  007424  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2089                                                          ;ODD ADDRESS TRAP
2090  007426  000006                        RTT                     ;RETURN
2091                                ;
2092  007430                        FIN21:  ;
2093  007430                        TSFP22:
2094                                ;;**********************************************************************
2095                                ;*TEST 24        TEST FDST SOP MODE 3 GR7
2096                                ;;**********************************************************************
2097  007430                        TST24:
2098  007430  005267  171350                INC     $TESTN                  ;INCREMENT TEST NUMBER
2099  007434  005077  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2100  007440  013746  000004                MOV     @#4,-(SP)               ;SAVE TIME OUT VECTOR
2101  007444  012737  007606  000004        MOV     #TSF22,@#4              ;SETUP NEW VECTOR
2102  007452  012702  000200                MOV     #200,R2                 ;SETUP TO LOAD FPS
2103  007456  170102                        LDFPS   R2                      ;SET FD=1
2104  007460  012705  000010                MOV     #8.,R5                  ;INIT COUNTER
2105  007464  012704  001136                MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2106  007470  012724  177777        100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
2107  007474  077503                        SOB     R5,100$                 ;ARE WE DONE
2108  007476  012737  001146  001136        MOV     #TSTLOC+10,@#TSTLOC             ;INIT TEST LOCATION
2109  007504  170437  001136                CLRD    @#TSTLOC                ; TEST INSTRUCTION
2110  007510  170203                        STFPS   R3                      ;GET FPS
2111  007512  012702  001136                MOV     #TSTLOC,R2                      ;SETUP POINTER TO DATA
2112  007516  012701  000004                MOV     #4,R1                   ;INIT COUNTER
2113  007522  022227  000000        1$:     CMP     (R2)+,#0                ;IS DATA CORRECT
2114  007526  001403                        BEQ     2$                      ;YES GO ON
2115  007530  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2116  007532  000117                        .WORD   117                     ;UNIQUE ERROR NUMBER
2117  007534  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2118                                                          ;NO GO TO ERROR
```

```
2119  007536  077107           2$:     SOB     R1,1$                   ;ARE WE DONE
2120  007540  012701  000004           MOV     #4,R1                   ;INIT COUNTER
2121  007544  022227  177777     3$:   CMF     (R2)+,#177777           ;IS DATA CORRECT
2122  007550  001403                   BEQ     4$                      ;YES GO ON
2123  007552  104000                   ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2124  007554  000120                   .WORD   120                     ;UNIQUE ERROR NUMBER
2125  007556  002013                   .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2126                                                          ;NO GO TO ERROR
2127  007560  077107           4$:     SOB     R1,3$                   ;ARE WE DONE
2128  007562  020327  000204           CMF     R3,#204                 ;CHECK FPS
2129  007566  001403                   BEQ     5$                      ;OK GO ON
2130  007570  104000                   ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2131  007572  000121                   .WORD   121                     ;UNIQUE ERROR NUMBER
2132  007574  002013                   .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2133                                                          ;NO GO TO ERROR
2134  007576  012637  000004     5$:   MOV     (SP)+,@#4               ;RESTORE VECTOR
2135
2136                               ;
2137  007602  000167  000010           JMP     FIN22
2138                               .
2139  007606                     TSF22:
2140  007606  104000                   ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2141  007610  000122                   .WORD   122                     ;UNIQUE ERROR NUMBER
2142  007612  002013                   .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2143                                                          ;ODD ADDRESS TRAP
2144  007614  000006                   RTT                             ;RETURN
2145                               ;
2146  007616                     FIN22:
2147                               ;
2148  007616                     TSFP23:
2149                               ;;*********************************************************************
2150                               ;*TEST 25       TEST FDST SOP MODE 6 GR7
2151                               ;;*********************************************************************
2152  007616                     TST25:
2153  007616  005267  171162           INC     $TESTN                  ;INCREMENT TEST NUMBER
2154  007622  005037  002122           CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2155  007626  013746  000004           MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
2156  007632  012737  007744  000004   MOV     #TSF23,@#4              ;SETUP NEW VECTOR
2157  007640  012702  000200           MOV     #200,R2                 ;SETUP TO LOAD FPS
2158  007644  170102                   LDFPS   R2                      ;SET FD=1
2159  007646  012705  000004           MOV     #4,R5                   ;INIT COUNTER
2160  007652  012704  001136           MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2161  007656  012724  177777     100$: MOV     #177777,(R4)+           ;INIT TEST LOCATION
2162  007662  077503                   SOB     R5,100$                 ;ARE WE DONE
2163  007664  170467  171246           CLRD    TSTLOC                  ; TEST INSTRUCTION
2164  007670  170203                   STFPS   R3                      ;GET FPS
2165  007672  012701  000004           MOV     #4,R1                   ;INIT COUNTER
2166  007676  012702  001136           MOV     #TSTLOC,R2                      ;SETUP POINTER TO DATA
2167  007702  022227  000000     1$:   CMP     (R2)+,#0                ;IS DATA CORRECT
2168  007706  001403                   BEQ     2$                      ;YES GO ON
2169  007710  104000                   ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2170  007712  000123                   .WORD   123                     ;UNIQUE ERROR NUMBER
2171  007714  002013                   .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2172                                                          ;NO GO TO ERROR
2173  007716  077107           2$:     SOB     R1,1$                   ;ARE WE DONE
2174  007720  020327  000204           CMP     R3,#204                 ;CHECK FPS
```

```
2175  007724  001403                        BEQ     3$                      ;OK GO ON
2176  007726  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2177  007730  000124                        .WORD   124                     ;UNIQUE ERROR NUMBER
2178  007732  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2179                                                                ;NO GO TO ERROR
2180  007734  012637  000004        3$:     MOV     (SP)+,@#4               ;RESTORE VECTOR
2181
2182                                        ;
2183  007740  000167  000010                JMP     FIN23
2184                                        ;
2185  007744                                TSF23:
2186  007744  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2187  007746  000125                        .WORD   125                     ;UNIQUE ERROR NUMBER
2188  007750  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2189                                                                ;ODD ADDRESS TRAP
2190  007752  000006                        RTT                             ;
2191  007754                                FIN23:
2192                                        ;
2193  007754                                TSFP24:
2194                                        ;;*********************************************************
2195                                        ;*TEST 26        TEST FDST SOP MODE 7 GR7
2196                                         ;*********************************************************
2197  007754                                 ST26:
2198  007754  005267  171024                INC     $TESTN                  ;INCREMENT TEST NUMBER
2199  007760  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2200  007764  013746  000004                MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
2201  007770  012737  010146  000004        MOV     #TSF24,@#4              ;SETUP NEW VECTOR
2202  007776  012702  000200                MOV     #200,R2                 ;SETUP TO LOAD FPS
2203  010002  170102                        LDFPS   R2                      ;SET FD=1
2204  010004  012705  000010                MOV     #8.,R5                  ;INIT COUNTER
2205  010010  012704  001136                MOV     #TSTLOC,R4              ;SETUP TEST LOCATION POINTER
2206  010014  012724  177777        100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
2207  010020  077503                        SOB     R5,100$                 ;ARE WE DONE
2208  010022  012737  001136  001146        MOV     #TSTLOC,@#TSTLOC+10     ;INIT TEST LOCATION
2209  010030  170477  171112                CLRD    @TSTLOC+10              ;***TEST INSTRUCTION***
2210  010034  170203                        STFPS   R3                      ;GET FPS
2211  010036  012702  001136                MOV     #TSTLOC,R2              ;SETUP POINTER TO DATA
2212  010042  012701  000004                MOV     #4,R1                   ;INIT COUNTER
2213  010046  022227  000000        1$:     CMP     (R2)+,#0                ;IS DATA CORRECT
2214  010052  001403                        BEQ     2$                      ;YES GO ON
2215                                                                        ;NO, GO TO ERROR
2216  010054  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2217  010056  000126                        .WORD   126                     ;UNIQUE ERROR NUMBER
2218  010060  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2219  010062  077107                2$:     SOB     R1,1$                   ;ARE WE DONE
2220  010064  022227  001136                CMP     (R2)+,#TSTLOC           ;IS DATA CORRECT
2221  010070  001403                        BEQ     3$                      ;YES GO ON
2222                                                                        ;NO, GO TO ERROR
2223  010072  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2224  010074  000127                        .WORD   127                     ;UNIQUE ERROR NUMBER
2225  010076  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2226  010100  012701  000003        3$:     MOV     #3,R1                   ;INIT COUNTER
2227  010104  022227  177777        4$:     CMP     (R2)+,#177777           ;IS DATA CORRECT
2228  010110  001403                        BEQ     5$                      ;YES GO ON
2229  010112  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2230  010114  000130                        .WORD   130                     ;UNIQUE ERROR NUMBER
```

```
2231  010116  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2232                                                                        ;NO GO TO ERROR
2233  010120  077107              5$:       SOB     R1,4$                   ;ARE WE DONE
2234  010122  020327  000204              CMP     R3,#204                 ;CHECK FPS
2235  010126  001403                      BEQ     6$                      ;OK GO ON
2236  010130  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2237  010132  000131                      .WORD   131                     ;UNIQUE ERROR NUMBER
2238  010134  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2239                                                          ;NO GO TO ERROR
2240  010136  012637  000004      6$:     MOV     (SP)+,@#4               ;RESTORE VECTOR
2241
2242                                    ;
2243  010142  000167  000010              JMP     FIN24
2244                                    ;
2245  010146                        TSF24:
2246  010146  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2247  010150  000132                      .WORD   132                     ;UNIQUE ERROR NUMBER
2248  010152  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2249                                                          ;ODD ADDRESS TRAP
2250  010154  000006                      RTT                             ;
2251
2252  010156                        FIN24:
2253                                    ;
2254  010156                        TSFP25:
2255                                    ;;*****************************************************************
2256                                    ;*TEST 27       TEST CLRF
2257                                    ;;*****************************************************************
2258  010156                        TST27:
2259  010156  005267  170622              INC     $TESTN                  ;INCREMENT TEST NUMBER
2260  010162  005037  002122              CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2261  010166  005002                      CLR     R2                      ;SET UP FOR LOAD FPS
2262  010170  170102                      LDFPS   R2                      ;SET FPS=0
2263  010172  012705  000004              MOV     #4,R5                   ;INIT COUNTER
2264  010176  012704  001136              MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2265  010202  012724  177777      100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
2266  010206  077503                      SOB     R5,100$                 ;ARE WE DONE
2267  010210  012702  001136              MOV     #TSTLOC,R2              ;SETUP POINTER TO DATA
2268  010214  170422                      CLRF    (R2)+                   ; TEST INSTRUCTION
2269  010216  170203                      STFPS   R3                      ;GET FPS
2270  010220  020227  001142              CMP     R2,@TSTLOC+4            ;IS R2 CORRECT
2271  010224  001403                      BEQ     1$                      ;YES GO ON
2272                                                                        ;NO, GO TO ERROR
2273  010226  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2274  010230  000133                      .WORD   133                     ;UNIQUE ERROR NUMBER
2275  010232  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2276  010234  012702  001136      1$:     MOV     @TSTLOC,R2              ;SETUP POINTER TO DATA
2277  010240  012701  000002              MOV     #2,R1                   ;INIT COUNTER
2278  010244  022227  000000      2$:     CMP     (R2)+,#0                ;IS DATA CORRECT
2279  010250  001403                      BEQ     3$                      ;YES GO ON
2280                                                                        ;NO, GO TO ERROR
2281  010252  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2282  010254  000134                      .WORD   134                     ;UNIQUE ERROR NUMBER
2283  010256  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2284  010260  077107              3$:     SOB     R1,2$                   ;ARE WE DONE
2285  010262  012701  000002              MOV     #2,R1                   ;INIT COUNTER
2286  010266  022227  177777      4$:     CMP     (R2)+,#177777           ;IS DATA CORRECT
```

```
2287  010272  001403                        BEQ     5$                      ;YES GO ON
2288                                                                          ;NO GO TO ERROR
2289  010274  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2290  010276  000135                        .WORD   135                     ;UNIQUE ERROR NUMBER
2291  010300  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2292  010302  077107              5$:       SOB     R1,4$                   ;ARE WE DONE
2293  010304  020327  000004                CMP     R3,#4                   ;CHECK FPS
2294  010310  001403                        BEQ     6$                      ;OK GO ON
2295                                                                          ;NO, GO TO ERROR
2296  010312  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2297  010314  000136                        .WORD   136                     ;UNIQUE ERROR NUMBER
2298  010316  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2299  010320                        6$:
2300
2301                                        ;
2302  010320                        TSF#23:
2303                                        ;;*********************************************************
2304                                        ;*TEST 30        TEST TSTF AND TSTD
2305                                        ;;*********************************************************
2306  010320                        TS130:
2307  010320  005267  170460                INC     @#TESTN                 ;INCREMENT TEST NUMBER
2308  010324  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2309  010330  005004                        CLR     R4                      ;SETUP TO LOAD FPS
2310  010332  170104                        LDFPS   R4                      ;SET FD=0
2311  010334  170567  000300                TSTF    TS#6D0                  ;***TEST INSTRUCTION***
2312  010340  170203                        STFPS   R3                      ;GET FPS
2313  010342  020327  000004                CMP     R3,#4                   ;CHECK FPS
2314  010346  001403                        BEQ     1$                      ;OK GO ON
2315                                                                          ;NO, GO TO ERROR
2316  010350  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2317  010352  000137                        .WORD   137                     ;UNIQUE ERROR NUMBER
2318  010354  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2319  010356  012704  010640        1$:     MOV     #TS26D0,R4              ;SETUP POINTERS TO DATA
2320  010362  012702  010670                MOV     #TS26D3,R2              ;
2321  010366  004767  000224                JSR     PC,CHEC26               ;CHECK IF DATA IS CORRECT
2322  010372  170537  010650                TSTF    @#TS26D1                ;***TEST INSTRUCTION***
2323  010376  170203                        STFPS   R3                      ;GET FPS
2324  010400  020327  000010                CMP     R3,#10                  ;CHECK FPS
2325  010404  001403                        BEQ     2$                      ;OK GO ON
2326                                                                          ;NO, GO TO ERROR
2327  010406  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2328  010410  000140                        .WORD   140                     ;UNIQUE ERROR NUMBER
2329  010412  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2330  010414  012704  010650        2$:     MOV     #TS26D1,R4              ;SETUP POINTERS TO DATA
2331  010420  012702  010700                MOV     #TS26D4,R2              ;
2332  010424  004767  000166                JSR     PC,CHEC26               ;CHECK IF DATA IS CORRECT
2333  010430  170567  000224                TSTF    TS26D2                  ;***TEST INSTRUCTION***
2334  010434  170203                        STFPS   R3                      ;GET FPS
2335  010436  020327  000000                CMP     R3,#0                   ;CHECK FPS
2336  010442  001403                        BEQ     3$                      ;OK GO ON
2337                                                                          ;NO, GO TO ERROR
2338  010444  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2339  010446  000141                        .WORD   141                     ;UNIQUE ERROR NUMBER
2340  010450  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2341  010452  012704  010660        3$:     MOV     #TS26D2,R4              ;SETUP POINTERS TO DATA
2342  010456  012702  010710                MOV     #TS26D5,R2              ;
```

```
2343  010462  004767  000130              JSR     PC,CHEC26       ;CHECK IF DATA IS CORRECT
2344  010466  012704  000200              MOV     #200,R4         ;SETUP TO LOAD FPS
2345  010472  170104                      LDFPS   R4              ;SET FD=1
2346  010474  170537  010640              TSTD    @#TS26D0        ;***TEST INSTRUCTION***
2347  010500  170203                      STFPS   R3              ;GET FPS
2348  010502  020327  000204              CMP     R3,#204         ;CHECK FPS
2349  010506  001403                      BEQ     4$              ;OK GO ON
2350                                                              ;NO, GO TO ERROR
2351  010510  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2352  010512  000142                      .WORD   142             ;UNIQUE ERROR NUMBER
2353  010514  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2354  010516  012704  010640      4$:     MOV     #TS26D0,R4      ;SETUP POINTERS TO DATA
2355  010522  012702  010670              MOV     #TS26D3,R2      ;
2356  010526  004767  000064              JSR     PC,CHEC26       ;CHECK IF DATA IS CORRECT
2357  010532  170567  000112              TSTD    TS26D1          ;***TEST INSTRUCTION***
2358  010536  170203                      STFPS   R3              ;GET FPS
2359  010540  020327  000210              CMP     R3,#210         ;CHECK FPS
2360  010544  001403                      BEQ     5$              ;OK GO ON
2361                                                              ;NO, GO TO ERROR
2362  010546  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2363  010550  000143                      .WORD   143             ;UNIQUE ERROR NUMBER
2364  010552  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2365  010554  012704  010650      5$:     MOV     #TS26D1,R4      ;SETUP POINTERS TO DATA
2366  010560  012702  010700              MOV     #TS26D4,R2      ;
2367  010564  004767  000026              JSR     PC,CHEC26       ;CHECK IF DATA IS CORRECT
2368  010570  170567  000064              TSTD    TS26D2          ;***TEST INSTRUCTION
2369  010574  170203                      STFPS   R3              ;GET FPS
2370  010576  020327  000200              CMP     R3,#200         ;CHECK FPS
2371  010602  001403                      BEQ     6$              ;OK GO ON
2372  010604  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2373  010606  000144                      .WORD   144             ;UNIQUE ERROR NUMBER
2374  010610  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2375                                                          ;NO GO TO ERROR
2376  010612                      6$:
2377
2378                                      ;
2379  010612  000167  000102              JMP     FIN26
2380                                      ;
2381  010616  012701  000004      CHEC26: MOV     #4,R1           ;INIT COUNTER
2382  010622  022422              1$:     CMP     (R4)+,(R2)+     ;IS DATA CORRECT
2383  010624  001403                      BEQ     2$              ;YES GO ON
2384  010626  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2385  010630  000145                      .WORD   145             ;UNIQUE ERROR NUMBER
2386  010632  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2387                                                          ;NO GO TO ERROR
2388  010634  077106              2$:     SOB     R1,1$           ;ARE WE DONE
2389  010636  000207                      RTS     PC              ;RETURN
2390                                      ;
2391  010640  000177              TS26D0: .WORD   177
2392  010642  177777                      .WORD   177777
2393  010644  177777                      .WORD   177777
2394  010646  177777                      .WORD   177777
2395  010650  177777              TS26D1: .WORD   177777
2396  010652  000000                      .WORD   0
2397  010654  000000                      .WORD   0
2398  010656  000000                      .WORD   0
```

```
2399  010660  077777              TS26D2: .WORD   777'7
2400  010662  000000                      .WORD   0
2401  010664  000000                      .WORD   0
2402  010666  000000                      .WORD   0
2403  010670  000177              TS26D3: .WORD   177
2404  010672  177777                      .WORD   177777
2405  010674  177777                      .WORD   177777
2406  010676  177777                      .WORD   177777
2407  010700  177777              TS26D4: .WORD   177777
2408  010702  000000                      .WORD   0
2409  010704  000000                      .WORD   0
2410  010706  000000                      .WORD   0
2411  010710  077777              TS26D5: .WORD   77777
2412  010712  000000                      .WORD   0
2413  010714  000000                      .WORD   0
2414  010716                              .WORD   0
2415  010720                      FIN26:
2416                              ;
2417  010720                      TSFP27:
2418                              ;;*****************************************************************
2419                              ;*TEST 31        TEST ABSF
2420                              ;;*****************************************************************
2421  010720                      TST31:
2422  010720  005267  170060             INC     $TESTN                  ;INCREMENT TEST NUMBER
2423  010724  005037  002122             CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2424  010730  005005                      CLR     R5                      ;SETUP TO LOAD FPS
2425  010732  170105                      LDFPS   R5                      ;SET FD=0
2426  010734  012701  000014             MOV     #12.,R1                 ;INIT COUNTER
2427  010740  012704  001136             MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2428  010744  012703  011204             MOV     #TS27D0,R3              ;SETUP POINTER TO TEST VALUE
2429  010750  012324              100$:  MOV     (R3)+,(R4)+             ;INIT TEST LOCATION
2430  010752  077102                      SOB     R1,100$                 ;ARE WE DONE
2431  010754  012705  001136             MOV     #TSTLOC,R5              ;SETUP POINTER TO DATA
2432  010760  170615                      ABSF    (R5)                    ;***TEST INSTRUCTION***
2433  010762  170203                      STFPS   R3                      ;GET FPS
2434  010764  020527  001136             CMP     R5,#TSTLOC              ;IS R5 CORRECT
2435  010770  001403                      BEQ     1$                      ;YES GO ON
2436                                                                      ;NO, GO TO ERROR
2437  010772  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2438  010774  000146                      .WORD   146                     ;UNIQUE ERROR NUMBER
2439  010776  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2440  011000  012702  011234      1$:     MOV     #TS27D3,R2              ;SETUP POINTER TO DATA
2441  011004  004767  000152             JSR     PC,CHEC27               ;CHECK IF DATA IS CORRECT
2442  011010  020327  000000             CMP     R3,#0                   ;CHECK FPS
2443  011014  001403                      BEQ     2$                      ;OK GO ON
2444                                                                      ;NO, GO TO ERROR
2445  011016  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2446  011020  000147                      .WORD   147                     ;UNIQUE ERROR NUMBER
2447  011022  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2448  011024  012705  001146      2$:     MOV     #TSTLOC+10,R5           ;SETUP POINTER TO DATA
2449  011030  170625                      ABSF    (R5)+                   ;***TEST INSTRUCTION***
2450  011032  170203                      STFPS   R3                      ;GET FPS
2451  011034  020527  001152             CMP     R5,#TSTLOC+14           ;IS R5 CORRECT
2452  011040  001403                      BEQ     3$                      ;YES GO ON
2453                                                                      ;NO, GO TO ERROR
2454  011042  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
```

```
2455  011044  000150                    .WORD   150             ;UNIQUE ERROR NUMBER
2456  011046  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2457  011050  012705  001146      3$:   MOV     #TSTLOC+10,R5   ;SETUP POINTER TO DATA
2458  011054  012702  011244            MOV     #TS27D4,R2      ;
2459  011060  004767  000076            JSR     PC,CHEC27       ;CHECK IF DATA IS CORRECT
2460  011064  020327  000000            CMP     R3,#0           ;CHECK FPS
2461  011070  001403                    BEQ     4$              ;OK GO ON
2462                                                            ;NO, GO TO ERROR
2463  011072  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2464  011074  000151                    .WORD   151             ;UNIQUE ERROR NUMBER
2465  011076  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2466  011100  012705  001136      4$:   MOV     #TSTLOC,R5      ;SETUP POINTER TO DATA
2467  011104  170665  000020            ABSF    20(R5)          ;***TEST INSTRUCTION***
2468  011110  170203                    STFPS   R3              ;GET FPS
2469  011112  020527  001136            CMP     R5,#TSTLOC      ;IS R5 CORRECT
2470  011116  001403                    BEQ     5$              ;YES GO ON
2471                                                            ;NO, GO TO ERROR
2472  011120  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2473  011122  000152                    .WORD   152             ;UNIQUE ERROR NUMBER
2474  011124  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2475  011126  012705  001156      5$:   MOV     #TSTLOC+20,R5   ;SETUP POINTERS TO DATA
2476  011132  012702  011254            MOV     #TS27D5,R2      ;
2477  011136  004767  000020            JSR     PC,CHEC27       ;CHECK IF DATA IS CORRECT
2478  011142  020327  000004            CMP     R3,#4           ;CHECK FPS
2479  011146  001403                    BEQ     6$              ;OK GO ON
2480                                                            ;NO, GO TO ERROR
2481  011150  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2482  011152  000153                    .WORD   153             ;UNIQUE ERROR NUMBER
2483  011154  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2484  011156                    6$:
2485
2486                              ;
2487  011156  000167  000102            JMP     FIN27
2488                              ;
2489  011162  012701  000004    CHEC27: MOV     #4,R1           ;INIT COUNTER
2490  011166  022522            1$:     CMP     (R5)+,(R2)+     ;IS DATA CORRECT
2491  011170  001403                    BEQ     2$              ;YES GO ON
2492                                                            ;NO, GO TO ERROR
2493  011172  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2494  011174  000154                    .WORD   154             ;UNIQUE ERROR NUMBER
2495  011176  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2496  011200  077106            2$:     SOB     R1,1$           ;ARE WE DONE
2497  011202  000207                    RTS     PC              ;RETURN
2498                              ;
2499  011204  177777    TS27D0: .WORD   177777
2500  011206  177777            .WORD   177777
2501  011210  177777            .WORD   177777
2502  011212  177777            .WORD   177777
2503  011214  000377    TS27D1: .WORD   377
2504  011216  175436            .WORD   175436
2505  011220  136477            .WORD   136477
2506  011222  000001            .WORD   1
2507  011224  000177    TS27D2: .WORD   177
2508  011226  175436            .WORD   175436
2509  011230  136477            .WORD   136477
2510  011232  000001            .WORD   1
```

```
2511  011234  077777                  TS27D3: .WORD   77777
2512  011236  177777                          .WORD   177777
2513  011240  177777                          .WORD   177777
2514  011242  177777                          .WORD   177777
2515  011244  000377                  TS27D4: .WORD   377
2516  011246  175436                          .WORD   175436
2517  011250  136477                          .WORD   136477
2518  011252  000001                          .WORD   1
2519  011254  000000                  TS27D5: .WORD   0
2520  011256  000000                          .WORD   0
2521  011260  136477                          .WORD   136477
2522  011262  000001                          .WORD   1
2523  011264                          FIN27:
2524                                  ;
2525  011264                          TSFP30:
2526                                  ;;*****************************************************************
2527                                  ;*TEST 32        TEST ABSD
2528                                  ;;*****************************************************************
2529  011264                          TST32:
2530  011264  005267  167514                 INC     $TESTN                  ;INCREMENT TEST NUMBER
2531  011270  005037  002122                 CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2532  011274  012705  000200                 MOV     #200,R5                 ;SETUP TO LOAD FPS
2533  011300  170105                         LDFPS   R5                      ;SET FD=1
2534  011302  012701  000014                 MOV     #12.,R1                 ;INIT COUNTER
2535  011306  012704  001136                 MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2536  011312  012703  011552                 MOV     #TS30D0,R3              ;SETUP POINTER TO TEST VALUE
2537  011316  012324                  100$:  MOV     (R3)+,(R4)+             ;INIT TEST LOCATION
2538  011320  077102                         SOB     R1,100$                 ;ARE WE DONE
2539  011322  012705  001136                 MOV     #TSTLOC,R5              ;SETUP POINTER TO DATA
2540  011326  170615                         ABSD    (R5)                    ;***TEST INSTRUCTION***
2541  011330  170203                         STFPS   R3                      ;GET FPS
2542  011332  020527  001136                 CMP     R5,#TSTLOC              ;IS R5 CORRECT
2543  011336  001403                         BEQ     1$                      ;YES GO ON
2544                                                                          ;NO, GO TO ERROR
2545  011340  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2546  011342  000155                         .WORD   155                     ;UNIQUE ERROR NUMBER
2547  011344  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2548  011346  012702  011602          1$:    MOV     #TS30D3,R2              ;SETUP POINTER TO DATA
2549  011352  004767  000152                 JSR     PC,CHEC30               ;CHECK IF DATA IS CORRECT
2550  011356  020327  000200                 CMP     R3,#200                 ;CHECK FPS
2551  011362  001403                         BEQ     2$                      ;OK GO ON
2552                                                                          ;NO, GO TO ERROR
2553  011364  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2554  011366  000156                         .WORD   156                     ;UNIQUE ERROR NUMBER
2555  011370  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2556  011372  012705  001146          2$:    MOV     #TSTLOC+10,R5           ;SETUP POINTER TO DATA
2557  011376  170625                         ABSD    (R5)+                   ;***TEST INSTRUCTION***
2558  011400  170203                         STFPS   R3                      ;GET FPS
2559  011402  020527  001156                 CMP     R5,#TSTLOC+20           ;IS R5 CORRECT
2560  011406  001403                         BEQ     3$                      ;YES GO ON
2561                                                                          ;NO, GO TO ERROR
2562  011410  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2563  011412  000157                         .WORD   157                     ;UNIQUE ERROR NUMBER
2564  011414  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2565  011416  012705  001146          3$:    MOV     #TSTLOC+10,R5           ;SETUP POINTERS TO DATA
2566  011422  012702  011612                 MOV     #TS30D4,R2              ;
```

```
2567  011426  004767  000076          JSR     PC,CHEC30       ;CHECK IF DATA IS CORRECT
2568  011432  020327  000200          CMP     R3,#200         ;CHECK FPS
2569  011436  001403                  BEQ     4$              ;OK GO ON
2570                                                          ;NO, GO TO ERROR
2571  011440  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2572  011442  000160                  .WORD   160             ;UNIQUE ERROR NUMBER
2573  011444  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2574  011446  012705  001136    4$:   MOV     #TSTLOC,R5      ;SETUP POINTER TO DATA
2575  011452  170665  000020          ABSD    20(R5)          ;***TEST INSTRUCTION***
2576  011456  170203                  STFPS   R3              ;GET FPS
2577  011460  020527  001136          CMP     R5,#TSTLOC      ;IS R5 CORRECT
2578  011464  001403                  BEQ     5$              ;YES GO ON
2579                                                          ;NO, GO TO ERROR
2580  011466  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2581  011470  000161                  .WORD   161             ;UNIQUE ERROR NUMBER
2582  011472  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2583  011474  012705  001156    5$:   MOV     #TSTLOC+20,R5   ;SETUP POINTERS TO DATA
2584  011500  012702  011622          MOV     #TS30D5,R2      ;
2585  011504  004767  000020          JSR     PC,CHEC30       ;CHECK IF DATA IS CORRECT
2586  011510  020327  000204          CMP     R3,#204         ;CHECK FPS
2587  011514  001403                  BEQ     6$              ;OK GO ON
2588                                                          ;NO, GO TO ERROR
2589  011516  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2590  011520  000162                  .WORD   162             ;UNIQUE ERROR NUMBER
2591  011522  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2592  011524                  6$:
2593
2594  011524  000167  000102          JMP     FIN30
2595                                  ;
2596  011530  012701  000004  CHEC30: MOV     #4,R1           ;INIT COUNTER
2597  011534  022522          1$:     CMP     (R5)+,(R2)+     ;IS DATA CORRECT
2598  011536  001403                  BEQ     2$              ;YES GO ON
2599                                                          ;NO, GO TO ERROR
2600  011540  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2601  011542  000163                  .WORD   163             ;UNIQUE ERROR NUMBER
2602  011544  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2603  011546  077106          2$:     SOB     R1,1$           ;ARE WE DONE
2604  011550  000207                  RTS     PC              ;RETURN
2605                                  ;
2606  011552  177777  TS30D0:  .WORD   177777
2607  011554  177777                  .WORD   177777
2608  011556  177777                  .WORD   177777
2609  011560  177777                  .WORD   177777
2610  011562  000377  TS30D1:  .WORD   377
2611  011564  175436                  .WORD   175436
2612  011566  136477                  .WORD   136477
2613  011570  000001                  .WORD   1
2614  011572  000177  TS30D2:  .WORD   177
2615  011574  175436                  .WORD   175436
2616  011576  136477                  .WORD   136477
2617  011600  000001                  .WORD   1
2618  011602  077777  TS30D3:  .WORD   77777
2619  011604  177777                  .WORD   177777
2620  011606  177777                  .WORD   177777
2621  011610  177777                  .WORD   177777
2622  011612  000377  TS30D4:  .WORD   377
```

```
2623  011614  175436                          .WORD   175436
2624  011616  136477                          .WORD   136477
2625  011620  000001                          .WORD   1
2626  011622  000000                TS30D5:   .WORD   0
2627  011624  000000                          .WORD   0
2628  011626  000000                          .WORD   0
2629  011630  000000                          .WORD   0
2630  011632                          FIN30:
2631                                ;
2632  011632                          TSFP31:
2633                                ;;*****************************************************************
2634                                ;*TEST 33       TEST FDST SOP MODE 2 GR7
2635                                ;;*****************************************************************
2636  011632                          TST33:
2637  011632  005267  167146                INC     $TESTN                  ;INCREMENT TEST NUMBER
2638  011636  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2639  011642  013746  000004                MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
2640  011646  012737  011764  000004        MOV     #TSF31,@#4              ;SETUP NEW VECTOR
2641  011654  012702  000200                MOV     #200,R2                 ;SETUP TO LOAD FPS
2642  011660  170102                        LDFPS   R2                      ;SET FD=1
2643  011662  170527  000005        TSD31:  TSTD    #5                      ;***TEST INSTRUCTION***
2644  011666  000240                        NOP
2645  011670  000240                        NOP
2646  011672  000240                        NOP
2647  011674  170203                        STFPS   R3                      ;GET FPS
2648  011676  020327  000204                CMP     R3,#204                 ;CHECK FPS
2649  011702  001403                        BEQ     1$                      ;OK GO ON
2650  011704  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2651  011706  000164                        .WORD   164                     ;UNIQUE ERROR NUMBER
2652  011710  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2653                                ;NO GO TO ERROR
2654  011712  012702  011664        1$:     MOV     #TSD31+2,R2             ;SETUP POINTER TO DATA
2655  011716  022227  000005                CMP     (R2)+,#5                ;IS DATA CORRECT
2656  011722  001403                        BEQ     2$                      ;YES GO ON
2657  011724  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2658  011726  000165                        .WORD   165                     ;UNIQUE ERROR NUMBER
2659  011730  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2660                                ;NO GO TO ERROR
2661  011732  012701  000003        2$:     MOV     #3,R1                   ;INIT COUNTER
2662  011736  022227  000240        3$:     CMP     (R2)+,#240              ;IS DATA CORRECT
2663  011742  001403                        BEQ     4$                      ;YES GO ON
2664  011744  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2665  011746  000166                        .WORD   166                     ;UNIQUE ERROR NUMBER
2666  011750  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2667                                ;NO GO TO ERROR
2668  011752  077107                4$:     SOB     R1,3$                   ;ARE WE DONE
2669  011754  012637  000004                MOV     (SP)+,@#4               ;RESTORE VECTOR
2670
2671                                ;
2672  011760  000167  000010                JMP     FIN31
2673                                ;
2674  011764                          TSF31:
2675  011764  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2676  011766  000167                        .WORD   167                     ;UNIQUE ERROR NUMBER
2677  011770  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2678                                ;ODD ADDRESS TRAP
```

```
2679  011772  000006                        RTT                             ;RETURN
2680                                  ;
2681  011774                          FIN31:
2682                                  ;
2683  011774                          TSFP32:
2684                                  ;;*************************************************************
2685                                  ;*TEST 34       TEST NEGF
2686                                  ;;*************************************************************
2687  011774                          TST34:
2688  011774  005267  167004                INC     $TESTN                  ;INCREMENT TEST NUMBER
2689  012000  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2690  012004  005005                        CLR     R5                      ;SETUP TO LOAD FPS
2691  012006  170105                        LDFPS   R5                      ;SET FD=0
2692  012010  012701  000014                MOV     #12.,R1                 ;INIT COUNTER
2693  012014  012704  001136                MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2694  012020  012703  012210                MOV     #TS32D0,R3              ;SETUP POINTER TO TEST VALUE
2695  012024  012324                100$:   MOV     (R3)+,(R4)+             ;INIT TEST LOCATION
2696  012026  077102                        SOB     R1,100$                 ;ARE WE DONE
2697  012030  170767  167102                NEGF    TSTLOC                  ;***TEST INSTRUCTION***
2698  012034  170203                        STFPS   R3                      ;GET FPS
2699  012036  012705  001136                MOV     #TSTLOC,R5              ;SETUP POINTERS TO DATA
2700  012042  012702  012240                MOV     #TS32D3,R2              ;
2701  012046  004767  000114                JSR     PC,CHEC32               ;CHECK IF DATA IS CORRECT
2702  012052  020327  000000                CMP     R3,#0                   ;CHECK FPS
2703  012056  001403                        BEQ     1$                      ;YES GO ON
2704                                                                        ;NO, GO TO ERROR
2705  012060  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2706  012062  000170                        .WORD   170                     ;UNIQUE ERROR NUMBER
2707  012064  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2708  012066  170767  167054          1$:   NEGF    TSTLOC+10               ;***TEST INSTRUCTION***
2709  012072  170203                        STFPS   R3                      ;GET FPS
2710  012074  012705  001146                MOV     #TSTLOC+10,R5           ;SETUP POINTERS TO DATA
2711  012100  012702  012250                MOV     #TS32D4,R2              ;
2712  012104  004767  000056                JSR     PC,CHEC32               ;CHECK IF DATA IS CORRECT
2713  012110  020327  000010                CMP     R3,#10                  ;CHECK FPS
2714  012114  001403                        BEQ     2$                      ;OK GO ON
2715                                                                        ;NO, GO TO ERROR
2716  012116  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2717  012120  000171                        .WORD   171                     ;UNIQUE ERROR NUMBER
2718  012122  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2719  012124  170767  167026          2$:   NEGF    TSTLOC+20               ;***TEST INSTRUCTION***
2720  012130  170203                        STFPS   R3                      ;GET FPS
2721  012132  012705  001156                MOV     #TSTLOC+20,R5           ;SETUP POINTERS TO DATA
2722  012136  012702  012260                MOV     #TS32D5,R2              ;
2723  012142  004767  000020                JSR     PC,CHEC32               ;CHECK IF DATA IS CORRECT
2724  012146  020327  000004                CMP     R3,#4                   ;CHECK FPS
2725  012152  001403                        BEQ     3$                      ;OK GO ON
2726                                                                        ;NO, GO TO ERROR
2727  012154  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2728  012156  000172                        .WORD   172                     ;UNIQUE ERROR NUMBER
2729  012160  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2730  012162                          3$:
2731
2732  012162  000167  000102                JMP     FIN32
2733                                  ;
2734  012166  012701  000004          CHEC32: MOV     #4,R1                   ;INIT COUNTER
```

```
2735  012172  022522                1$:     CMP     (R5)+,(R2)+     ;IS DATA CORRECT
2736  012174  001403                        BEQ     2$              ;YES GO ON
2737                                                                  ;NO, GO TO ERROR
2738  012176  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2739  012200  000173                        .WORD   173             ;UNIQUE ERROR NUMBER
2740  012202  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2741  012204  077106                2$:     SOB     R1,1$           ;ARE WE DONE
2742  012206  000207                        RTS     PC              ;RETURN
2743                                        ;
2744  012210  170000                TS32D0: .WORD   170000
2745  012212  003541                        .WORD   3541
2746  012214  177777                        .WORD   177777
2747  012216  172710                        .WORD   172710
2748  012220  070000                TS32D1: .WORD   70000
2749  012222  003541                        .WORD   3541
2750  012224  177777                        .WORD   177777
2751  012226  172710                        .WORD   172710
2752  012230  000177                        .WORD   177
2753  012232  100000                        .WORD   100000
2754  012234  177777                        .WORD   177777
2755  012236  177007                        .WORD   177007
2756  012240  070000                TS32D3: .WORD   70000
2757  012242  003541                        .WORD   3541
2758  012244  177777                        .WORD   177777
2759  012246  172710                        .WORD   172710
2760  012250  170000                TS32D4: .WORD   170000
2761  012252  003541                        .WORD   3541
2762  012254  177777                        .WORD   177777
2763  012256  172710                        .WORD   172710
2764  012260  000000                TS3205: .WORD   0
2765  012262  000000                        .WORD   0
2766  012264  177777                        .WORD   177777
2767  012266  177007                        .WORD   177007
2768  012270                        FIN32:
2769                                        ;
2770  012270                        TSFP33:
2771                                        ;;**************************************************************
2772                                        ;*TEST 35        TEST NEGD
2773                                        ;;**************************************************************
2774  012270                        TST35:
2775  012270  005267  166510                INC     $TESTN                  ;INCREMENT TEST NUMBER
2776  012274  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2777  012300  012705  000200                MOV     #200,R5                 ;SETUP TO LOAD FPS
2778  012304  170105                        LDFPS   R5                      ;SET FD=1
2779  012306  012701  000014                MOV     #12.,R1                 ;INIT COUNTER
2780  012312  012704  001136                MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2781  012316  012703  012506                MOV     #TS33D0,R3              ;SETUP POINTER TO TEST VALUE
2782  012322  012324                100$:   MOV     (R3)+,(R4)+             ;INIT TEST LOCATION
2783  012324  077102                        SOB     R1,100$                 ;ARE WE DONE
2784  012326  170767  166604                NEGD    TSTLOC                  ;***TEST INSTRUCTION***
2785  012332  170203                        STFPS   R3                      ;GET FPS
2786  012334  012705  001136                MOV     #TSTLOC,R5              ;SETUP POINTERS TO DATA
2787  012340  012702  012536                MOV     #TS33D3,R2              ;
2788  012344  004767  000114                JSR     PC,CHEC33               ;CHECK IF DATA IS CORRECT
2789  012350  020327  000200                CMP     R3,#200                 ;CHECK FPS
2790  012354  001403                        BEQ     1$                      ;OK GO ON
```

```
2791
2792  012356  104000                    ERROR                   ;NO, GO TO ERROR
2793  012360  000174                    .WORD   174             ;ALL ERRORS TO TRAP TO EMT VECTOR
2794  012362  002013                    .WORD   FPPERR          ;UNIQUE ERROR NUMBER
2795  012364  170767  166556      1$:   NEGD    TSTLOC+10       ;ADDRESS OF ERROR MESSAGE
2796  012370  170203                    STFPS   R3              ;***TEST INSTRUCTION***
2797  012372  012705  001146            MOV     #TSTLOC+10,R5   ;GET FPS
2798  012376  012702  012546            MOV     #TS33D4,R2      ;SETUP POINTERS TO DATA
2799  012402  004767  000056            JSR     PC,CHEC33       ;
2800  012406  020327  000210            CMP     R3,#210         ;CHECK IF DATA IS CORRECT
2801  012412  001403                    BEQ     2$              ;CHECK FPS
2802                                                            ;OK GO ON
2803  012414  104000                    ERROR                   ;NO, GO TO ERROR
2804  012416  000175                    .WORD   175             ;ALL ERRORS TO TRAP TO EMT VECTOR
2805  012420  002013                    .WORD   FPPERR          ;UNIQUE ERROR NUMBER
2806  012422  170767  166530      2$:   NEGD    TSTLOC+20       ;ADDRESS OF ERROR MESSAGE
2807  012426  170203                    STFPS   R3              ;***TEST INSTRUCTION***
2808  012430  012705  001156            MOV     #TSTLOC+20,R5   ;GET FPS
2809  012434  012702  012556            MOV     #TS33D5,R2      ;SETUP POINTERS TO DATA
2810  012440  004767  000020            JSR     PC,CHEC33       ;
2811  012444  020327  000204            CMP     R3,#204         ;CHECK IF DATA IS CORRECT
2812  012450  001403                    BEQ     3$              ;CHECK FPS
2813                                                            ;OK GO ON
2814  012452  104000                    ERROR                   ;NO, GO TO ERROR
2815  012454  000176                    .WORD   176             ;ALL ERRORS TO TRAP TO EMT VECTOR
2816  012456  002013                    .WORD   FPPERR          ;UNIQUE ERROR NUMBER
2817  012460                      3$:                           ;ADDRESS OF ERROR MESSAGE
2818
2819  012460  000167  000102            JMP     FIN33
2820                                    ;
2821  012464  012701  000004  CHEC33:   MOV     #4,R1           ;INIT COUNTER
2822  012470  022522            1$:     CMP     (R5)+,(R2)+     ;IS DATA CORRECT
2823  012472  001403                    BEQ     2$              ;YES GO ON
2824                                                            ;NO, GO TO ERROR
2825  012474  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2826  012476  000177                    .WORD   177             ;UNIQUE ERROR NUMBER
2827  012500  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2828  012502  077106            2$:     SOB     R1,1$           ;ARE WE DONE
2829  012504  000207                    RTS     PC              ;RETURN
2830                                    ;
2831  012506  170000  TS33D0:   .WORD   170000
2832  012510  003541            .WORD   3541
2833  012512  177777            .WORD   177777
2834  012514  172710            .WORD   172710
2835  012516  070000  TS33D1:   .WORD   70000
2836  012520  003541            .WORD   3541
2837  012522  177777            .WORD   177777
2838  012524  172710            .WORD   172710
2839  012526  000177  TS33D2:   .WORD   177
2840  012530  100000            .WORD   100000
2841  012532  177777            .WORD   177777
2842  012534  177007            .WORD   177007
2843  012536  070000  TS33D3:   .WORD   70000
2844  012540  003541            .WORD   3541
2845  012542  177777            .WORD   177777
2846  012544  172710            .WORD   172710
```

```
2847  012546  170000                TS33D4: .WORD   170000
2848  012550  003541                        .WORD   3541
2849  012552  177777                        .WORD   177777
2850  012554  172710                        .WORD   172710
2851  012556  000000                TS33D5: .WORD   0
2852  012560  000000                        .WORD   0
2853  012562  000000                        .WORD   0
2854  012564  000000                        .WORD   0
2855  012566                        FIN33:
2856                                ;
2857  012566                        MFSRCM0:
2858                                ;;*********************************************************************
2859                                ;*TEST 36        TEST LDD MODE 0, ILLEGAL AC7
2860                                ;;*********************************************************************
2861  012566                        TST36:
2862  012566  005267  166212                INC     $TESTN                  ;INCREMENT TEST NUMBER
2863  012572  012704  047600                MOV     #47600,R4               ;SETUP FPP STATUS
2864  012576  170104                        LDFPS   R4                      ;LOAD FP STATUS
2865  012600  012702  001106                MOV     #RECFEC,R2              ;POINT TO RECEIVED FEC MEMORY
2866  012604  172407                1$:     LDD     R7,AC0                  ;*TEST INSTRUCTION
2867                                                                        ;LOAD AC0 FROM ILLEGAL AC7
2868  012606  170201                        STFPS   R1                      ;SAVE FPP STATUS
2869  012610  022701  147600                CMP     #147600,R1              ;VERIFY FER BIT SET
2870  012614  001403                        BEQ     2$                      ;BRANCH IF GOOD ERROR CONDITION
2871  012616  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2872  012620  000200                        .WORD   200                     ;UNIQUE ERROR NUMBER
2873  012622  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2874                                                                ;THE FER BIT DIDNT SET
2875  012624  170312                2$:     STST    (R2)                    ;SAVE FEC AND FEA
2876  012626  022722  000002                CMP     #2,(R2)+                ;VERIFY FEC CONTENTS
2877  012632  001403                        BEQ     3$                      ;BRANCH IF GOOD
2878  012634  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2879  012636  000201                        .WORD   201                     ;UNIQUE ERROR NUMBER
2880  012640  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2881                                                                ;FEC NE 2 (OPCODE ERROR)
2882  012642  022722  012604                CMP     #1$,(R2)+               ;VERFIY FEA CONTENTS
2883  012646  001403                        BEQ     4$                      ;BRANCH FI GOOD
2884  012650  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2885  012652  000202                        .WORD   202                     ;UNIQUE ERROR NUMBER
2886  012654  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2887                                                                ;FEA NOT CORRECT ERROR ADDRESS
2888  012656                        4$:
2889
2890
2891  012656                        MLDDM2:
2892                                ;;*********************************************************************
2893                                ;*TEST 37        TEST LDD MODE2
2894                                ;;*********************************************************************
2895  012656                        TST37:
2896  012656  005267  166122                INC     $TESTN                  ;INCREMENT TEST NUMBER
2897  012662  012701  001126                MOV     #RECOS1,R1              ;POINT TO RECEIVED DATA LOCATION
2898  012666  012704  001176                MOV     #TAB1,R4                ;POINT TO GOOD DATA
2899  012672  012702  047750                MOV     #47750,R2               ;LOAD GOOD STATUS
2900  012676  170102                        LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
2901  012700  172424                        LDD     (R4)+,AC0               ;***TEST INSTRUCTION - MODE 2***
2902  012702  170203                        STFPS   R3                      ;SAVE TEST FPP STATUS
```

```
2903  012704  174021                      STD     AC0,(R1)+       ;SAVE TEST RESULT MODE 2
2904  012706  020203                      CMP     R2,R3           ;VERIFY FPP STATUS
2905  012710  001403                      BEQ     1$              ;BRANCH IF GOOD
2906  012712  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2907  012714  000203                      .WORD   203             ;UNIQUE ERROR NUMBER
2908  012716  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2909                                                              ;BAD FPP STSTUS
2910  012720  022704  001206      1$:     CMP     @TAB1+10,R4             ;VERFIY AUTO-INCR
2911  012724  001403                      BEQ     2$              ;BRANCH IF GOOD
2912  012726  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2913  012730  000204                      .WORD   204             ;UNIQUE ERROR NUMBER
2914  012732  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2915                                                      ;BAD AUTO-INCR
2916  012734  012704  001176      2$:     MOV     @TAB1,R4                ;POINT TO RECEIVED DATA
2917  012740  162701  000010              SUB     #10,R1          ;RETURN R1 TO PROPER VALUE
2918  012744  004767  167176              JSR     R7,DATVER       ;VERFIY DATA FROM FPP
2919  012750  005767  166064              TST     COUNT           ;SEE IF COUNTER=0
2920  012754  001403                      BEQ     3$              ;BRANCH IF GOOD COMPARE
2921                                                              ;BAD DATA FROM FPP
2922  012756  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2923  012760  000205                      .WORD   205             ;UNIQUE ERROR NUMBER
2924  012762  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2925  012764              3$:
2926
2927                                      ;
2928  012764              MLDDM3:
2929                                      ;;**********************************************************************
2930                                      ;*TEST 40        TEST LDD MODE 3
2931                                      ;;**********************************************************************
2932  012764              TST40:
2933  012764  005267  166014              INC     $TESTN          ;INCREMENT TEST NUMBER
2934  012770  012737  001126  001140      MOV     #RECDST,@#TSTLOC+2      ;POINT TO RECEIVED DATA LOCATION
2935  012776  012701  001140              MOV     #TSTLOC+2,R1    ;SETUP STD IN MODE 3
2936  013002  012737  001206  001136      MOV     #TAB2,@#TSTLOC  ;POINT TO DATA TABLE
2937  013010  012704  001136              MOV     #TSTLOC,R4      ;POINT TO GOOD DATA
2938  013014  012702  047750              MOV     #47750,R2       ;LOAD GOOD STATUS
2939  013020  170102                      LDFPS   R2              ;LOAD FPP STATUS - DOUBLE,ID
2940  013022  172434                      LDD     @(R4)+,AC0      ;***TEST INSTRUCTION - MODE 2***
2941  013024  170203                      STFPS   R3              ;SAVE TEST FPP STATUS
2942  013026  174031                      STD     AC0,@(R1)+      ;SAVE TEST RESULT IN MODE 3
2943  013030  022703  047740              CMP     #47740,R3       ;VERIFY FPP STATUS
2944  013034  001403                      BEQ     1$              ;BRANCH IF GOOD
2945  013036  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2946  013040  000206                      .WORD   206             ;UNIQUE ERROR NUMBER
2947  013042  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2948                                                              ;BAD FPP STATUS
2949  013044  022704  001140      1$:     CMP     #TSTLOC+2,R4    ;VERFIY AUTO-INCR
2950  013050  001403                      BEQ     2$              ;BAD AUTO-DEC ON LDD
2951  013052  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2952  013054  000207                      .WORD   207             ;UNIQUE ERROR NUMBER
2953  013056  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2954                                                              ;BAD AUTO-INC
2955  013060  022701  001142      2$:     CMP     #TSTLOC+4,R1    ; TEST STD AUTO-INC
2956  013064  001403                      BEQ     3$              ;BRANCH IF GOOD
2957  013066  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2958  013070  000210                      .WORD   210             ;UNIQUE ERROR NUMBER
```

```
2959  013072  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2960                                                                          ;BAD AUTO-INCR
2961  013074  012704  001206          3$:     MOV     #TAB2,R4                ;POINT TO RECEIVED DATA
2962  013100  012701  001126                  MOV     #RECDST,R1              ;POINT TO RECEIVED DATA
2963  013104  004767  167036                  JSR     R7,DATVER               ;VERFIY DATA FROM FPP
2964  013110  005767  165724                  TST     COUNT                   ;SEE IF COUNTER=0
2965  013114  001403                          BEQ     4$                      ;BRANCH IF GOOD COMPARE
2966  013116  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2967  013120  000211                          .WORD   211                     ;UNIQUE ERROR NUMBER
2968  013122  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2969                                                                          ;BAD DATA FROM FPP
2970  013124                          4$:
2971
2972  013124                          MLDDM4:
2973                                  ;;*********************************************************************
2974                                  ;*TEST 41        TEST LDF, STD MODE 4
2975                                  ;;*********************************************************************
2976  013124                          TST41:
2977  013124  005267  165654                  INC     $TESTN                  ;INCREMENT TEST NUMBER
2978  013130  012701  001132                  MOV     #RECDST+4,R1            ;POINT TO RECEIVED DATA LOCATION
2979  013134  012704  001222                  MOV     #TAB3+4,R4              ;POINT TO GOOD DATA
2980  013140  012705  001256                  MOV     #TAB6,R5                ;CLEAR OUT AC0
2981  013144  170127  000200                  LDFPS   #200                    ;SET TO DOUBLE
2982  013150  172415                          LDD     (R5),AC0                ;AC0=0
2983  013152  012702  047550                  MOV     #47550,R2               ;LOAD GOOD STATUS FLOATING
2984  013156  170102                          LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
2985  013160  172444                          LDF     -(R4),AC0               ;*TEST INSTRUCTION - MODE 4
2986  013162  170203                          STFPS   R3                      ;SAVE TEST FPP STATUS
2987  013164  012702  047750                  MOV     #47750,R2               ;SET TO DOUBLE MODE
2988  013170  170102                          LDFPS   R2                      ;SET FPP TO DOUBLE
2989  013172  174041                          STD     AC0,-(R1)               ;SAVE TEST RESULT
2990  013174  022703  047540                  CMP     #47540,R3               ;VERIFY FPP STATUS
2991  013200  001403                          BEQ     1$                      ;BRANCH IF GOOD
2992  013202  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2993  013204  000212                          .WORD   212                     ;UNIQUE ERROR NUMBER
2994  013206  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2995                                                                          ;BAD FPP STATUS
2996  013210  022704  001216          1$:     CMP     #TAB3,R4                ;VERFIY AUTO-DEC
2997  013214  001403                          BEQ     2$                      ;BRANCH IF GOOD
2998  013216  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2999  013220  000213                          .WORD   213                     ;UNIQUE ERROR NUMBER
3000  013222  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3001                                                                          ;BAD AUTO-INCR
3002  013224  012704  001216          2$:     MOV     #TAB3,R4                ;POINT TO RECEIVED DATA
3003  013230  004767  166712                  JSR     R7,DATVER               ;VERFIY DATA FROM FPP
3004  013234  005767  165600                  TST     COUNT                   ;SEE IF COUNTER=0
3005  013240  001403                          BEQ     3$                      ;BRANCH IF GOOD COMPARE
3006  013242  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3007  013244  000214                          .WORD   214                     ;UNIQUE ERROR NUMBER
3008  013246  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3009                                                                          ;BAD DATA FROM FPP
3010  013250                          3$:
3011
3012  013250                          MLDDM5:
3013                                  ;;*********************************************************************
3014                                  ;*TEST 42        TEST LDD MODE 5
```

```
3015                                    ;;*****************************************************************
3016  013250                            TST42:
3017  013250  005267  165530                   INC     $TESTN                  ;INCREMENT TEST NUMBER
3018  013254  012701  001126                   MOV     #RECDST,R1              ;POINT TO RECEIVED DATA LOCATION
3019  013260  012704  001140                   MOV     #TSTLOC+2,R4            ;POINT TO GOOD DATA
3020  013264  012737  001176  001136           MOV     #TAB1,@#TSTLOC          ;SET UP MODE 5 POINTER TO DATA
3021  013272  012702  047750                   MOV     #47750,R2               ;LOAD GOOD STATUS
3022  013276  170102                           LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
3023  013300  172454                           LDD     @-(R4),AC0              ;*TEST INSTRUCTION - MODE 5
3024  013302  170203                           STFPS   R3                      ;SAVE TEST FPP STATUS
3025  013304  174011                           STD     AC0,(R1)                ;SAVE TEST RESULT
3026  013306  020203                           CMP     R2,R3                   ;VERIFY FPP STATUS
3027  013310  001403                           BEQ     1$                      ;BRANCH IF GOOD
3028  013312  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3029  013314  000215                           .WORD   215                     ;UNIQUE ERROR NUMBER
3030  013316  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3031                                                                           ;BAD FPP STATUS
3032  013320  022704  001136          1$:      CMP     #TSTLOC,R4              ;VERFIY AUTO-DEC
3033  013324  001403                           BEQ     2$                      ;BRANCH IF GOOD
3034  013326  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3035  013330  000216                           .WORD   216                     ;UNIQUE ERROR NUMBER
3036  013332  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3037                                                                           ;BAD AUTO-DEC
3038  013334  012704  001176          2$:      MOV     #TAB1,R4                ;POINT TO EXPECTED DATA
3039  013340  004767  166602                   JSR     R7,DATVER               ;VERFIY DATA FROM FPP
3040  013344  005767  165470                   TST     COUNT                   ;SEE IF COUNTER=0
3041  013350  001403                           BEQ     3$                      ;BRANCH IF GOOD COMPARE
3042  013352  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3043  013354  000217                           .WORD   217                     ;UNIQUE ERROR NUMBER
3044  013356  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3045                                                                           ;BAD DATA FROM FPP
3046  013360                           3$:
3047
3048  013360                           MLDDM6:
3049                                    ;;*****************************************************************
3050                                    ;*TEST 43        TEST LDD MODE 6
3051                                    ;;*****************************************************************
3052  013360                           TST43:
3053  013360  005267  165420                   INC     $TESTN                  ;INCREMENT TEST NUMBER
3054  013364  012701  001326                   MOV     #RECDST+200,R1          ;POINT TO RECEIVED DATA LOCATION
3055  013370  012704  001006                   MOV     #TAB2-200,R4            ;SETUP R4 FOR MODE 6
3056  013374  012702  047750                   MOV     #47750,R2               ;LOAD GOOD STATUS
3057  013400  170102                           LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
3058  013402  172464  000200                   LDD     200(R4),AC0             ;LDD MODE 6
3059  013406  170203                           STFPS   R3                      ;SAVE TEST FPP STATUS
3060  013410  174061  177600                   STD     AC0,-200(R1)            ;SAVE TEST RESULT
3061  013414  022703  047740                   CMP     #47740,R3               ;VERIFY FPP STATUS
3062  013420  001403                           BEQ     1$                      ;BRANCH IF GOOD
3063  013422  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3064  013424  000220                           .WORD   220                     ;UNIQUE ERROR NUMBER
3065  013426  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3066                                                                           ;BAD FPP STATUS
3067  013430  162701  000200          1$:      SUB     #200,R1                 ;R1=RECDST
3068  013434  062704  000200          2$:      ADD     #200,R4                 ;POINT TO EXPECTED DATA
3069  013440  004767  166502                   JSR     R7,DATVER               ;VERFIY DATA FROM FPP
3070  013444  005767  165370                   TST     COUNT                   ;SEE IF COUNTER=0
```

```
3071  013450  001403                          BEQ     3$                      ;BRANCH IF GOOD COMPARE
3072  013452  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3073  013454  000221                          .WORD   221                     ;UNIQUE ERROR NUMBER
3074  013456  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3075                                                                          ;BAD DATA FROM FPP
3076  013460                          3$:
3077
3078  013460                          MLDDM7:
3079                                  ;;**************************************************************************
3080                                  ;*TEST 44        TEST LDD MODE 7
3081                                  ;;**************************************************************************
3082  013460                          TST44:
3083  013460  005267  165320                 INC     $TESTN                  ;INCREMENT TEST NUMBER
3084  013464  012701  001126                 MOV     #RECDST,R1              ;POINT TO RECEIVED DATA LOCATION
3085  013470  005004                         CLR     R4                      ;R4=0
3086  013472  012727  001176  001136         MOV     #TAB1,#TSTLOC           ;POINTER FOR MODE 7 GOOD DATA
3087  013500  012702  047750                 MOV     #47750,R2               ;LOAD GOOD STATUS
3088  013504  170102                         LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
3089  013506  172474  001136                 LDD     @TSTLOC(R4),AC0         ;*TEST INSTRUCTION - MODE 7
3090  013512  170203                         STFPS   R3                      ;SAVE TEST FPP STATUS
3091  013514  174011                         STD     AC0,(R1)                ;SAVE TEST RESULT
3092  013516  020203                         CMP     R2,R3                   ;VERIFY FPP STATUS
3093  013520  001403                         BEQ     1$                      ;BRANCH IF GOOD
3094  013522  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3095  013524  000222                         .WORD   222                     ;UNIQUE ERROR NUMBER
3096  013526  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3097                                                                          ;BAD FPP STATUS
3098  013530  005704                 1$:     TST     R4                      ;VERFIY CONTENTS OF R4
3099  013532  001403                         BEQ     2$                      ;BRANCH IF GOOD
3100  013534  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3101  013536  000223                         .WORD   223                     ;UNIQUE ERROR NUMBER
3102  013540  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3103                                                                          ;BAD R4
3104  013542  012704  001176         2$:     MOV     #TAB1,R4                ;POINT TO RECEIVED DATA
3105  013546  004767  166374                 JSR     R7,DATVER               ;VERFIY DATA FROM FPP
3106  013552  005767  165262                 TST     COUNT                   ;SEE IF COUNTER=0
3107  013556  001403                         BEQ     3$                      ;BRANCH IF GOOD COMPARE
3108  013560  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3109  013562  000224                         .WORD   224                     ;UNIQUE ERROR NUMBER
3110  013564  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3111                                                                          ;BAD DATA FROM FPP
3112  013566                          3$:
3113
3114  013566                          MLDM27:
3115                                  ;;**************************************************************************
3116                                  ;*TEST 45        TEST LDD MODE 27 - ONLY 16 BITS ARE LOADED OR STORED
3117                                  ;;**************************************************************************
3118  013566                          TST45:
3119  013566  005267  165212                 INC     $TESTN                  ;INCREMENT TEST NUMBER
3120  013572  012701  001126                 MOV     #RECDST,R1              ;POINT TO RECEIVED DATA LOCATION
3121  013576  012704  001236                 MOV     #TAB5,R4                ;POINT TO GOOD DATA
3122  013602  012702  047750                 MOV     #47750,R2               ;LOAD GOOD STATUS
3123  013606  005005                         CLR     R5                      ;R5=0
3124  013610  170102                         LDFPS   R2                      ;LOAD FPP STATUS   DOUBLE,ID
3125  013612  172427  043243                 LDD     #5205,AC0               ;*TEST INSTRUCTION - MODE 27
3126  013616  005205                         INC     R5
```

```
3127  013620  005205                        INC     R5
3128  013622  005205                        INC     R5                      ; TEST PROPER PC PATH
3129  013624  022705  000003                CMP     #3,R5                   ;VERIFY ONLY 3 PC INCREMENT
3130  013630  001403                        BEQ     1$                      ;BRANCH IF PROPER PC ACTION
3131  013632  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3132  013634  000225                        .WORD   225                     ;UNIQUE ERROR NUMBER
3133  013636  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3134                                                                        ;BAD MODE 27 LOAD
3135  013640  170203              1$:       STFPS   R3                      ;SAVE TEST FPP STATUS
3136  013642  174011                        STD     AC0,(R1)                ;SAVE TEST RESULT
3137  013644  022703  047740                CMP     #47740,R3               ;VERIFY FPP STATUS
3138  013650  001403                        BEQ     2$                      ;BRANCH IF GOOD
3139  013652  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3140  013654  000226                        .WORD   226                     ;UNIQUE ERROR NUMBER
3141  013656  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3142                                                                        ;BAD FPP STATUS
3143  013660  004767  166262        2$:     JSR     R7,DATVER               ;VERFIY DATA FROM FPP
3144  013664  005767  165150                TST     COUNT                   ;SEE IF COUNTER=0
3145  013670  001403                        BEQ     3$                      ;BRANCH IF GOOD COMPARE
3146  013672  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3147  013674  000227                        .WORD   227                     ;UNIQUE ERROR NUMBER
3148  013676  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3149                                                                        ;BAD DATA FROM FPP
3150  013700                        3$:
3151
3152  013700                        MNNRM1:
3153                                ;;*********************************************************************
3154                                ;*TEST 46       TEST ADDF, ADDD, SUBF, SUBD - AC0=0 FSRC=0;
3155                                ;;*********************************************************************
3156  013700                        TST46:
3157  013700  005267  165100                INC     $TESTN                  ;INCREMENT TEST NUMBER
3158  013704  012704  001256                MOV     #TAB6,R4                ;POINT TO FSRC TEST DATA
3159  013710  005067  165216                CLR     RECDST+4                ;CLEAR OUT RECEIVED DATA TABLE
3160  013714  005067  165214                CLR     RECDST+6                ;
3161  013720  012702  040000                MOV     #40000,R2               ;SET UP GOOD STATUS
3162  013724  170102                        LDFPS   R2                      ;LOAD FPP STATUS, FLOATING
3163  013726  172414                        LDF     (R4),AC0                ;LOAD AC0 WITH 0
3164  013730  172014                        ADDF    (R4),AC0                ;0+0
3165  013732  170203                        STFPS   R3                      ;SAVE STATUS
3166  013734  022703  040004                CMP     #40004,R3               ;VERIFY STATUS
3167  013740  001403                        BEQ     1$                      ;BRANCH IF GOOD
3168  013742  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3169  013744  000230                        .WORD   230                     ;UNIQUE ERROR NUMBER
3170  013746  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3171                                                                    ;BAD FPP STATUS
3172  013750  012701  001126        1$:     MOV     #RECDST,R1              ;POINT TO RECEIVERD DATA
3173  013754  174011                        STF     AC0,(R1)                ;SAVE DATA
3174  013756  004767  166164                JSR     R7,DATVER               ;VERIFY DATA
3175  013762  005767  165052                TST     COUNT                   ;
3176  013766  001403                        BEQ     2$                      ;BRANCH IF GOOD
3177  013770  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3178  013772  000231                        .WORD   231                     ;UNIQUE ERROR NUMBER
3179  013774  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3180                                                                    ;BAD DATA IN AC0
3181  013776  012702  040200        2$:     MOV     #40200,R2               ;LOAD FLOATING STATUS
3182  014002  170102                        LDFPS   R2                      ;
```

```
3183  014004  172414                      LDD     (R4),AC0                ;LOAD AC0 WITH 0
3184  014006  172014                      ADDD    (R4),AC0                ;*TEST INSTRUCTION
3185  014010  174011                      STD     AC0,(R1)                ;SAVE DATA
3186  014012  170203                      STFPS   R3                      ;SAVE FPS
3187  014014  022703  040204              CMP     #40204,R3               ;VERFIY STATUS
3188  014020  001403                      BEQ     3$                      ;BRANCH IF GOOD
3189  014022  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3190  014024  000232                      .WORD   232                     ;UNIQUE ERROR NUMBER
3191  014026  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3192                                                                  ;BAD FPS
3193  014030  004767  166112      3$:     JSR     R7,DATVER                       ;VERFIY DATA
3194  014034  005737  001040              TST     @#COUNT                 ;VERIFY RESULT
3195  014040  001403                      BEQ     44$                     ;BRANCH IF GOOD
3196  014042  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3197  014044  000233                      .WORD   233                     ;UNIQUE ERROR NUMBER
3198  014046  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3199                                                                  ;BAD AC0
3200  014050  172414      44$:    LDD     (R4),AC0                ;SETUP DATA
3201  014052  173014              SUBD    (R4),AC0                ;*TEST INSTRUCTION
3202  014054  170203              STFPS   R3                      ;SAVE STATUS
3203  014056  022703  040204              CMP     #40204,R3               ;VERFIY STATUS
3204  014062  001403                      BEQ     4$                      ;BRANCH IF GOOD
3205  014064  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3206  014066  000234                      .WORD   234                     ;UNIQUE ERROR NUMBER
3207  014070  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3208                                                                  ;BAD FPS
3209  014072  174011      4$:     STD     AC0,(R1)                ;SAVE AC0 DATA
3210  014074  004767  166046              JSR     R7,DATVER                       ;VERFIY DATA
3211  014100  005767  164734              TST     COUNT                   ;
3212  014104  001403                      BEQ     5$                      ;BRANCH IF GOOD
3213  014106  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3214  014110  000235                      .WORD   235                     ;UNIQUE ERROR NUMBER
3215  014112  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3216                                                                  ;BAD AC0
3217  014114  170127  000000      5$:     LDFPS   #0                      ;STORE FPP STATUS
3218  014120  172414              LDD     (R4),AC0                ;LOAD AC0
3219  014122  173014              SUBF    (R4),AC0                        ;0-0
3220  014124  170203              STFPS   R3                      ;SAVE STATUS
3221  014126  174011              STD     AC0,(R1)                ;SAVE AC0
3222  014130  022703  000004              CMP     #4,R3                   ;VERFIY STATUS
3223  014134  001403                      BEQ     6$                      ;BRANCH IF GOOD
3224  014136  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3225  014140  000236                      .WORD   236                     ;UNIQUE ERROR NUMBER
3226  014142  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3227                                                                  ;BAD FPS
3228  014144  004767  165776      6$:     JSR     R7,DATVER                       ;VERIFY DATAT
3229  014150  005767  164664              TST COUNT                       ;
3230  014154  001403                      BEQ     7$                      ;BRANC IF GOOD
3231  014156  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3232  014160  000237                      .WORD   237                     ;UNIQUE ERROR NUMBER
3233  014162  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3234                                                                  ;BAD AC0
3235  014164              7$:
3236
3237
3238  014164              MNNRM2:
```

```
3239                                    ;;*****************************************************************
3240                                    ;*TEST 47        TEST ADDF,SUBD - FSRC=0, ACO NE 0
3241                                    ;;*****************************************************************
3242  014164                            TST47:
3243  014164  005267  164614                   INC     $TESTN                  ;INCREMENT TEST NUMBER
3244  014170  012701  001126                   MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3245  014174  012705  001256                   MOV     #TAB6,R5                ;POINT TO SOURCE DATA TABLE
3246  014200  012704  001206                   MOV     #TAB2,R4                ;POINT TO ACO DATA
3247  014204  170127  000200                   LDFPS   #200                    ;SET TO DOUBLE FOR CLEAR
3248  014210  172415                           LDD     (R5),AC0                ;
3249  014212  005002                           CLR     R2                      ;SETUP FPP STATUS
3250  014214  170102                           LDFPS   R2                      ;LOAD FPS
3251  014216  172414                           LDF     (R4),AC0                ;LOAD ACO
3252  014220  172015                           ADDF    (R5),AC0                        ;*TEST INSTRUCTION
3253  014222  170203                           STFPS   R3                      ;SAVE STATUS
3254  014224  174011                           STF     AC0,(R1)                ;SAVE ACO
3255  014226  022703  000000                   CMP     #0,R3                   ;VERFIY NEGATIVE RESULT
3256  014232  001403                           BEQ     1$                      ;BRANCH IF GOOD
3257  014234  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3258  014236  000240                           .WORD   240                     ;UNIQUE ERROR NUMBER
3259  014240  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3260                                                                    ;BAD FPS
3261  014242  012704  001226           1$:     MOV     #TAB4,R4                ;POINT TO EXPECTED DATA
3262  014246  004767  165674                   JSR     R7,DATVER                       ;VERFIY ACO
3263  014252  005767  164562                   TST     COUNT                   ;CHECK RESULT
3264  014256  001403                           BEQ     2$                      ;BRANCH IF GOOD
3265  014260  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3266  014262  000241                           .WORD   241                     ;UNIQUE ERROR NUMBER
3267  014264  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3268                                                                    ;BAD ACO
3269  014266  170127  000200           2$:     LDFPS   #200                    ;SET STATUS TO DUOBLE NODE
3270  014272  172414                           LDD     (R4),AC0                ;LOAD ACO WITH A VALUE
3271  014274  173015                           SUBD    (R5),AC0                ;*TEST INSTRUCTION
3272  014276  170203                           STFPS   R3                      ;SAVE FPP STATUS
3273  014300  174011                           STD     AC0,(R1)                ;SAVE ACO
3274  014302  022703  000200                   CMP     #200,R3                 ;VERIFY RESULT
3275  014306  001403                           BEQ     3$                      ;BRANCH IF GOOD
3276  014310  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3277  014312  000242                           .WORD   242                     ;UNIQUE ERROR NUMBER
3278  014314  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3279                                                                    ;BAD SUBD
3280  014316  012704  001226           3$:     MOV     #TAB4,R4                ;POINT TO EXPECTED
3281  014322  004767  165620                   JSR     R7,DATVER               ;VERIFY ACO
3282  014326  005767  164506                   TST     COUNT                   ;
3283  014332  001403                           BEQ     4$                      ;BRANCH IF GOOD ACO
3284  014334  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3285  014336  000243                           .WORD   243                     ;UNIQUE ERROR NUMBER
3286  014340  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3287                                                                    ;BAD ACO
3288  014342                            4$:
3289
3290
3291  014342                            MNNPM3:
3292                                    ;;*****************************************************************
3293                                    ;*TEST 50        TEST ADDD, SUBF   FSRC NE 0, ACO=0
3294                                    ;;*****************************************************************
```

```
3295  014342                          TST50:
3296  014342  005267  164436                  INC     #TESTN                  ;INCREMENT TEST NUMBER
3297  014346  012701  001126                  MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3298  014352  012705  001256                  MOV     #TAB6,R5                ;POINT TO AC0 DATA TABLE
3299  014356  012704  001176                  MOV     #TAB1,R4                ;POINT TO FSRC DATA
3300  014362  012702  000200                  MOV     #200,R2                 ;SETUP FPP STATUS
3301  014366  170102                          LDFPS   R2                      ;LOAD FPS
3302  014370  172415                          LDD     (R5),AC0                ;LOAD AC0
3303  014372  172014                          ADDD    (R4),AC0                        ;*TEST INSTRUCTION
3304  014374  170203                          STFPS   R3                      ;SAVE STATUS
3305  014376  174011                          STD     AC0,(R1)                ;SAVE AC0
3306  014400  022703  000210                  CMP     #210,R3                 ;VERFIY NEGATIVE RESULT
3307  014404  001403                          BEQ     1$                      ;BRANCH IF GOOD
3308  014406  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3309  014410  000244                          .WORD   244                     ;UNIQUE ERROR NUMBER
3310  014412  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3311                                                                  ;BAD FPS
3312  014414  004767  165526          1$:     JSR     R7,DATVER                       ;VERFIY AC0
3313  014420  005767  164414                  TST     COUNT                   ;CHECK RESULT
3314  014424  001403                          BEQ     2$                      ;BRANCH IF GOOD
3315  014426  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3316  014430  000245                          .WORD   245                     ;UNIQUE ERROR NUMBER
3317  014432  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3318                                                                  ;BAD AC0
3319  014434  170127  000200          2$:     LDFPS   #200                    ;SET STATUS TO DUOBLE MODE
3320  014440  172415                          LDD     (R5),AC0                ;LOAD AC0 WITH A VALUE
3321  014442  173014                          SUBD    (R4),AC0                ;*TEST INSTRUCTION
3322  014444  170203                          STFPS   R3                      ;SAVE FPP STATUS
3323  014446  174011                          STD     AC0,(R1)                        ;SAVE AC0
3324  014450  022703  000200                  CMP     #200,R3                 ;VERIFY RESULT
3325  014454  001403                          BEQ     3$                      ;BRANCH IF GOOD
3326  014456  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3327  014460  000246                          .WORD   246                     ;UNIQUE ERROR NUMBER
3328  014462  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3329                                                                  ;BAD SUBD
3330  014464  012704  001446          3$:     MOV     #TAB18,R4               ;POINT TO EXPECTED DATA
3331  014470  004767  165452                  JSR     R7,DATVER               ;VERIFY AC0
3332  014474  005767  164340                  TST     COUNT                   ;
3333  014500  001403                          BEQ     4$                      ;BRANCH IF GOOD AC0
3334  014502  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3335  014504  000247                          .WORD   247                     ;UNIQUE ERROR NUMBER
3336  014506  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3337                                                                  ;BAD AC0
3338  014510                          4$:
3339
3340
3341  014510                          MNNRM4:
3342                                  ;;*******************************************************************
3343                                  ;*TEST 51        TEST  ADDF, SUBD - EXP(AC0) - EXP(FSRC)
3344                                  ;;*******************************************************************
3345  014510                          TST51:
3346  014510  005267  164270                  INC     #TESTN                  ;INCREMENT TEST NUMBER
3347  014514  012702  003240                  MOV     #3240,R2                ;SET FIU,FD,FT
3348  014520  170102                          LDFPS   R2
3349  014522  012704  001276                  MOV     #TAB7,R4                ;SET FSRC
3350  014526  012705  001306                  MOV     #TAB8,R5                ;SETUP AC0
```

```
3357  014532  012701  001126          MOV     #RECDST,R1              ;POINT TO RECEIVED DATA
3358  014536  172415                  LDD     (R5),AC0                ;LOAD AC0
3359  014540  172014                  ADDD    (R4),AC0                ;*TEST INSTRUCTION
3360  014542  174011                  STD     AC0,(R1)                ;SAVE TEST RESULT
3361  014544  012704  001316          MOV     #TAB9,R4                ;POINT TO EXPECTED DATA
3362  014550  004767  165372          JSR     R7,DATVER               ;VERIFY AC0 DATA
3363  014554  005767  164260          TST     COUNT                   ;
3364  014560  001403                  BEQ     1$                      ;BRANCH IF GOOD
3365  014562  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3366  014564  000250                  .WORD   250                     ;UNIQUE ERROR NUMBER
3367  014566  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3368                                                          ;BAD ADDD
3369  014570  012704  001306    1$:   MOV     #TAB8,R4                ;
3370  014574  012703  001306          MOV     #TAB8,R3                ;SETUP SAME AC0
3371  014600  012702  003200          MOV     #3200,R2                ;ROUND MODE
3372  014604  170102                  LDFPS   R2
3373  014606  172413                  LDD     (R3),AC0                ;LOAD AC0
3374  014610  061400                  ADD     (R4),AC0                ;*TEST INSTRUCTION
3375  014612  174011                  STD     AC0,(R1)                ;SAVE DATA
3376  014614  004767  165326          JSR     R7,DATVER               ;VERIFY AC0
3377  014620  005767  164214          TST     COUNT
3378  014624  001403                  BEQ     2$                      ;BRANCH IF GOOD
3379  014626  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3380  014630  000251                  .WORD   251                     ;UNIQUE ERROR NUMBER
3381  014632  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3382                                                          ;BAD ROUND RESULT
3383  014634                  2$:
3384
3385
3386  014634                  MXDF1:
3387                          ;;*********************************************************************
3388                          ;*TEST 52       TEST ADD - EXP(FSRC) .GT. EXP(AC0)
3389                          ;;*********************************************************************
3390  014634                  TST52:
3391  014634  005267  164144          INC     $TESTN                  ;INCREMENT TEST NUMBER
3392  014640  012702  003200          MOV     #3200,R2                ;R2=FPP STATUS
3393  014644  170102                  LDFPS   R2                      ;LOAD FPS STATUS
3394  014646  012704  001336          MOV     #TAB11,R4               ;POINT TO FSRC DATA
3395  014652  012701  001126          MOV     #RECDST,R1              ;POINT TO AC0 RESULT
3396  014656  012705  001326          MOV     #TAB10,R5               ;POINT TO AC0 DATA
3397  014662  172415                  LDD     (R5),AC0                ;LOAD AC0 DATA
3398  014664  172014                  ADDD    (R4),AC0                ;*TEST INSTRUCTIONS
3399  014666  170203                  STFPS   R3                      ;SAVE FPP STATUS
3400  014670  174011                  STD     AC0,(R1)                ;SAVE AC0 DATA
3401  014672  022703  003200          CMP     #3200,R3                ;VERIFY FPP STATUS
3402  014676  001403                  BEQ     1$                      ;BRANCH IF GOOD
3403  014700  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3404  014702  000252                  .WORD   252                     ;UNIQUE ERROR NUMBER
3405  014704  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3406                                                          ;BAD FPP STATUS
3407  014706  012704  001346    1$:   MOV     #TAB11A,R4              ;POINT TO EXPECTED DATA
3408  014712  004767  165230          JSR     R7,DATVER               ;VERIFY CONTENTS OF AC0
3409  014716  005767  164116          TST     COUNT                   ;
3410  014722  001403                  BEQ     2$                      ;BRANCH IF GOOD AC0
3411  014724  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3412  014726  000253                  .WORD   253                     ;UNIQUE ERROR NUMBER
```

```
3407  014730  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3408                                                                  ;BAD ACO, SHOULD = FSRC
3409  014732  012704  001356          2$:   MOV     #TAB12,R4               ;POINT TO FSRC DATA
3410  014736  172415                        LDD     (R5),ACO                ;ACO
3411  014740  172014                        ADDD    (R4),ACO                ;*TEST INSTRUCTION
3412  014742  012704  001376                MOV     #TAB13B,R4              ;POINT TO EXPECTED RESULT
3413  014746  174011                        STD     ACO,(R1)                ;SAVE ACO DATA INTO RECDAT
3414  014750  004767  165172                JSR     R7,DATVER               ;VERIFY DATA
3415  014754  005767  164060                TST     COUNT
3416  014760  001403                        BEQ     3$                      ;BRANCH IF GOOD DATA
3417  014762  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3418  014764  000254                        .WORD   254                     ;UNIQUE ERROR NUMBER
3419  014766  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3420                                                                  ;BAD ACO DATA
3421  014770  012702  003000          3$:   MOV     #3000,R2                ;GET FPP STATUS DATA
3422  014774  012704  001406                MOV     #TAB14,R4               ;POINT TO FSRC DATA
3423  015000  012705  001416                MOV     #TAB15,R5               ;POINT TO ACO DATA
3424  015004  172415                        LDD     (R5),ACO                ;LOAD ACO
3425  015006  170102                        LDFPS   R2                      ;FPP STATUS = FLOAT, INTERRUPTS ENABLE
3426  015010  172014                        ADDF    (R4),ACO                ;*TEST INSTRUCTION
3427  015012  170127  000200                LDFPS   #200                    ;RESET TO DOUBLE
3428  015016  174011                        STD     ACO, (R1)               ;RECOST=ACO
3429  015020  012704  001326                MOV     #TAB10,R4               ;POINT TO GOOD DATA
3430  015024  004767  165116                JSR     R7,DATVER                       ;VERFIY CONTENTS OF ACO
3431  015030  005767  164004                TST     COUNT                   ;
3432  015034  001403                        BEQ     4$                      ;BRANCH IF GOOD
3433  015036  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3434  015040  000255                        .WORD   255                     ;UNIQUE ERROR NUMBER
3435  015042  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3436                                                                  ;BAD FLOATING ADD
3437  015044  012705  001436          4$:   MOV     #TAB16,R5               ;POINT TO ACO DATA
3438  015050  170102                        LDFPS   R2                      ;FPP STATUS = FLOAT
3439  015052  172415                        LDF     (R5),ACO                ;LOAD ACO
3440  015054  172014                        ADDF    (R4),ACO                ;*TEST INSTRUCTION
3441  015056  174011                        STD     ACO,(R1)                        ;SAVE ACO  DATA
3442  015060  012704  001436                MOV     #TAB17,R4               ;POINT TO GOOD DATA
3443  015064  004767  165056                JSR     R7,DATVER
3444  015070  005767  163744                TST     COUNT
3445  015074  001403                        BEQ     5$                      ;BRANCH IF GOOD
3446  015076  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3447  015100  000256                        .WORD   256                     ;UNIQUE ERROR NUMBER
3448  015102  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3449                                                                  ;BAD FLOATING ADD
3450  015104                          5$:
3451
3452
3453
3454  015104                          MNGOP:
3455                                  ;;*****************************************************************
3456                                  ;*TEST 53        TEST ADDD WITH NEGATIVE OPERANDS
3457                                  ;;*****************************************************************
3458  015104                          TST53:
3459  015104  005267  163674                INC     $TESTN                  ;INCREMENT TEST NUMBER
3460  015110  012702  003200                MOV     #3200,R2                ;LOAD FPS VALUE
3461  015114  170102                        LDFPS   R2                      ;
3462  015116  012704  001456                MOV     #TAB21,R4               ;DATA ADDRESS FOR ACO AND FSR
```

```
3463  015122  172414                      LDD     (R4),AC0        ;AC0=100200 0 0 0
3464  015124  172014                      ADDD    (R4),AC0        ;*TEST INSTRUCTION
3465  015126  170203                      STFPS   R3              ;SAVE STATUS
3466  015130  012701  001126              MOV     #RECDST,R1      ;POINT TO RECEIVED DATA TABLE
3467  015134  174011                      STD     AC0,(R1)        ;SAVE AC0 DATA
3468  015136  022703  003210              CMP     #3210,R3        ;VERIFY STATUS
3469  015142  001403                      BEQ     1$              ;BRANCH IF GOOD
3470  015144  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3471  015146  000257                      .WORD   257             ;UNIQUE ERROR NUMBER
3472  015150  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3473                                                      ;
3474  015152  012704  001466      1$:     MOV     #TAB22,R4       ;POINT TO EXPECTED DATA
3475  015156  004767  164764              JSR     R7,DATVER       ;
3476  015162  005767  163652              TST     COUNT           ;VERIFY DATA
3477  015166  001403                      BEQ     2$              ;BRANCH IF GOOD
3478  015170  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3479  015172  000260                      .WORD   260             ;UNIQUE ERROR NUMBER
3480  015174  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3481                                                      ;
3482                                      ;       !-FSRC! = !AC0!
3483  015176  012704  001456      2$:     MOV     #TAB21,R4       ;POINT TO FSRC DATA
3484  015202  012701  001476              MOV     #TAB23,R1       ;POINT TO AC0 DATA
3485  015206  012737  015230  000244      MOV     #101$,@#FPVEC   ;SETUP FP VECTOR
3486  015214  172411                      LDD     (R1),AC0        ;LOAD AC0
3487  015216  172014                      ADDD    (R4),AC0        ;*TEST INSTRUCTION
3488  015220  170000              100$:   CFCC                    ;COPY FPP CC
3489  015222  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3490  015224  000261                      .WORD   261             ;UNIQUE ERROR NUMBER
3491  015226  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3492                                                  ;GO TO ERROR
3493  015230  170203              101$:   STFPS   R3              ;SAVE FPP STATUS
3494  015232  012701  001126              MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3495  015236  174011                      STD     AC0,(R1)        ;SAVE AC0 DATA
3496  015240  022703  103200              CMP     #103200,R3      ;VERIFY STATUS
3497  015244  001403                      BEQ     3$              ;BRANCH IF GOOD
3498  015246  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3499  015250  000262                      .WORD   262             ;UNIQUE ERROR NUMBER
3500  015252  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3501                                                  ;BAD STATUS
3502  015254  012605              3$:     MOV     (SP)+,R5        ;GET ERROR PC
3503  015256  020527  015220              CMP     R5,#100$        ;VERIFY ERROR ADDRESS ON STACK
3504  015262  001403                      BEQ     102$            ;BRANCH IF GOOD
3505  015264  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3506  015266  000263                      .WORD   263             ;UNIQUE ERROR NUMBER
3507  015270  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3508                                                  ;BAD ERROR RETURN ON STACK
3509  015272  005726              102$:   TST     (SP)+           ;RESTORE STACK
3510  015274  012704  001506              MOV     #TAB24,R4       ;POINT TO EXPECTED DATA TABLE
3511  015300  004767  164642              JSR     R7,DATVER       ;VERIFY DATA
3512  015304  005767  163530              TST     COUNT
3513  015310  001403                      BEQ     4$              ;BRANC IF GOOD
3514  015312  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3515  015314  000264                      .WORD   264             ;UNIQUE ERROR NUMBER
3516  015316  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3517                                                  ;BAD AC0 DATA
3518                                      ;       !-AC0! = !FSRC!
```

```
3519  015320  012704  001476          4$:     MOV     #TAB23,R4       ;POINT TO FSRC DATA
3520  015324  012701  001456                  MOV     #TAB21,R1       ;POINT TO ACO DATA
3521  015330  012737  015360  000244          MOV     #104$,@#FPVEC   ;SETUP FP VECTOR
3522  015336  012702  003200                  MOV     #3200,R2        ;LOAD FPS VALUE
3523  015342  170102                          LDFPS   R2              ;
3524  015344  172411                          LDD     (R1),AC0        ;LOAD AC0 DATA
3525  015346  172014                          ADDD    (R4),AC0        ;*TEST INSTRUCTION
3526  015350  170000                  103$:   CFCC                    ;COPY FPP CC
3527  015352  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3528  015354  000265                          .WORD   265             ;UNIQUE ERROR NUMBER
3529  015356  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3530                                  ;GO TO ERROR
3531  015360  170203                  104$:   STFPS   R3              ;SAVE FPS
3532  015362  012701  001126                  MOV     #RECDST,R1      ;SAVE AC0
3533  015366  174011                          STD     AC0,(R1)        ;
3534  015370  022703  103200                  CMP     #103200,R3      ;VERFIY STATUS
3535  015374  001403                          BEQ     5$              ;BRANCH IF GOOD
3536  015376  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3537  015400  000266                          .WORD   266             ;UNIQUE ERROR NUMBER
3538  015402  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3539                                  ;BAD FPS STAT
3540  015404  012605                  5$:     MOV     (SP)+,R5        ;GET ERROR PC
3541  015406  020527  015350                  CMP     R5,#103$        ;VERIFY ERROR ADDRESS ON STACK
3542  015412  001403                          BEQ     105$            ;BRANCH IF GOOD
3543  015414  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3544  015416  000267                          .WORD   267             ;UNIQUE ERROR NUMBER
3545  015420  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3546                                  ;BAD ERROR RETURN ON STACK
3547  015422  005726                  105$:   TST     (SP)+           ;RESTORE STACK
3548  015424  012704  001506                  MOV     #TAB24,R4       ;POINT TO EXPECTED DATA
3549  015430  004767  164512                  JSR     R7,DATVER
3550  015434  005767  163400                  TST     COUNT           ;
3551  015440  001403                          BEQ     6$              ;BRANCH IF  GOOD
3552  015442  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3553  015444  000270                          .WORD   270             ;UNIQUE ERROR NUMBER
3554  015446  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3555                                  ;BAD ACO
3556                                  !AC0!
3557  015450  012704  001526          6$:     MOV     #TAB26,R4       ;POINT TO FSRC DATA
3558  015454  012701  001516                  MOV     #TAB25,R1       ;POINT TO ACO DATA
3559  015460  012702  003200                  MOV     #3200,R2        ;LOAD FPS VALUE
3560  015464  170102                          LDFPS   R2              ;
3561  015466  012737  000246  000244          MOV     #246,@#FPVEC    ;SETUP FP VECTOR
3562  015474  172411                          LDD     (R1),AC0        ;LOAD AC0 DATA
3563  015476  172014                          ADDD    (R4),AC0        ;*TEST INSTRUCTION
3564  015500  170203                          STFPS   R3              ;SAVE STATUS
3565  015502  012701  001126                  MOV     #RECDST,R1      ;POINT TO RECEIVED DATA TABLE
3566  015506  174011                          STD     AC0,(R1)        ;SAVE AC0
3567  015510  020327  003200                  CMP     R3,#3200        ;VERIFY STATUS
3568  015514  001403                          BEQ     7$              ;BRANCH IF GOOD
3569  015516  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3570  015520  000271                          .WORD   271             ;UNIQUE ERROR NUMBER
3571  015522  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3572                                  ;BAD FPS
3573  015524  012704  001536          7$:     MOV     #TAB27,R4       ;POINT TO EXPECTED DSATA
3574  015530  004767  164412                  JSR     R7,DATVER       ;VERIFY DATA
```

```
3575  015534  005767  163300              TST     COUNT                   ;
3576  015540  001403                      BEQ     8$                      ;BRANCH IF GOOD
3577  015542  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3578  015544  000272                      .WORD   272                     ;UNIQUE ERROR NUMBER
3579  015546  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3580                                                                      ;
3581                                      ;       !FSRC!  >               !-AC!
3582  015550  012704  001516        8$:   MOV     #TAB25,R4               ;POINT TO FSRC DATA
3583  015554  012701  001526              MOV     #TAB26,R1               ;POINT TO ACO DATA
3584  015560  172411                      LDD     (R1),AC0                ;LOAD AC0 DATA
3585  015562  172014                      ADDD    (R4),AC0                ;*TEST INSTRUCTION
3586  015564  170203                      STFPS   R3                      ;SAVE STATUS
3587  015566  012701  001126              MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3588  015572  174011                      STD     AC0,(R1)                        ;SAVE AC0
3589  015574  020327  003200              CMP     R3,#3200                        ;VERIFY STATUS
3590  015600  001403                      BEQ     9$                      ;BRANCH IF GOOD
3591  015602  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3592  015604  000273                      .WORD   273                     ;UNIQUE ERROR NUMBER
3593  015606  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3594                                                                      ;BAD FPS
3595  015610  012704  001536        9$:   MOV     #TAB27,R4                       ;POINT TO EXPECTED DSATA
3596  015614  004767  164326              JSR     R7,DATVER                       ;VERIFY DATA
3597  015620  005767  163214              TST     COUNT                   ;
3598  015624  001403                      BEQ     10$                     ;BRANCH IF GOOD
3599  015626  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3600  015630  000274                      .WORD   274                     ;UNIQUE ERROR NUMBER
3601  015632  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3602                                                                      ;BAD ACO
3603                                      ;       !-FSRC! <               !ACO!
3604  015634  012704  001556       10$:   MOV     #TAB29,R4               ;POINT TO FSRC DATA
3605  015640  012701  001546              MOV     #TAB28,R1               ;POINT TO ACO DATA
3606  015644  172411                      LDD     (R1),AC0                ;LOAD AC0 DATA
3607  015646  172014                      ADDD    (R4),AC0                ;*TEST INSTRUCTION
3608  015650  170203                      STFPS   R3                      ;SAVE STATUS
3609  015652  012701  001126              MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3610  015656  174011                      STD     AC0,(R1)                        ;SAVE AC0
3611  015660  020327  003200              CMP     R3,#3200                        ;VERIFY STATUS
3612  015664  001403                      BEQ     11$                     ;BRANCH IF GOOD
3613  015666  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3614  015670  000275                      .WORD   275                     ;UNIQUE ERROR NUMBER
3615  015672  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3616                                                                      ;BAD FPS
3617  015674  012704  001566       11$:   MOV     #TAB29A,R4                      ;POINT TO EXPECTED DATA
3618  015700  004767  164242              JSR     R7,DATVER                       ;VERIFY DATA
3619  015704  005767  163130              TST     COUNT                   ;
3620  015710  001403                      BEQ     12$                     ;BRANCH IF GOOD
3621  015712  104000                      EPROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3622  015714  000276                      .WORD   276                     ;UNIQUE ERROR NUMBER
3623  015716  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3624                                                                      ;
3625  015720                      12$:
3626
3627                                      ;
3628                                      ;
3629  015720                      MSB:
3630                                      ;;**********************************************************************
```

```
3631                                    ;*TEST 54       TEST SUB WITH EXP[AC0]-EXP[FSRC]
3632                                    ;;*****************************************************************
3633  015720                            TST54:
3634  015720  005267  163060                  INC     $TESTN                  ;INCREMENT TEST NUMBER
3635  015724  012702  003200                  MOV     #3200,R2                ;LOAD FPS DATA
3636  015730  170102                          LDFPS   R2                      ;LOAD FPS
3637  015732  012704  001456                  MOV     #TAB21,R4               ;POINT TO FSRC DATA
3638  015736  012701  001126                  MOV     #RECDST,R1              ;POINT TO AC0 RECEIVED DATA TABLE
3639  015742  172414                          LDD     (R4),AC0                ;LOAD AC0
3640  015744  173014                          SUBD    (R4),AC0                        ;*TEST INSTRUCTION
3641  015746  170203                          STFPS   R3                      ;SAVE STATUS
3642  015750  174011                          STD     AC0,(R1)                ;SAVE AC0 INTO RECDST
3643  015752  022703  003204                  CMP     #3204,R3                ;VERIFY STATUS
3644  015756  001403                          BEQ     1$                      ;BRANCH IF GOOD
3645  015760  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3646  015762  000277                          .WORD   277                     ;UNIQUE ERROR NUMBER
3647  015764  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3648                                                                  ;BAD FPS STATUS
3649  015766  012704  001256          1$:     MOV     #TAB6,R4                ;POINT TO EXPECTED DATA
3650  015772  004767  164150                  JSR     R7,DATVER               ;VERIFY AC0
3651  015776  005767  163036                  TST     COUNT                   ;
3652  016002  001403                          BEQ     2$                      ;BRANCH IF GOOD
3653  016004  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3654  016006  000300                          .WORD   300                     ;UNIQUE ERROR NUMBER
3655  016010  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3656                                                                  ;BAD AC0
3657  016012  012704  001406          2$:     MOV     #TAB14,R4               ;POINT TO FSRC AND AC0 DATA
3658  016016  172414                          LDD     (R4),AC0                        ;LOAD AC0 DATA
3659  016020  173014                          SUBD    (R4),AC0                        ;*TEST  INSTRUCTION
3660  016022  170203                          STFPS   R3                      ;SAVE FPS
3661  016024  174011                          STD     AC0,(R1)                        ;SAVE AC0 INTO RECDST
3662  016026  022703  003204                  CMP     #3204,R3                        ;VERIFY FPS
3663  016032  001403                          BEQ     3$                      ;BRANCH IF GOOD
3664  016034  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3665  016036  000301                          .WORD   301                     ;UNIQUE ERROR NUMBER
3666  016040  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3667                                                                  ;BAD AC0
3668  016042  012704  001256          3$:     MOV     #TAB6,R4                ;POINT TO EXPECTED DATA
3669  016046  004767  164074                  JSR     R7,DATVER                       ;VERIFY AC0
3670  016052  005767  162762                  TST     COUNT
3671  016056  001403                          BEQ     4$                      ;BRANCH IF GOOD
3672  016060  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3673  016062  000302                          .WORD   302                     ;UNIQUE ERROR NUMBER
3674  016064  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3675                                                                  ;BAD AC0
3676  016066                            4$:
3677
3678                                    ;
3679  016066                            MNRM:
3680                                    ;;*****************************************************************
3681                                    ;*TEST 55       TEST NORMALIZE
3682                                    ;;*****************************************************************
3683  016066                            TST55:
3684  016066  005267  162712                  INC     $TESTN                  ;INCREMENT TEST NUMBER
3685  016072  012702  003200                  MOV     #3200,R2                ;LOAD FPS
3686  016076  170102                          LDFPS   R2                      ;
```

```
3687  016100  012705  001606          MOV     #TAB31,R5           ;POINT TO FSRC DATA
3688  016104  012701  001576          MOV     #TAB30,R1           ;POINT TO ACO DATA
3689  016110  172411                  LDD     (R1),AC0            ;LOAD AC0
3690  016112  173015                  SUBD    (R5),AC0            ;*TEST INSTRUCTION
3691                                                              ;1 LEFT SHIFT
3692  016114  170203                  STFPS   R3                  ;SAVE STATUS
3693  016116  012704  001126          MOV     #RECDST,R4          ;POINT TO RECDATA
3694  016122  174014                  STD     AC0,(R4)                    ;SAVE AC0
3695  016124  012701  001636          MOV     #TAB34,R1           ;POINT TO EXPECTED DATA
3696  016130  004767  164012          JSR     R7,DATVER                   ;VERIFY DATA
3697  016134  005767  162700          TST     COUNT
3698  016140  001403                  BEQ     1$                  ;BRANCH IF GOOD
3699  016142  104000                  ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
3700  016144  000303                  .WORD   303                 ;UNIQUE ERROR NUMBER
3701  016146  002013                  .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
3702                                                      ;
3703  016150  012701  001616    1$:   MOV     #TAB32,R1           ;AC0 DATA
3704  016154  012705  001626          MOV     #TAB33,R5                   ;FSRC DATA
3705  016160  172411                  LDD     (R1),AC0                    ;LOAD AC0
3706  016162  173015                  SUBD    (R5),AC0            ;*TST INSTRUCTION
3707                                                              ;56 LEFT SHIFTS
3708  016164  012701  001126          MOV     #RECDST,R1                  ;SAVE DATA
3709  016170  174011                  STD     AC0,(R1)                    ;
3710  016172  004767  163750          JSR     R7,DATVER
3711  016176  005767  162636          TST     COUNT
3712  016202  001403                  BEQ     2$                  ;
3713  016204  104000                  ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
3714  016206  000304                  .WORD   304                 ;UNIQUE ERROR NUMBER
3715  016210  002013                  .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
3716                                                      ;
3717  016212                  2$:
3718
3719  016212                  MUVAD:
3720                          ;;*****************************************************************
3721                          ;*TEST 56        TEST ADDD WITH OVERFLOW AND UNDERFLOW
3722                          ;;*****************************************************************
3723  016212                  TST56:
3724  016212  005267  162566          INC     $TESTN                      ;INCREMENT TEST NUMBER
3725  016216  012702  000200          MOV     #200,R2                     ;SETUP FLOATING POINT STATUS
3726  016222  170102                  LDFPS   R2                          ;LOAD FPS
3727  016224  012704  001646          MOV     #TAB40,R4                           ;POINT TO FSRC DATA
3728  016230  012701  001646          MOV     #TAB40,R1                           ;POINT TO AC0 DATA
3729  016234  172411                  LDD     (R1),AC0                            ;LOAD AC0 WITH TEST DATA
3730  016236  172014                  ADDD    (R4),AC0                    ;*TEST INSTRUCTION
3731  016240  170203                  STFPS   R3                          ;SAVE FPS
3732  016242  012701  001126          MOV     #RECDST,R1                  ;POINT TO RECEIVED DATA TABLE
3733  016246  174011                  STD     AC0,(R1)                    ;SAVE AC0  RESULT
3734  016250  022703  000206          CMP     #206,R3                     ;VERIFY STATUS
3735  016254  001403                  BEQ     1$                          ;BRANCH IF GOOD
3736  016256  104000                  ERROR                               ;ALL ERRORS TO TRAP TO EMT VECTOR
3737  016260  000305                  .WORD   305                         ;UNIQUE ERROR NUMBER
3738  016262  002013                  .WORD   FPPERR                      ;ADDRESS OF ERROR MESSAGE
3739                                                          ;BAD FPS
3740  016264  012704  001256    1$:   MOV     #TAB6,R4                            ;POINT TO EXPECTED DATA
3741  016270  004767  163652          JSR     R7,DATVER                           ;VERIFY DATA
3742  016274  005767  162540          TST     COUNT
```

```
3743  016300  001403                        BEQ     2$                      ;BRANCH IF GOOD
3744  016302  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3745  016304  000306                        .WORD   306                     ;UNIQUE ERROR NUMBER
3746  016306  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3747                                                                  ;BAD ACO
3748                                ;OVERFLOW TRAPS ENABLED
3749  016310  012702  001200        2$:     MOV     #1200,R2                ;SETUP FLOATING POINT STATUS
3750  016314  170102                        LDFPS   R2                      ;LOAD FPS
3751  016316  012704  001646                MOV     #TAB40,R4               ;POINT TO FSRC DATA
3752  016322  012701  001646                MOV     #TAB40,R1               ;POINT TO ACO DATA
3753  016326  172411                        LDD     (R1),AC0                ;LOAD AC0 WITH TEST DATA
3754  016330  012737  016350  000244        MOV     #3$,@#FPVEC             ;CHANGE TRAP VECTOR
3755  016336  172014                        ADDD    (R4),AC0                ;*TEST INSTRUCTION
3756  016340  170000                23$:    CFCC
3757  016342  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3758  016344  000307                        .WORD   307                     ;UNIQUE ERROR NUMBER
3759  016346  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3760                                                                  ;FAILED TO TRAP ON OVERFLOW
3761  016350  170203                3$:     STFPS   R3                      ;SAVE FPS
3762  016352  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3763  016356  174011                        STD     AC0,(R1)                ;SAVE AC0  RESULT
3764  016360  022703  101206                CMP     #101206,R3              ;VERIFY STATUS
3765  016364  001403                        BEQ     4$                      ;BRANCH IF GOOD
3766  016366  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3767  016370  000310                        .WORD   310                     ;UNIQUE ERROR NUMBER
3768  016372  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3769                                                                  ;BAD FPS
3770  016374  012600                4$:     MOV     (SP)+,R0                ;CHECK STORED PC
3771  016376  022700  016340                CMP     #23$,R0                 ;
3772  016402  001403                        BEQ     5$                      ;BRANCH IF RETURN ADDRESS IS GOOD
3773  016404  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3774  016406  000311                        .WORD   311                     ;UNIQUE ERROR NUMBER
3775  016410  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3776                                                                  ;BAD RETURN ADDRESS
3777  016412  012600                5$:     MOV     (SP)+,R0                ;CLEAN UP STACK
3778  016414  012704  001256                MOV     #TAB6,R4                ;POINT TO EXPECTED DATA
3779  016420  004767  163522                JSR     R7,DATVER               ;VERIFY DATA
3780  016424  005767  162410                TST     COUNT
3781  016430  001403                        BEQ     7$                      ;BRANCH IF GOOD
3782  016432  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3783  016434  000312                        .WORD   312                     ;UNIQUE ERROR NUMBER
3784  016436  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3785                                                                  ;BAD ACO
3786                                ;UNDERFLOW TRAPS DISABLED
3787  016440  012702  000200        7$:     MOV     #200,R2                 ;SETUP FLOATING POINT STATUS
3788  016444  170102                        LDFPS   R2                      ;LOAD FPS
3789  016446  012737  002106  000244        MOV     #WLDTRP,@#FPVEC         ;REPLACE WILD TRAP VECTOR
3790  016454  012704  001276                MOV     #TAB7,R4                ;POINT TO FSRC DATA
3791  016460  012701  001656                MOV     #TAB41,R1               ;POINT TO ACO DATA
3792  016464  172411                        LDD     (R1),AC0                ;LOAD AC0 WITH TEST DATA
3793  016466  172014                        ADDD    (R4),AC0                ;*TEST INSTRUCTION
3794  016470  170203                        STFPS   R3                      ;SAVE FPS
3795  016472  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3796  016476  174011                        STD     AC0,(R1)                ;SAVE AC0  RESULT
3797  016500  022703  000204                CMP     #204,R3                 ;VERIFY STATUS
3798  016504  001403                        BEQ     8$                      ;BRANCH IF GOOD
```

```
3799  016506  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3800  016510  000313                        .WORD   313             ;UNIQUE ERROR NUMBER
3801  016512  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3802                                                          ;BAD FPS
3803  016514  012704  001256          8$:   MOV     #TAB6,R4                ;POINT TO EXPECTED DATA
3804  016520  004767  163422                JSR     R7,DATVER               ;VERIFY DATA
3805  016524  005767  162310                TST     COUNT
3806  016530  001403                        BEQ     9$              ;BRANCH IF GOOD
3807  016532  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3808  016534  000314                        .WORD   314             ;UNIQUE ERROR NUMBER
3809  016536  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3810                                                          ;BAD ACO
3811                                ;UNDERFLOW TRAPS ENABLED
3812  016540  012702  002200          9$:   MOV     #2200,R2                ;SETUP FLOATING POINT STATUS
3813  016544  170102                        LDFPS   R2              ;LOAD FPS
3814  016546  012737  016600  000244        MOV     #11$,@#FPVEC    ;REPOSITION TRAP VECTOR
3815  016554  012704  001276                MOV     #TAB7,R4                ;POINT TO FSRC DATA
3816  016560  012701  001656                MOV     #TAB41,R1               ;POINT TO ACO DATA
3817  016564  172411                        LDD     (R1),AC0                ;LOAD AC0 WITH TEST DATA
3818  016566  172014                        ADDD    (R4),AC0        ;*TEST INSTRUCTION
3819  016570  170000                10$:    CFCC                    ;COPTY FPP CC
3820  016572  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3821  016574  000315                        .WORD   315             ;UNIQUE ERROR NUMBER
3822  016576  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3823                                                          ;FAILED TO TRAP ON UNDERFLOW
3824  016600  170203                11$:    STFPS   R3              ;SAVE FPS
3825  016602  012701  001126                MOV     #RECDST,R1      ;POINT TO RECEIVED DATA TABLE
3826  016606  174011                        STD     AC0,(R1)        ;SAVE AC0  RESULT
3827  016610  022703  102210                CMP     #102210,R3              ;VERIFY STATUS
3828  016614  001403                        BEQ     12$             ;BRANCH IF GOOD
3829  016616  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3830  016620  000316                        .WORD   316             ;UNIQUE ERROR NUMBER
3831  016622  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3832                                                          ;BAD FPS
3833  016624  012605                12$:    MOV     (SP)+,R5        ;GET ERROR PC
3834  016626  020527  016570                CMP     R5,#10$         ;VERIFY ERROR ADDRESS ON STACK
3835  016632  001403                        BEQ     13$             ;BRANCH IF GOOD
3836  016634  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3837  016636  000317                        .WORD   317             ;UNIQUE ERROR NUMBER
3838  016640  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3839                                                          ;BAD ERROR RETURN ON STACK
3840  016642  005726                13$:    TST     (SP)+           ;RESTORE STACK
3841  016644  012704  001246                MOV     #TAB5A,R4               ;POINT TO EXPECTED DATA
3842  016650  004767  163272                JSR     R7,DATVER               ;VERIFY DATA
3843  016654  005767  162160                TST     COUNT
3844  016660  001403                        BEQ     14$             ;BRANCH IF GOOD
3845  016662  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3846  016664  000320                        .WORD   320             ;UNIQUE ERROR NUMBER
3847  016666  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3848                                                          ;BAD ACO
3849                                ;UNDERFLOW WITH TRAPS DISBLED - NON-ZERO RESULT
3850  016670  012702  000200          14$:  MOV     #200,R2         ;SETUP FLOATING POINT STATUS
3851  016674  170102                        LDFPS   R2              ;LOAD FPS
3852  016676  012737  002106  000244        MOV     #WLDTRP,@#FPVEC         ;RESTORE TRAP VECTOR
3853  016704  012704  001656                MOV     #TAB41,R4               ;POINT TO FSRC DATA
3854  016710  012701  001666                MOV     #TAB42,R1               ;POINT TO AC0 DATA
```

```
3855  016714  172411                        LDD     (R1),AC0                ;LOAD AC0 WITH TEST DATA
3856  016716  172014                        ADDD    (R4),AC0                ;*TEST INSTRUCTION
3857  016720  170203                        STFPS   R3                      ;SAVE FPS
3858  016722  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3859  016726  174011                        STD     AC0,(R1)                ;SAVE AC0  RESULT
3860  016730  022703  000204                CMP     #204,R3                 ;VERIFY STATUS
3861  016734  001403                        BEQ     15$                     ;BRANCH IF GOOD
3862  016736  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3863  016740  000321                        .WORD   321                     ;UNIQUE ERROR NUMBER
3864  016742  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3865                                                                  ;BAD FPS
3866  016744  012704  001256        15$:    MOV     #TAB6,R4                        ;POINT TO EXPECTED DATA
3867  016750  004767  163172                JSR     R7,DATVER                       ;VERIFY DATA
3868  016754  005767  162060                TST     COUNT
3869  016760  001403                        BEQ     16$                     ;BRANCH IF GOOD
3870  016762  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3871  016764  000322                        .WORD   322                     ;UNIQUE ERROR NUMBER
3872  016766  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3873                                                                  ;BAD AC0
3874                                ;UNERFLOW WITH TRAPS ENABLED - NON-ZERO  RESULT
3875  016770  012702  102200        16$:    MOV     #102200,R2                      ;SETUP FLOATING POINT STATUS
3876  016774  170102                        LDFPS   R2                      ;LOAD FPS
3877  016776  012737  017030  000244        MOV     #18$,@#FPVEC            ;RESTORE TRAP VECTOR
3878  017004  012704  001656                MOV     #TAB41,R4                       ;POINT TO FSRC DATA
3879  017010  012701  001666                MOV     #TAB42,R1                       ;POINT TO AC0 DATA
3880  017014  172411                        LDD     (R1),AC0                        ;LOAD AC0 WITH TEST DATA
3881  017016  172014                        ADDD    (R4),AC0                ;*TEST INSTRUCTION
3882  017020  170000        17$:    CFCC
3883  017022  104000                        ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3884  017024  000323                        .WORD   323                             ;UNIQUE ERROR NUMBER
3885  017026  002013                        .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
3886                                                                  ;NO TRAP ON UNDERFLOW
3887  017030  170203        18$:    STFPS   R3                              ;SAVE FPS
3888  017032  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3889  017036  174011                        STD     AC0,(R1)                ;SAVE AC0  RESULT
3890  017040  012600                        MOV     (SP)+,R0                ;SAVE STACK CONTENTS
3891  017042  005726                        TST     (SP)+                   ;CLEAN UP STACK
3892  017044  022700  017020                CMP     #17$,R0                 ;VERIFY RETURN ADDRESS
3893  017050  001403                        BEQ     19$                     ;BRANCH IF GOOD
3894  017052  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3895  017054  000324                        .WORD   324                     ;UNIQUE ERROR NUMBER
3896  017056  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3897                                                                  ;BAD RETURN ADDRESS
3898  017060  022703  102204        19$:    CMP     #102204,R3                      ;VERIFY STATUS
3899  017064  001403                        BEQ     20$                     ;BRANCH IF GOOD
3900  017066  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3901  017070  000325                        .WORD   325                     ;UNIQUE ERROR NUMBER
3902  017072  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3903                                                                  ;BAD FPS
3904  017074  012704  001676        20$:    MOV     #TAB43,R4                       ;POINT TO EXPECTED DATA
3905  017100  004767  163042                JSR     R7,DATVER                       ;VERIFY DATA
3906  017104  005767  161730                TST     COUNT
3907  017110  001403                        BEQ     21$                     ;BRANCH IF GOOD
3908  017112  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3909  017114  000326                        .WORD   326                     ;UNIQUE ERROR NUMBER
3910  017116  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
```

```
                                                        ;BAD ACO
017120                          21$:
                                MLDC:
                                ;;*****************************************************************
                                ;*TEST 57        TEST LDCFD, LDCDF
                                ;;*****************************************************************
017120                          TST57:
017120  005267  161660                  INC     $TESTN                  ;INCREMENT TEST NUMBER
                                ;TRUNCATE
017124  012702  000300                  MOV     #300,R2                 ;SETUP FLOATING POINT STATUS
017130  170102                          LDFPS   R2                      ;LOAD FPS
017132  012704  001706                  MOV     #TAB45,R4                       ;POINT TO FSRC DATA
017136  012701  001256                  MOV     #TAB6,R1                        ;POINT TO ACO DATA
017142  172411                          LDD     (R1),AC0                        ;LOAD ACO WITH TEST DATA
017144  177424                          LDCFD   (R4)+,AC0               ;*TEST INSTRUCTION
017146  012701  001126                  MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
017152  174011                          STD     AC0,(R1)                ;SAVE ACO  RESULT
017154  022704  001712                  CMP     #TAB45+4,R4             ;VERIFY AUTO-INC
017160  001403                          BEQ     1$                      ;BRANCH IF GOOD AUTO-INC
017162  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
017164  000327                          .WORD   327                     ;UNIQUE ERROR NUMBER
017166  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                        ;BAD AUTO-INC
017170  012704  001716          1$:     MOV     #TAB46,R4                       ;POINT TO EXPECTED DATA
017174  004767  162746                  JSR     R7,DATVER                       ;VERIFY DATA
017200  005767  161634                  TST     COUNT
017204  001403                          BEQ     2$                      ;BRANCH IF GOOD
017206  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
017210  000330                          .WORD   330                     ;UNIQUE ERROR NUMBER
017212  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                        ;BAD ACO
                                ;AUTO-INC DOUBLE MODE
017214  005002                  2$:     CLR     R2                      ;SETUP FLOATING POINT STATUS
017216  170102                          LDFPS   R2                      ;LOAD FPS
017220  012704  001706                  MOV     #TAB45,R4                       ;POINT TO FSRC DATA
017224  012701  001426                  MOV     #TAB16,R1                       ;POINT TO ACO DATA
017230  172411                          LDD     (R1),AC0                        ;LOAD ACO WITH TEST DATA
017232  177424                          LDCDF   (R4)+,AC0               ;*TEST INSTRUCTION
017234  020427  001716                  CMP     R4,#TAB45+10            ;VERIFY AUTO-INC
017240  001403                          BEQ     3$                      ;BRANCH IF GOOD
017242  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
017244  000331                          .WORD   331                     ;UNIQUE ERROR NUMBER
017246  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                        ;BAD AUTO-INC ON DOUBLE
017250  170203                  3$:     STFPS   R3                      ;SAVE FPS
017252  012701  001126                  MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
017256  174011                          STD     AC0,(R1)                ;SAVE ACO  RESULT
017260  022703  000000                  CMP     #0,R3                   ;VERIFY STATUS
017264  001403                          BEQ     4$                      ;BRANCH IF GOOD
017266  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
017270  000332                          .WORD   332                     ;UNIQUE ERROR NUMBER
017272  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                        ;BAD FPS
017274  012704  001756          4$:     MOV     #TAB49,R4                       ;POINT TO EXPECTED DATA
```

```
3967  017300  004767  162642              JSR     R7,DATVER               ;VERIFY DATA
3968  017304  005767  161530              TST     COUNT
3969  017310  001403                      BEQ     5$                      ;BRANCH IF GOOD
3970  017312  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3971  017314  000333                      .WORD   333                     ;UNIQUE ERROR NUMBER
3972  017316  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3973                                                                  ;BAD ACO
3974                              ;LDCFD GR7
3975  017320  012702  000200      5$:     MOV     #200,R2                 ;SETUP FLOATING POINT STATUS
3976  017324  170102                      LDFPS   R2                      ;LOAD FPS
3977  017326  005003                      CLR     R3
3978  017330  177427  043243              LDCFD   #5203,AC0               ;*TEST INSTRUCTION
3979  017334  005203                      INC     R3
3980  017336  005203                      INC     R3
3981  017340  005203                      INC     R3                      ;IF LDCFD WORKED, R3 SHOULD=3
3982  017342  022703  000003              CMP     #3,R3                   ;VERIFY CORRECT PROGRAM FLOW
3983  017346  001403                      BEQ     6$                      ;BRANCH IF GOOD
3984  017350  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3985  017352  000334                      .WORD   334                     ;UNIQUE ERROR NUMBER
3986  017354  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3987                                                                  ;BAD PROGRAM FLOW
3988                              ;NEGATIVE OPERANDS
3989  017356  012702  000200      6$:     MOV     #200,R2                 ;SETUP FLOATING POINT STATUS
3990  017362  170102                      LDFPS   R2                      ;LOAD FPS
3991  017364  012704  001726              MOV     #TAB47,R4                       ;POINT TO FSRC DATA
3992  017370  012701  001706              MOV     #TAB45,R1                       ;POINT TO AC0 DATA
3993  017374  172411                      LDD     (R1),AC0                        ;LOAD AC0 WITH TEST DATA
3994  017376  177414                      LDCFD   (R4),AC0                ;*TEST INSTRUCTION
3995  017400  170203                      STFPS   R3                      ;SAVE FPS
3996  017402  012701  001126              MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3997  017406  174011                      STD     AC0,(R1)                ;SAVE AC0  RESULT
3998  017410  022703  000210              CMP     #210,R3                 ;VERIFY STATUS
3999  017414  001403                      BEQ     7$                      ;BRANCH IF GOOD
4000  017416  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4001  017420  000335                      .WORD   335                     ;UNIQUE ERROR NUMBER
4002  017422  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4003                                                                  ;BAD FPS
4004  017424  012704  001746      7$:     MOV     #TAB48,R4                       ;POINT TO EXPECTED DATA
4005  017430  004767  162512              JSR     R7,DATVER               ;VERIFY DATA
4006  017434  005767  161400              TST     COUNT
4007  017440  001403                      BEQ     8$                      ;BRANCH IF GOOD
4008  017442  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4009  017444  000336                      .WORD   336                     ;UNIQUE ERROR NUMBER
4010  017446  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4011                                                                  ;BAD ACO
4012                              ;LOAD A ZERO
4013  017450  012702  000200      8$:     MOV     #200,R2                 ;SETUP FLOATING POINT STATUS
4014  017454  170102                      LDFPS   R2                      ;LOAD FPS
4015  017456  012704  001256              MOV     #TAB6,R4                        ;POINT TO FSRC DATA
4016  017462  012701  001746              MOV     #TAB48,R1                       ;POINT TO AC0 DATA
4017  017466  172411                      LDD     (R1),AC0                        ;LOAD AC0 WITH TEST DATA
4018  017470  177414                      LDCFD   (R4),AC0                ;*TEST INSTRUCTION
4019  017472  170203                      STFPS   R3                      ;SAVE FPS
4020  017474  012701  001126              MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
4021  017500  174011                      STD     AC0,(R1)                ;SAVE AC0  RESULT
4022  017502  022703  000204              CMP     #204,R3                 ;VERIFY STATUS
```

```
 4023  017506  001403                        BEQ     9$                      ;BRANCH IF GOOD
 4024  017510  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 4025  017512  000337                        .WORD   337                     ;UNIQUE ERROR NUMBER
 4026  017514  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 4027                                                                ;BAD FPS
 4028  017516  012704  001256          9$:   MOV     #TABE,R4                ;POINT TO EXPECTED DATA
 4029  017522  004767  162420              JSR     R7,VERIFY               ;VERIFY DATA
 4030  017526  005767  161306              TST     COUNT
 4031  017532  001403                        BEQ     10$                     ;BRANCH IF GOOD
 4032  017534  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 4033  017536  000340                        .WORD   340                     ;UNIQUE ERROR NUMBER
 4034  017540  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 4035                                                                ;BAD ACO
 4036  017542                          10$:
 4037
 4038                                  ;
 4039  017542                          MCMPD:
 4040                                  ;;*****************************************************************
 4041                                  ;*TEST 60        TEST CMPD
 4042                                  ;;*****************************************************************
 4043  017542                          TST60:
 4044  017542  005267  161236                INC     $TESTN                  ;INCREMENT TEST NUMBER
 4045                                  ;  CMPD WITH FRSC=ACO=0
 4046  017546  005037  001042                CLR     @#FLAG                  ;SIGNAL THAT ACO REMAINS CONSTANT
 4047  017552  004767  000152                JSR     R7,CMPRTN               ;ROUTINE TO TEST DATA
 4048  017556  000000  000000  000000        .WORD   0,0,0,0                 ;ACO AT START
 4049  017564  000000
 4050  017566  000000  000000  000000        .WORD   0,0,0,0                 ;FSRC AT START
 4051  017574  000000
 4052  017576  000200                        .WORD   200                     ;FPS AT START (D)
 4053  017600  000204                        .WORD   204                     ;FPS AT END
 4054                                  ;  CMPD WITH EXP[FSRC]=0, EXP[ACO]=0
 4055  017602  012737  000001  001042        MOV     #1,@#FLAG               ;SIGNAL THAT ACO WILL = 0
 4056  017610  004767  000114                JSR     R7,CMPRTN               ;ROUTINE TO TEST DATA
 4057  017614  000000  000000  000000        .WORD   0,0,0,125252            ;ACO AT START
 4058  017622  125252
 4059  017624  000100  000022  000123        .WORD   100,22,123,123          ;FSRC AT START
 4060  017632  000123
 4061  017634  000200                        .WORD   200                     ;FPS AT START (D)
 4062  017636  000204                        .WORD   204                     ;FPS AT END
 4063                                  ;  CMPD FSRC>EXP[ACO]=0
 4064  017640  005037  001042                CLR     @#FLAG                  ;ACO REMAINS UNCHANGED
 4065  017644  004767  000060                JSR     R7,CMPRTN               ;ROUTINE TO TEST DATA
 4066  017650  000400  012346  012346        .WORD   400,12346,12346,23      ;ACO AT START
 4067  017656  000023
 4068  017660  000200  000000  000000        .WORD   200,0,0,0               ;FSRC AT START
 4069  017666  000000
 4070  017670  000200                        .WORD   200                     ;FPS AT START (D)
 4071  017672  000210                        .WORD   210                     ;FPS AT END
 4072                                  ;  CMPD FSRC=ACO>0
 4073  017674  004767  000030                JSR     R7,CMPRTN               ;ROUTINE TO TEST DATA
 4074  017700  077777  177777  177777        .WORD   77777,-1,1,1            ;ACO AT START
 4075  017706  177777
 4076  017710  077777  177777  177777        .WORD   77777,-1,-1,-1          ;FSRC AT START
 4077  017716  177777
 4078  017720  000200                        .WORD   200                     ;FPS AT START (D)
```

```
 4079  017722  000204                          .WORD   204                     ;FPS AT END
 4080  017724  000167  000126                  JMP     HOP44                   ;HOP OVER SUBROUTINE
 4081
 4082                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4083                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4084                                  ;COMPARE ROUTINE DATA TABLES
 4085                                  ;
 4086                                  ;               ACO
 4087                                  ;               FSRC
 4088                                  ;               FPS BEFORE EXECUTION
 4089                                  ;               FPS AFTER EXECUTION
 4090                                  ;               (FEC)
 4091                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4092                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4093                                  ;
 4094                                  ;
 4095  017730  012605                  CMPRTN: MOV     (SP)+,R5                ; RETURN ADDRESS TO USE AS POINTER
 4096  017732  012702  000200                  MOV     #200,R2                 ;SET TO DOUBLE MODE FOR LOAD
 4097  017736  170102                          LDFPS   R2                      ;LOAD FPS
 4098  017740  010504                          MOV     R5,R4                   ;POINT TO FSRC DATA
 4099  017742  062704  000010                  ADD     #10,R4                  ;
 4100  017746  010501                          MOV     R5,R1           ;POINT TO ACO DATA
 4101  017750  172411                          LDD     (R1),AC0                ;LOAD AC0 WITH TEST DATA
 4102  017752  016502  000020                  MOV     20(R5),R2               ;GET TEST FPS
 4103  017756  170102                          LDFPS   R2                      ;LOAD TEST FPS
 4104  017760  173414                  1$:     CMPD    (R4),AC0                ;*TEST INSTRUCTION
 4105  017762  170203                          STFPS   R3                      ;SAVE FPS
 4106  017764  012702  000200                  MOV     #200,R2         ;SET FPP TO DOUBLE
 4107  017770  170102                          LDFPS   R2
 4108  017772  012701  001126                  MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
 4109  017776  174011                          STD     AC0,(R1)                ;SAVE AC0  RESULT
 4110  020000  026503  000022                  CMP     22(R5),R3               ;VERIFY STATUS
 4111  020004  001403                          BEQ     2$                      ;BRANCH IF GOOD
 4112  020006  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 4113  020010  000341                          .WORD   341                     ;UNIQUE ERROR NUMBER
 4114  020012  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 4115                                                                  ;BAD FPS
 4116  020014  005737  001042          2$:     TST     R0FLAG                  ;SEE IF AC0 REMAINS UNCHANGED
 4117  020020  001403                          BEQ     3$                      ;BRANCH IF AC0 STAYS THE SAME
 4118  020022  012704  001256                  MOV     #TAB6,R4                ;AC0=0
 4119  020026  000401                          BR      4$                      ;GO VERIFY  DATA
 4120  020030  010504                  3$:     MOV     R5,R4                   ;POINT TO EXPECTED DATA
 4121  020032  004767  162110          4$:     JSR     R7,DATVER                       ;VERIFY DATA
 4122  020036  005767  160776                  TST     COUNT
 4123  020042  001403                          BEQ     5$                      ;BRANCH IF GOOD
 4124  020044  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 4125  020046  000342                          .WORD   342                     ;UNIQUE ERROR NUMBER
 4126  020050  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 4127                                                                  ;BAD AC0
 4128  020052  000165  000024          5$:     JMP     24(R5)                  ;RETURN
 4129  020056                          HOP44:
 4130
 4131
 4132
 4133  020056                          MDIVF:
 4134                                  ;;**********************************************************************
```

```
                                        ;*TEST 61       TEST DIVF
                                        ;;*****************************************************************
020056                                  TST61:
020056  005267  160722                          INC     @TESTN                  ;INCREMENT TEST NUMBER
                                        ;1/EXP[AC]-FSRC=0
020062  012737  000002  001042                  MOV     #2,@#FLAG               ;NO INTERRUPT, BUT FEC
020070  004767  000706                          JSR     R7,DVFSUB               ;DO TEST
020074  000100  000027                          .WORD   100,27          ;AC0
020100  000000  000000                          .WORD   0,0             ;FSRC
020104  000100  000027                          .WORD   100,27          ;RESULT
020110  040000                                  .WORD   40000           ;  TEST FPS
020112  140000                                  .WORD   140000          ;RESULT FPS
020114  000004                                  .WORD   4               ;FEC
                                        ;2/AC=EXP[FSRC]=0
                                        ;TRAPS ENABLED
020116  012737  000001  001042                  MOV     #1,@#FLAG               ;INTERRUPT
020124  004767  000652                          JSR     R7,DVFSUB               ;DO TEST
020130  000000  000000                          .WORD   0,0             ;AC0
020134  000100  000000                          .WORD   100,0           ;FSRC
020140  000000  000000                          .WORD   0,0             ;RESULT
020144  000000                                  .WORD   0               ;  TEST FPS
020146  100000                                  .WORD   100000          ;RESULT FPS
020150  000004                                  .WORD   4               ;FEC
                                        ;3/FSRC>AC0=0
020152  005037  001042                          CLR     @#FLAG          ;NO INTERRUPT
020156  004767  000620                          JSR     R7,DVFSUB               ;DO TEST
020162  000177  000234                          .WORD   177,234         ;AC0
020166  004100  000000                          .WORD   4100,0          ;FSRC
020172  000000  000000                          .WORD   0,0             ;RESULT
020176  007400                                  .WORD   7400            ;  TEST FPS
020200  007404                                  .WORD   7404            ;RESULT FPS
                                        ;4/AC0>EXP[FSRC]=0
020202  012737  000001  001042                  MOV     #1,@#FLAG               ;INTERRUPT
020210  004767  000566                          JSR     R7,DVFSUB               ;DO TEST
020214  040200  104210                          .WORD   40200,104210    ;AC0
020220  000125  025252                          .WORD   125,25252       ;FSRC
020224  040200  104210                          .WORD   40200,104210    ;RESULT
020230  007557                                  .WORD   7557            ;  TEST FPS
020232  107557                                  .WORD   107557          ;RESULT FPS
020234  000004                                  .WORD   4               ;FEC
                                        ;5/EXP[AC]=EXP[FSRC]
020236  005037  001042                          CLR     @#FLAG          ;NO INTERRUPT
020242  004767  000534                          JSR     R7,DVFSUB               ;DO TEST
020246  077760  177777                          .WORD   77760,-1                ;AC0
020252  077760  000000                          .WORD   77760,0         ;FSRC
020256  040200  104210                          .WORD   40200,104210    ;RESULT
020262  007414                                  .WORD   7414            ;  TEST FPS
020264  007400                                  .WORD   7400            ;RESULT FPS
                                        ;6/AC=FSRC
020266  005037  001042                          CLR     @#FLAG          ;NO INTERRUPT
020272  004767  000504                          JSR     R7,DVFSUB               ;DO TEST
020276  052525  052525                          .WORD   52525,52525             ;AC0
020302  052525  052525                          .WORD   52525,52525             ;FSRC
020306  040200  000000                          .WORD   40200,0         ;RESULT
020312  007400                                  .WORD   7400            ;  TEST FPS
020314  007400                                  .WORD   7400            ;RESULT FPS
```

```
4191                                    ;7/FSRC>0<AC0, ROUND
4192  020316  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
4193  020322  004767  000454                    JSR     R7,DVFSUB               ;DO TEST
4194  020326  077777  125252                    .WORD   77777,125252    ;AC0
4195  020332  040300  000000                    .WORD   40300,0         ;FSRC
4196  020336  077652  070707                    .WORD   77652,070707            ;RESULT
4197  020342  007400                            .WORD   7400            ; TEST FPS
4198  020344  007400                            .WORD   7400            ;RESULT FPS
4199                                    ;8/AC>0<FSRC
4200  020346  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
4201  020352  004767  000424                    JSR     R7,DVFSUB               ;DO TEST
4202  020356  055377  177777                    .WORD   55377,-1        ;AC0
4203  020362  055300  000000                    .WORD   55300,0         ;FSRC
4204  020366  040252  125252                    .WORD   40252,125252    ;RESULT
4205  020372  000000                            .WORD   0               ; TEST FPS
4206  020374  000000                            .WORD   0               ;RESULT FPS
4207                                    ;9/FSRC>AC>0
4208  020376  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
4209  020402  004767  000374                    JSR     R7,DVFSUB               ;DO TEST
4210  020406  064600  000001                    .WORD   64600,1         ;AC0
4211  020412  066600  000000                    .WORD   66600,0         ;FSRC
4212  020416  036200  000001                    .WORD   36200,1         ;RESULT
4213  020422  000000                            .WORD   0               ; TEST FPS
4214  020424  000000                            .WORD   0               ;RESULT FPS
4215                                    ;10/AC>FSRC>0
4216  020426  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
4217  020432  004767  000344                    JSR     R7,DVFSUB               ;DO TEST
4218  020436  012345  156024                    .WORD   12345,156024    ;AC0
4219  020442  005600  000000                    .WORD   05600,0         ;FSRC
4220  020446  044745  156024                    .WORD   44745,156024            ;RESULT
4221  020452  000017                            .WORD   17              ; TEST FPS
4222  020454  000000                            .WORD   0               ;RESULT FPS
4223                                    ;11/FSRC<0
4224  020456  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
4225  020462  004767  000314                    JSR     R7,DVFSUB               ;DO TEST
4226  020466  040422  101010                    .WORD   40422,101010    ;AC0
4227  020472  140511  101010                    .WORD   140511,101010   ;FSRC
4228  020476  140072  020167                    .WORD   140072,20167            ;RESULT
4229  020502  000057                            .WORD   57              ; TEST FPS
4230  020504  000050                            .WORD   50              ;RESULT FPS
4231                                    ;12/AC<0
4232  020506  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
4233  020512  004767  000264                    JSR     R7,DVFSUB               ;DO TEST
4234  020516  160077  000101                    .WORD   160077,101      ;AC0
4235  020522  040417  177777                    .WORD   40417,-1        ;FSRC
4236  020526  157651  143527                    .WORD   157651,143527           ;RESULT
4237  020532  000007                            .WORD   7               ; TEST FPS
4238  020534  000010                            .WORD   10              ;RESULT FPS
4239                                    ;13/TRUNCATE TEST
4240  020536  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
4241  020542  004767  000234                    JSR     R7,DVFSUB               ;DO TEST
4242  020546  060100  000177                    .WORD   60100,177       ;AC0
4243  020552  040300  000000                    .WORD   40300,0         ;FSRC
4244  020556  060000  000124                    .WORD   60000,124               ;RESULT
4245  020562  000040                            .WORD   40              ; TEST FPS
4246  020564  000040                            .WORD   40              ;RESULT FPS
```

```
                                        ;14/ROUND TEST

020566  005037  001042                          CLR     @#FLAG          ;NO INTERRUPT
020572  004767  000204                          JSR     R7,DVFSUB               ;DO TEST
020576  060100  000177                          .WORD   60100,177       ;ACO
020602  040300  000000                          .WORD   40300,0 ;FSRC
020606  060000  000125                          .WORD   60000,125               ;RESULT
020612  000000                                  .WORD   0               ; TEST FPS
020614  000000                                  .WORD   0               ;RESULT FPS
                                        ;15/OVERFLOW, INTERRUPTS ENABLED
020616  012737  000001  001042                  MOV     #1,@#FLAG               ;INTERRUPT
020624  004767  000152                          JSR     R7,DVFSUB               ;DO TEST
020630  177700  000000                          .WORD   177700,0                ;ACO
020634  000200  000000                          .WORD   200,0           ;FSRC
020640  137700  000000                          .WORD   137700,0                ;RESULT
020644  001100                                  .WORD   1100            ; TEST FPS
020646  101112                                  .WORD   101112          ;RESULT FPS
020650  000010                                  .WORD   10              ;FEC
                                        ;16/OVERFLOW, TRAPS DISABLED
020652  012737  000002  001042                  MOV     #2,@#FLAG               ;NO INTERRUPT
020660  004767  000116                          JSR     R7,DVFSUB               ;DO TEST
020664  000200  000000                          .WORD   200,0           ;ACO
020670  177700  000000                          .WORD   177700,0                ;FSRC
020674  000000  000000                          .WORD   0,0             ;RESULT
020700  041100                                  .WORD   41100           ; TEST FPS
020702  041104                                  .WORD   41104           ;RESULT FPS
020704  000010                                  .WORD   10              ;FEC OVERFLOW
                                        ;17/UNDERFLOW, TRAPS ENABLED, UV RESULT
020706  012737  000001  001042                  MOV     #1,@#FLAG               ;INTERRUPT
020714  004767  00                              JSR     R7,DVFSUB               ;DO TEST
020720  100200                                  .WORD   100200,0                ;ACO
020724  040377  1                               .WORD   40377,-1                ;FSRC
020730  100000  000                             .WORD   100000,1                ;RESULT
020734  002000                                  .WORD   2000            ; TEST FPS
020736  102014                                  .WORD   102014          ;RESULT FPS
020740  000012                                  .WORD   12              ;FEC
                                        ;18/UNDERFLOW,TRAPS ENABLED, ROUND
020742  012737  000001  001042                  MOV     #1,@#FLAG               ;INTERRUPT
020750  004767  000026                          JSR     R7,DVFSUB               ;DO TEST
020754  030325  025252                          .WORD   30325,25252             ;ACO
020760  076777  023456                          .WORD   76777,23456             ;FSRC
020764  071525  157716                          .WORD   71525,157716            ;RESULT
020770  002537                                  .WORD   2537            ; TEST FPS
020772  102500                                  .WORD   102500          ;RESULT FPS
020774  000012                                  .WORD   12              ;FEC
                                        ;

020776  000167  000242                          JMP     HOP10           ;GO TO NEXT TEST
                                        ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                        ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                        ;DIVF SUBROUTINE:
                                        ;               ACO
                                        ;               FSRC
                                        ;               FPS BEFORE EXECUTION
                                        ;               FPS AFTER EXECUTION
                                        ;               (FEC)
```

```
4303                                    ;
4304                                    ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
4305                                    ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
4306                                    ;
4307  021002  012605                   DVFSUB: MOV     (SP)+,R5                ; RETURN ADDRESS TO USE AS POINTER
4308  021004  012737  021064  000244           MOV     #50$,@#FPVEC            ;REDIRECT TRAP VECTOR
4309  021012  012702  000200                   MOV     #200,R2                 ;SET TO DOUBLE MODE FOR LOAD
4310  021016  170102                           LDFPS   R2                      ;LOAD FPS
4311  021020  010504                           MOV     R5,R4                   ;POINT TO FSRC DATA
4312  021022  062704  000004                   ADD     #4,R4
4313  021026  172415                           LDD     (R5),AC0                ;LOAD AC0 WITH TEST DATA
4314  021030  016502  000014                   MOV     14(R5),R2               ;GET TEST FPS
4315  021034  170102                           LDFPS   R2                      ;LOAD TEST FPS
4316                                    ;
4317  021036  174414                           DIVF    (R4),AC0                ;*TEST INSTRUCTION
4318  021040  170001                   1$:     SETF                            ;WAIT FOR POSSIBLE FPA TRAP.
4319                                    ;
4320                                    ;INSTRUCTION DIDNT TRAP
4321  021042  032737  000001  001042           BIT     #1,@#FLAG                       ;VERIFY A NO TRAP CONDITION
4322  021050  001426                           BEQ     2$                      ;BRANCH IF GOOD
4323  021052  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4324  021054  000343                           .WORD   343                     ;UNIQUE ERROR NUMBER
4325  021056  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4326                                                                    ;INSTRUCTION SHOULD HAVE TRAPPED
4327  021060  000167  000042                   JMP     2$                      ;REJOIN CODE
4328                                    ;
4329                                    ;INSTRUCTION TRAPPED
4330  021064  032737  000001  001042  50$:     BIT     #1,@#FLAG               ;SEE IF EXPECTING A TRAP
4331  021072  001005                           BNE     51$                     ;BRANCH IF EXPECTING A TRAP
4332  021074  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4333  021076  000344                           .WORD   344                     ;UNIQUE ERROR NUMBER
4334  021100  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4335                                                                    ;INSTRUCTION WASNT SUPPOSE TO TRAP
4336  021102  000167  000020                   JMP     2$                      ;REJOIN CODE
4337  021106  012604                   51$:    MOV     (SP)+,R4                ;SEE IF PC = INSTRUCTION
4338  021110  005726                           TST     (SP)+                   ;CLEAN UP STACK
4339  021112  022704  021040                   CMP     #1$,R4                  ;
4340  021116  001403                           BEQ     2$                      ;BRANCH IF GOOD COMPARE
4341  021120  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4342  021122  000345                           .WORD   345                     ;UNIQUE ERROR NUMBER
4343  021124  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4344                                                                    ;PC WAS INCORRECT
4345                                    ;
4346                                    ;COMMON CODE FOR TRAP AND NO TRAP
4347  021126  170203                   2$:     STFPS   R3                      ;SAVE FPS
4348  021130  012702  000200                   MOV     #200,R2                 ;SET FPP TO DOUBLE
4349  021134  170102                           LDFPS   R2
4350  021136  012701  001126                   MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
4351  021142  174011                           STD     AC0,(R1)                ;SAVE AC0  RESULT
4352  021144  026503  000016                   CMP     16(R5),R3               ;VERIFY STATUS
4353  021150  001403                           BEQ     3$                      ;BRANCH IF GOOD
4354  021152  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4355  021154  000346                           .WORD   346                     ;UNIQUE ERROR NUMBER
4356  021156  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4357                                                                    ;BAD FPS
4358  021160  010504                   3$:     MOV     R5,R4                   ;POINT TO EXPECTED DATA
```

```
4359  021162  062704  000010            ADD     #10,R4
4360  021166  004767  160736      4$:   JSR     R7,DATVFR                ;VERIFY DATA
4361  021172  005767  157642            TST     COUNT
4362  021176  001403                    BEQ     5$                       ;BRANCH IF GOOD
4363  021200  104000                    ERROR                            ;ALL ERRORS TO TRAP TO EMT VECTOR
4364  021202  000347                    .WORD   347                      ;UNIQUE ERROR NUMBER
4365  021204  002013                    .WORD   FPPERR                   ;ADDRESS OF ERROR MESSAGE
4366                                                        ;BAD ACO
4367  021206  005737  001042      5$:   TST     @#FLAG                   ;SEE IF NEED TO CHECK FEC
4368  021212  001002                    BNE     6$                       ;BRANCH IF NEED TO CHECK
4369  021214  000165  000020            JMP     20(R5)                   ;RETURN FROM TEST
4370  021220  170301                6$: STST    R1                       ;SAVE FEC
4371  021222  016504  000020            MOV     20(R5),R4                ;GET FEC
4372  021226  020401                    CMP     R4,R1                    ;VERIFY FEC
4373  021230  001403                    BEQ     7$                       ;BRANCH IF GOOD
4374  021232  104000                    ERROR                            ;ALL ERRORS TO TRAP TO EMT VECTOR
4375  021234  000350                    .WORD   350                      ;UNIQUE ERROR NUMBER
4376  021236  002013                    .WORD   FPPERR                   ;ADDRESS OF ERROR MESSAGE
4377                                                                      ;BAD FEC
4378  021240  000165  000022      7$:   JMP     22(R5)                   ;RETURN FROM TEST
4379                                ;
4380  021244                      HOP10:
4381  021244                      MDIVD:
4382                              ;;*********************************************************************
4383                              ;*TEST 62       TEST DIVD -
4384                              ;;*********************************************************************
4385  021244                      TST62:
4386  021244  005267  157534            INC     $TESTN                   ;INCREMENT TEST NUMBER
4387                              ;1/AC=FSRC=0 TRAPS DISABLED
4388  021250  012737  000002  001042    MOV     #2,@#FLAG                ;NO INTERRUPT
4389  021256  004767  000516            JSR     R7,DVDSUB                ;DO TEST
4390  021262  000000  000000  000000    .WORD   0,0,0,1          ;ACO
4391  021270  000001
4392  021272  000100  000000  000000    .WORD   100,0,0,0        ;FSRC
4393  021300  000000
4394  021302  000000  000000  000000    .WORD   0,0,0,1          ;RESULT
4395  021310  000001
4396  021312  040000                    .WORD   40000            ; TEST FPS
4397  021314  140000                    .WORD   140000           ;RESULT FPS
4398  021316  000004                    .WORD   4                ;FEC
4399                              ;2/FSRC=0, TRAPS ENABLED
4400  021320  012737  000001  001042    MOV     #1,@#FLAG                ;INTERRUPT
4401  021326  004767  000446            JSR     R7,DVDSUB                ;DO TEST
4402  021332  000402  000000  000000    .WORD   402,0,0,0        ;ACO
4403  021340  000000
4404  021342  000000  000000  000000    .WORD   0,0,0,0          ;FSRC
4405  021350  000000
4406  021352  000402  000000  000000    .WORD   402,0,0,0                ;RESULT
4407  021360  000000
4408  021362  000200                    .WORD   200              ; TEST FPS
4409  021364  100200                    .WORD   100200           ;RESULT FPS
4410  021366  000004                    .WORD   4                        ;FEC
4411                              ;3/ROUND
4412  021370  005037  001042            CLR     @#FLAG           ;NO INTERRUPT
4413  021374  004767  000400            JSR     R7,DVDSUB                ;DO TEST
4414  021400  034300  000000  000000    .WORD   34300,0,0,1      ;ACO
```

```
4415  021406  000001
4416  021410  140300  000000  000000          .WORD   140300,0,0,0     ;FSRC
4417  021416  000000
4418  021420  134200  000000  000000          .WORD   134200,0,0,1     ;RESULT
4419  021426  000001
4420  021430  000200                          .WORD   200              ; TEST FPS
4421  021432  000210                          .WORD   210              ;RESULT FPS
4422                                ;4/TRUNCATE
4423  021434  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
4424  021440  004767  000334                  JSR     R7,DVDSUB                ;DO TEST
4425  021444  034300  000000  000000          .WORD   34300,0,0,1      ;AC0
4426  021452  000001
4427  021454  140300  000000  000000          .WORD   140300,0,0,0     ;FSRC
4428  021462  000000
4429  021464  134200  000000  000000          .WORD   134200,0,0,0     ;RESULT
4430  021472  000000
4431  021474  000240                          .WORD   240              ; TEST FPS
4432  021476  000250                          .WORD   250              ;RESULT FPS
4433                                ;5/ROUND NEGATIVE AC, FSRC
4434  021500  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
4435  021504  004767  000270                  JSR     R7,DVDSUB                ;DO TEST
4436  021510  177642  000000  000000          .WORD   177642,0,0,151   ;AC0
4437  021516  000151
4438  021520  166600  000000  000000          .WORD   166600,0,0,123   ;FSRC
4439  021526  000123
4440  021530  051242  000000  000000          .WORD   51242,0,0,0              ;RESULT
4441  021536  000000
4442  021540  000200                          .WORD   200              ; TEST FPS
4443  021542  000200                          .WORD   200              ;RESULT FPS
4444                                ;6/TRUNCATE NEAGTIVE AC, FSRC
4445  021544  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
4446  021550  004767  000224                  JSR     R7,DVDSUB                ;DO TEST
4447  021554  177642  000000  000000          .WORD   177642,0,0,151   ;AC0
4448  021562  000151
4449  021564  166600  000000  000000          .WORD   166600,0,0,123   ;FSRC
4450  021572  000123
4451  021574  051241  177777  177777          .WORD   51241,-1,-1,-1           ;RESULT
4452  021602  177777
4453  021604  000240                          .WORD   240              ; TEST FPS
4454  021606  000240                          .WORD   240              ;RESULT FPS
4455                                ;7/AC=FSRC
4456  021610  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
4457  021614  004767  000160                  JSR     R7,DVDSUB                ;DO TEST
4458  021620  055521  047621  100333          .WORD   55521,47621,100333,-1    ;AC0
4459  021626  177777
4460  021630  055521  047621  100333          .WORD   55521,47621,100333,-1    ;FSRC
4461  021636  177777
4462  021640  040200  000000  000000          .WORD   40200,0,0,0              ;RESULT
4463  021646  000000
4464  021650  007717                          .WORD   7717             ; TEST FPS
4465  021652  007700                          .WORD   7700             ;RESULT FPS
4466                                ;8/UNDERFLOW TRAPS ENABLED, UV RESULT
4467  021654  012737  000001  001042          MOV     #1,@#FLAG                ;INTERRUPT
4468  021662  004767  000112                  JSR     R7,DVDSUB                ;DO TEST
4469  021666  100200  000000  000000          .WORD   100200,0,0,0             ;AC0
4470  021674  000000
```

J7

```
021676  077777  000000  000000          .WORD   77777,0,0,0             ;FSRC
021704  000000
021706  140400  100200  100200          .WORD   140400,100200,100200,100201     ;RESULT
021714  100201
021716  002200                          .WORD   2200            ; TEST FPS
021720  102210                          .WORD   102210          ;RESULT FPS
021722  000012                          .WORD   12              ;FEC
                                ;9/OVERFLOW TRAPS ENABLED
021724  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
021732  004767  000042                  JSR     R7,DVDSUB               ;DO TEST
021736  077000  123465  012346          .WORD   77000,123465,12346,525          ;AC0
021744  000525
021746  000303  000001  140000          .WORD   303,1,140000,140001             ;FSRC
021754  140001
021756  036650  163002  103645          .WORD   36650,163002,103645,64003       ;RESULT
021764  064003
021766  001700                          .WORD   1700            ; TEST FPS
021770  101702                          .WORD   101702          ;RESULT FPS
021772  000010                          .WORD   10              ;FEC
                                ;

021774  000167  000242                  JMP     HOP11                   ;HOP OVER SUBROUTINE
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;
                                ;DIVD SUBROUTINE:
                                ;               AC0
                                ;               FSRC
                                ;               FPS BEFORE EXECUTION
                                ;               FPS AFTER EXECUTION
                                ;               (FEC)
                                ;
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;
022000  012605                  DVDSUB: MOV     (SP)+,R5                ; RETURN ADDRESS TO USE AS POINTER
022002  012737  022062  000244          MOV     #50$,@#FPVEC            ;REDIRECT TRAP VECTOR
022010  012702  000200                  MOV     #200,R2                 ;SET TO DOUBLE MODE FOR LOAD
022014  170102                          LDFPS   R2                      ;LOAD FPS
022016  010504                          MOV     R5,R4                   ;POINT TO FSRC DATA
022020  062704  000010                  ADD     #10,R4
022024  172415                          LDD     (R5),AC0                ;LOAD AC0 WITH TEST DATA
022026  016502  000030                  MOV     30(R5),R2               ;GET TEST FPS
022032  170102                          LDFPS   R2                      ;LOAD TEST FPS
                                ;
022034  174414                          DIVD    (R4),AC0                ;*TEST INSTRUCTION
022036  170000                  1$:     CFCC                            ;WAIT FOR POSSIBLE FPA TRAP.
                                ;
                                ;INSTRUCTION DIDNT TRAP
022040  032737  000001  001042          BIT     #1,@#FLAG                       ;VERIFY A NO TRAP CONDITION
022046  001426                          BEQ     2$                      ;BRANCH IF GOOD
022050  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
022052  000351                          .WORD   351                     ;UNIQUE ERROR NUMBER
022054  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;INSTRUCTION SHOULD HAVE TRAPPED
022056  000167  000042                  JMP     2$                      ;REJOIN CODE
```

```
4527                                    ;
4528                                    ;INSTRUCTION TRAPPED
4529  022062  032737  000001  001042  50$:    BIT     #1,@#FLAG               ;SEE IF EXPECTING A TRAP
4530  022070  001005                          BNE     51$                     ;BRANCH IF EXPECTING A TRAP
4531  022072  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4532  022074  000352                          .WORD   352                     ;UNIQUE ERROR NUMBER
4533  022076  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4534                                                                  ;INSTRUCTION WASNT SUPPOSE TO TRAP
4535  022100  000167  000020                  JMP     2$                      ;REJOIN CODE
4536  022104  012604                  51$:    MOV     (SP)+,R4                ;SEE IF PC = INSTRUCTION
4537  022106  005726                          TST     (SP)+                   ;CLEAN UP STACK
4538  022110  022704  022036                  CMP     #1$,R4                  ;
4539  022114  001403                          BEQ     2$                      ;BRANCH IF GOOD COMPARE
4540  022116  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4541  022120  000353                          .WORD   353                     ;UNIQUE ERROR NUMBER
4542  022122  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4543                                                                  ;PC WAS INCORRECT
4544                                    ;
4545                                    ;COMMON CODE FOR TRAP AND NO TRAP
4546  022124  170203                  2$:     STFPS   R3                      ;SAVE FPS
4547  022126  012702  000200                  MOV     #200,R2                 ;SET FPP TO DOUBLE
4548  022132  170102                          LDFPS   R2
4549  022134  012701  001126                  MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
4550  022140  174011                          STD     AC0,(R1)                ;SAVE AC0  RESULT
4551  022142  026503  000032                  CMP     32(R5),R3               ;VERIFY STATUS
4552  022146  001403                          BEQ     3$                      ;BRANCH IF GOOD
4553  022150  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4554  022152  000354                          .WORD   354                     ;UNIQUE ERROR NUMBER
4555  022154  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4556                                                                  ;BAD FPS
4557  022156  010504                  3$:     MOV     R5,R4                   ;POINT TO EXPECTED DATA
4558  022160  062704  000020                  ADD     #20,R4
4559  022164  004767  157756          4$:     JSR     R7,DATVER                       ;VERIFY DATA
4560  022170  005767  156644                  TST     COUNT
4561  022174  001403                          BEQ     5$                              ;BRANCH IF GOOD
4562  022176  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
4563  022200  000355                          .WORD   355                             ;UNIQUE ERROR NUMBER
4564  022202  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
4565                                                                          ;BAD AC0
4566  022204  005737  001042          5$:     TST     @#FLAG                  ;SEE IF NEED TO CHECK FEC
4567  022210  001002                          BNE     6$                      ;BRANCH IF NEED TO CHECK
4568  022212  000165  000034                  JMP     34(R5)                  ;RETURN FROM TEST
4569  022216  170301                  6$:     STST    R1                      ;SAVE FEC
4570  022220  016504  000034                  MOV     34(R5),R4               ;GET FEC
4571  022224  020401                          CMP     R4,R1                   ;VERIFY FEC
4572  022226  001403                          BEQ     7$                      ;BRANCH IF GOOD
4573  022230  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4574  022232  000356                          .WORD   356                     ;UNIQUE ERROR NUMBER
4575  022234  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4576                                                                          ;BAD FEC
4577  022236  000165  000036          7$:     JMP     36(R5)                  ;RETURN FROM TEST
4578                                    ;
4579  022242                          HOP11:
4580  022242                          MMULF:
4581                                    ;;*****************************************************************
4582                                    ;*TEST 63        TEST MULF
```

```
4583                                    ;;*****************************************************************
4584  022242                            TST63:
4585  022242  005267  156536                  INC     $TESTN                  ;INCREMENT TEST NUMBER
4586                                    ;1/ACC=FSRC=0 -INTERRUPTS DISABLED
4587  022246  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4588  022252  004767  000564                  JSR     R7,MLFSUB                       ;DO TEST
4589  022256  000000  000000                  .WORD   0,0     ;AC0
4590  022262  000000  000000                  .WORD   0,0     ;FSR
4591  022266  000000  000000                  .WORD   0,0                     ;RESULT
4592  022272  007517                          .WORD   7517                    ; TEST FPS
4593  022274  007504                          .WORD   7504                    ;RESULTANT FPS
4594                                    ;2/AC>FSRC=0 - INTERRUPTS O'
4595  022276  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4596  022302  004767  000534                  JSR     R7,MLFSUB                       ;DO TEST
4597  022306  000200  000000                  .WORD   200,0   ;AC0
4598  022312  000000  000000                  .WORD   0,0     ;FSRC
4599  022316  000000  000000                  .WORD   0,0                     ;RESULT
4600  022322  000013                          .WORD   13                      ; TEST FPS
4601  022324  000004                          .WORD   4                       ;RESULTANT FPS
4602                                    ;3/AC=0 FSRC>0 -
4603  022326  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4604  022332  004767  000504                  JSR     R7,MLFSUB                       ;DO TEST
4605  022336  000100  000000                  .WORD   100,0   ;AC0
4606  022342  000300  000000                  .WORD   300,0   ;FSRC
4607  022346  000000  000000                  .WORD   0,0                     ;RESULT
4608  022352  007500                          .WORD   7500                    ; TEST FPS
4609  022354  007504                          .WORD   7504                    ;RESULTANT FPS
4610                                    ;4/AC=1 FSRC - ROUND
4611  022356  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4612  022362  004767  000454                  JSR     R7,MLFSUB                       ;DO TEST
4613  022366  040200  000000                  .WORD   40200,0 ;AC0
4614  022372  040177  177777                  .WORD   40177,-1                ;FSRC
4615  022376  040177  177777                  .WORD   40177,-1                        ;RESULT
4616  022402  000000                          .WORD   0                       ; TEST FPS
4617  022404  000000                          .WORD   0                       ;RESULTANT FPS
4618                                    ;5/TRUNCATE
4619  022406  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4620  022412  004767  000424                  JSR     R7,MLFSUB                       ;DO TEST
4621  022416  040177  177777                  .WORD   40177,-1                ;AC0
4622  022422  040200  000000                  .WORD   40200,0 ;FSRC
4623  022426  040177  177777                  .WORD   40177,-1                        ;RESULT
4624  022432  000040                          .WORD   40                      ; TEST FPS
4625  022434  000040                          .WORD   40                      ;RESULTANT FPS
4626                                    ;6/NORMALIZE
4627  022436  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4628  022442  004767  000374                  JSR     R7,MLFSUB                       ;DO TEST
4629  022446  040100  000000                  .WORD   40100,0 ;AC0
4630  022452  040100  000000                  .WORD   40100,0 ;FSRC
4631  022456  040020  000000                  .WORD   40020,0                 ;RESULT
4632  022462  000012                          .WORD   12                      ; TEST FPS
4633  022464  000000                          .WORD   0                       ;RESULTANT FPS
4634                                    ;7/ROUND
4635  022466  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4636  022472  004767  000344                  JSR     R7,MLFSUB                       ;DO TEST
4637  022476  017500  000000                  .WORD   17500,0 ;AC0
4638  022502  023652  125252                  .WORD   23652,125252            ;FSRC
```

```
4639  022506  003177  177777                .WORD   3177,-1         ;RESULT
4640  022512  007417                        .WORD   7417            ; TEST FPS
4641  022514  007400                        .WORD   7400            ;RESULTANT FPS
4642                          ;8/AC>0>FSRC ROUND
4643  022516  005037  001042                CLR     @#FLAG          ;NO INTERRUPT
4644  022522  004767  000314                JSR     R7,MLFSUB               ;DO TEST
4645  022526  040342  177777                .WORD   40342,-1        ;AC0
4646  022532  176543  025252                .WORD   176543,025252   ;FSRC
4647  022536  176711  067324                .WORD   176711,67324            ;RESULT
4648  022542  007500                        .WORD   7500            ; TEST FPS
4649  022544  007510                        .WORD   7510            ;RESULTANT FPS
4650                          ;9/IAC<FSRC<0, ROUND
4651  022546  005037  001042                CLR     @#FLAG          ;NO INTERRUPT
4652  022552  004767  000264                JSR     R7,MLFSUB               ;DO TEST
4653  022556  144600  000000                .WORD   144600,0                ;AC0
4654  022562  154000  000000                .WORD   154000,0                ;FSRC
4655  022566  060400  000000                .WORD   60400,0         ;RESULT
4656  022572  000017                        .WORD   17              ; TEST FPS
4657  022574  000000                        .WORD   0               ;RESULT FPS
4658                          ;10/AC<FSRC, ROUND
4659  022576  005037  001042                CLR     @#FLAG          ;NO INTERRUPT
4660  022602  004767  000234                JSR     R7,MLFSUB               ;DO TEST
4661  022606  060000  000000                .WORD   60000,0         ;AC0
4662  022612  140377  177776                .WORD   140377,177776           ;FSRC
4663  022616  160177  177776                .WORD   160177,177776           ;RESULT
4664  022622  000017                        .WORD   17              ; TEST FPS
4665  022624  000010                        .WORD   10              ;RESULT FPS
4666                          ;11/AC>0>FSRC, TRUNCATE
4667  022626  005037  001042                CLR     @#FLAG          ;NO INTERRUPT
4668  022632  004767  000204                JSR     R7,MLFSUB               ;DO TEST
4669  022636  060000  000000                .WORD   60000,0         ;AC0
4670  022642  140377  177776                .WORD   140377,177776           ;FSRC
4671  022646  160177  177776                .WORD   160177,177776           ;RESULT
4672  022652  007547                        .WORD   7547            ; TEST FPS
4673  022654  007550                        .WORD   7550            ;RESULT FPS
4674                          ;12/UNDERFLOW, NO INTERRUPTS
4675  022656  012737  000002  001042        MOV     #2,@#FLAG               ;NO INTERRUPT
4676  022664  004767  000152                JSR     R7,MLFSUB               ;DO TEST
4677  022670  000200  C00001                .WORD   200,1           ;AC0
4678  022674  000200  000001                .WORD   200,1           ;FSRC
4679  022700  040200  000002                .WORD   40200,2         ;RESULT
4680  022704  042117                        .WORD   42117           ; TEST FPS
4681  022706  142100                        .WORD   142100          ;RESULT FPS
4682  022710  000012                        .WORD   12              ;FEC
4683                          ;13/OVERFLOW, TRAP
4684  022712  012737  000001  001042        MOV     #1,@#FLAG               ;INTERRUPT
4685  022720  004767  000116                JSR     R7,MLFSUB               ;DO TEST
4686  022724  177777  177777                .WORD   177777,-1               ;AC0
4687  022730  040300  000000                .WORD   40300,0         ;FSRC
4688  022734  100077  177777                .WORD   100077,-1               ;RESULT
4689  022740  001117                        .WORD   1117            ; TEST FPS
4690  022742  101116                        .WORD   101116          ;RESULT FPS
4691  022744  000010                        .WORD   10              ;FEC
4692                          ;14/OVERFLOW NO TRAP
4693  022746  012737  000002  001042        MOV     #2,@#FLAG               ;NO INTERRUPT
4694  022754  004767  000062                JSR     R7,MLFSUB               ;DO TEST
```

```
4695  022760  077700  000000                  .WORD   77700,0          ;AC0
4696  022764  077700  000000                  .WORD   77700,0          ;FSRC
4697  022770  000000  000000                  .WORD   0,0              ;RESULT
4698  022774  040117                          .WORD   40117            ; TEST FPS
4699  022776  040106                          .WORD   40106            ;RESULT FPS
4700  023000  000010                          .WORD   10               ;FEC
4701                                  ;15/UNDEFINED VARIABLE IN FSRC, TRAP ENABLED
4702  023002  012737  000001  001042          MOV     #1,@#FLAG                ;INTERRUPT
4703  023010  004767  000026                  JSR     R7,MLFSUB                ;DO TEST
4704  023014  123465  000000                  .WORD   123465,0                 ;AC0
4705  023020  100022  000000                  .WORD   100022,0                 ;FSRC
4706  023024  123465  000000                  .WORD   123465,0                 ;RESULT
4707  023030  004000                          .WORD   4000             ; TEST FPS
4708  023032  104000                          .WORD   104000           ;RESULT FPS
4709  023034  000014                          .WORD   14               ;FEC
4710                                  ;
4711
4712  023036  000167  000242                  JMP     @OP12
4713                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
4714                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
4715                                  ;
4716                                  ;               AC0
4717                                  ;               FSRC
4718                                  ;               FPS BEFORE EXECUTION
4719                                  ;               FPS AFTER EXECUTION
4720                                  ;               (FEC)
4721                                  ;
4722                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
4723                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
4724                                  ;
4725  023042  012605                  MLFSUB: MOV     (SP)+,R5                 ; RETURN ADDRESS TO USE AS POINTER
4726  023044  012737  023124  000244          MOV     #50$,@#FPVEC             ;REDIRECT TRAP VECTOR
4727  023052  012702  000200                  MOV     #200,R2                  ;SET TO DOUBLE MODE FOR LOAD
4728  023056  170102                          LDFPS   R2                       ;LOAD FPS
4729  023060  172415                          LDD     (R5),AC0                 ;LOAD AC0 WITH TEST DATA
4730  023062  010504                          MOV     R5,R4                    ;POINT TO FSRC DATA
4731  023064  062704  000004                  ADD     #4,R4
4732  023070  016502  000014                  MOV     14(R5),R2                ;GET TEST FPS
4733  023074  170102                          LDFPS   R2                       ;LOAD TEST FPS
4734                                  ;
4735  023076  171014                          MULF    (R4),AC0                 ;*TEST INSTRUCTION
4736  023100  170001                  1$:     SETF                             ;WAIT FOR POSSIBLE FPA TRAP.
4737                                  ;
4738                                  ;INSTRUCTION DIDNT TRAP
4739  023102  032737  000001  001042          BIT     #1,@#FLAG                        ;VERIFY A NO TRAP CONDITION
4740  023110  001426                          BEQ     2$                       ;BRANCH IF GOOD
4741  023112  104000                          ERROR                            ;ALL ERRORS TO TRAP TO EMT VECTOR
4742  023114  000357                          .WORD   357                      ;UNIQUE ERROR NUMBER
4743  023116  002013                          .WORD   FPPERR                   ;ADDRESS OF ERROR MESSAGE
4744                                                                  ;INSTRUCTION SHOULD HAVE TRAPPED
4745  023120  000167  000042                  JMP     2$                       ;REJOIN CODE
4746                                  ;
4747                                  ;INSTRUCTION TRAPPED
4748  023124  032737  000001  001042  50$:     BIT     #1,@#FLAG                ;SEE IF EXPECTING A TRAP
4749  023132  001005                          BNE     51$                      ;BRANCH IF EXPECTING A TRAP
4750  023134  104000                          ERROR                            ;ALL ERRORS TO TRAP TO EMT VECTOR
```

```
4751  023136  000360                        .WORD   360                     ;UNIQUE ERROR NUMBER
4752  023140  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4753                                                                  ;INSTRUCTION WASNT SUPPOSE TO TRAP
4754  023142  000167  000020                JMP     2$                      ;REJOIN CODE
4755  023146  012604              51$:      MOV     (SP)+,R4                ;SEE IF PC = INSTRUCTION
4756  023150  005726                        TST     (SP)+                   ;CLEAN UP STACK
4757  023152  022704  023100                CMP     #1$,R4                  ;
4758  023156  001403                        BEQ     2$                      ;BRANCH IF GOOD COMPARE
4759  023160  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4760  023162  000361                        .WORD   361                     ;UNIQUE ERROR NUMBER
4761  023164  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4762                                                                  ;PC WAS INCORRECT
4763                                        ;
4764                                        ;COMMON CODE FOR TRAP AND NO TRAP
4765  023166  170203              2$:       STFPS   R3                      ;SAVE FPS
4766  023170  012702  000200                MOV     #200,R2                 ;SET FPP TO DOUBLE
4767  023174  170102                        LDFPS   R2
4768  023176  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
4769  023202  174011                        STD     AC0,(R1)                ;SAVE AC0  RESULT
4770  023204  026503  000016                CMP     16(R5),R3               ;VERIFY STATUS
4771  023210  001403                        BEQ     3$                      ;BRANCH IF GOOD
4772  023212  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4773  023214  000362                        .WORD   362                     ;UNIQUE ERROR NUMBER
4774  023216  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4775                                                                  ;BAD FPS
4776  023220  010504              3$:       MOV     R5,R4                   ;POINT TO EXPECTED DATA
4777  023222  062704  000010                ADD     #10,R4
4778  023226  004767  156676              4$:       JSR     R7,DATVFR                       ;VERIFY DATA
4779  023232  005767  155602                TST     COUNT
4780  023236  001403                        BEQ     5$                      ;BRANCH IF GOOD
4781  023240  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4782  023242  000363                        .WORD   363                     ;UNIQUE ERROR NUMBER
4783  023244  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4784                                                                  ;BAD AC0
4785  023246  005737  001042              5$:       TST     @#FLAG                  ;SEE IF NEED TO CHECK FEC
4786  023252  001002                        BNE     6$                      ;BRANCH IF NEED TO CHECK
4787  023254  000165  000020                JMP     20(R5)                  ;RETURN FROM TEST
4788                                        ;VERIFY ERROR STATUS
4789  023260  170301              6$:       STST    R1                      ;SAVE FEC
4790  023262  016504  000020                MOV     20(R5),R4               ;GET FEC
4791  023266  020401                        CMP     R4,R1                   ;VERIFY FEC
4792  023270  001403                        BEQ     7$                      ;BRANCH IF GOOD
4793  023272  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4794  023274  000364                        .WORD   364                     ;UNIQUE ERROR NUMBER
4795  023276  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4796                                                                  ;BAD FEC
4797  023300  000165  000022              7$:       JMP     22(R5)          ;RETURN FROM TEST
4798  023304                              HOP12:
4799  023304                              MMULD:
4800                                      ;;*****************************************************************
4801                                      ;*TEST 64        TEST MULD
4802                                      ;;*****************************************************************
4803  023304                              TST64:
4804  023304  005267  155474                        INC     @TESTN                  ;INCREMENT TEST NUMBER
4805                                      ;1/AC=0
4806  023310  005037  001042                        CLR     @#FLAG          ;NO INTERRUPT
```

```
4807  023314  004767  000554                  JSR     R7,MLDSUB               ;DO TEST
4808  023320  000100  000000  000000          .WORD   100,0,0,0       ;AC0
4809  023326  000000
4810  023330  000411  177777  000000          .WORD   411,-1,0,1      ;FSRC
4811  023336  000001
4812  023340  000000  000000  000000          .WORD   0,0,0,0         ;RESULT
4813  023346  000000
4814  023350  000200                          .WORD   200             ; TEST FPS
4815  023352  000204                          .WORD   204             ;RESULTANT FPS
4816                          ;2/FSRC=0
4817  023354  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
4818  023360  004767  000510                  JSR     R7,MLDSUB               ;DO TEST
4819  023364  077777  000000  000000          .WORD   77777,0,0,0     ;AC0
4820  023372  000000
4821  023374  000000  000000  000000          .WORD   0,0,0,0 ;FSRC
4822  023402  000000
4823  023404  000000  000000  000000          .WORD   0,0,0,0         ;RESULT
4824  023412  000000
4825  023414  007700                          .WORD   7700            ; TEST FPS
4826  023416  007704                          .WORD   7704            ;RESULTANT FPS
4827                          ;3/AC=1
4828  023420  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
4829  023424  004767  000444                  JSR     R7,MLDSUB               ;DO TEST
4830  023430  040200  000000  000000          .WORD   40200,0,0,0     ;AC0
4831  023436  000000
4832  023440  000277  177777  177777          .WORD   277,-1,-1,-1    ;FSRC
4833  023446  177777
4834  023450  000277  177777  177777          .WORD   277,-1,-1,-1            ;RESULT
4835  023456  177777
4836  023460  007717                          .WORD   7717            ; TEST FPS
4837  023462  007700                          .WORD   7700            ;RESULTANT FPS
4838                          ;4/AC>FSRC>0, TRUNCATE
4839  023464  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
4840  023470  004767  000400                  JSR     R7,MLDSUB               ;DO TEST
4841  023474  065500  000000  000000          .WORD   65500,0,0,1     ;AC0
4842  023502  000001
4843  023504  037577  177777  177777          .WORD   37577,-1,-1, 2  ;FSRC
4844  023512  177776
4845  023514  065077  177777  177777          .WORD   65077,-1,-1,-1          ;RESULT
4846  023522  177777
4847  023524  007717                          .WORD   7717            ; TEST FPS
4848  023526  007700                          .WORD   7700            ;RESULTANT FPS
4849                          ;5/AC<FSRC<0
4850  023530  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
4851  023534  004767  000334                  JSR     R7,MLDSUB               ;DO TEST
4852  023540  137577  177777  177777          .WORD   137577,-1,-1, 2 ;AC0
4853  023546  177776
4854  023550  165400  000000  000000          .WORD   165400,0,0,1    ;FSRC
4855  023556  000001
4856  023560  065000  000000  000000          .WORD   65000,0,0,0             ;RESULT
4857  023566  000000
4858  023570  007717                          .WORD   7717            ; TEST FPS
4859  023572  007700                          .WORD   7700            ;RESULTANT FPS
4860                          ;6/AC>FSRC>0
4861  023574  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
4862  023600  004767  000270                  JSR     R7,MLDSUB               ;DO TEST
```

```
4863  023604  017500  000000  000000          .WORD   17500,0,0,0      ;AC0
4864  023612  000000
4865  023614  123652  125252  125252          .WORD   123652,125252,125252,125252      ;FSRC
4866  023622  125252
4867  023624  103177  177777  177777          .WORD   103177,-1,-1,-1          ;RESULT
4868  023632  177777
4869  023634  000200                          .WORD   200              ; TEST FPS
4870  023636  000210                          .WORD   210              ;RESULTANT FPS
4871                                ;7/UNDERFLOW, TRAPS DISABLED
4872  023640  005037  001042                  CLR     @#FLAG                   ;NO INTERRUPT
4873  023644  004767  000224                  JSR     R7,MLDSUB                ;DO TEST
4874  023650  000300  000000  000000          .WORD   300,0,0,252              ;AC0
4875  023656  000252
4876  023660  000377  000001  000002          .WORD   377,1,2,3                ;FSRC
4877  023666  000003
4878  023670  000000  000000  000000          .WORD   0,0,0,0          ;RESULT
4879  023676  000000
4880  023700  005740                          .WORD   5740             ; TEST FPS
4881  023702  005744                          .WORD   5744             ;RESULT FPS
4882                                ;8/UNDERFLOW, TRAP ENABLED
4883  023704  012737  000001  001042          MOV     #1,@#FLAG                ;INTERRUPT
4884  023712  004767  000156                  JSR     R7,MLDSUB                ;DO TEST
4885  023716  100277  000001  000002          .WORD   100277,1,2,-1            ;AC0
4886  023724  177777
4887  023726  100300  000001  000001          .WORD   100300,1,1,1             ;FSRC
4888  023734  000001
4889  023736  040417  040001  077403          .WORD   40417,40001,77403,0              ;RESULT
4890  023744  000000
4891  023746  002217                          .WORD   2217             ; TEST FPS
4892  023750  102200                          .WORD   102200           ;RESULT FPS
4893  023752  000012                          .WORD   12               ;FEC
4894                                ;9/OVERFLOW, TRAPS DISABLED
4895  023754  005037  001042                  CLR     @#FLAG                   ;NO INTERRUPT
4896  023760  004767  000110                  JSR     R7,MLDSUB                ;DO TEST
4897  023764  177777  177777  177777          .WORD   -1,-1,-1,-1              ;AC0
4898  023772  177777
4899  023774  040200  177777  177777          .WORD   40200,-1,-1,-1           ;FSRC
4900  024002  177777
4901  024004  000000  000000  000000          .WORD   0,0,0,0          ;RESULT
4902  024012  000000
4903  024014  006740                          .WORD   6740             ; TEST FPS
4904  024016  006746                          .WORD   6746             ;RESULT FPS
4905                                ;10/OVERFLOW, TRAPS ENABLED
4906  024020  012737  000001  001042          MOV     #1,@#FLAG                ;INTERRUPT
4907  024026  004767  000042                  JSR     R7,MLDSUB                ;DO TEST
4908  024032  157700  025252  025252          .WORD   157700,25252,25252,25252                 ;AC0
4909  024040  025252
4910  024042  167700  000000  000000          .WORD   167700,0,0,0             ;FSRC
4911  024050  000000
4912  024052  007420  017777  117777          .WORD   7420,017777,117777,117777                ;RESULT
4913  024060  117777
4914  024062  001240                          .WORD   1240             ; TEST FPS
4915  024064  101242                          .WORD   101242           ;RESULT FPS
4916  024066  000010                          .WORD   10               ;FEC
4917                                ;
4918
```

```
 4919  024070  000167  000242                 JMP     HOP13
 4920
 4921                                 ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4922                                 ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4923                                 ;
 4924                                 ;               ACO
 4925                                 ;               FSRC
 4926                                 ;               FPS BEFORE EXECUTION
 4927                                 ;               FPS AFTER EXECUTION
 4928                                 ;               (FEC)
 4929                                 ;
 4930                                 ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4931                                 ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4932                                 ;
 4933  024074  012605                 MLDSUB: MOV     (SP)+,R5                ; RETURN ADDRESS TO USE AS POINTER
 4934  024076  012737  024156  000244         MOV     #50$,@#FPVEC            ;REDIRECT TRAP VECTOR
 4935  024104  012702  000200                MOV     #200,R2                 ;SET TO DOUBLE MODE FOR LOAD
 4936  024110  170102                 LDFPS   R2                      ;LOAD FPS
 4937  024112  172415                 LDD     (R5),AC0                ;LOAD AC0 WITH TEST DATA
 4938  024114  010501                 MOV     R5,R1                   ;POINT TO FSRC DATA
 4939  024116  062701  000010                ADD     #10,R1
 4940  024122  016502  000030                MOV     30(R5),R2               ;GET TEST FPS
 4941  024126  170102                 LDFPS   R2                      ;LOAD TEST FPS
 4942                                 ;
 4943  024130  171011                 MULD    (R1),AC0                ;*TEST INSTRUCTION
 4944  024132  170011                 1$:     SETD                    ;WAIT FOR POSSIBLE FPA TRAP.
 4945                                 ;
 4946                                 ;INSTRUCTION DIDNT TRAP
 4947  024134  032737  000001  001042         BIT     #1,@#FLAG                       ;VERIFY A NO TRAP CONDITION
 4948  024142  001426                 BEQ     2$                      ;BRANCH IF GOOD
 4949  024144  104000                 ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 4950  024146  000365                 .WORD   365                     ;UNIQUE ERROR NUMBER
 4951  024150  002013                 .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 4952                                                         ;INSTRUCTION SHOULD HAVE TRAPPED
 4953  024152  000167  000042                JMP     2$                      ;REJOIN CODE
 4954                                 ;
 4955                                 ;INSTRUCTION TRAPPED
 4956  024156  032737  000001  001042  50$:    BIT     #1,@#FLAG               ;SEE IF EXPECTING A TRAP
 4957  024164  001005                 BNE     51$                     ;BRANCH IF EXPECTING A TRAP
 4958  024166  104000                 ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 4959  024170  000366                 .WORD   366                     ;UNIQUE ERROR NUMBER
 4960  024172  002013                 .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 4961                                                         ;INSTRUCTION WASNT SUPPOSE TO TRAP
 4962  024174  000167  000020                JMP     2$                      ;REJOIN CODE
 4963  024200  012604                 51$:    MOV     (SP)+,R4                ;SEE IF PC - INSTRUCTION
 4964  024202  005726                 TST     (SP)+                   ;CLEAN UP STACK
 4965  024204  022704  024132                CMP     #1$,R4                  ;
 4966  024210  001403                 BEQ     2$                      ;BRANCH IF GOOD COMPARE
 4967  024212  104000                 ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 4968  024214  000367                 .WORD   367                     ;UNIQUE ERROR NUMBER
 4969  024216  002013                 .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 4970                                                         ;PC WAS INCORRECT
 4971                                 ;
 4972                                 ;COMMON CODE FOR TRAP AND NO TRAP
 4973  024220  170203                 2$:     STFPS   R3                      ;SAVE FPS
 4974  024222  012702  000200                MOV     #200,R2                 ;SET FPP TO DOUBLE
```

```
 4975  024226  170102                          LDFPS   R2
 4976  024230  012701  001126                  MOV     #RECDST,R1          ;POINT TO RECEIVED DATA TABLE
 4977  024234  174011                          STD     AC0,(R1)            ;SAVE AC0  RESULT
 4978  024236  026503  000032                  CMP     32(R5),R3           ;VERIFY STATUS
 4979  024242  001403                          BEQ     3$                  ;BRANCH IF GOOD
 4980  024244  104000                          ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
 4981  024246  000370                          .WORD   370                 ;UNIQUE ERROR NUMBER
 4982  024250  002013                          .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
 4983                                                                  ;BAD FPS
 4984  024252  010504                  3$:     MOV     R5,R4               ;POINT TO EXPECTED DATA
 4985  024254  062704  000020                  ADD     #20,R4
 4986  024260  004767  155662          4$:     JSR     R7,DATVER                   ;VERIFY DATA
 4987  024264  005767  154550                  TST     COUNT
 4988  024270  001403                          BEQ     5$                  ;BRANCH IF GOOD
 4989  024272  104000                          ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
 4990  024274  000371                          .WORD   371                 ;UNIQUE ERROR NUMBER
 4991  024276  002013                          .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
 4992                                                                  ;BAD AC0
 4993  024300  005737  001042          5$:     TST     @#FLAG              ;SEE IF NEED TO CHECK FEC
 4994  024304  001002                          BNE     6$                  ;BRANCH IF NEED TO CHECK
 4995  024306  000165  000034                  JMP     34(R5)              ;RETURN FROM TEST
 4996                                  ;VERIFY ERROR STATUS
 4997  024312  170301                  6$:     STST    R1                  ;SAVE FEC
 4998  024314  016504  000034                  MOV     34(R5),R4           ;GET FEC
 4999  024320  020401                          CMP     R4,R1               ;VERIFY FEC
 5000  024322  001403                          BEQ     7$                  ;BRANCH IF GOOD
 5001  024324  104000                          ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
 5002  024326  000372                          .WORD   372                 ;UNIQUE ERROR NUMBER
 5003  024330  002013                          .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
 5004                                                                  ;BAD FEC
 5005  024332  000165  000036          7$:     JMP     36(R5)              ;RETURN FROM TEST
 5006  024336                          MOP13:
 5007  024336                          MMODF:
 5008                                  ;;*****************************************************************
 5009                                  ;*TEST 65        TEST MODF
 5010                                  ;;*****************************************************************
 5011  024336                          TST65:
 5012  024336  005267  154442                  INC     $TESTN                      ;INCREMENT TEST NUMBER
 5013                                  ;1/AC=0 FSRC=0
 5014  024342  005037  001042                  CLR     @#FLAG              ;NO INTERRUPT
 5015  024346  004767  000554                  JSR     R7,MDFSUB                   ;DO TEST
 5016  024352  000100  000000                  .WORD   100,0    ;AC0
 5017  024356  012346  177777                  .WORD   12346,-1            ;FSRC
 5018  024362  000000  000000                  .WORD   0,0                 ;FRACTIONAL RESULT
 5019  024366  000000  000000                  .WORD   0,0                 ;INTEGER RESULT
 5020  024372  000013                          .WORD   13                  ; TEST FPS
 5021  024374  000004                          .WORD   4                   ;RESULTANT FPS
 5022                                  ;2/FSRC=0
 5023  024376  005037  001042                  CLR     @#FLAG              ;NO INTERRUPT
 5024  024402  004767  000520                  JSR     R7,MDFSUB                   ;DO TEST
 5025  024406  012356  177777                  .WORD   12356,-1            ;AC0
 5026  024412  000000  000000                  .WORD   0,0      ;FSRC
 5027  024416  000000  000000                  .WORD   0,0                 ;FRACTIONAL RESULT
 5028  024422  000000  000000                  .WORD   0,0                 ;INTEGER RESULT
 5029  024426  000003                          .WORD   3                   ; TEST FPS
 5030  024430  000004                          .WORD   4       ;RESULTANT FPS
```

```
5031
5032  024432  005037  001042          ;3/AC=0
                                              CLR     @#FLAG          ;NO INTERRUPT
5033  024436  004767  000464                 JSR     R7,MDFSUB               ;DO TEST
5034  024442  000000  000000                 .WORD   0,0             ;ACO
5035  024446  177777  177777                 .WORD   -1,-1           ;FSRC
5036  024452  000000  000000                 .WORD   0,0             ;FRACTIONAL  RESULT
5037  024456  000000  000000                 .WORD   0,0             ;INTEGER RESULT
5038  024462  007500                         .WORD   7500            ; TEST FPS
5039  024464  007504                         .WORD   7504            ;RESULT FPS
5040
5041  024466  005037  001042          ;4/AC>FSRC>0
                                              CLR     @#FLAG          ;NO INTERRUPT
5042  024472  004767  000430                 JSR     R7,MDFSUB               ;DO TEST
5043  024476  046252  125252                 .WORD   46252,125252    ;ACO
5044  024502  040300  000000                 .WORD   40300,0 ;FSRC
5045  024506  000000  000000                 .WORD   0,0             ;FRACTIONAL RESULT
5046  024512  046377  177777                 .WORD   46377,-1                ;INTEGER RESULT
5047  024516  000013                         .WORD   13              ; TEST FPS
5048  024520  000004                         .WORD   4               ;RESULTANT FPS
5049
5050  024522  005037  001042          ;5/AC>FSRC>0
                                              CLR     @#FLAG          ;NO INTERRUPT
5051  024526  004767  000374                 JSR     R7,MDFSUB               ;DO TEST
5052  024532  077652  125252                 .WORD   77652,125252    ;ACO
5053  024536  040300  000000                 .WORD   40300,0 ;FSRC
5054  024542  000000  000000                 .WORD   0,0             ;FRACTIONAL RESULT
5055  024546  077777  177777                 .WORD   77777,-1                ;INTEGER RESULT
5056  024552  000000                         .WORD   0               ; TEST FPS
5057  024554  000004                         .WORD   4               ;RESULTANT FPS
5058
5059
5060  024556  005037  001042          ;6/AC>0<FSRC, INTEGERS
                                              CLR     @#FLAG          ;NO INTERRUPT
5061  024562  004767  000340                 JSR     R7,MDFSUB               ;DO TEST
5062  024566  060600  000000                 .WORD   60600,0         ;ACO
5063  024572  147400  025700                 .WORD   147400,25700            ;FSRC
5064  024576  000000  000000                 .WORD   0,0             ;FRACTIONAL  RESULT
5065  024602  170000  025700                 .WORD   170000,25700            ;INTEGER RESULT
5066  024606  007400                         .WORD   7400            ; TEST FPS
5067  024610  007404                         .WORD   7404            ;RESULT FPS
5068
5069  024612  005037  001042          ;7/AC<0<FSRC, FRACTIONAL
                                              CLR     @#FLAG          ;NO INTERRUPT
5070  024616  004767  000304                 JSR     R7,MDFSUB               ;DO TEST
5071  024622  100227  177777                 .WORD   100227,-1               ;ACO
5072  024626  044025  025252                 .WORD   44025,25252             ;FSRC
5073  024632  104061  021251                 .WORD   104061,21251            ;FRACTIONAL  RESULT
5074  024636  000000  000000                 .WORD   0,0             ;INTEGER RESULT
5075  024642  000000                         .WORD   0               ; TEST FPS
5076  024644  000010                         .WORD   10              ;RESULT FPS
5077
5078  024646  005037  001042          ;8/AC<0>FSRC, TRUNCATE
                                              CLR     @#FLAG          ;NO INTERRUPT
5079  024652  004767  000250                 JSR     R7,MDFSUB               ;DO TEST
5080  024656  046252  125252                 .WORD   46252,125252            ;ACO
5081  024662  040300  000000                 .WORD   40300,0         ;FSRC
5082  024666  000000  000000                 .WORD   0,0             ;FRACTIONAL  RESULT
5083  024672  046377  177777                 .WORD   46377,-1                ;INTEGER RESULT
5084  024676  000053                         .WORD   53              ; TEST FPS
5085  024700  000044                         .WORD   44              ;RESULT FPS
5086
                                        ;9/ROUND INTEGER
```

```
5087  024702  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
5088  024706  004767  000214                  JSR     R7,MDFSUB               ;DO TEST
5089  024712  046252  125252                  .WORD   46252,125252            ;ACO
5090  024716  040300  000000                  .WORD   40300,0         ;FSRC
5091  024722  000000  000000                  .WORD   0,0             ;FRACTIONAL  RESULT
5092  024726  046377  177777                  .WORD   46377,-1                ;INTEGER RESULT
5093  024732  000013                          .WORD   13              ; TEST FPS
5094  024734  000004                          .WORD   4               ;RESULT FPS
5095                          ;10/TRUNCATE FRACTION
5096  024736  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
5097  024742  004767  000160                  JSR     R7,MDFSUB               ;DO TEST
5098  024746  040777  177777                  .WORD   40777,-1                ;ACO
5099  024752  040200  000000                  .WORD   40200,0         ;FSRC
5100  024756  040177  177770                  .WORD   40177,177770            ;FRACTIONAL  RESULT
5101  024762  040740  000000                  .WORD   40740,0         ;INTEGER RESULT
5102  024766  000000                          .WORD   0               ; TEST FPS
5103  024770  000000                          .WORD   0               ;RESULT FPS
5104                          ;11/ROUND INTEGER
5105  024772  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
5106  024776  004767  000124                  JSR     R7,MDFSUB               ;DO TEST
5107  025002  000000  000000                  .WORD   0,0             ;ACO
5108  025006  000000  000000                  .WORD   0,0             ;FSRC
5109  025012  000000  000000                  .WORD   0,0             ;FRACTIONAL  RESULT
5110  025016  000000  000000                  .WORD   0,0             ;INTEGER RESULT
5111  025022  000000                          .WORD   0               ; TEST FPS
5112  025024  000004                          .WORD   4               ;RESULT FPS
5113                          ;12/ROUND FRACTION
5114  025026  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
5115  025032  004767  000070                  JSR     R7,MDFSUB               ;DO TEST
5116  025036  040225  125252                  .WORD   40225,125252            ;ACO
5117  025042  066652  052525                  .WORD   66652,52525             ;FSRC
5118  025046  000000  000000                  .WORD   0,0             ;FRACTIONAL  RESULT
5119  025052  066707  025160                  .WORD   66707,25160             ;INTEGER RESULT
5120  025056  007027                          .WORD   7027            ; TEST FPS
5121  025060  007004                          .WORD   7004            ;RESULT FPS
5122                          ;/OVERFLOW
5123  025062  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
5124  025070  004767  000032                  JSR     R7,MDFSUB               ;DO TEST
5125  025074  076000  000000                  .WORD   76000,0         ;ACO
5126  025100  076000  000000                  .WORD   76000,0         ;FSRC
5127  025104  000000  000000                  .WORD   0,0             ;FRACTIONAL  RESULT
5128  025110  033600  000000                  .WORD   33600,0         ;INTEGER RESULT
5129  025114  001000                          .WORD   1000            ; TEST FPS
5130  025116  101006                          .WORD   101006          ;RESULT FPS
5131  025120  000010                          .WORD   10              ;FEC
5132                          ;
5133  025122  000167  000310                  JMP     HOP14
5134
5135                          ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5136                          ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5137                          ;
5138                          ;               ACO
5139                          ;               FSRC
5140                          ;               FRACTIONAL RESULT
5141                          ;               INTEGER RESULT
5142                          ;               FPS BEFORE EXECUTION
```

```
                                        ;               FPS AFTER EXECUTION
                                        ;               (FEC)
                                        ;
                                        ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                        ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                        ;
025126  012605                          MDFSUB: MOV     (SP)+,R5                        ; RETURN ADDRESS TO USE AS POINTER
025130  012737  025216  000244                  MOV     #50$,@#FPVEC                    ;REDIRECT TRAP VECTOR
025136  012702  000200                          MOV     #200,R2                         ;SET TO DOUBLE MODE FOR LOAD
025142  170102                                  LDFPS   R2                              ;LOAD FPS
025144  172415                                  LDD     (R5),AC0                        ;LOAD AC0 WITH TEST DATA
025146  012701  025426                          MOV     #MODGAR,R1                      ;LOAD KNOWN INTO AC1
025152  172511                                  LDD     (R1),AC1                        ;
025154  010501                                  MOV     R5,R1                           ;POINT TO FSRC DATA
025156  062701  000004                          ADD     #4,R1
025162  016502  000020                          MOV     20(R5),R2                       ;GET TEST FPS
025166  170102                                  LDFPS   R2                              ;LOAD TEST FPS
                                        ;
025170  171411                                  MODF    (R1),AC0                        ;*TEST INSTRUCTION
025172  170001                          1$:     SETF                                    ;WAIT FOR POSSIBLE FPA TRAP.
                                        ;
                                        ;INSTRUCTION DIDNT TRAP
025174  032737  000001  001042                  BIT     #1,@#FLAG                               ;VERIFY A NO TRAP CONDITION
025202  001426                                  BEQ     2$                              ;BRANCH IF GOOD
025204  104000                                  ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
025206  000373                                  .WORD   373                             ;UNIQUE ERROR NUMBER
025210  002013                                  .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
                                                                                ;INSTRUCTION SHOULD HAVE TRAPPED
025212  000167  000042                          JMP     2$                              ;REJOIN CODE
                                        ;
                                        ;INSTRUCTION TRAPPED
025216  032737  000001  001042          50$:    BIT     #1,@#FLAG                       ;SEE IF EXPECTING A TRAP
025224  001005                                  BNE     51$                             ;BRANCH IF EXPECTING A TRAP
025226  104000                                  ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
025230  000374                                  .WORD   374                             ;UNIQUE ERROR NUMBER
025232  002013                                  .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
                                                                                ;INSTRUCTION WASNT SUPPOSE TO TRAP
025234  000167  000020                          JMP     2$                              ;REJOIN CODE
025240  012604                          51$:    MOV     (SP)+,R4                        ;SEE IF PC = INSTRUCTION
025242  005726                                  TST     (SP)+                           ;CLEAN UP STACK
025244  022704  025172                          CMP     #1$,R4                          ;
025250  001403                                  BEQ     2$                              ;BRANCH IF GOOD COMPARE
025252  104000                                  ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
025254  000375                                  .WORD   375                             ;UNIQUE ERROR NUMBER
025256  002013                                  .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
                                                                                ;PC WAS INCORRECT
                                        ;
                                        ;COMMON CODE FOR TRAP AND NO TRAP
025260  170203                          2$:     STFPS   R3                              ;SAVE FPS
025262  012702  000200                          MOV     #200,R2                         ;SET FPP TO DOUBLE
025266  170102                                  LDFPS   R2
025270  012701  001126                          MOV     #RECDST,R1                      ;POINT TO RECEIVED DATA TABLE
                                        ;SAVE FRACTIONAL RESULT
025274  174011                                  STD     AC0,(R1)                        ;SAVE AC0  RESULT
025276  026503  000022                          CMP     22(R5),R3                       ;VERIFY STATUS
025302  001403                                  BEQ     3$                              ;BRANCH IF GOOD
```

```
5199  025304  104000                        ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
5200  025306  000376                        .WORD   376                             ;UNIQUE ERROR NUMBER
5201  025310  002013                        .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
5202                                                                          ;BAD FPS
5203  025312  010504              3$:       MOV     R5,R4                           ;POINT TO EXPECTED DATA
5204  025314  062704  000010              ADD     #10,R4
5205  025320  004767  154604        4$:   JSR     R7,DATVFR                               ;VERIFY DATA
5206  025324  005767  153510              TST     COUNT
5207  025330  001403                      BEQ     5$                              ;BRANCH IF GOOD
5208  025332  104000                      ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
5209  025334  000377                      .WORD   377                             ;UNIQUE ERROR NUMBER
5210  025336  002013                      .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
5211                                                                          ;BAD AC0
5212                                      ;SAVE INTEGER RESULT
5213  025340  174111              5$:       STD     AC1,(R1)                        ;SAVE AC1 RESULT
5214  025342  010504                      MOV     R5,R4                           ;POINT TO EXPECTED
5215  025344  062704  000014              ADD     #14,R4
5216  025350  004767  154554              JSR     R7,DATVFR                       ;VERIFY DATA
5217  025354  005767  153460              TST     COUNT                           ;
5218  025360  001403                      BEQ     6$                              ;BRANCH IF GOOD
5219  025362  104000                      ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
5220  025364  000400                      .WORD   400                             ;UNIQUE ERROR NUMBER
5221  025366  002013                      .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
5222                                                                          ;BAD AC1
5223  025370  005737  001042        6$:   TST     @#FLAG                          ;SEE IF NEED TO CHECK FEC
5224  025374  001002                      BNE     7$                              ;BRANCH IF NEED TO CHECK
5225  025376  000165  000024              JMP     24(R5)                          ;RETURN FROM TEST
5226  025402  170301              7$:       STST    R1                              ;SAVE FEC
5227  025404  016504  000024              MOV     24(R5),R4                       ;GET FEC
5228  025410  020401                      CMP     R4,R1                           ;VERIFY FEC
5229  025412  001403                      BEQ     8$                              ;BRANCH IF GOOD
5230  025414  104000                      ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
5231  025416  000401                      .WORD   401                             ;UNIQUE ERROR NUMBER
5232  025420  002013                      .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
5233                                                                          ;BAD FEC
5234  025422  000165  000026        8$:   JMP     26(R5)                  ;RETURN FROM TEST
5235                                      ;
5236  025426  177777  177777  177777  MODGAR: .WORD   -1,-1,-1,-1                   ;KNOWN DATA FOR AC1
5237  025434  177777
5238  025436                          HOP14:
5239
5240  025436                          MMODD:
5241                                  ;;*************************************************************************
5242                                  ;*TEST 66        TEST MODD
5243                                  ;;*************************************************************************
5244  025436                          TST66:
5245  025436  005267  153342              INC     $TESTN                          ;INCREMENT TEST NUMBER
5246                                  ;1/AC>FSRC=0
5247  025442  005037  001042              CLR     @#FLAG                  ;NO INTERRUPT
5248  025446  004767  001164              JSR     R7,MODSUB                       ;DO TEST
5249  025452  012345  177777  177777      .WORD   12345,-1,-1,-1          ;AC0
5250  025460  177777
5251  025462  000100  000000  000000      .WORD   100,0,0,0               ;FSRC
5252  025470  000000
5253  025472  000000  000000  000000      .WORD   0,0,0,0                 ;FRACTIONAL RESULT
5254  025500  000000
```

```
5255  025502  000000  000000  000000          .WORD   0,0,0,0          ;INTEGER RESULT
5256  025510  000000
5257  025512  000200                          .WORD   200              ; TEST FPS
5258  025514  000204                          .WORD   204              ;RESULTANT FPS
5259                          ;2/AC=0<FSRC
5260  025516  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
5261  025522  004767  001110                  JSR     R7,MODSUB                ;DO TEST
5262  025526  000000  000000  000000          .WORD   0,0,0,0 ;AC0
5263  025534  000000
5264  025536  001234  177777  000000          .WORD   1234,-1,0,0      ;FSRC
5265  025544  000000
5266  025546  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL RESULT
5267  025554  000000
5268  025556  000000  000000  000000          .WORD   0,0,0,0          ;INTEGER RESULT
5269  025564  000000
5270  025566  007717                          .WORD   7717             ; TEST FPS
5271  025570  007704                          .WORD   7704             ;RESULTANT FPS
5272                          ;3/AC>FSRC>0
5273  025572  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
5274  025576  004767  001034                  JSR     R7,MODSUB                ;DO TEST
5275  025602  056252  125252  125252          .WORD   56252,125252,125252,125250       ;AC0
5276  025610  125250
5277  025612  040300  000000  000000          .WORD   40300,0,0,0      ;FSRC
5278  025620  000000
5279  025622  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL RESULT
5280  025630  000000
5281  025632  056377  177777  177777          .WORD   56377,-1,-1,-4           ;INTEGER RESULT
5282  025640  177774
5283  025642  000213                          .WORD   213              ; TEST FPS
5284  025644  000204                          .WORD   204              ;RESULTANT FPS
5285                          ;4/AC<0>FSRC
5286  025646  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
5287  025652  004767  000760                  JSR     R7,MODSUB                ;DO TEST
5288  025656  140240  000000  000000          .WORD   140240,0,0,0     ;AC0
5289  025664  000000
5290  025666  063714  146314  133572          .WORD   63714,146314,133572,167737       ;FSRC
5291  025674  167737
5292  025676  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL RESULT
5293  025704  000000
5294  025706  163777  177777  162531          .WORD   163777,-1,162531,125726          ;INTEGER RESULT
5295  025714  125726
5296  025716  000210                          .WORD   210              ; TEST FPS
5297  025720  000204                          .WORD   204              ;RESULTANT FPS
5298                          ;5/AC>FSRC>0
5299  025722  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
5300  025726  004767  000704                  JSR     R7,MODSUB                ;DO TEST
5301  025732  056200  000000  000000          .WORD   56200,0,0,1      ;AC0
5302  025740  000001
5303  025742  040340  000000  000000          .WORD   40340,0,0,0      ;FSRC
5304  025750  000000
5305  025752  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL RESULT
5306  025760  000000
5307  025762  056340  000000  000000          .WORD   56340,0,0,1              ;INTEGER RESULT
5308  025770  000001
5309  025772  000213                          .WORD   213              ; TEST FPS
5310  025774  000204                          .WORD   204              ;RESULTANT FPS
```

```
5311                                    ;6/TRUNCATE
5312  025776  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
5313  026002  004767  000530                    JSR     R7,MDDSUB               ;DO TEST
5314  026006  056252  125252  125252            .WORD   56252,125252,125252,125252              ;AC0
5315  026014  125252
5316  026016  040300  000000  000000            .WORD   40300,0,0,0             ;FSRC
5317  026024  000000
5318  026026  000000  000000  000000            .WORD   0,0,0,0         ;FRACTIONAL  RESULT
5319  026034  000000
5320  026036  056377  177777  177777            .WORD   56377,-1,-1,-1          ;INTEGER RESULT
5321  026044  177777
5322  026046  000253                            .WORD   253             ; TEST FPS
5323  026050  000244                            .WORD   244             ;RESULT FPS
5324                                    ;7/TRUNCATE FRACTION
5325  026052  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
5326  026056  004767  000554                    JSR     R7,MDDSUB               ;DO TEST
5327  026062  023252  125252  125252            .WORD   23252,125252,125252,125252              ;AC0
5328  026070  125252
5329  026072  040300  000000  000000            .WORD   40300,0,0,0             ;FSRC
5330  026100  000000
5331  026102  023377  177777  177777            .WORD   23377,-1,-1,-1          ;FRACTIONAL  RESULT
5332  026110  177777
5333  026112  000000  000000  000000            .WORD   0,0,0,0         ;INTEGER RESULT
5334  026120  000000
5335  026122  000253                            .WORD   253             ; TEST FPS
5336  026124  000240                            .WORD   240             ;RESULT FPS
5337                                    ;8/ROUND INTEGER
5338  026126  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
5339  026132  004767  000500                    JSR     R7,MDDSUB               ;DO TEST
5340  026136  076600  000000  000000            .WORD   76600,0,0,125252                ;AC0
5341  026144  125252
5342  026146  040300  000000  000000            .WORD   40300,0,0,0             ;FSRC
5343  026154  000000
5344  026156  000000  000000  000000            .WORD   0,0,0,0         ;FRACTIONAL  RESULT
5345  026164  000000
5346  026166  076700  000000  000000            .WORD   76700,0,0,-1            ;INTEGER RESULT
5347  026174  177777
5348  026176  000200                            .WORD   200             ; TEST FPS
5349  026200  000204                            .WORD   204             ;RESULT FPS
5350                                    ;9/ROUND THROUGH FRACTION
5351  026202  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
5352  026206  004767  000424                    JSR     R7,MDDSUB               ;DO TEST
5353  026212  041525  052525  052525            .WORD   41525,052525,52525,52525                ;AC0
5354  026220  052525
5355  026222  040300  000000  000000            .WORD   40300,0,0,0             ;FSRC
5356  026230  000000
5357  026232  040177  177777  177777            .WORD   40177,-1,-1,177740              ;FRACTIONAL  RESULT
5358  026240  177740
5359  026242  041636  000000  000000            .WORD   41636,0,0,0             ;INTEGER RESULT
5360  026250  000000
5361  026252  007700                            .WORD   7700            ; TEST FPS
5362  026254  007700                            .WORD   7700            ;RESULT FPS
5363                                    ;/OVERFLOW, TRAPS ENABLED
5364  026256  012737  000001  001042            MOV     #1,@#FLAG               ;INTERRUPT
5365  026264  004767  000346                    JSR     R7,MDDSUB               ;DO TEST
5366  026270  177777  177777  177777            .WORD   -1,-1,-1,-1             ;AC0
```

```
5367  026276  177777
5368  026300  040400  000000  000000          .WORD   40400,0,0,0             ;FSRC
5369  026306  000000
5370  026310  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL  RESULT
5371  026316  000000
5372  026320  100177  177777  177777          .WORD   100177,-1,-1,-1          ;INTEGER RESULT
5373  026326  177777
5374  026330  007700                          .WORD   7700             ; TEST FPS
5375  026332  107706                          .WORD   107706           ;RESULT FPS
5376  026334  000010                          .WORD   10               ;FEC
5377                          ;/INTEGER CHOPPED TO 56 BITS
5378  026336  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
5379  026342  004767  000270                  JSR     R7,MDDSUB                ;DO TEST
5380  026346  056700  000000  000000          .WORD   56700,0,0,-1             ;AC0
5381  026354  177777
5382  026356  044440  177777  177777          .WORD   44440,-1,-1,-1           ;FSRC
5383  026364  177777
5384  026366  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL  RESULT
5385  026374  000000
5386  026376  063161  100000  000001          .WORD   63161,100000,1,40775             ;INTEGER RESULT
5387  026404  040775
5388  026406  000200                          .WORD   200              ; TEST FPS
5389  026410  000204                          .WORD   204              ;RESULT FPS
5390                          ;/OVERFLOW, TRAPS DISABLED
5391  026412  012737  000002  001042          MOV     #2,@#FLAG                ;NO INTERRUPT
5392  026420  004767  000212                  JSR     R7,MDDSUB                ;DO TEST
5393  026424  066600  000000  000000          .WORD   66600,0,0,0              ;AC0
5394  026432  000000
5395  026434  066600  000000  000000          .WORD   66600,0,0,0              ;FSRC
5396  026442  000000
5397  026444  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL  RESULT
5398  026452  000000
5399  026454  015200  000000  000000          .WORD   15200,0,0,0              ;INTEGER RESULT
5400  026462  000000
5401  026464  047700                          .WORD   47700            ; TEST FPS
5402  026466  147706                          .WORD   147706           ;RESULT FPS
5403  026470  000010                          .WORD   10               ;FEC
5404                          ;/UNDERFLOW, TRAPS DISABLED
5405  026472  012737  000002  001042          MOV     #2,@#FLAG                ;NO INTERRUPT
5406  026500  004767  000132                  JSR     R7,MDDSUB                ;DO TEST
5407  026504  100277  000001  000002          .WORD   100277,1,2,-1            ;AC0
5408  026512  177777
5409  026514  100300  000001  000001          .WORD   100300,1,1,1             ;FSRC
5410  026522  000001
5411  026524  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL  RESULT
5412  026532  000000
5413  026534  000000  000000  000000          .WORD   0,0,0,0          ;INTEGER RESULT
5414  026542  000000
5415  026544  005200                          .WORD   5200             ; TEST FPS
5416  026546  005204                          .WORD   5204             ;RESULT FPS
5417  026550  000010                          .WORD   10               ;FEC
5418                          ;/UNDERFLOW TRAPS ENABLED, UV AS RESULT
5419  026552  012737  000001  001042          MOV     #1,@#FLAG                ;INTERRUPT
5420  026560  004767  000052                  JSR     R7,MDDSUB                ;DO TEST
5421  026564  100277  000001  000002          .WORD   100277,1,2,-1            ;AC0
5422  026572  177777
```

```
026574  100300  000001  000001          .WORD   100300,1,1,1            ;FSRC
026602  000001
026604  040417  040001  077403          .WORD   40417,40001,77403,0             ;FRACTIONAL  RESULT
026612  000000
026614  000000  000000  000000          .WORD   0,0,0,0         ;INTEGER RESULT
026622  000000
026624  002200                          .WORD   2200            ; TEST FPS
026626  102200                          .WORD   102200          ;RESULT FPS
026630  000012                          .WORD   12              ;FEC
                                ;

026632  000167  000300                  JMP     HOP15           ;JUMP OVER SUBROUTINE
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;
                                ;               AC0
                                ;               FSRC
                                ;               FRACTIONAL RESULT
                                ;               INTEGER RESULT
                                ;               FPS BEFORE EXECUTION
                                ;               FPS AFTER EXECUTION
                                ;               (FEC)
                                ;
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;
026636  012605                  MDDSUB: MOV     (SP)+,R5                ; RETURN ADDRESS TO USE AS POINTER
026640  012737  026726  000244          MOV     #50$,@#FPVEC            ;REDIRECT TRAP VECTOR
026646  012702  000200                  MOV     #200,R2                 ;SET TO DOUBLE MODE FOR LOAD
026652  170102                          LDFPS   R2                      ;LOAD FPS
026654  172415                          LDD     (R5),AC0                ;LOAD AC0 WITH TEST DATA
026656  012701  025426                  MOV     #MODGAR,R1              ;LOAD KNOWN INTO AC1
026662  172511                          LDD     (R1),AC1                ;
026664  010501                          MOV     R5,R1                   ;POINT TO FSRC DATA
026666  062701  000010                  ADD     #10,R1
026672  016502  000040                  MOV     40(R5),R2               ;GET TEST FPS
026676  170102                          LDFPS   R2                      ;LOAD TEST FPS
                                ;
026700  171411                          MODD    (R1),AC0                ;*TEST INSTRUCTION
026702  170011                  1$:     SETD                            ;WAIT FOR POSSIBLE FPA TRAP.
                                ;
                                ;INSTRUCTION DIDNT TRAP
026704  032737  000001  001042          BIT     #1,@#FLAG                       ;VERIFY A NO TRAP CONDITION
026712  001426                          BEQ     2$                      ;BRANCH IF GOOD
026714  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
026716  000402                          .WORD   402                     ;UNIQUE ERROR NUMBER
026720  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;INSTRUCTION SHOULD HAVE TRAPPED
026722  000167  000042                  JMP     2$                      ;REJOIN CODE
                                ;
                                ;INSTRUCTION TRAPPED
026726  032737  000001  001042  50$:    BIT     #1,@#FLAG               ;SEE IF EXPECTING A TRAP
026734  001005                          BNE     51$                     ;BRANCH IF EXPECTING A TRAP
026736  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
026740  000403                          .WORD   403                     ;UNIQUE ERROR NUMBER
026742  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
```

```
5479                                                    ;INSTRUCTION WASNT SUPPOSE TO TRAP
5480  026744  000167  000020            JMP     2$              ;REJOIN CODE
5481  026750  012604                51$:  MOV     (SP)+,R4        ;SEE IF PC = INSTRUCTION
5482  026752  005726                      TST     (SP)+           ;CLEAN UP STACK
5483  026754  022704  026702            CMP     #1$,R4          ;
5484  026760  001403                      BEQ     2$              ;BRANCH IF GOOD COMPARE
5485  026762  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
5486  026764  000404                      .WORD   404             ;UNIQUE ERROR NUMBER
5487  026766  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
5488                                                    ;PC WAS INCORRECT
5489                                    ;
5490                                    ;COMMON CODE FOR TRAP AND NO TRAP
5491  026770  170203                2$:   STFPS   R3              ;SAVE FPS
5492  026772  012702  000200            MOV     #200,R2         ;SET FPP TO DOUBLE
5493  026776  170102                      LDFPS   R2
5494  027000  012701  001126            MOV     #RECDST,R1      ;POINT TO RECEIVED DATA TABLE
5495                                    ;SAVE FRACTIONAL RESULT
5496  027004  174011                      STD     AC0,(R1)        ;SAVE AC0  RESULT
5497  027006  026503  000042            CMP     42(R5),R3       ;VERIFY STATUS
5498  027012  001403                      BEQ     3$              ;BRANCH IF GOOD
5499  027014  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
5500  027016  000405                      .WORD   405             ;UNIQUE ERROR NUMBER
5501  027020  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
5502                                                    ;BAD FPS
5503  027022  010504                3$:   MOV     R5,R4           ;POINT TO EXPECTED DATA
5504  027024  062704  000020            ADD     #20,R4
5505  027030  004767  153112          4$:   JSR     R7,DATVER               ;VERIFY DATA
5506  027034  005767  152000            TST     COUNT
5507  027040  001403                      BEQ     5$              ;BRANCH IF GOOD
5508  027042  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
5509  027044  000406                      .WORD   406             ;UNIQUE EPROR NUMBER
5510  027046  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
5511                                                    ;BAD AC0
5512                                    ;SAVE INTEGER RESULT
5513  027050  174111                5$:   STD     AC1,(R1)        ;SAVE AC1 RESULT
5514  027052  010504                      MOV     R5,R4           ;POINT TO EXPECTED
5515  027054  062704  000030            ADD     #30,R4
5516  027060  004767  153062            JSR     R7,DATVER       ;VERIFY DATA
5517  027064  005767  151750            TST     COUNT           ;
5518  027070  001403                      BEQ     6$              ;BRANCH IF GOOD
5519  027072  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
5520  027074  000407                      .WORD   407             ;UNIQUE ERROR NUMBER
5521  027076  002013                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
5522                                                    ;BAD AC1
5523  027100  005737  001042          6$:   TST     @#FLAG          ;SEE IF NEED TO CHECK FEC
5524  027104  001002                      BNE     7$              ;BRANCH IF NEED TO CHECK
5525  027106  000165  000044            JMP     44(R5)          ;RETURN FROM TEST
5526  027112  170301                7$:   STST    R1              ;SAVE FEC
5527  027114  016504  000044            MOV     44(R5),R4       ;GET FEC
5528  027120  020401                      CMP     R4,R1           ;VERIFY FEC
5529  027122  001403                      BEQ     8$              ;BRANCH IF GOOD
5530  027124  104000                      ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
5531  027126  000410                      .WORD   410             ;UNIQUE ERROR NUMBER
5532  027130  002017                      .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
5533                                                    ;BAD FEC
5534  027132  000165  000046          8$:   JMP     46(R5)          ;RETURN FROM TEST
```

```
5535                                    ;
5536  027136                            HOP15:
5537  027136                            MSFD:
5538                                    ;;*****************************************************************
5539                                    ;*TEST 67        TEST STCFD
5540                                    ;;*****************************************************************
5541  027136                            TST67:
5542  027136  005267  151642                   INC     @TESTN                  ;INCREMENT TEST NUMBER
5543                                    ;1/AC=0
5544  027142  004767  000170                   JSR     R7,SFDSUB               ;DO TEST
5545  027146  000177  000000  000000           .WORD   0177,0,0,1              ;ACO
5546  027154  000001
5547  027156  000000  000000  000000           .WORD   0,0,0,0         ;RESULT
5548  027164  000000
5549  027166  047557                            WORD   47557           ; TEST FPS
5550  027170  047544                           .WORD   47544           ;RESULT FPS
5551                                    ;2/AC>0, TRUNCATE
5552  027172  004767  000140                   JSR     R7,SFDSUB       ;DO TEST
5553  027176  077577  177777  177777           .WORD   77577,-1,-1,-1          ;ACO
5554  027204  177777
5555  027206  077577  177777  000000           .WORD   77577,-1,0,0            ;RESULT
5556  027214  000000
5557  027216  007540                           .WORD   7540            ; TEST FPS
5558  027220  007540                           .WORD   7540            ;RESULT FPS
5559                                    ;3/AC<0, ROUND
5560  027222  004767  000110                   JSR     R7,SFDSUB               ;DO TEST
5561  027226  100377  177777  100000           .WORD   100377,-1,100000,0              ;ACO
5562  027234  000000
5563  027236  100377  177777  000000           .WORD   100377,-1,0,0   ;RESULT
5564  027244  000000
5565  027246  007517                           .WORD   7517            ; TEST FPS
5566  027250  007510                           .WORD   7510            ;RESULT FPS
5567                                    ;4/AC=-0
5568  027252  004767  000060                   JSR     R7,SFDSUB               ;DO TEST
5569  027256  100000  000000  000000           .WORD   100000,0,0,0            ;ACO
5570  027264  000000
5571  027266  000000  000000  000000           .WORD   0,0,0,0         ;RESULT
5572  027274  000000
5573  027276  007757                           .WORD   7757            ; TEST FPS
5574  027300  007744                           .WORD   7744            ;RESULT FPS
5575                                    ;5/AC<0
5576  027302  004767  000030                   JSR     R7,SFDSUB               ;DO TEST
5577  027306  125252  125252  125252           .WORD   125252,125252,125252,125252             ;ACO
5578  027314  125252
5579  027316  125252  125252  000000           .WORD   125252,125252,0,0               ;RESULT
5580  027324  000000
5581  027326  000000                           .WORD   0               ; TEST FPS
5582  027330  000010                           .WORD   10              ;RESULT FPS
5583                                    ;
5584
5585  027332  000167  000120                   JMP     @HOP16                  ;GET OVER SUBROUTINE
5586                                    ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5587                                    ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5588                                    ;STCFD
5589                                    ;               ACO
5590                                    ;               RESULT
```

```
                                ;               FPS BEFORE EXECUTION
                                ;               FPS AFTER EXECUTION
                                ;
                                ;THERE CAN BE NO TRAPS WITH THE STCFD INSTRUCTION
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;
027336  012605                  SFUSUB: MOV     (SP)+,R5                ; RETURN ADDRESS TO USE AS POINTER
027340  012737  027444  000244          MOV     #50$,@#FPVEC            ;REDIRECT TRAP VECTOR
027346  012702  000200                  MOV     #200,R2                 ;SET TO DOUBLE MODE FOR LOAD
027352  170102                          LDFPS   R2                      ;LOAD FPS
027354  172415                          LDD     (R5),AC0                ;LOAD AC0 WITH TEST DATA
027356  012701  001126                  MOV     #RECDST,R1              ;POINT TO RESULT AREA
027362  016502  000020                  MOV     20(R5),R2               ;GET TEST FPS
027366  170102                          LDFPS   R2                      ;LOAD TEST FPS
                                ;
027370  176011                  40$:    STCFD   AC0,(R1)                ;*TEST INSTRUCTION
                                ;
                                ;INSTRUCTION DIDNT TRAP
                                ;VERIFY STATUS
027372  170203                  2$:     STFPS   R3                      ;SAVE FPS
027374  016502  000022                  MOV     22(R5),R2                       ;GET EXPECTED STATUS
027400  020203                          CMP     R2,R3                   ;VERIFY STATUS
027402  001403                          BEQ     3$                      ;BRANCH IF GOOD
027404  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
027406  000411                          .WORD   411                     ;UNIQUE ERROR NUMBER
027410  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD FPS
027412  010504                  3$:     MOV     R5,R4                   ;POINT TO EXPECTED DATA
027414  062704  000010                  ADD     #10,R4
027420  004767  152522          4$:     JSR     R7,DATVER                       ;VERIFY DATA
027424  005767  151410                  TST     COUNT
027430  001403                          BEQ     5$                              ;BRANCH IF GOOD
027432  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
027434  000412                          .WORD   412                     ;UNIQUE ERROR NUMBER
027436  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC0
027440  000165  000024          5$:     JMP     24(R5)                  ;RETURN FROM TEST
                                ;INSTRUCTION TRAPPED
027444                          50$:
027444  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
027446  000413                          .WORD   413                     ;UNIQUE ERROR NUMBER
027450  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;INSTRUCTION WASNT SUPPOSE TO TRAP
027452  000165  000024                  JMP     24(R5)          ;RETURN FROM TEST
                                ;
027456                          HOP16:
027456                          MSDF:
                                ;;*************************************************************
                                ;*TEST 70        TEST STCDF
                                ;;*************************************************************
027456                          TST70:
027456  005267  151322                  INC     $TESTN                  ;INCREMENT TEST NUMBER
                                ;1/AC=0
027462  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
```

```
5647  027466  004767  000220                  JSR     R7,SDFSUB               ;DO TEST
5648  027472  000177  000000  000000          .WORD   177,0,0,0               ;ACO
5649  027500  000000
5650  027502  000000  000000                  .WORD   0,0                     ;RESULT
5651  027506  000200                          .WORD   200                     ; TEST FPS
5652  027510  000204                          .WORD   204                     ;RESULT FPS
5653                          ;2/AC=-0
5654  027512  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
5655  027516  004767  000170                  JSR     R7,SDFSUB               ;DO TEST
5656  027522  100000  000300  000200          .WORD   100000,300,200,100              ;ACO
5657  027530  000100
5658  027532  000000  000000                  .WORD   0,0                     ;RESULT
5659  027536  007777                          .WORD   7777                    ; TEST FPS
5660  027540  007744                          .WORD   7744                    ;RESULT FPS
5661                          ;3/AC>0, TRUNCATE
5662  027542  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
5663  027546  004767  000140                  JSR     R7,SDFSUB               ;DO TEST
5664  027552  055555  055555  177777          .WORD   55555,55555,-1,-1               ;ACO
5665  027560  177777
5666  027562  055555  055555                  .WORD   55555,55555             ;RESULT
5667  027566  000240                          .WORD   240                     ; TEST FPS
5668  027570  000240                          .WORD   240                     ;RESULT FPS
5669                          ;4/AC<0, ROUND TO UNDEFINED VARIABLE
5670  027572  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
5671  027600  004767  000106                  JSR     R7,SDFSUB               ;DO TEST
5672  027604  077777  177777  100000          .WORD   77777,-1,100000,0               ;ACO
5673  027612  000000
5674  027614  000000  000000                  .WORD   0,0                     ;RESULT
5675  027620  001200                          .WORD   1200                    ; TEST FPS
5676  027622  101206                          .WORD   101206                  ;RESULT FPS
5677                          ;5/AC<0, ROUND
5678  027624  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
5679  027630  004767  000056                  JSR     R7,SDFSUB               ;DO TEST
5680  027634  125252  125252  125252          .WORD   125252,125252,125252,125252             ;ACO
5681  027642  125252
5682  027644  125252  125253                  .WORD   125252,125253           ;RESULT
5683  027650  007700                          .WORD   7700                    ; TEST FPS
5684  027652  007710                          .WORD   7710                    ;RESULT FPS
5685                          ;6/ROUND TO UV, TRAPS DISABLED
5686  027654  012737  000002  001042          MOV     #2,@#FLAG               ;INTERRUPT
5687  027662  004767  000024                  JSR     R7,SDFSUB               ;DO TEST
5688  027666  077777  177777  177777          .WORD   77777,-1,-1,0           ;ACO
5689  027674  000000
5690  027676  000000  000000                  .WORD   0,0                     ;RESULT
5691  027702  006700                          .WORD   6700                    ; TEST FPS
5692  027704  006706                          .WORD   6706                    ;RESULT FPS
5693                          ;
5694
5695  027706  000167  000232                  JMP     HOP17                   ;GET OVER SUBROUTINE
5696                          ;
5697                          ;
5698                          ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5699                          ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5700                          ;STCDF
5701                          ;               AC0
5702                          ;               RESULT
```

```
5703                                            ;               FPS BEFORE EXECUTION
5704                                            ;               FPS AFTER EXECUTION
5705                                            ;
5706                                            ;A TRAP CAN ONLY OCCUR IF ROUNDING CAUSES OVERFLOW
5707                                            ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5708                                            ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5709                                            ;
5710  027712  012605                            SDFSUB: MOV     (SP)+,R5                ; RETURN ADDRESS TO USE AS POINTER
5711  027714  012737  027774  000244                    MOV     #50$,@#FPVEC            ;REDIRECT TRAP VECTOR
5712  027722  012702  000200                            MOV     #200,R2                 ;SET TO DOUBLE MODE FOR LOAD
5713  027726  170102                                    LDFPS   R2                      ;LOAD FPS
5714  027730  172415                                    LDD     (R5),AC0                ;LOAD AC0 WITH TEST DATA
5715  027732  012701  001126                            MOV     #RECDST,R1              ;POINT TO RESULT AREA
5716  027736  016502  000014                            MOV     14(R5),R2               ;GET TEST FPS
5717  027742  170102                                    LDFPS   R2                      ;LOAD TEST FPS
5718                                            ;
5719  027744  176011                            40$:    STCDF   AC0,(R1)                ;*TEST INSTRUCTION
5720  027746  170327                            1$:     STST    (PC)+                   ;WAIT FOR POSSIBLE FPA TRAP.
5721  027750  000000                                    .WORD   0                       ;STORE STATUS HERE.
5722                                            ;
5723                                            ;INSTRUCTION DIDNT TRAP
5724  027752  032737  000001  001042                    BIT     #1,@#FLAG                       ;VERIFY A NO TRAP CONDITION
5725  027760  001426                                    BEQ     2$                      ;BRANCH IF GOOD
5726  027762  104000                                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5727  027764  000414                                    .WORD   414                     ;UNIQUE ERROR NUMBER
5728  027766  002013                                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5729                                                                            ;INSTRUCTION SHOULD HAVE TRAPPED
5730  027770  000167  000042                            JMP     2$                      ;REJOIN CODE
5731                                            ;
5732                                            ;INSTRUCTION TRAPPED
5733  027774  032737  000001  001042    50$:    BIT     #1,@#FLAG               ;SEE IF EXPECTING A TRAP
5734  030002  001005                                    BNE     51$                     ;BRANCH IF EXPECTING A TRAP
5735  030004  104000                                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5736  030006  000415                                    .WORD   415                     ;UNIQUE ERROR NUMBER
5737  030010  002013                                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5738                                                                            ;INSTRUCTION WASNT SUPPOSE TO TRAP
5739  030012  000167  000020                            JMP     2$                      ;REJOIN CODE
5740  030016  012604                            51$:    MOV     (SP)+,R4                ;SEE IF PC = INSTRUCTION
5741  030020  005726                                    TST     (SP)+                   ;CLEAN UP STACK
5742  030022  022704  027746                            CMP     #1$,R4                  ;
5743  030026  001403                                    BEQ     2$                      ;BRANCH IF GOOD COMPARE
5744  030030  104000                                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5745  030032  000416                                    .WORD   416                     ;UNIQUE ERROR NUMBER
5746  030034  002013                                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5747                                                                            ;PC WAS INCORRECT
5748                                            ;
5749                                            ;COMMON CODE FOR TRAP AND NO TRAP
5750                                            ;VERIFY STATUS
5751  030036  170203                            2$:     STFPS   R3                      ;SAVE FPS
5752  030040  016502  000016                            MOV     16(R5),R2                       ;GET EXPECTED STATUS
5753  030044  020203                                    CMP     R2,R3                   ;VERIFY STATUS
5754  030046  001403                                    BEQ     3$                      ;BRANCH IF GOOD
5755  030050  104000                                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5756  030052  000417                                    .WORD   417                     ;UNIQUE ERROR NUMBER
5757  030054  002013                                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5758                                                                            ;BAD FPS
```

```
 5759  030056  010504                3$:     MOV     R5,R4                   ;POINT TO EXPECTED DATA
 5760  030060  062704  000010                ADD     #10,R4
 5761  030064  004767  152040          4$:   JSR     R7,DATVFR                       ;VERIFY DATA
 5762  030070  005767  150744                TST     COUNT
 5763  030074  001403                        BEQ     5$                      ;BRANCH IF GOOD
 5764  030076  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 5765  030100  000420                        .WORD   420                     ;UNIQUE ERROR NUMBER
 5766  030102  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 5767                                                                ;BAD ACO
 5768  030104  005737  001042          5$:   TST     @#FLAG                  ;SEE IF NEED TO CHECK FEC
 5769  030110  001002                        BNE     7$                      ;BRANCH IF NEED TO CHECK
 5770  030112  000165  000020                JMP     20(R5)                  ;RETURN FROM TEST
 5771                          ;VERIFY FEC
 5772  030116  012704  001106          7$:   MOV     #RECFEC,R4              ;POINT TO FEC AREA
 5773  030122  170314                        STST    (R4)                    ;SAVE FEC
 5774  030124  021427  000010                CMP     (R4),#10                        ;VERIFY FEC FOR OVERFLOW
 5775  030130  001403                        BEQ     8$                      ;BRANCH IF GOOD
 5776  030132  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 5777  030134  000421                        .WORD   421                     ;UNIQUE ERROR NUMBER
 5778  030136  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 5779                                                                        ;BAD FEC
 5780  030140  000165  000020          8$:   JMP     20(R5)            ;RETURN FROM TEST
 5781                          ;
 5782  030144                HOP17:
 5783  030144                MSFDI:
 5784                          ;;*****************************************************************
 5785                          ;*TEST 71       TEST STCFD - USING ILLEGAL ACCUMULATOR
 5786                          ;;*****************************************************************
 5787  030144                TST71:
 5788  030144  005267  150634                INC     $TESTN                  ;INCREMENT TEST NUMBER
 5789  030150  012701  040000                MOV     #40000,R1               ;DISABLE INTERRUPTS
 5790  030154  170101                        LDFPS   R1                      ;
 5791  030156  176006                        STCFD   AC0,AC6                 ;*TEST ILLEGAL INSTRUCTION
 5792  030160  170202                        STFPS   R2                      ;SAVE STATUS
 5793  030162  170303                        STST    R3                      ;SAVE FEC
 5794  030164  022702  140000                CMP     #140000,R2              ;VERIFY FER SET
 5795  030170  001403                        BEQ     1$                      ;BRANCH IF ERROR RECEIVED
 5796  030172  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 5797  030174  000422                        .WORD   422                     ;UNIQUE ERROR NUMBER
 5798  030176  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 5799                                                                ;FER BIT NOT SET ON ILLEGAL INST.
 5800  030200  022703  000002          1$:   CMP     #2,R3                   ;VERIFY FEC = FLOATING OPCDOE ERROR
 5801  030204  001403                        BEQ     2$                      ;BRANCH IF GOOD
 5802  030206  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 5803  030210  000423                        .WORD   423                     ;UNIQUE ERROR NUMBER
 5804  030212  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 5805                                                                ;FEC INCORRECT
 5806  030214                2$:
 5807
 5808                          ;
 5809  030214                MCLRD:
 5810                          ;;*****************************************************************
 5811                          ;*TEST 72       TEST CLRD
 5812                          ;;*****************************************************************
 5813  030214                TST72:
 5814  030214  005267  150564                INC     $TESTN                  ;INCREMENT TEST NUMBER
```

```
5815  030220  012701  001726              MOV     #TAB47,R1           ;POINT TO DATA
5816  030224  012704  000200              MOV     #200,R4             ;SET FPP STATUS TO DOUBLE
5817  030230  170104                      LDFPS   R4
5818  030232  172411                      LDD     (R1),AC0            ;
5819  030234  012701  001126              MOV     #RECDST,R1          ;POINT TO DATA BUFFER
5820  030240  174011                      STD     AC0,(R1)            ;STORE GARBAGE
5821  030242  170411                      CLRD    (R1)                ;CLEAR DATA BUFFER
5822  030244  012704  001256              MOV     #TAB6,R4            ;VERIFY BUFFER =0
5823  030250  004767  151672              JSR     R7,DATVER           ;
5824  030254  005767  150560              TST     COUNT               ;
5825  030260  001403                      BEQ     1$                  ;BRANCH I RECDST = 0
5826  030262  104000                      ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
5827  030264  000424                      .WORD   424                 ;UNIQUE ERROR NUMBER
5828  030266  002013                      .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
5829                                                              ;RECDST NOT CLEARED
5830  030270  170202              1$:     STFPS   R2                  ;SAVE STATUS
5831  030272  020227  000204              CMP     R2,#204             ;VERIFY STATUS
5832  030276  001403                      BEQ     2$                  ;BRANCH IF GOOD
5833  030300  104000                      ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
5834  030302  000425                      .WORD   425                 ;UNIQUE ERROR NUMBER
5835  030304  002013                      .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
5836                                                              ;BAD STATUS
5837  030306                      2$:
5838
5839
5840  030306                      MCLRI:
5841                              ;;*************************************************************
5842                              ;*TEST 73        TEST CLRD, ILLEGAL ACCUMULATOR
5843                              ;;*************************************************************
5844  030306                      TST73:
5845  030306  005267  150472              INC     $TESTN                  ;INCREMENT TEST NUMBER
5846  030312  012704  040200              MOV     #40200,R4               ;DISABLE INTERRUPTS
5847  030316  170104                      LDFPS   R4                      ;LOAD STATUS
5848  030320  170406                      CLRD    R6                      ;*TEST INSTRUCTION WITH ILLEGAL ACC
5849  030322  170203                      STFPS   R3                      ;SAVE STATUS
5850  030324  170305                      STST    R5                      ;SAVE FEC
5851  030326  022703  140200              CMP     #140200,R3              ;VERIFY ERROR
5852  030332  001403                      BEQ     1$                      ;BRANCH IF FER SET
5853  030334  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5854  030336  000426                      .WORD   426                     ;UNIQUE ERROR NUMBER
5855  030340  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5856                                                                  ;ERROR IN FPS
5857  030342  022705  000002      1$:     CMP     #2,R5                   ;VERIFY FEC =2 OPCODE ERROR
5858  030346  001403                      BEQ     2$                      ;BRANCH IF GOOD
5859  030350  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5860  030352  000427                      .WORD   427                     ;UNIQUE ERROR NUMBER
5861  030354  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5862                                                                  ;BAD FEC
5863  030356                      2$:
5864
5865
5866  030356                      MLS1:
5867                              ;;*************************************************************
5868                              ;*TEST 74        TEST LDFPS, STFPS MODE 1
5869                              ;;*************************************************************
5870  030356                      TST74:
```

```
5871  030356  005267  150422                  INC     $TESTN                  ;INCREMENT TEST NUMBER
5872  030362  012704  001136                  MOV     #TSTLOC,R4              ;POINT R4 TO RAM
5873  030366  012714  147757                  MOV     #147757,(R4)            ;SETUP EXPECTED STATUS
5874  030372  012701  001116                  MOV     #RECST,R1               ;SET BUFFER FOR RECEIVED STATUS
5875  030376  012737  030462  000244          MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
5876  030404  170114                          LDFPS   (R4)                    ;*TEST INSTRUCTION
5877  030406  170211                          STFPS   (R1)                    ;*TEST INSTRUCTION
5878  030410  020427  001136                  CMP     R4,#TSTLOC              ;VERIFY R4
5879  030414  001403                          BEQ     1$                      ;BRANCH IF GOOD
5880  030416  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5881  030420  000430                          .WORD   430                     ;UNIQUE ERROR NUMBER
5882  030422  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5883                                                                  ;
5884  030424  020127  001116          1$:     CMP     R1,#RECST               ;VERIFY R1
5885  030430  001403                          BEQ     2$                      ;BRANCH IF GOOD
5886  030432  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5887  030434  000431                          .WORD   431                     ;UNIQUE ERROR NUMBER
5888  030436  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5889                                                                  ;BAD R1
5890  030440  023727  001116  147757  2$:     CMP     @#RECST,#147757         ;VERIFY STATUS
5891  030446  001412                          BEQ     3$                      ;BRANCH F GOOD
5892  030450  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5893  030452  000432                          .WORD   432                     ;UNIQUE ERROR NUMBER
5894  030454  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5895                                                                  ;BAD STATUS\
5896  030456  000167  000012                  JMP     3$                      ;GET OVER TRAP
5897                                  ;UNEXPECTED TRAP
5893  030462  012600                  10$:     MOV     (SP)+,R0                ;SAVE PC
5899  030464  012605                          MOV     (SP)+,R5                ;SAVE PS
5900  030466  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5901  030470  000433                          .WORD   433                     ;UNIQUE ERROR NUMBER
5902  030472  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5903                                                                  ;UNEXPECTED TRAP
5904  030474                          3$:
5905
5906
5907  030474                          ML52:
5908                                  ;;*******************************************************************
5909                                  ;*TEST 75        TEST LDFPS, STFPS MODE 2
5910                                  ;;*******************************************************************
5911  030474                          TST75:
5912  030474  005267  150304                  INC     $TESTN                  ;INCREMENT TEST NUMBER
5913  030500  012704  001136                  MOV     #TSTLOC,R4              ;POINT R4 TO RAM
5914  030504  012714  145557                  MOV     #145557,(R4)            ;SETUP EXPECTED STATUS
5915  030510  012701  001116                  MOV     #RECST,R1               ;SET BUFFER FOR RECEIVED STATUS
5916  030514  012737  030600  000244          MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
5917  030522  170124                          LDFPS   (R4)+                   ;*TEST INSTRUCTION
5918  030524  170221                          STFPS   (R1)+                   ;*TEST INSTRUCTION
5919  030526  020427  001140                  CMP     R4,#TSTLOC+2            ;VERIFY R4
5920  030532  001403                          BEQ     1$                      ;BRANCH IF GOOD
5921  030534  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5922  030536  000434                          .WORD   434                     ;UNIQUE ERROR NUMBER
5923  030540  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5924                                                                  ;
5925  030542  020127  001120          1$:     CMP     R1,#RECST+2             ;VERIFY R1
5926  030546  001403                          BEQ     2$                      ;BRANCH IF GOOD
```

```
5927  030550  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5928  030552  000435                        .WORD   435                     ;UNIQUE ERROR NUMBER
5929  030554  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5930                                                                  ;BAD R1
5931  030556  023727  001116  145557  2$:   CMP     @#RECST,#145557         ;VERIFY STATUS
5932  030564  001412                        BEQ     3$                      ;BRANCH F GOOD
5933  030566  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5934  030570  000436                        .WORD   436                     ;UNIQUE ERROR NUMBER
5935  030572  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5936                                                                  ;BAD STATUS\
5937  030574  000167  000012                JMP     3$                      ;GET OVER TRAP
5938                                ;UNEXPECTED TRAP
5939  030600  012600                  10$:   MOV     (SP)+,R0                        ;SAVE PC
5940  030602  012605                        MOV     (SP)+,R5                        ;SAVE PS
5941  030604  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5942  030606  000437                        .WORD   437                     ;UNIQUE ERROR NUMBER
5943  030610  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5944                                                                  ;UNEXPECTED TRAP
5945  030612                            3$:
5946
5947
5948  030612                            MLS3:
5949                                    ;;*******************************************************************
5950                                    ;*TEST 76       TEST LDFPS, STFPS MODE 3
5951                                    ;;*******************************************************************
5952  030612                            TST76:
5953  030612  005267  150166                INC     $TESTN                  ;INCREMENT TEST NUMBER
5954  030616  012704  001136                MOV     #TSTLOC,R4              ;POINT R4 TO RAM
5955  030622  012737  001142  001136        MOV     #TSTLOC+4,@#TSTLOC      ;TSTLOC+ DEFERRED ADDRESS
5956  030630  012737  147501  001142        MOV     #147501,@#TSTLOC+4      ;SETUP EXPECTED STATUS
5957  030636  012701  001146                MOV     #TSTLOC+10,R1           ;R1 POINTS TO TSTLOC+10
5958  030642  012737  001116  001146        MOV     #RECST,@#TSTLOC+10      ;SET DEFERRED BUFFER FOR RECEIVED STATUS
5959  030650  012737  030734  000244        MOV     #10$,@#FPVEC            ;SETUP  RAP VECTOR
5960  030656  170134                        LDFPS   @(R4)+                  ;*TEST INSTRUCTION
5961  030660  170231                        STFPS   @(R1)+                  ;*TEST INSTRUCTION
5962  030662  020427  001140                CMP     R4,#TSTLOC+2            ;VERIFY R4
5963  030666  001403                        BEQ     1$                      ;BRANCH IF GOOD
5964  030670  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5965  030672  000440                        .WORD   440                     ;UNIQUE ERROR NUMBER
5966  030674  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5967                                                                  ;
5968  030676  020127  001150          1$:   CMP     R1,#TSTLOC+12           ;VERIFY R1
5969  030702  001403                        BEQ     2$                      ;BRANCH IF GOOD
5970  030704  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5971  030706  000441                        .WORD   441                     ;UNIQUE ERROR NUMBER
5972  030710  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5973                                                                  ;BAD R1
5974  030712  023727  001116  147501  2$:   CMP     @#RECST,#147501         ;VERIFY STATUS
5975  030720  001412                        BEQ     3$                      ;BRANCH F GOOD
5976  030722  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5977  030724  000442                        .WORD   442                     ;UNIQUE ERROR NUMBER
5978  030726  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5979                                                                  ;BAD STATUS\
5980  030730  000167  000012                JMP     3$                      ;GET OVER TRAP
5981                                ;UNEXPECTED TRAP
5982  030734  012600                  10$:   MOV     (SP)+,R0                        ;SAVE PC
```

```
5983  030736  012605                          MOV     (SP)+,R5                        ;SAVE PS
5984  030740  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
5985  030742  000443                          .WORD   443                             ;UNIQUE ERROR NUMBER
5986  030744  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
5987                                                                                  ;UNEXPECTED TRAP
5988  030746                          3$:
5989
5990
5991  030746                          MLS4:
5992                                  ;;*************************************************************
5993                                  ;*TEST 77        TEST LDFPS, STFPS MODE 4
5994                                  ;;*************************************************************
5995  030746                          TST77:
5996  030746  005267  150032                  INC     $TESTN                          ;INCREMENT TEST NUMBER
5997  030752  012704  001140                  MOV     #TSTLOC+2,R4                    ;POINT R4 TO RAM
5998  030756  012737  147757  001136          MOV     #147757,@#TSTLOC                ;TSTLOC= STATUS ADDRESS
5999  030764  012701  001120                  MOV     #RECST+2,R1                     ;SET BUFFER FOR RECEIVED STATUS
6000  030770  012737  031054  000244          MOV     #10$,@#FPVEC                    ;SETUP TRAP VECTOR
6001  030776  170144                          LDFPS   -(R4)                           ;*TEST INSTRUCTION
6002  031000  170241                          STFPS   -(R1)                           ;*TEST INSTRUCTION
6003  031002  020427  001136                  CMP     R4,#TSTLOC                      ;VERIFY R4
6004  031006  001403                          BEQ     1$                              ;BRANCH IF GOOD
6005  031010  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6006  031012  000444                          .WORD   444                             ;UNIQUE ERROR NUMBER
6007  031014  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
6008                                                  ;
6009  031016  020127  001116          1$:     CMP     R1,#RECST                       ;VERIFY R1
6010  031022  001403                          BEQ     2$                              ;BRANCH IF GOOD
6011  031024  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6012  031026  000445                          .WORD   445                             ;UNIQUE ERROR NUMBER
6013  031030  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
6014                                                                                  ;BAD R1
6015  031032  023727  001116  147757  2$:     CMP     @#RECST,#147757                 ;VERIFY STATUS
6016  031040  001412                          BEQ     3$                              ;BRANCH F GOOD
6017  031042  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6018  031044  000446                          .WORD   446                             ;UNIQUE ERROR NUMBER
6019  031046  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
6020                                                                                  ;BAD STATUS\
6021  031050  000167  000012                  JMP     3$                              ;GET OVER TRAP
6022                                  ;UNEXPECTED TRAP
6023  031054  012600                  10$:    MOV     (SP)+,R0                                ;SAVE PC
6024  031056  012605                          MOV     (SP)+,R5                                ;SAVE PS
6025  031060  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6026  031062  000447                          .WORD   447                             ;UNIQUE ERROR NUMBER
6027  031064  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
6028                                                                                  ;UNEXPECTED TRAP
6029  031066                          3$:
6030
6031
6032  031066                          MLS5:
6033                                  ;;*************************************************************
6034                                  ;*TEST 100       TEST LDFPS, STFPS MODE 5
6035                                  ;;*************************************************************
6036  031066                          TST100:
6037  031066  005267  147712                  INC     $TESTN                          ;INCREMENT TEST NUMBER
6038  031072  012704  001140                  MOV     #TSTLOC+2,R4                    ;POINT R4 TO RAM
```

```
6039  031076  012737  001142  001136          MOV     #TSTLOC+4,@#TSTLOC      ;TSTLOC+ DEFERRED ADDRESS
6040  031104  012737  147501  001142          MOV     #147501,@#TSTLOC+4      ;SETUP EXPECTED STATUS
6041  031112  012701  001150                  MOV     #TSTLOC+12,R1           ;R1 POINTS TO 412
6042  031116  012737  001116  001146          MOV     #RECST,@#TSTLOC+10      ;SET DEFERRED BUFFER FOR RECEIVED STATUS
6043  031124  012737  031210  000244          MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
6044  031132  170154                          LDFPS   @-(R4)                  ;*TEST INSTRUCTION
6045  031134  170251                          STFPS   @-(R1)                  ;*TEST INSTRUCTION
6046  031136  020427  001136                  CMP     R4,#TSTLOC              ;VERIFY R4
6047  031142  001403                          BEQ     1$                      ;BRANCH IF GOOD
6048  031144  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6049  031146  000450                          .WORD   450                     ;UNIQUE ERROR NUMBER
6050  031150  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6051                                                                  ;
6052  031152  020127  001146          1$:     CMP     R1,#TSTLOC+10           ;VERIFY R1
6053  031156  001403                          BEQ     2$                      ;BRANCH IF GOOD
6054  031160  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6055  031162  000451                          .WORD   451                     ;UNIQUE ERROR NUMBER
6056  031164  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6057                                                                  ;BAD R1
6058  031166  023727  001116  147501  2$:     CMP     @#RECST,#147501         ;VERIFY STATUS
6059  031174  001412                          BEQ     3$                      ;BRANCH F GOOD
6060  031176  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6061  031200  000452                          .WORD   452                     ;UNIQUE ERROR NUMBER
6062  031202  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6063                                                                  ;BAD STATUS\
6064  031204  000167  000012                  JMP     3$                      ;GET OVER TRAP
6065                                  ;UNEXPECTED TRAP
6066  031210  012600                  10$:     MOV     (SP)+,R0                        ;SAVE PC
6067  031212  012605                          MOV     (SP)+,R5                        ;SAVE PS
6068  031214  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6069  031216  000453                          .WORD   453                     ;UNIQUE ERROR NUMBER
6070  031220  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6071                                                                  ;UNEXPECTED TRAP
6072  031222                          3$:
6073
6074
6075  031222                          MLS6.
6076                                  ;;*****************************************************************
6077                                  ;*TEST 101       TEST LDFPS, STFPS MODE 6
6078                                  ;;*****************************************************************
6079  031222                          TST101:
6080  031222  005267  147556                  INC     $TESTN                  ;INCREMENT TEST NUMBER
6081  031226  012704  001136                  MOV     #TSTLOC,R4              ;POINT R4 TO RAM
6082  031232  012737  140001  001142          MOV     #140001,@#TSTLOC+4      ;SETUP EXPECTED STATUS
6083  031240  012701  001246                  MOV     #TSTLOC+110,R1          ;R1 WILL POINT TO TESTLOC+10
6084  031244  012737  031334  000244          MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
6085  031252  170164  000004                  LDFPS   4(R4)                   ;*TEST INSTRUCTION
6086  031256  170261  177700                  STFPS   -100(R1)                        ;*TEST INSTRUCTION
6087  031262  020427  001136                  CMP     R4,#TSTLOC              ;VERIFY R4
6088  031266  001403                          BEQ     1$                      ;BRANCH IF GOOD
6089  031270  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6090  031272  000454                          .WORD   454                     ;UNIQUE ERROR NUMBER
6091  031274  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6092                                                                  ;
6093  031276  020127  001246          1$:     CMP     R1,#TSTLOC+110          ;VERIFY R1
6094  031302  001403                          BEQ     2$                      ;BRANCH IF GOOD
```

```
6095  031304  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6096  031306  000455                        .WORD   455                     ;UNIQUE ERROR NUMBER
6097  031310  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6098                                                                ;BAD R1
6099  031312  023727  001146  140001  2$:   CMP     @#TSTLOC+10,#140001     ;VERIFY STATUS
6100  031320  001412                        BEQ     3$                      ;BRANCH IF GOOD
6101  031322  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6102  031324  000456                        .WORD   456                     ;UNIQUE ERROR NUMBER
6103  031326  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6104                                                                ;BAD STATUS\
6105  031330  000167  000012                JMP     3$                      ;GET OVER TRAP
6106                                ;UNEXPECTED TRAP
6107  031334  012600                  10$:   MOV     (SP)+,R0                        ;SAVE PC
6108  031336  012605                        MOV     (SP)+,R5                        ;SAVE PS
6109  031340  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6110  031342  000457                        .WORD   457                     ;UNIQUE ERROR NUMBER
6111  031344  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6112                                                                ;UNEXPECTED TRAP
6113  031346                            3$:
6114
6115
6116  031346                            MLS7:
6117                                ;;**************************************************************
6118                                ;*TEST 102       TEST LDFPS, STFPS MODE 7
6119                                ;;**************************************************************
6120  031346                            TST102:
6121  031346  005267  147432                INC     $TESTN                  ;INCREMENT TEST NUMBER
6122  031352  012704  001236                MOV     #TSTLOC+100,R4          ;POINT R4 TO RAM
6123  031356  012737  001142  001136        MOV     #TSTLOC+4,@#TSTLOC      ;TSTLOC+ DEFERRED ADDRESS
6124  031364  012737  145501  001142        MOV     #145501,@#TSTLOC+4      ;SETUP EXPECTED STATUS
6125  031372  012701  001046                MOV     #TSTLOC-70,R1           ;R1 POINTS TO TSTLOC+10
6126  031376  012737  001146  001140        MOV     #TSTLOC+10,@#TSTLOC+2   ;
6127  031404  012737  031474  000244        MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
6128  031412  170174  177700                LDFPS   @-100(R4)                       ;*TEST INSTRUCTION
6129  031416  170271  000072                STFPS   @72(R1)                 ;*TEST INSTRUCTION
6130  031422  020427  001236                CMP     R4,#TSTLOC+100          ;VERIFY R4
6131  031426  001403                        BEQ     1$                      ;BRANCH IF GOOD
6132  031430  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6133  031432  000460                        .WORD   460                     ;UNIQUE ERROR NUMBER
6134  031434  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6135                                                                ;
6136  031436  020127  001046            1$:   CMP     R1,#TSTLOC-70           ;VERIFY R1
6137  031442  001403                        BEQ     2$                      ;BRANCH IF GOOD
6138  031444  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6139  031446  000461                        .WORD   461                     ;UNIQUE ERROR NUMBER
6140  031450  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6141                                                                ;BAD R1
6142  031452  023727  001146  145501  2$:   CMP     @#TSTLOC+10,#145501     ;VERIFY STATUS
6143  031460  001412                        BEQ     3$                      ;BRANCH IF GOOD
6144  031462  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6145  031464  000462                        .WORD   462                     ;UNIQUE ERROR NUMBER
6146  031466  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6147                                                                ;BAD STATUS\
6148  031470  000167  000012                JMP     3$                      ;GET OVER TRAP
6149                                ;UNEXPECTED TRAP
6150  031474  012600                  10$:   MOV     (SP)+,R0                        ;SAVE PC
```

```
6151  031476  012605                          MOV     (SP)+,R5                        ;SAVE PS
6152  031500  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6153  031502  000463                          .WORD   463                             ;UNIQUE ERROR NUMBER
6154  031504  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
6155                                                                                ;UNEXPECTED TRAP
6156  031506                          3$:
6157
6158
6159  031506                          MLDC2:
6160                                  ;;*****************************************************************
6161                                  ;*TEST 103       TEST LDCLD MODE 27
6162                                  ;;*****************************************************************
6163  031506                          TST103:
6164  031506  005267  147272                  INC     $TESTN                          ;INCREMENT TEST NUMBER
6165  031512  005001                          CLR     R1                              ;INIT R1
6166  031514  012704  007700                  MOV     #7700,R4                        ;FPS=DOUBLE, LONG
6167  031520  170104                          LDFPS   R4                              ;
6168  031522  012737  031562  000244          MOV     #10$,@#FPVEC                    ;SETUP WILD TRAP
6169  031530  177027                          LDCLD   (R7)+,AC0                       ;*TEST INSTRUCTION
6170  031532  005201                          INC     R1                              ;
6171  031534  005201                          INC     R1                              ;
6172  031536  005201                          INC     R1                              ;
6173  031540  005201                          INC     R1                              ;
6174  031542  020127  000003                  CMP     R1,#3                           ;VERIFY
6175  031546  001412                          BEQ     1$                              ;BRANCH IF GOOD
6176  031550  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6177  031552  000464                          .WORD   464                             ;UNIQUE ERROR NUMBER
6178  031554  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
6179                                                                                ;INSTRUCTION FAILED
6180  031556  000167  000012                  JMP     1$                              ;JUMP OVER WILD TRAP
6181  031562  012600                  10$:    MOV     (SP)+,R0                        ;SAVE PC
6182  031564  012605                          MOV     (SP)+,R5                                ;SAVE PS
6183  031566  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6184  031570  000465                          .WORD   465                             ;UNIQUE ERROR NUMBER
6185  031572  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
6186                                                                                ;WILD TRAP ON INSTRUCTION
6187  031574  012704  001266          1$:     MOV     #1AB6A,R4                       ;POINT TO EXPECTED DATA
6188  031600  012701  001126                  MOV     #RECDST,R1                      ;POINT TO DATA BUFFER
6189  031604  174011                          STD     AC0,(R1)                        ;VERIFY DATA
6190  031606  004767  150334                  JSR     R7,DATVER                       ;
6191  031612  005767  147222                  TST     COUNT
6192  031616  001403                          BEQ     2$                              ;BRANCH IF GOOD DATA
6193  031620  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6194  031622  000466                          .WORD   466                             ;UNIQUE ERROR NUMBER
6195  031624  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
6196                                                                                ;BAD DATA
6197  031626                          2$:
6198
6199
6200
6201  031626                          MLCF:
6202                                  ;;*****************************************************************
6203                                  ;*TEST 104       TEST LDCIF, LDCLF
6204                                  ;;*****************************************************************
6205  031626                          TST104:
6206  031626  005267  147152                  INC     $TESTN                          ;INCREMENT TEST NUMBER
```

```
6207                                    ;1/INT=0
6208  031632  004767  000500                      JSR     R7,LCFSUB               ;DO TEST
6209  031636  000000  000000                      .WORD   0,0             ;FSRC
6210  031642  000000  000000                      .WORD   0,0             ;RESULT
6211  031646  000000                              .WORD   0               ; TEST FPS
6212  031650  000004                              .WORD   4               ;RESULT FPS
6213                                    ;2/INT=0,-1
6214  031652  004767  000460                      JSR     R7,LCFSUB               ;DO TEST
6215  031656  000000  177777                      .WORD   0,-1            ;FSRC
6216  031662  000000  000000                      .WORD   0,0             ;RESULT
6217  031666  007440                              .WORD   7440            ; TEST FPS
6218  031670  007444                              .WORD   7444            ;RESULT FPS
6219                                    ;3/LONG=0
6220  031672  004767  000440                      JSR     R7,LCFSUB               ;DO TEST
6221  031676  000000  000000                      .WORD   0,0             ;FSRC
6222  031702  000000  000000                      .WORD   0,0             ;RESULT
6223  031706  000100                              .WORD   100             ; TEST FPS
6224  031710  000104                              .WORD   104             ;RESULT FPS
6225                                    ;4/INT=40000
6226  031712  004767  000420                      JSR     R7,LCFSUB               ;DO TEST
6227  031716  040000  000000                      .WORD   40000,0         ;FSRC
6228  031722  043600  000000                      .WORD   43600,0         ;RESULT
6229  031726  000017                              .WORD   17              ; TEST FPS
6230  031730  000000                              .WORD   0               ;RESULT FPS
6231                                    ;5/LONG=1
6232  031732  004767  000400                      JSR     R7,LCFSUB               ;DO TEST
6233  031736  000000  000001                      .WORD   0,1             ;FSRC
6234  031742  040200  000000                      .WORD   40200,0         ;RESULT
6235  031746  000117                              .WORD   117             ; TEST FPS
6236  031750  000100                              .WORD   100             ;RESULT FPS
6237                                    ;6/INT=PATTERN
6238  031752  004767  000360                      JSR     R7,LCFSUB               ;DO TEST
6239  031756  000252  025252                      .WORD   252,25252       ;FSRC
6240  031762  042052  000000                      .WORD   42052,0         ;RESULT
6241  031766  000000                              .WORD   0               ; TEST FPS
6242  031770  000000                              .WORD   0               ;RESULT FPS
6243                                    ;7/INT=-40000
6244  031772  004767  000340                      JSR     R7,LCFSUB               ;DO TEST
6245  031776  140000  000000                      .WORD   -40000,0        ;FSRC
6246  032002  143600  000000                      .WORD   143600,0                ;RESULT
6247  032006  000007                              .WORD   7               ; TEST FPS
6248  032010  000010                              .WORD   10              ;RESULT FPS
6249                                    ;8/INT=-1
6250  032012  004767  000320                      JSR     R7,LCFSUB               ;DO TEST
6251  032016  177777  000000                      .WORD   -1,0            ;FSRC
6252  032022  140200  000000                      .WORD   140200,0                ;RESULT
6253  032026  000007                              .WORD   7               ; TEST FPS
6254  032030  000010                              .WORD   10              ;RESULT FPS
6255                                    ;9/INT=PATTERN
6256  032032  004767  000300                      JSR     R7,LCFSUB               ;DO TEST
6257  032036  125252  125252                      .WORD   125252,125252           ;FSRC
6258  032042  143652  126000                      .WORD   143652,126000           ;RESULT
6259  032046  000007                              .WORD   7               ; TEST FPS
6260  032050  000010                              .WORD   10              ;RESULT FPS
6261                                    ;10/LONG=-40000
6262  032052  004767  000260                      JSR     R7,LCFSUB               ;DO TEST
```

```
6263  032056  040000  000000                ;11/LONG=1
6264  032062  047600  000000                        JSR     R7,LCFSUB               ;DO TEST
6265  032066  000117                          .WORD   0,1             ;FSRC
6266  032070                                  .WORD   40200,0         ;RESULT
6267                                          .WORD   7557            ; TEST FPS
6268  032072  000240                          .WORD   7540            ;RESULT FPS
6269  032076  000001
6270  032102  000000                ;12/LONG=PATTERN
6271  032106  007557                         JSR     R7,LCFSUB               ;DO TEST
6272  032110  007540                         .WORD   0,252           ;FSRC
6273                                         .WORD   42052,0         ;RESULT
6274  032112  004767  000220                .WORD   7557            ; TEST FPS
6275  032116  000000  000252                .WORD   7540            ;RESULT FPS
6276  032122  042052  000000
6277  032126  007557                 ;13/LONG = -40000
6278  032130  007540                         JSR     R7,LCFSUB               ;DO TEST
6279                                         .WORD   -40000.0                ;FSRC
6280  032132  004767  000200                .WORD   147600,0                ;RESULT
6281  032136  140000  000000                .WORD   107             ; TEST FPS
6282  032142  147600  000000                .WORD   110             ;RESULT FPS
6283  032146  000107
6284  032150  000110                 ;14/LONG=-1
6285                                         JSR     R7,LCFSUB               ;DO TEST
6286  032152  004767  000160                .WORD    1,-1           ;FSRC
6287  032156  177777  177777                .WORD   140200,0                ;RESULT
6288  032162  140200  000000                .WORD   7500            ; TEST FPS
6289  032166  007500                         .WORD   7510            ;RESULT FPS
6290  032170  007510
6291                                 ;15/LONG=PATTERN
6292  032172  004767  000140                JSR     R7,LCFSUB               ;DO TEST
6293  032176  125252  125252                .WORD   125252,125252           ;FSRC
6294  032202  147652  125253                .WORD   147652,125253           ;RESULT
6295  032206  000105                         .WORD   105             ; TEST FPS
6296  032210  000110                         .WORD   110             ;RESULT FPS
6297                                 ;16/LONG=77777,177500
6298  032212  004767  000120                JSR     R7,LCFSUB               ;DO TEST
6299  032216  077777  177500                .WORD   77777,177500            ;FSRC
6300  032222  047777  177777                .WORD   47777,177777            ;RESULT
6301  032226  000117                         .WORD   117             ; TEST FPS
6302  032230  000100                         .WORD   100             ;RESULT FPS
6303
6304  032232  004767  000100        ;17/LONG=40000,100
6305  032236  040000  000100                JSR     R7,LCFSUB               ;DO TEST
6306  032242  047600  000001                .WORD   40000,100               ;FSRC
6307  032246  007502                         .WORD   47600,1         ;RESULT
6308  032250  007500                         .WORD   7502            ; TEST FPS
6309                                         .WORD   7500            ;RESULT FPS
6310  032252  004767  000060        ;18/LONG=40000,100   TRUNCATE
6311  032256  040000  000100                JSR     R7,LCFSUB               ;DO TEST
6312  032262  047600  000000                .WORD   40000,100               ;FSRC
6313  032266  007557                         .WORD   47600,0         ;RESULT
6314  032270  007540                         .WORD   7557            ; TEST FPS
6315                                         .WORD   7540            ;RESULT FPS
6316  032272  004767  000040        ;19/INT= MOST NEGATIVE
6317  032276  100000  000000                JSR     R7,LCFSUB               ;DO TEST
6318  032302  144000  000000                .WORD   100000,0                ;FSRC
                                          .WORD   144000,0              ;RESULT
```

```
032306  000007                             .WORD   7               ; TEST FPS
032310  000010                             .WORD   10              ;RESULT FPS
                                   ;20/LONG* MOST NEGATIVE
032312  004767  000020                     JSR     R7,LCFSUB                 ;DO TEST
032316  100000  000000                     .WORD   100000,0                  ;FSRC
032322  150000  000000                     .WORD   150000,0                  ;RESULT
032326  000107                             .WORD   107             ; TEST FPS
032330  000110                             .WORD   110             ;RESULT FPS
                                   ;

032332  000167  000126                     JMP     HOP18           ;GET OVER SUBROUTINE
                                   ;
                                   ;
                                   ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X/          *X*X*X
                                   ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*          X*X*X*X
                                   ;LDCIF, LDCLF
                                   ;
                                   ;               FSRC
                                   ;               RESULT
                                   ;               FPS BEFORE EXECUTION
                                   ;               FPS AFTER EXECUTION
                                   ;
                                   ;NO TRAP CAN OCCUR
                                   ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                   ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                   ;
032336  012602                     LCFSUB: MOV     (SP)+,R2        ; RETURN ADDRESS TO USE AS POINTER
032340  012737  032446  000244             MOV     #50$,@#FPVEC              ;REDIRECT TRAP VECTOR
032346  012701  001126                     MOV     #RECDST,R1                ;POINT TO RESULT AREA
032352  016200  000010                     MOV     10(R2),R0                 ;GET TEST FPS
032356  170100                             LDFPS   R0                        ;LOAD TEST FPS
032360  010204                             MOV     R2,R4                     ;POINT TO TEST DATA
                                   ;
032362  177014                     40$:    LDCIF   (R4),AC0                  ;*TEST INSTRUCTION (ACCORDING TO MODE)
                                   ;
                                   ;VERIFY STATUS
032364  170203                     2$:     STFPS   R3                        ;SAVE FPS
032366  012700  000200                     MOV     #200,R0                   ;SET FPP STATUS TO DOUBLE
032372  170100                             LDFPS   R0                        ;
032374  174011                             STD     AC0,(R1)                  ;SAVE TEST RESULT INTO RECDST
032376  016200  000012                     MOV     12(R2),R0                         ;GET EXPECTED STATUS
032402  020003                             CMP     R0,R3                     ;VERIFY STATUS
032404  001403                             BEQ     3$                        ;BRANCH IF GOOD
032406  104000                             ERROR                             ;ALL ERRORS TO TRAP TO EMT VECTOR
032410  000467                             .WORD   467                       ;UNIQUE ERROR NUMBER
032412  002013                             .WORD   FPPERR                    ;ADDRESS OF ERROR MESSAGE
                                                           ;BAD FPS
032414  010204                     3$:     MOV     R2,R4                     ;POINT TO EXPECTED DATA
032416  062704  000004                     ADD     #4,R4
032422  004767  147502             4$:     JSR     R7,DATVFR                         ;VERIFY DATA
032426  005767  146406                     TST     COUNT
032432  001403                             BEQ     5$                        ;BRANCH IF GOOD
032434  104000                             ERROR                             ;ALL ERRORS TO TRAP TO EMT VECTOR
032436  000470                             .WORD   470                       ;UNIQUE ERROR NUMBER
032440  002013                             .WORD   FPPERR                    ;ADDRESS OF ERROR MESSAGE
                                                           ;BAD AC0
```

```
6375  032442  000162  000014          5$:     JMP     14(R2)                  ;RETURN FROM TEST
6376                                  ;
6377                                  ;INSTRUCTION TRAPPED
6378  032446  012600                  50$:    MOV     (SP)+,R0                ;SAVE PC
6379  032450  012605                          MOV     (SP)+,R5                ;SAVE PS
6380  032452  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6381  032454  000471                          .WORD   471                     ;UNIQUE ERROR NUMBER
6382  032456  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6383                                                                  ;INSTRUCTION WASNT SUPPOSE TO TRAP
6384  032460  000167  177756                  JMP     5$                      ;CONTINUE
6385  032464                          HOP18:
6386
6387  032464                          MLCD:
6388                                  ;;*****************************************************************
6389                                  ;*TEST 105       TEST LDCID, LDCLD
6390                                  ;;*****************************************************************
6391  032464                          TST105:
6392  032464  005267  146314                  INC     $TESTN                  ;INCREMENT TEST NUMBER
6393                                  ;1/LONG=0
6394  032470  004767  000264                  JSR     R7,LCDSUB               ;DO TEST
6395  032474  000000  000000                  .WORD   0,0             ;FSRC
6396  032500  000000  000000  000000          .WORD   0,0,0,0         ;RESULT
6397  032506  000000
6398  032510  007313                          .WORD   7313            ; TEST FPS
6399  032512  007304                          .WORD   7304            ;RESULT FPS
6400                                  ;2/INT=0
6401  032514  004767  000240                  JSR     R7,LCDSUB               ;DO TEST
6402  032520  000000  000001                  .WORD   0,1             ;FSRC
6403  032524  040200  000000  000000          .WORD   40200,0,0,0             ;RESULT
6404  032532  000000
6405  032534  007757                          .WORD   7757            ; TEST FPS
6406  032536  007740                          .WORD   7740            ;RESULT FPS
6407                                  ;3/INT=40000
6408  032540  004767  000214                  JSR     R7,LCDSUB               ;DO TEST
6409  032544  040000  177777                  .WORD   40000,-1                ;FSRC
6410  032550  043600  000000  000000          .WORD   43600,0,0,0             ;RESULT
6411  032556  000000
6412  032560  007617                          .WORD   7617            ; TEST FPS
6413  032562  007600                          .WORD   7600            ;RESULT FPS
6414                                  ;4/INT=-40000
6415  0325 4  004767  000170                  JSR     R7,LCDSUB               ;DO TEST
6416  0325 ?  140000  177777                  .WORD   -40000,-1               ;FSRC
6417  032574  143600  000000  000000          .WORD   143600,0,0,0            ;RESULT
6418  032602  000000
6419  032604  007600                          .WORD   7600            ; TEST FPS
6420  032606  007610                          .WORD   7610            ;RESULT FPS
6421                                  ;5/LONG=40000
6422  032610  004767  000144                  JSR     R7,LCDSUB               ;DO TEST
6423  032614  040000  000000                  .WORD   40000,0         ;FSRC
6424  032620  047600  000000  000000          .WORD   47600,0,0,0             ;RESULT
6425  032626  000000
6426  032630  007757                          .WORD   7757            ; TEST FPS
6427  032632  007740                          .WORD   7740            ;RESULT FPS
6428                                  ;6/LONG=1
6429  032634  004767  000120                  JSR     R7,LCDSUB               ;DO TEST
6430  032640  000000  000001                  .WORD   0,1             ;FSRC
```

```
6431  032644  040200  000000  000000          .WORD   40200,0,0,0              ;RESULT
6432  032652  000000
6433  032654  000300                          .WORD   300              ; TEST FPS
6434  032656  000300                          .WORD   300              ;RESULT FPS
6435                                  ;7/LONG=-2
6436  032660  004767  000074                  JSR     R7,LCDSUB                ;DO TEST
6437  032664  177777  177776                  .WORD   -1,-2            ;FSRC
6438  032670  140400  000000  000000          .WORD   140400,0,0,0             ;RESULT
6439  032676  000000
6440  032700  007300                          .WORD   7300             ; TEST FPS
6441  032702  007310                          .WORD   7310             ;RESULT FPS
6442                                  ;8/INT=PATTERN
6443  032704  004767  000050                  JSR     R7,LCDSUB                ;DO TEST
6444  032710  123456  176543                  .WORD   123456,176543            ;FSRC
6445  032714  143661  122000  000000          .WORD   143661,122000,0,0                ;RESULT
6446  032722  000000
6447  032724  000200                          .WORD   200              ; TEST FPS
6448  032726  000210                          .WORD   210              ;RESULT FPS
6449                                  ;9/LONG=PATTERN
6450  032730  004767  000024                  JSR     R7,LCDSUB                ;DO TEST
6451  032734  125252  125252                  .WORD   125252,125252            ;FSRC
6452  032740  147652  125252  126000          .WORD   147652,125252,126000,0           ;RESULT
6453  032746  000000
6454  032750  000300                          .WORD   300              ; TEST FPS
6455  032752  000310                          .WORD   310              ;RESULT FPS
6456                                  ;
6457
6458                                  ;
6459  032754  000167  000126                  JMP     HOP19            ;GET OVER SUBROUTINE
6460                                  ;
6461                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6462                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6463                                  ;LDCID, LDCLD
6464                                  ;
6465                                  ;               FSRC
6466                                  ;               RESULT
6467                                  ;               FPS BEFORE EXECUTION
6468                                  ;               FPS AFTER EXECUTION
6469                                  ;
6470                                  ;NO TRAP CAN OCCUR
6471                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6472                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6473                                  ;
6474  032760  012602                  LCDSUB: MOV     (SP)+,R2                 ; RETURN ADDRESS TO USE AS POINTER
6475  032762  012737  033070  000244          MOV     #50$,@#FPVEC             ;REDIRECT TRAP VECTOR
6476  032770  012701  001126                  MOV     #RECDST,R1               ;POINT TO RESULT AREA
6477  032774  016200  000014                  MOV     14(R2),R0                ;GET TEST FPS
6478  033000  170100                          LDFPS   R0                       ;LOAD TEST FPS
6479  033002  010204                          MOV     R2,R4                    ;POINT TO TEST DATA
6480                                  ;
6481  033004  177014                  40$:    LDCID   (R4),AC0                 ;*TEST INSTRUCTION (ACCORDING TO MODE)
6482                                  ;
6483                                  ;VERIFY STATUS
6484  033006  170203                  2$:     STFPS   R3                       ;SAVE FPS
6485  033010  012700  000200                  MOV     #200,R0                  ;SET FPP STATUS TO DOUBLE
6486  033014  170100                          LDFPS   R0                       ;
```

```
6487  033016  174011                        STD     AC0,(R1)            ;SAVE TEST RESULT INTO RECDS1
6488  033020  016200  000016                MOV     16(R2),R0                   ;GET EXPECTED STATUS
6489  033024  020003                        CMP     R0,R3               ;VERIFY STATUS
6490  033026  001403                        BEQ     3$                  ;BRANCH IF GOOD
6491  033030  104000                        ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
6492  033032  000472                        .WORD   472                 ;UNIQUE ERROR NUMBER
6493  033034  002013                        .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
6494                                                                ;BAD FPS
6495  033036  010204              3$:       MOV     R2,R4               ;POINT TO EXPECTED DATA
6496  033040  062704  000004                ADD     #4,R4
6497  033044  004767  147076      4$:       JSR     R7,DATVER                   ;VERIFY DATA
6498  033050  005767  145764                TST     COUNT
6499  033054  001403                        BEQ     5$                  ;BRANCH IF GOOD
6500  033056  104000                        ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
6501  033060  000473                        .WORD   473                 ;UNIQUE ERROR NUMBER
6502  033062  002013                        .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
6503                                                                ;BAD ACO
6504  033064  000162  000020      5$:       JMP     20(R2)              ;RETURN FROM TEST
6505                                        ;
6506                                        ;INSTRUCTION TRAPPED
6507  033070  012600              50$:      MOV     (SP)+,R0            ;SAVE PC
6508  033072  012605                        MOV     (SP)+,R5            ;SAVE PS
6509  033074  104000                        ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
6510  033076  000474                        .WORD   474                 ;UNIQUE ERROR NUMBER
6511  033100  002013                        .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
6512                                                                ;INSTRUCTION WASNT SUPPOSE TO TRAP
6513  033102  000167  177756                JMP     5$                  ;CONTINUE
6514
6515  033106                              HOP19:
6516
6517  033106                              MLXP:
6518                                      ;;*****************************************************************
6519                                      ;*TEST 106      EST LDEXP DOUBLE
6520                                      ;;*****************************************************************
6521  033106                              TST106:
6522  033106  005267  145672                     INC     #TESTN                      ;INCREMENT TEST NUMBER
6523                                      ;1/EXP=10 - AC=NEG
6524  033112  005037  001042                     CLR     @#FLAG                      ;NO INTERRUPTS
6525  033116  004767  001140                     JSR     R7,LXPSUB                   ;DO TEST
6526  033122  123456  067012  025252            .WORD   123456,67012,25252,171717       ;AC0
6527  033130  171717
6528  033132  000010                             .WORD   10                          ;EXP
6529  033134  142056  067012  025252            .WORD   142056,67012,25252,171717               ;RESULT
6530  033142  171717
6531  033144  007757                             .WORD   7757                ; TEST FPS
6532  033146  007750                             .WORD   7750                ;RESULT FPS
6533                                      ;2/EXP=177 - AC0=POS
6534  033150  005037  001042                     CLR     @#FLAG                      ;NO INTERRUPTS
6535  033154  004767  001102                     JSR     R7,LXPSUB                   ;DO TEST
6536  033160  023456  070123  100000            .WORD   23456,70123,100000,1            ;AC0
6537  033166  000001
6538  033170  000177                             .WORD   177                 ;EXP
6539  033172  077656  070123  100000            .WORD   77656,70123,100000,1            ;RESULT
6540  033200  000001
6541  033202  007700                             .WORD   7700                ; TEST FPS
6542  033204  007700                             .WORD   7700                ;RESULT FPS
```

```
6543                                    ;3/EXP=56
6544  033206  005037  001042                CLR     @#FLAG                  ;NO INTERRUPTS
6545  033212  004767  001044                JSR     R7,LXPSUB               ;DO TEST
6546  033216  055555  044444  033333        .WORD   55555,44444,33333,22222         ;AC0
6547  033224  022222
6548  033226  000056                        .WORD   56              ;EXP
6549  033230  053555  044444  033333        .WORD   53555,44444,33333,22222 ;RESULT
6550  033236  022222
6551  033240  007757                        .WORD   7757            ; TEST FPS
6552  033242  007740                        .WORD   7740            ;RESULT FPS
6553                                    ;4/EXP=-151, AC0=UV
6554  033244  005037  001042                CLR     @#FLAG                  ;NO INTERRUPTS
6555  033250  004767  001006                JSR     R7,LXPSUB               ;DO TEST
6556  033254  100077  177777  177777        .WORD   100077,-1,-1,-2         ;AC0
6557  033262  177776
6558  033264  177623                        .WORD   -155            ;EXP
6559  033266  104677  177777  177777        .WORD   104677,-1,-1,-2         ;RESULT
6560  033274  177776
6561  033276  007757                        .WORD   7757            ; TEST FPS
6562  033300  007750                        .WORD   7750            ;RESULT FPS
6563                                    ;5/EXP=-177
6564  033302  005037  001042                CLR     @#FLAG                  ;NO INTERRUPTS
6565  033306  004767  000750                JSR     R7,LXPSUB               ;DO TEST
6566  033312  000177  177777  177777        .WORD   177,-1,-1,-2            ;AC0
6567  033320  177776
6568  033322  177601                        .WORD   -177            ;EXP
6569  033324  000377  177777  177777        .WORD   377,-1,-1,-2            ;RESULT
6570  033332  177776
6571  033334  007700                        .WORD   7700            ; TEST FPS
6572  033336  007700                        .WORD   7700            ;RESULT FPS
6573                                    ;6/EXP=-200, UNDERFLOW
6574  033340  012737  000001  001042        MOV     #1,@#FLAG               ; INTERRUPTS
6575  033346  004767  000710                JSR     R7,LXPSUB               ;DO TEST
6576  033352  030131  032334  035363        .WORD   30131,32334,35363,73031         ;AC0
6577  033360  073031
6578  033362  177600                        .WORD   -200            ;EXP
6579  033364  000131  032334  035363        .WORD   131,32334,35363,73031           ;RESULT
6580  033372  073031
6581  033374  007740                        .WORD   7740            ; TEST FPS
6582  033376  107744                        .WORD   107744          ;RESULT FPS
6583  033400  000012                        .WORD   12              ;FEC
6584                                    ;7/EXP=LARGEST NEGATIVE
6585  033402  012737  000001  001042        MOV     #1,@#FLAG               ;EXPECT  INTERRUPTS
6586  033410  004767  000646                JSR     R7,LXPSUB               ;DO TEST
6587  033414  000000  000123  000456        .WORD   0,123,456,1             ;AC0
6588  033422  000001
6589  033424  100000                        .WORD   100000          ;EXP
6590  033426  040000  000123  000456        .WORD   40000,123,456,1         ;RESULT
6591  033434  000001
6592  033436  002200                        .WORD   2200            ; TEST FPS
6593  033440  102200                        .WORD   102200          ;RESULT FPS
6594  033442  000012                        .WORD   12              ;FEC
6595                                    ;8/EXP=-200, NEG. AC0
6596  033444  012737  000001  001042        MOV     #1,@#FLAG               ; INTERRUPTS
6597  033452  004767  000604                JSR     R7,LXPSUB               ;DO TEST
6598  033456  111111  100000  100000        .WORD   111111,100000,100000,-1         ;AC0
```

```
6599  033464  177777
6600  033466  177600                          .WORD   -200              ;EXP
6601  033470  100111  100000  100000         .WORD   100111,100000,100000,-1          ;RESULT
6602  033476  177777
6603  033500  002217                          .WORD   2217              ; TEST FPS
6604  033502  102214                          .WORD   102214            ;RESULT FPS
6605  033504  000012                          .WORD   12                ;FEC
6606                          ;9/EXP=-1743, FIU=0
6607  033506  012737  000002  001042         MOV     #2,@#FLAG                 ;NO INTERRUPTS
6608  033514  004767  000542                 JSR     R7,LXPSUB                 ;DO TEST
6609  033520  123456  012346  012346         .WORD   123456,12346,12346,123            ;AC0
6610  033526  000123
6611  033530  176035                          .WORD   -1743             ;EXP
6612  033532  000000  000000  000000         .WORD   0,0,0,0           ;RESULT
6613  033540  000000
6614  033542  005700                          .WORD   5700              ; TEST FPS
6615  033544  005704                          .WORD   5704              ;RESULT FPS
6616  033546  000012                          .WORD   12                ;FEC
6617                          ;10/EXP =-16616, FID=1
6618  033550  012737  000002  001042         MOV     #2,@#FLAG                 ;NO INTERRUPTS
6619  033556  004767  000500                 JSR     R7,LXPSUB                 ;DO TEST
6620  033562  000377  123456  065432         .WORD   377,123456,65432,1                ;AC0
6621  033570  000001
6622  033572  161162                          .WORD   -16616            ;EXP
6623  033574  074577  123456  065432         .WORD   74577,123456,65432,1              ;RESULT
6624  033602  000001
6625  033604  047700                          .WORD   47700             ; TEST FPS
6626  033606  147700                          .WORD   147700            ;RESULT FPS
6627  033610  000012                          .WORD   12                ;FEC
6628                          ;11/EXP=177, AC0=UNDEFINED VARIABLE
6629  033612  005037  001042                 CLR     @#FLAG                    ;NO INTERRUPTS
6630  033616  004767  000440                 JSR     R7,LXPSUB                 ;DO TEST
6631  033622  100177  177777  177777         .WORD   100177,-1,-1,-1           ;AC0
6632  033630  177777
6633  033632  000177                          .WORD   177               ;EXP
6634  033634  177777  177777  177777         .WORD   -1,-1,-1,-1               ;RESULT
6635  033642  177777
6636  033644  007700                          .WORD   7700              ; TEST FPS
6637  033646  007710                          .WORD   7710              ;RESULT FPS
6638                          ;12/EXP=150 AC0=POS
6639  033650  005037  001042                 CLR     @#FLAG                    ;NO INTERRUPT
6640  033654  004767  000402                 JSR     R7,LXPSUB                 ;DO TEST
6641  033660  000200  000100  000200         .WORD   200,100,200,300           ;AC0
6642  033666  000300
6643  033670  000150                          .WORD   150               ;EXP
6644  033672  072000  000100  000200         .WORD   72000,100,200,300                 ;RESULT
6645  033700  000300
6646  033702  007717                          .WORD   7717              ; TEST FPS
6647  033704  007700                          .WORD   7700              ;RESULT FPS
6648                          ;13/EXP=200, AC0=NEG
6649  033706  012737  000001  001042         MOV     #1,@#FLAG
6650  033714  004767  000342                 JSR     R7,LXPSUB                 ;DO TEST
6651  033720  177777  177777  177777         .WORD   -1,-1,-1,-1               ;AC0
6652  033726  177777
6653  033730  000200                          .WORD   200               ;EXP
6654  033732  100177  177777  177777         .WORD   100177,-1,-1,-1           ;RESULT
```

```
6655  033740  177777
6656  033742  007705                          .WORD   7705            ; TEST FPS
6657  033744  107716                          .WORD   107716          ;RESULT FPS
6658  033746  000010                          .WORD   10              ;FEC
6659                          ;14/EXP=400, FID
6660  033750  012737  000002  001042          MOV     #2,@#FLAG               ;INTERRUPT
6661  033756  004767  000300                  JSR     R7,LXPSUB               ;DO TEST
6662  033762  000555  177777  177776          .WORD   555,-1,-2,-3            ;AC0
6663  033770  177775
6664  033772  000400                          .WORD   400                     ;EXP
6665  033774  040155  177777  177776          .WORD   40155,-1,-2,-3          ;RESULT
6666  034002  177775
6667  034004  047700                          .WORD   47700           ; TEST FPS
6668  034006  147702                          .WORD   147702          ;RESULT FPS
6669  034010  000010                          .WORD   10              ;FEC
6670                          ;15/EXP=11011 FIU=0
6671  034012  012737  000000  001042          MOV     #0,@#FLAG               ;NO INTERRUPT
6672  034020  004767  000236                  JSR     R7,LXPSUB               ;DO TEST
6673  034024  177773  177777  177776          .WORD   177773,-1,-2,-3         ;AC0
6674  034032  177775
6675  034034  011011                          .WORD   11011           ;EXP
6676  034036  000000  000000  000000          .WORD   0,0,0,0         ;RESULT
6677  034044  000000
6678  034046  006700                          .WORD   6700            ; TEST FPS
6679  034050  006706                          .WORD   6706            ;RESULT FPS
6680                          ;16/EXP=LARGEST POSITIVE
6681  034052  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
6682  034060  004767  000176                  JSR     R7,LXPSUB               ;DO TEST
6683  034064  123456  000100  000100          .WORD   123456,100,100,200              ;AC0
6684  034072  000200
6685  034074  077777                          .WORD   77777           ;EXP
6686  034076  137656  000100  000100          .WORD   137656,100,100,200              ;RESULT
6687  034104  000200
6688  034106  007740                          .WORD   7740            ; TEST FPS
6689  034110  107752                          .WORD   107752          ;RESULT FPS
6690  034112  000010                          .WORD   10              ;FEC
6691                          ;17/FLOATING
6692  034114  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
6693  034120  004767  000136                  JSR     R7,LXPSUB               ;DO TEST
6694  034124  123456  023465  000555          .WORD   123456,23465,555,444            ;AC0
6695  034132  000444
6696  034134  000050                          .WORD   50              ;EXP
6697  034136  152056  023465  000555          .WORD   152056,23465,555,444            ;RESULT
6698  034144  000444
6699  034146  007500                          .WORD   7500            ; TEST FPS
6700  034150  007510                          .WORD   7510            ;RESULT FPS
6701                          ;18/FLOATING UNDERFLOW
6702  034152  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
6703  034160  004767  000076                  JSR     R7,LXPSUB               ;DO TEST
6704  034164  000333  000444  000555          .WORD   333,444,555,666         ;AC0
6705  034172  000666
6706  034174  177600                          .WORD   -200            ;EXP
6707  034176  000133  000444  000555          .WORD   133,444,555,666         ;RESULT
6708  034204  000666
6709  034206  007500                          .WORD   7500            ; TEST FPS
6710  034210  107504                          .WORD   107504          ;RESULT FPS
```

```
6711  034212  000012                           .WORD   12              ;FEC
6712                                   ;19/FLOATING OVERFLOW
6713  034214  012737  000001  001042           MOV     #1,@#FLAG                ;INTERRUPT
6714  034222  004767  000034                   JSR     R7,LXPSUB                ;DO TEST
6715  034226  012346  000123  000345           .WORD   12346,123,345,456                ;AC0
6716  034234  000456
6717  034236  000400                           .WORD   400             ;EXP
6718  034240  040146  000123  000345           .WORD   40146,123,345,456                ;RESULT
6719  034246  000456
6720  034250  007400                           .WORD   7400            ; TEST FPS
6721  034252  107402                           .WORD   107402          ;RESULT FPS
6722  034254  000010                           .WORD   10              ;FEC
6723                                   ;
6724
6725  034256  000167  000250                   JMP     HOP20                    ;GET OVER SUBROUTINE
6726                                   ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6727                                   ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6728                                   ;LDEXP
6729                                   ;               AC0
6730                                   ;               EXPONENT
6731                                   ;               RESULT
6732                                   ;               FPS BEFORE EXECUTION
6733                                   ;               FPS AFTER EXECUTION
6734                                   ;               (FEC)
6735                                   ;
6736                                   ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6737                                   ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6738                                   ;
6739  034262  012602                   LXPSUB: MOV     (SP)+,R2                 ; RETURN ADDRESS TO USE AS POINTER
6740  034264  012737  034352  000244           MOV     #50$,@#FPVEC             ;REDIRECT TRAP VECTOR
6741  034272  012701  001126                   MOV     #RECDST,R1               ;POINT TO RESULT AREA
6742  034276  012700  000200                   MOV     #200,R0                  ;SET FPS TO DOUBLE
6743  034302  170100                           LDFPS   R0                       ;
6744  034304  010204                           MOV     R2,R4                    ;POINT TO AC0 DATA
6745  034306  172414                           LDD     (R4),AC0                         ;LOAD AC0
6746  034310  016200  000022                   MOV     22(R2),R0                ;GET TEST FPS
6747  034314  170100                           LDFPS   R0                       ;LOAD TEST FPS
6748  034316  016204  000010                   MOV     10(R2),R4                ;POINT TO TEST DATA
6749                                   ;
6750  034322  176404                   40$:    LDEXP   R4,AC0                   ;*TEST INSTRUCTION (ACCORDING TO MODE)
6751  034324  170327                   1$:     STST    (PC)+                    ;WAIT FOR POSSIBLE FPA TRAP.
6752  034326  000000                           .WORD   0                        ;STORE STATUS HERE
6753                                   ;
6754                                   ;
6755                                   ;INSTRUCTION DIDNT TRAP
6756  034330  032737  000001  001042           BIT     #1,@#FLAG                        ;VERIFY A NO TRAP CONDITION
6757  034336  001426                           BEQ     2$                       ;BRANCH IF GOOD
6758  034340  104000                           ERROR                            ;ALL ERRORS TO TRAP TO EMT VECTOR
6759  034342  000475                           .WORD   475                      ;UNIQUE ERROR NUMBER
6760  034344  002013                           .WORD   FPPERR                   ;ADDRESS OF ERROR MESSAGE
6761                                                                   ;INSTRUCTION SHOULD HAVE TRAPPED
6762  034346  000167  000042                   JMP     2$                       ;REJOIN CODE
6763                                   ;
6764                                   ;INSTRUCTION TRAPPED
6765  034352  032737  000001  001042   50$:    BIT     #1,@#FLAG                ;SEE IF EXPECTING A TRAP
6766  034360  001005                           BNE     51$                      ;BRANCH IF EXPECTING A TRAP
```

```
6767  034362  104000                ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6768  034364  000476                .WORD   476             ;UNIQUE ERROR NUMBER
6769  034366  002013                .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
6770                                                  ;INSTRUCTION WASNT SUPPOSE TO TRAP
6771  034370  000167  000020        JMP     2$              ;REJOIN CODE
6772  034374  012604          51$:  MOV     (SP)+,R4        ;SEE IF PC = INSTRUCTION
6773  034376  005726                TST     (SP)+           ;CLEAN UP STACK
6774  034400  022704  034324        CMP     #1$,R4          ;
6775  034404  001403                BEQ     2$              ;BRANCH IF GOOD COMPARE
6776  034406  104000                ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6777  034410  000477                .WORD   477             ;UNIQUE ERROR NUMBER
6778  034412  002013                .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
6779                                                  ;PC WAS INCORRECT
6780                                ;
6781                                ;COMMON CODE FOR TRAP AND NO TRAP
6782                                ;VERIFY STATUS
6783  034414  170203          2$:   STFPS   R3              ;SAVE FPS
6784  034416  012700  000200        MOV     #200,R0         ;SETUP FPS
6785  034422  170100                LDFPS   R0              ;FPS=200
6786  034424  174011                STD     AC0,(R1)        ;GET RESULT
6787  034426  016200  000024        MOV     24(R2),R0               ;GET EXPECTED STATUS
6788  034432  020003                CMP     R0,R3           ;VERIFY STATUS
6789  034434  001403                BEQ     3$              ;BRANCH IF GOOD
6790  034436  104000                ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6791  034440  000500                .WORD   500             ;UNIQUE ERROR NUMBER
6792  034442  002013                .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
6793                                                  ;BAD FPS
6794  034444  010204          3$:   MOV     R2,R4           ;POINT TO EXPECTED DATA
6795  034446  062704  000012        ADD     #12,R4
6796  034452  004767  145470  4$:   JSR     R7,DATVER               ;VERIFY DATA
6797  034456  005767  144356        TST     COUNT
6798  034462  001403                BEQ     5$              ;BRANCH IF GOOD
6799  034464  104000                ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6800  034466  000501                .WORD   501             ;UNIQUE ERROR NUMBER
6801  034470  002013                .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
6802                                                  ;BAD ACO
6803  034472  005737  001042  5$:   TST     @#FLAG          ;SEE IF NEED TO CHECK FEC
6804  034476  001002                BNE     7$              ;BRANCH IF NEED TO CHECK
6805  034500  000162  000026        JMP     26(R2)          ;RETURN FROM TEST
6806                                ;VERIFY FEC
6807  034504  012704  001106  7$:   MOV     #RECFEC,R4      ;POINT TO FEC AREA
6808  034510  170314                STST    (R4)            ;SAVE FEC
6809  034512  021462  000026        CMP     (R4),26(R2)             ;VERIFY FEC FOR OVERFLOW
6810  034516  001403                BEQ     8$              ;BRANCH IF GOOD
6811  034520  104000                ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6812  034522  000502                .WORD   502             ;UNIQUE ERROR NUMBER
6813  034524  002013                .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
6814                                                  ;BAD FEC
6815  034526  000162  000030  8$:   JMP     30(R2)          ;RETURN FROM TEST
6816                                ;
6817  034532                        HOP20:
6818
6819  034532                        MSCD:
6820                                ;;*****************************************************************
6821                                ;*TEST 107      TEST STCDI, STCDL
6822                                ;;*****************************************************************
```

```
6823  034532                                  TST107:
6824  034532  005267  144246                          INC     $TESTN                  ;INCREMENT TEST NUMBER
6825                                          ;1/ACO=0, INT
6826  034536  005037  001042                          CLR     @#FLAG          ;NO INTERRUPTS
6827  034542  004767  000610                          JSR     R7,SCDSUB               ;DO TEST
6828  034546  000177  000000  000000                  .WORD   0177,0,0,0              ;ACO
6829  034554  000000
6830  034556  000000  177777                          .WORD   0,-1            ;RESULT
6831  034562  007640                                  .WORD   7640            ; TEST FPS
6832  034564  007644                                  .WORD   7644            ;RESULT FPS
6833                                          ;2/ACO=-0, LONG
6834  034566  005037  001042                          CLR     @#FLAG          ;INTERRUPT
6835  034572  004767  000560                          JSR     R7,SCDSUB               ;DO TEST
6836  034576  100177  177777  177777                  .WORD   100177,-1,-1,-1         ;ACO
6837  034604  177777
6838  034606  000000  000000                          .WORD   0,0             ;RESULT
6839  034612  007700                                  .WORD   7700            ; TEST FPS
6840  034614  007704                                  .WORD   7704            ;RESULT FPS
6841                                          ;3/EXP=100, LONG
6842  034616  005037  001042                          CLR     @#FLAG                  ;NO INTERRUPT
6843  034622  004767  000530                          JSR     R7,SCDSUB               ;DO TEST
6844  034626  020000  000000  000000                  .WORD   20000,0,0,0             ;ACO
6845  034634  000000
6846  034636  000000  000000                          .WORD   0,0             ;RESULT
6847  034642  000300                                  .WORD   300             ; TEST FPS
6848  034644  000304                                  .WORD   304             ;RESULT FPS
6849                                          ;4/EXP=200, BAISED 0, INT, ROUND
6850  034646  005037  001042                          CLR     @#FLAG          ;INTERRUPT
6851  034652  004767  000500                          JSR     R7,SCDSUB               ;DO TEST
6852  034656  140177  177777  000001                  .WORD   140177,177777,1,1               ;ACO
6853  034664  000001
6854  034666  000000  000000                          .WORD   0,0             ;RESULT
6855  034672  007700                                  .WORD   7700            ; TEST FPS
6856  034674  007704                                  .WORD   7704            ;RESULT FPS
6857                                          ;5/LONG
6858  034676  005037  001042                          CLR     @#FLAG          ;INTERRUPT
6859  034702  004767  000450                          JSR     R7,SCDSUB               ;DO TEST
6860  034706  047667  075757  157737                  .WORD   47667,75757,157737,167773               ;ACO
6861  034714  167773
6862  034716  055675  173757                          .WORD   55675,173757            ;RESULT
6863  034722  007717                                  .WORD   7717            ; TEST FPS
6864  034724  007700                                  .WORD   7700            ;RESULT FPS
6865                                          ;6/LONG, EXP=2**32
6866  034726  005037  001042                          CLR     @#FLAG                  ;NO INTERRUPT
6867  034732  004767  000420                          JSR     R7,SCDSUB               ;DO TEST
6868  034736  046400  000000  000000                  .WORD   46400,0,0,0             ;ACO
6869  034744  000000
6870  034746  001000  000000                          .WORD   1000,0          ;RESULT
6871  034752  007700                                  .WORD   7700            ; TEST FPS
6872  034754  007700                                  .WORD   7700            ;RESULT FPS
6873                                          ;7/LONG, EXP>2**32
6874  034756  012737  000001  001042                  MOV     #1,@#FLAG               ;INTERRUPT
6875  034764  004767  000366                          JSR     R7,SCDSUB               ;DO TEST
6876  034770  077607  000000  000000                  .WORD   77607,0,0,0             ;ACO
6877  034776  000000
6878  035000  000000  000000                          .WORD   0,0             ;RESULT
```

```
6879  035004  007700                          .WORD   7700            ; TEST FPS
6880  035006  107705                          .WORD   107705          ;RESULT FPS
6881                              ;8/INT, EXP=2**15
6882  035010  005037  001042                  CLR     @#FLAG          ;NO INTERRUPTS
6883  035014  004767  000336                  JSR     R7,SCDSUB               ;DO TEST
6884  035020  043200  000000  000000          .WORD   43200,0,0,0             ;ACO
6885  035026  000000
6886  035030  010000  177777                  .WORD   10000,-1                ;RESULT
6887  035034  007600                          .WORD   7600            ; TEST FPS
6888  035036  007600                          .WORD   7600            ;RESULT FPS
6889                              ;9/INT, EXP>2**15
6890  035040  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
6891  035046  004767  000304                  JSR     R7,SCDSUB               ;DO TEST
6892  035052  077777  177777  177777          .WORD   77777,-1,-1,-1          ;ACO
6893  035060  177777
6894  035062  000000  177777                  .WORD   0,-1            ;RESULT
6895  035066  007600                          .WORD   7600            ; TEST FPS
6896  035070  107605                          .WORD   107605          ;RESULT FPS
6897                              ;10/INT, EXP>2**15, FID
6898  035072  012737  000000  001042          MOV     #0,@#FLAG               ;NO INTERRUPT
6899  035100  004767  000252                  JSR     R7,SCDSUB               ;DO TEST
6900  035104  043300  000000  000000          .WORD   43300,0,0,0             ;ACO
6901  035112  000000
6902  035114  000000  014000                  .WORD   0,14000         ;RESULT
6903  035120  047700                          .WORD   47700           ; TEST FPS
6904  035122  047700                          .WORD   47700           ;RESULT FPS
6905                              ;11/INT, EXP>2**15, FIC=0
6906  035124  012737  000000  001042          MOV     #0,@#FLAG               ;NO INTERRUPT
6907  035132  004767  000220                  JSR     R7,SCDSUB               ;DO TEST
6908  035136  143300  177777  177777          .WORD   143300,-1,-1,-1         ;ACO
6909  035144  177777
6910  035146  177777  163741                  .WORD   -1,163741               ;RESULT
6911  035152  007300                          .WORD   7300            ; TEST FPS
6912  035154  007310                          .WORD   7310            ;RESULT FPS
6913                              ;12/LONG, EXP>2**32, FID
6914  035156  012737  000002  001042          MOV     #2,@#FLAG               ;INTERRUPT
6915  035164  004767  000166                  JSR     R7,SCDSUB               ;DO TEST
6916  035170  050100  000000  000000          .WORD   50100,0,0,0             ;ACO
6917  035176  000000
6918  035200  000000  000000                  .WORD   0,0             ;RESULT
6919  035204  047700                          .WORD   47700           ; TEST FPS
6920  035206  147705                          .WORD   147705          ;RESULT FPS
6921                              ;13/LONG, EXP>2**32, FIC=0
6922  035210  012737  000000  001042          MOV     #0,@#FLAG               ;NO INTERRUPT
6923  035216  004767  000134                  JSR     R7,SCDSUB               ;DO TEST
6924  035222  050377  177777  177777          .WORD   50377,-1,-1,-1          ;ACO
6925  035230  177777
6926  035232  000000  000000                  .WORD   0,0             ;RESULT
6927  035236  007300                          .WORD   7300            ; TEST FPS
6928  035240  007305                          .WORD   7305            ;RESULT FPS
6929                              ;14/LONG, EXP<0
6930  035242  005037  001042                  CLR     @#FLAG          ;NO INTERRUPTS
6931  035246  004767  000104                  JSR     R7,SCDSUB               ;DO TEST
6932  035252  100200  177777  177777          .WORD   100200,-1,-1,-1         ;ACO
6933  035260  177777
6934  035262  000000  000000                  .WORD   0,0             ;RESULT
```

```
GLOBAL AREAS    MACY11 30A(1052)  15-MAR-84  16:58  PAGE 131                                                    SEQ 0131
KDJ11A.MAC    15-MAR-84 15:51              T107    TEST STCDI, STCDL

  6935  035266  007757                                .WORD   7757              ; TEST FPS
  6936  035270  007744                                .WORD   7744              ;RESULT FPS
  6937                                ;15/INT, EXP<0
  6938  035272  005037  001042                        CLR     @#FLAG            ;NO INTERRUPTS
  6939  035276  004767  000054                        JSR     R7,SCDSUB                 ;DO TEST
  6940  035302  037700  177777  177777                .WORD   37700,-1,-1,-2            ;ACO
  6941  035310  177776
  6942  035312  000000  177777                        .WORD   0,-1              ;RESULT
  6943  035316  007600                                .WORD   7600              ; TEST FPS
  6944  035320  007604                                .WORD   7604              ;RESULT FPS
  6945                                ;16/INT, EXP=10
  6946  035322  005037  001042                        CLR     @#FLAG            ;NO INTERRUPTS
  6947  035326  004767  000024                        JSR     R7,SCDSUB                 ;DO TEST
  6948  035332  004377  177777  177777                .WORD   4377,-1,-1,-1             ;ACO
  6949  035340  177777
  6950  035342  000000  177777                        .WORD   0,-1              ;RESULT
  6951  035346  007600                                .WORD   7600              ; TEST FPS
  6952  035350  007604                                .WORD   7604              ;RESULT FPS
  6953                                ;
  6954
  6955  035352  000167  000244                        JMP     @#OP21            ;GET OVER SUBROUTINE
  6956                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
  6957                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
  6958                                ;STCDI, STCDL, STCFI, STCFL
  6959                                ;
  6960                                ;               ACO
  6961                                ;               RESULT
  6962                                ;               FPS BEFORE EXECUTION
  6963                                ;               FPS AFTER EXECUTION
  6964                                ;               (FEC)
  6965                                ;
  6966                                ;TRAP ON CONVERSION FAILURE
  6967                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
  6968                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
  6969                                ;
  6970  035356  012602                SCDSUB: MOV     (SP)+,R2                  ; RETURN ADDRESS TO USE AS POINTER
  6971  035360  012737  035452  000244        MOV     #50$,@#FPVEC              ;REDIRECT TRAP VECTOR
  6972  035366  012701  001130                MOV     #RECDST+2,R1              ;POINT TO RESULT AREA
  6973  035372  012711  177777                MOV     #-1,(R1)                  ;PRELOAD RECEIVE DATA BUFFER
  6974  035376  012741  177777                MOV     #-1,-(R1)                 ;
  6975  035402  012700  000200                MOV     #200,R0                   ;SET FPS TO DOUBLE
  6976  035406  170100                        LDFPS   R0                        ;
  6977  035410  010204                        MOV     R2,R4                     ;POINT TO ACO DATA
  6978  035412  172414                        LDD     (R4),AC0                          ;LOAD AC0
  6979  035414  016200  000014                MOV     14(R2),R0                 ;GET TEST FPS
  6980  035420  170100                        LDFPS   R0                        ;LOAD TEST FPS
  6981                                ;
  6982  035422  175411                40$:    STCDI   AC0,(R1)                  ;*TEST INSTRUCTION(ACCORDING TO MODE)
  6983  035424  170327                1$:     STST    (PC)+                     ;WAIT FOR POSSIBLE FPA TRAP.
  6984  035426  000000                        .WORD   0                         ;STORE STATUS HERE.
  6985                                ;
  6986                                ;
  6987                                ;INSTRUCTION DIDNT TRAP
  6988  035430  032737  000001  001042        BIT     #1,@#FLAG                         ;VERIFY A NO TRAP CONDITION
  6989  035436  001424                        BEQ     2$                        ;BRANCH IF GOOD
  6990  035440  104000                        ERROR                             ;ALL ERRORS TO TRAP TO EMT VECTOR
```

```
6991  035442  000503                        .WORD   503                     ;UNIQUE ERROR NUMBER
6992  035444  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6993                                                                  ;INSTRUCTION SHOULD HAVE TRAPPED
6994  035446  000167  000042                JMP     2$                      ;REJOIN CODE
6995                            ;
6996                            ;INSTRUCTION TRAPPED
6997  035452  032737  000001  001042  50$:   BIT     #1,@#FLAG               ;SEE IF EXPECTING A TRAP
6998  035460  001005                        BNE     51$                     ;BRANCH IF EXPECTING A TRAP
6999  035462  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
7000  035464  000504                        .WORD   504                     ;UNIQUE ERROR NUMBER
7001  035466  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
7002                                                                  ;INSTRUCTION WASNT SUPPOSE TO TRAP
7003  035470  000167  000020                JMP     2$                      ;REJOIN CODE
7004  035474  012604                51$:    MOV     (SP)+,R4                ;SEE IF PC = INSTRUCTION
7005  035476  005726                        TST     (SP)+                   ;CLEAN UP STACK
7006  035500  022704  035424                CMP     #1$,R4                  ;
7007  035504  001403                        BEQ     2$                      ;BRANCH IF GOOD COMPARE
7008  035506  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
7009  035510  000505                        .WORD   505                     ;UNIQUE ERROR NUMBER
7010  035512  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
7011                                                                  ;PC WAS INCORRECT
7012                            ;
7013                            ;COMMON CODE FOR TRAP AND NO TRAP
7014                            ;VERIFY STATUS
7015  035514  170203            2$:     STFPS   R3                      ;SAVE FPS
7016  035516  016200  000016                MOV     16(R2),R0                       ;GET EXPECTED STATUS
7017  035522  020003                        CMP     R0,R3                   ;VERIFY STATUS
7018  035524  001403                        BEQ     3$                      ;BRANCH IF GOOD
7019  035526  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
7020  035530  000506                        .WORD   506                     ;UNIQUE ERROR NUMBER
7021  035532  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
7022                                                                  ;BAD FPS
7023  035534  010204            3$:     MOV     R2,R4                   ;POINT TO EXPECTED DATA
7024  035536  062704  000010                ADD     #10,R4
7025  035542  004767  144362    4$:     JSR     R7,DATVFR                       ;VERIFY DATA
7026  035546  005767  143266                TST     COUNT
7027  035552  001403                        BEQ     5$                      ;BRANCH IF GOOD
7028  035554  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
7029  035556  000507                        .WORD   507                     ;UNIQUE ERROR NUMBER
7030  035560  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
7031                                                                  ;BAD ACO
7032  035562  005737  001042    5$:     TST     @#FLAG                  ;SEE IF NEED TO CHECK FEC
7033  035566  001002                        BNE     7$                      ;BRANCH IF NEED TO CHECK
7034  035570  000162  000020                JMP     20(R2)                  ;RETURN FROM TEST
7035                            ;VERIFY FEC
7036  035574  012704  001106    7$:     MOV     #RECFEC,R4              ;POINT TO FEC AREA
7037  035600  170314                        STST    (R4)                    ;SAVE FEC
7038  035602  021427  000006                CMP     (R4),#6                 ;VERIFY FEC FOR OVERFLOW
7039  035606  001403                        BEQ     8$                      ;BRANCH IF GOOD
7040  035610  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
7041  035612  000510                        .WORD   510                     ;UNIQUE ERROR NUMBER
7042  035614  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
7043                                                                  ;BAD FEC
7044  035616  000162  000020    8$:     JMP     20(R2)                  ;RETURN FROM TEST
7045                            ;
7046  035622                    HOP21:
```

```
7047
7048  035622                                MSCF:
7049                                        ;;*****************************************************************
7050                                        ;*TEST 110       TEST STCFI, STCFL
7051                                        ;;*****************************************************************
7052  035622                                TST110:
7053  035622  005267  143156                       INC     $TESTN                  ;INCREMENT TEST NUMBER
7054                                        ;1/LONG EXP +30
7055  035626  005037  001042                       CLR     @#FLAG          ;NO INTERRUPTS
7056  035632  004767  177520                       JSR     R7,SCDSUB               ;DO TEST
7057  035636  044541  052525  177777              .WORD   44541,52525,-1,-1               ;ACO
7058  035644  177777
7059  035646  000003  102525                       .WORD   3,102525                ;RESULT
7060  035652  007517                              .WORD   7517            ; TEST FPS
7061  035654  00750C                              .WORD   7500            ;RESULT FPS
7062                                        ;2/INT, EXP<0
7063  035656  005037  001042                       CLR     @#FLAG          ;NO INTERRUPTS
7064  035662  004767  177470                       JSR     R7,SCDSUB               ;DO TEST
7065  035666  002300  177777  177777              .WORD   2300,-1,-1,-1           ;ACO
7066  035674  177777
7067  035676  000000  177777                       .WORD   0,-1            ;RESULT
7068  035702  007400                              .WORD   7400            ; TEST FPS
7069  035704  007404                              .WORD   7404            ;RESULT FPS
7070                                        ;3/LONG, EXP>>2**32
7071  035706  012737  000001  001042              MOV     #1,@#FLAG               ;INTERRUPT
7072  035714  004767  177436                       JSR     R7,SCDSUB               ;DO TEST
7073  035720  070000  177777  177777              .WORD   70000,-1,-1,-1          ;ACO
7074  035726  177777
7075  035730  000000  000000                       .WORD   0,0             ;RESULT
7076  035734  007540                              .WORD   7540            ; TEST FPS
7077  035736  107545                              .WORD   107545          ;RESULT FPS
7078                                        ;4/INT,EXP=5, FIC=0, FID=1
7079  035740  005037  001042                       CLR     @#FLAG          ;NO INTERRUPTS
7080  035744  004767  177406                       JSR     R7,SCDSUB               ;DO TEST
7081  035750  052000  000000  177777              .WORD   52000,0,-1,-1           ;ACO
7082  035756  177777
7083  035760  000000  177777                       .WORD   0,-1            ;RESULT
7084  035764  047C00                              .WORD   47000           ; TEST FPS
7085  035766  047005                              .WORD   47005           ;RESULT FPS
7086                                        ;
7087
7088
7089  035770                                MSXP:
7090                                        ;;*****************************************************************
7091                                        ;*TEST 111       TEST STEXP
7092                                        ;;*****************************************************************
7093  035770                                TST111:
7094  035770  005267  143010                       INC     $TESTN                  ;INCREMENT TEST NUMBER
7095                                        ;1/EXP=100
7096  035774  004767  000154                       JSR     R7,SXPSUB               ;DO TEST
7097  036000  020000  000000  000000              .WORD   20000,0,0,0             ;ACO
7098  036006  000000
7099  036010  177700                              .WORD   -100            ;RESULT
7100  036012  007740                              .WORD   7740            ; TEST FPS
7101  036014  007750                              .WORD   7750            ;RESULT FPS
7102                                        ;2/EXP=201 FLOAT, NEG
```

```
036016  004767  000132                    JSR     R7,SXPSUB               ;DO TEST
036022  140377  177777  177777            .WORD   140377,-1,-1,0          ;ACO
036030  000000
036032  000001                            .WORD   1               ;RESULT
036034  007500                            .WORD   7500            ; TEST FPS
036036  007500                            .WORD   7500            ;RESULT FPS
                                  ;3/EXP=-177
036040  004767  000110                    JSR     R7,SXPSUB               ;DO TEST
036044  000177  177777  177777            .WORD   177,-1,-1,-1            ;ACO
036052  177777
036054  177600                            .WORD   177600          ;RESULT
036056  007700                            .WORD   7700            ; TEST FPS
036060  007710                            .WORD   7710            ;RESULT FPS
                                  ;4/EXP=-100
036062  004767  000066                    JSR     R7,SXPSUB               ;DO TEST
036066  020000  000000  177777            .WORD   20000,0,-1,-1           ;ACO
036074  177777
036076  177700                            .WORD   -100            ;RESULT
036100  040200                            .WORD   40200           ; TEST FPS
036102  040210                            .WORD   40210           ;RESULT FPS
                                  ;5/EXP=200
036104  004767  000044                    JSR     R7,SXPSUB               ;DO TEST
036110  040000  000000  000000            .WORD   40000,0,0,0             ;ACO
036116  000000
036120  000000                            .WORD   0               ;RESULT
036122  007700                            .WORD   7700            ; TEST FPS
036124  007704                            .WORD   7704    ;RESULT FPS
                                  ;6/EXP=0
036126  004767  000022                    JSR     R7,SXPSUB               ;DO TEST
036132  000177  177777  177777            .WORD   177,-1,-1,-1            ;ACO
036140  177777
036142  177600                            .WORD   177600          ;RESULT
036144  000000                            .WORD   0               ; TEST FPS
036146  000010                            .WORD   10              ;RESULT FPS
                                  ;

036150  000167  000120                    JMP     HOP22           ;GET OVER SUBROUTINE
                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                  ;STEXP
                                  ;               ACO
                                  ;               EXPONENT RESULT
                                  ;               FPS BEFORE EXECUTION
                                  ;               FPS AFTER EXECUTION
                                  ;
                                  ;NO TRAPS CAN OCCUR
                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                  ;
036154  012602                    SXPSUB: MOV     (SP)+,R2                ; RETURN ADDRESS TO USE AS POINTER
036156  012737  036256  000244            MOV     #50$,@#FPVEC            ;REDIRECT TRAP VECTOR
036164  012701  001126                    MOV     #RECDST,R1              ;POINT TO RESULT AREA
036170  012700  000200                    MOV     #200,R0                 ;SET FPS TO DOUBLE
036174  170100                            LDFPS   R0                      ;
036176  010204                            MOV     R2,R4                   ;POINT TO ACO DATA
036200  172414                            LDD     (R4),ACO                        ;LOAD ACO
```

```
7159  036202  016200  000012          MOV     12(R2),R0               ;GET TEST FPS
7160  036206  170100                  LDFPS   R0                      ;LOAD TEST FPS
7161                                  ;
7162  036210  175011                  40$:    STEXP   AC0,(R1)        ;*TEST INSTRUCTION(ACCORDING TO MODE)
7163                                  ;
7164                                  ;VERIFY STATUS
7165  036212  170203                  2$:     STFPS   R3              ;SAVE FPS
7166  036214  016200  000014          MOV     14(R2),R0                       ;GET EXPECTED STATUS
7167  036220  020003                  CMP     R0,R3                   ;VERIFY STATUS
7168  036222  001403                  BEQ     3$                      ;BRANCH IF GOOD
7169  036224  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
7170  036226  000511                  .WORD   511                     ;UNIQUE ERROR NUMBER
7171  036230  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
7172                                                          ;BAD FPS
7173  036232  016204  000010          3$:     MOV     10(R2),R4       ;POINT TO EXPECTED EXPONENT
7174  036236  020437  001126          CMP     R4,@#RECDST             ;VERIFY EXPONENT
7175  036242  001403                  BEQ     5$                      ;BRANCH IF GOOD
7176  036244  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
7177  036246  000512                  .WORD   512                     ;UNIQUE ERROR NUMBER
7178  036250  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
7179                                                          ;BAD AC0
7180  036252  000162  000016          5$:     JMP     16(R2)          ;RETURN FROM TEST
7181                                  ;
7182                                  ;INSTRUCTION TRAPPED
7183  036256  012600                  50$:    MOV     (SP)+,R0        ;SAVE PC
7184  036260  012605                  MOV     (SP)+,R5                ;SAVE OLD PS
7185  036262  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
7186  036264  000513                  .WORD   513                     ;UNIQUE ERROR NUMBER
7187  036266  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
7188                                                          ;WILD TRAP DURING STEXP
7189  036270  000167  177756          JMP     5$                      ;REJOIN CODE
7190                                  ;
7191
7192  036274                          HOP22:
7193
7194
```

```
7195                                    .MCALL  IDMSG,ENDPAS
7196                                    .SBTTL  END OF PASS ROUTINE
7197
7198                                    ;;**********************************************************************
7199                                    ;*INCREMENT THE PASS NUMBER ($PASS)
7200                                    ;*INDICATE END-OF-PROGRAM AFTER 1 PASSES THRU THE PROGRAM
7201                                    ;*IF THERES A MONITOR GO TO IT
7202                                    ;*IF THERE ISN'T JUMP TO RESTART
7203
7204  036274                            $EOP:
7205  036274  005767  142506                   TST     $PASS                   ;ONLY TYPE MESSAGE AT END OF FIRST PASS
7206  036300  001002                           BNE     SKIPID                  ;IF >0 THEN SKIP THE ID MESSAGE
7207  036302  104401  036402                   TYPE    ,MSG1                   ;ELSE TYPE THE ID MESSAGE
7208  036306                            SKIPID:
7209  036306  005267  142474                   INC     $PASS           ;;INCREMENT THE PASS NUMBER
7210  036312  042767  100000  142466           BIC     #100000,$PASS   ;;DON'T ALLOW A NEG. NUMBER
7211  036320  005327                           DEC     (PC)+           ;;LOOP?
7212  036322  000001                    $EOPCT: .WORD   1
7213  036324  003022                           BGT     $DOAGN          ;;YES
7214  036326  012737                           MOV     (PC)+,@(PC)+    ;;RESTORE COUNTER
7215  036330  000001                    $ENDCT: .WORD   1
7216  036332  036322                           $EOPCT
7217  036334  104401  036456                   TYPE    ,MSG2
7218  036340  016746  142442                   MOV     $PASS,-(SP)     ;;SAVE $PASS FOR TYPEOUT
7219  036344  104405                           TYPDS                   ;;GO TYPE--DECIMAL ASCII WITH SIGN
7220  036346  104401  036376                   TYPE    ,$ENULL
7221  036352  013700  000042            $GET42: MOV     @#42,R0         ;;GET MONITOR ADDRESS
7222  036356  001405                           BEQ     $DOAGN          ;;BRANCH IF NO MONITOR
7223  036360  000005                           RESET                   ;;CLEAR THE WORLD
7224  036362  004710                    $ENDAD: JSR     PC,(R0)         ;;GO TO MONITOR
7225  036364  000240                           NOP                     ;;SAVE ROOM
7226  036366  000240                           NOP                     ;;FOR
7227  036370  000240                           NOP                     ;;ACT11
7228  036372                            $DOAGN:
7229  036372  000137                           JMP     @(PC)+          ;;RETURN
7230  036374  002410                    $RTNAD: .WORD   RESTART
7231  036376     377     377     000    $ENULL: .BYTE   -1,-1,0         ;;NULL CHARACTER STRING
7232             036402                        .EVEN
7233  036402  005015  055103  042113    MSG1:   .ASCIZ  <CR><LF>/CZKDL-B-0 KDJ11 FLOATING POINT DIAGNOSTIC/
7234  036410  026514  026502  020060
7235  036416  042113  030512  020061
7236  036424  046106  040517  044524
7237  036432  043516  050040  044517
7238  036440  052116  042040  040511
7239  036446  047107  051517  044524
7240  036454  000103
7241  036456  005015  055103  042113    MSG2:   .ASCIZ  <CR><LF>/CZKDLB END PASS #/
7242  036464  041114  042440  042116
7243  036472  050040  051501  020123
7244  036500  000043
7245                                    .EVEN
7246                                    .SBTTL  TYPE ROUTINE
7247
7248                                    ;;**********************************************************************
7249                                    ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
7250                                    ;*THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
```

```
7251                                    ;*NOTE1:        $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
7252                                    ;*NOTE2:        $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
7253                                    ;*NOTE3:        $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
7254                                    ;*
7255                                    ;*CALL:
7256                                    ;*1) USING A TRAP INSTRUCTION
7257                                    ;*      TYPE    ,MESADR         ;;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
7258                                    ;*OR
7259                                    ;*      TYPE
7260                                    ;*      MESADR
7261                                    ;*
7262
7263  036502  105767  000343           $TYPE:  TSTB    $TPFLG          ;;IS THERE A TERMINAL?
7264  036506  100002                           BPL     1$              ;;BR IF YES
7265  036510  000000                           HALT                    ;;HALT HERE IF NO TERMINAL
7266  036512  000430                           BR      3$              ;;LEAVE
7267  036514  010046                   1$:     MOV     R0,-(SP)        ;;SAVE R0
7268  036516  017600  000002                   MOV     @2(SP),R0       ;;GET ADDRESS OF ASCIZ STRING
7269  036522  122767  000001  142270         CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
7270  036530  001011                           BNE     62$             ;;NO,GO CHECK FOR APT CONSOLE
7271  036532  132767  000100  142261         BITB    #APTSPOOL,$ENVM ;;SPOOL MESSAGE TO APT
7272  036540  001405                           BEQ     62$             ;;NO,GO CHECK FOR CONSOLE
7273  036542  010067  000004                   MOV     R0,61$          ;;SETUP MESSAGE ADDRESS FOR APT
7274  036546  004767  001034                   JSR     PC,$ATY3        ;;SPOOL MESSAGE TO APT
7275  036552  000000                   61$:    .WORD   0               ;;MESSAGE ADDRESS
7276  036554  132767  000040  142237   62$:    BITB    #APTCSUP,$ENVM  ;;APT CONSOLE SUPPRESSED
7277  036562  001003                           BNE     60$             ;;YES,SKIP TYPE OUT
7278  036564  112046                   2$:     MOVB    (R0)+,-(SP)     ;;PUSH CHARACTER TO BE TYPED ONTO STACK
7279  036566  001005                           BNE     4$              ;;BR IF IT ISN'T THE TERMINATOR
7280  036570  005726                           TST     (SP)+           ;;IF TERMINATOR POP IT OFF THE STACK
7281  036572  012600                   60$:    MOV     (SP)+,R0        ;;RESTORE R0
7282  036574  062716  000002           3$:     ADD     #2,(SP)         ;;ADJUST RETURN PC
7283  036600  000002                           RTI                     ;;RETURN
7284  036602  122716  000011           4$:     CMPB    #HT,(SP)        ;;BRANCH IF <HT>
7285  036606  001430                           BEQ     8$
7286  036610  122716  000200                   CMPB    #CRLF,(SP)      ;;BRANCH IF NOT <CRLF>
7287  036614  001006                           BNE     5$
7288  036616  005726                           TST     (SP)+           ;;POP  <CR><LF> EQUIV
7289  036620  104401                           TYPE                    ;;TYPE A CR AND LF
7290  036622  002077                           $CRLF
7291  036624  105067  000202                   CLRB    $CHARCNT        ;;CLEAR CHARACTER COUNT
7292  036630  000755                           BR      2$              ;;GET NEXT CHARACTER
7293  036632  004767  000056           5$:     JSR     PC,$TYPEC       ;;GO TYPE THIS CHARACTER
7294  036636  126726  000206           6$:     CMPB    $FILLC,(SP)+    ;;IS IT TIME FOR FILLER CHARS.?
7295  036642  001350                           BNE     2$              ;;IF NO GO GET NEXT CHAR.
7296  036644  016746  000176                   MOV     $NULL,-(SP)     ;;GET # OF FILLER CHARS. NEEDED
7297                                                                   ;;AND THE NULL CHAR.
7298  036650  105366  000001           7$:     DECB    1(SP)           ;;DOES A NULL NEED TO BE TYPED?
7299  036654  002770                           BLT     6$              ;;BR IF NO--GO POP THE NULL OFF OF STACK
7300  036656  004767  000032                   JSR     PC,$TYPEC       ;;GO TYPE A NULL
7301  036662  105367  000144                   DECB    $CHARCNT        ;;DO NOT COUNT AS A COUNT
7302  036666  000770                           BR      7$              ;;LOOP
7303
7304                                    ;HORIZONTAL TAB PROCESSOR
7305
7306  036670  112716  000040           8$:     MOVB    #' ,(SP)        ;;REPLACE TAB WITH SPACE
```

```
7307  036674  004767  000014          9$:     JSR     PC,$TYPEC       ;;TYPE A SPACE
7308  036700  132767  000007  000124          BITB    #7,$CHARCNT     ;;BRANCH IF NOT AT
7309  036706  001372                          BNE     9$              ;;TAB STOP
7310  036710  005726                          TST     (SP)+           ;;POP SPACE OFF STACK
7311  036712  000724                          BR      2$              ;;GET NEXT CHARACTER
7312  036714                          $TYPEC:
7313  036714  105777  000116                  TSTB    @$TKS           ;;CHAR IN KYBD BUFFER?          ;MJD001
7314  036720  100022                          BPL     10$             ;;BR IF NOT                     ;MJD001
7315  036722  017746  000112                  MOV     @$TKB,-(SP)     ;;GET CHAR                      ;MJD001
7316  036726  042716  177600                  BIC     #177600,(SP)    ;;STRIP EXTRANEOUS BITS         ;MJD001
7317  036732  122716  000023                  CMPB    #$XOFF,(SP)     ;;WAS CHAR XOFF                 ;MJD001
7318  036736  001012                          BNE     102$            ;;BR IF NOT                     ;MJD001
7319  036740                          101$:                                                           ;MJD001
7320  036740  105777  000072                  TSTB    @$TKS           ;;WAIT FOR CHAR                 ;MJD001
7321  036744  100375                          BPL     101$                                            ;MJD001
7322  036746  117716  000066                  MOVB    @$TKB,(SP)      ;;GET CHAR                      ;MJD001
7323  036752  042716  177600                  BIC     #177600,(SP)    ;;STRIP IT                      ;MJD001
7324  036756  122716  000021                  CMPB    #$XON,(SP)      ;;WAS IT XON?                   ;MJD001
7325  036762  001366                          BNE     101$            ;;BR IF NOT                     ;MJD001
7326  036764                          102$:                                                           ;MJD001
7327  036764  005726                          TST     (SP)+           ;;FIX STACK                     ;MJD001
7328  036766                          10$:                                                            ;MJD001
7329  036766  105777  000050                  TSTB    @$TPS           ;;WAIT UNTIL PRINTER IS READY
7330  036772  100375                          BPL     10$                                             ;MJD001
7331  036774  116677  000002  000042          MOVB    2(SP),@$TPB     ;;LOAD CHAR TO BE TYPED INTO DATA REG.
7332  037002  122766  000015  000002          CMPB    #CR,2(SP)       ;;IS CHARACTER A CARRIAGE RETURN?
7333  037010  001003                          BNE     1$              ;;BRANCH IF NO
7334  037012  105067  000014                  CLRB    $CHARCNT        ;;YES--CLEAR CHARACTER COUNT
7335  037016  000406                          BR      $TYPEX          ;;EXIT
7336  037020  122766  000012  000002  1$:     CMPB    #LF,2(SP)       ;;IS CHARACTER A LINE FEED?
7337  037026  001402                          BEQ     $TYPEX          ;;BRANCH IF YES
7338  037030  105227                          INCB    (PC)+           ;;COUNT THE CHARACTER
7339  037032  000000                  $CHARCNT:.WORD  0               ;;CHARACTER COUNT STORAGE
7340  037034  000207                  $TYPEX: RTS     PC
7341
7342  037036  177560                  $TKS:   .WORD   177560          ;;TTY KDB STATUS                ;MJD001
7343  037040  177562                  $TKB:   .WORD   177562          ;;TTY KBD BUFFER                ;MJD001
7344  037042  177564                  $TPS:   .WORD   177564          ;;TTY PRINTER STATUS REG. ADDRESS
7345  037044  177566                  $TPB:   .WORD   177566          ;;TTY PRINTER BUFFER REG. ADDRESS
7346  037046     000                  $NULL:  .BYTE   0               ;;CONTAINS NULL CHARACTER FOR FILLS
7347  037047     002                  $FILLS: .BYTE   2               ;;CONTAINS # OF FILLER CHARACTERS REQUIRED
7348  037050     012                  $FILLC: .BYTE   12              ;;INSERT FILL CHARS. AFTER A "LINE FEED"
7349  037051     000                  $TPFLG: .BYTE   0               ;;"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
7350  037052     077                  $QUES:  .ASCII  "?"             ;;QUESTION MARK
7351  037053     012      000         $LF:    .ASCIZ  <12>            ;;LINEFEED
7352             037056                  .EVEN
7353                                  .SBTTL  CONVERT BINARY TO DECIMAL AND TYPE ROUTINE
7354
7355                                  ;;*****************************************************************
7356                                  ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 5-DIGIT
7357                                  ;*SIGNED DECIMAL (ASCII) NUMBER AND TYPE IT. DEPENDING ON WHETHER THE
7358                                  ;*NUMBER IS POSITIVE OR NEGATIVE A SPACE OR A MINUS SIGN WILL BE TYPED
7359                                  ;*BEFORE THE FIRST DIGIT OF THE NUMBER. LEADING ZEROS WILL ALWAYS BE
7360                                  ;*REPLACED WITH SPACES.
7361                                  ;*CALL:
7362                                  ;*      MOV     NUM,-(SP)       ;;PUT THE BINARY NUMBER ON THE STACK
```

```
                                        ;*      TYPDS                   ;;GO TO THE ROUTINE
                                        ;
037056                                  $TYPDS:
037056  010046                                 MOV     R0,-(SP)        ;;PUSH R0 ON STACK
037060  010146                                 MOV     R1,-(SP)        ;;PUSH R1 ON STACK
037062  010246                                 MOV     R2,-(SP)        ;;PUSH R2 ON STACK
037064  010346                                 MOV     R3,-(SP)        ;;PUSH R3 ON STACK
037066  010546                                 MOV     R5,-(SP)        ;;PUSH R5 ON STACK
037070  012746  020200                        MOV     #20200,-(SP)    ;;SET BLANK SWITCH AND SIGN
037074  016605  000020                        MOV     20(SP),R5       ;;GET THE INPUT NUMBER
037100  100004                               BPL     1$              ;;BR IF INPUT IS POS.
037102  005405                               NEG     R5              ;;MAKE THE BINARY NUMBER POS.
037104  112766  000055  000001               MOVB    #'-,1(SP)       ;;MAKE THE ASCII NUMBER NEG.
037112  005000                         1$:   CLR     R0              ;;ZERO THE CONSTANTS INDEX
037114  012703  037272                        MOV     #$DBLK,R3       ;;SETUP THE OUTPUT POINTER
037120  112723  000040                        MOVB    #' ,(R3)+       ;;SET THE FIRST CHARACTER TO A BLANK
037124  005002                         2$:   CLR     R2              ;;CLEAR THE BCD NUMBER
037126  016001  037262                        MOV     $DTBL(R0),R1    ;;GET THE CONSTANT
037132  160105                         3$:   SUB     R1,R5           ;;FORM THIS BCD DIGIT
037134  002402                               BLT     4$              ;;BR IF DONE
037136  005202                               INC     R2              ;;INCREASE THE BCD DIGIT BY 1
037140  000774                               BR      3$
037142  060105                         4$:   ADD     R1,R5           ;;ADD BACK THE CONSTANT
037144  005702                               TST     R2              ;;CHECK IF BCD DIGIT=0
037146  001002                               BNE     5$              ;;FALL THROUGH IF 0
037150  105716                               TSTB    (SP)            ;;STILL DOING LEADING 0 S?
037152  100407                               BMI     7$              ;;BR IF YES
037154  106316                         5$:   ASLB    (SP)            ;;MSD?
037156  103003                               BCC     6$              ;;BR IF NO
037160  116663  000001  177777               MOVB    1(SP),-1(R3)    ;;YES--SET THE SIGN
037166  052702  000060                  6$:   BIS     #'0,R2          ;;MAKE THE BCD DIGIT ASCII
037172  052702  000040                  7$:   BIS     #' ,R2          ;;MAKE IT A SPACE IF NOT ALREADY A DIGIT
037176  110223                               MOVB    R2,(R3)+        ;;PUT THIS CHARACTER IN THE OUTPUT BUFFER
037200  005720                               TST     (R0)+           ;;JUST INCREMENTING
037202  020027  000010                        CMP     R0,#10          ;;CHECK THE TABLE INDEX
037206  002746                               BLT     2$              ;;GO DO THE NEXT DIGIT
037210  003002                               BGT     8$              ;;GO TO EXIT
037212  010502                               MOV     R5,R2           ;;GET THE LSD
037214  000764                               BR      6$              ;;GO CHANGE TO ASCII
037216  105726                         8$:   TSTB    (SP)+           ;;WAS THE LSD THE FIRST NON-ZERO?
037220  100003                               BPL     9$              ;;BR IF NO
037222  116663  177777  177776               MOVB    -1(SP),-2(R3)   ;;YES--SET THE SIGN FOR TYPING
037230  105013                         9$:   CLRB    (R3)            ;;SET THE TERMINATOR
037232  012605                               MOV     (SP)+,R5        ;;POP STACK INTO R5
037234  012603                               MOV     (SP)+,R3        ;;POP STACK INTO R3
037236  012602                               MOV     (SP)+,R2        ;;POP STACK INTO R2
037240  012601                               MOV     (SP)+,R1        ;;POP STACK INTO R1
037242  012600                               MOV     (SP)+,R0        ;;POP STACK INTO R0
037244  104401  037272                        TYPE    ,$DBLK          ;;NOW TYPE THE NUMBER
037250  016666  000002  000004               MOV     2(SP),4(SP)     ;;ADJUST THE STACK
037256  012616                               MOV     (SP)+,(SP)
037260  000002                               RTI                     ;;RETURN TO USER
037262  023420                         $DTBL:10000.
037264  001750                               1000.
037266  000144                               100.
037270  000012                               10.
```

```
7475  037442  001403                        BEQ     5$              ;;BR IF YES
7476  037444  005204                4$:     INC     R4              ;;DON'T SUPPRESS ANYMORE 0'S
7477  037446  052703  000060                BIS     #'0,R3          ;;MAKE THIS DIGIT ASCII
7478  037452  052703  000040        5$:     BIS     #' ,R3          ;;MAKE ASCII IF NOT ALREADY
7479  037456  110367  000040                MOVB    R3,8$           ;;SAVE FOR TYPING
7480  037462  104401  037522                TYPE    ,8$             ;;GO TYPE THIS DIGIT
7481  037466  105367  000032        7$:     DECB    $OCNT           ;;COUNT BY 1
7482  037472  003347                        BGT     2$              ;;BR IF MORE TO DO
7483  037474  002402                        BLT     6$              ;;BR IF DONE
7484  037476  005204                        INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
7485  037500  000744                        BR      2$              ;;GO DO THE LAST DIGIT
7486  037502  012605                6$:     MOV     (SP)+,R5        ;;RESTORE R5
7487  037504  012604                        MOV     (SP)+,R4        ;;RESTORE R4
7488  037506  012603                        MOV     (SP)+,R3        ;;RESTORE R3
7489  037510  016666  000002  000004        MOV     2(SP),4(SP)     ;;SET THE STACK FOR RETURNING
7490  037516  012616                        MOV     (SP)+,(SP)
7491  037520  000002                        RTI                     ;;RETURN
7492  037522     000                8$:     .BYTE   0               ;;STORAGE FOR ASCII DIGIT
7493  037523     000                        .BYTE   0               ;;TERMINATOR FOR TYPE ROUTINE
7494  037524     000                $OCNT:  .BYTE   0               ;;OCTAL DIGIT COUNTER
7495  037525     000                $OFILL: .BYTE   0               ;;ZERO FILL SWITCH
7496  037526  000000                $OMODE: .WORD   0               ;;NUMBER OF DIGITS TO TYPE
7497                                .SBTTL  TRAP DECODER
7498
7499                                ;;*************************************************************
7500                                ;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE "TRAP" INSTRUCTION
7501                                ;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
7502                                ;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
7503                                ;*GO TO THAT ROUTINE.
7504
7505  037530  010046                $TRAP:  MOV     R0,-(SP)        ;;SAVE R0
7506  037532  016600  000002                MOV     2(SP),R0        ;;GET TRAP ADDRESS
7507  037536  005740                        TST     -(R0)           ;;BACKUP BY 2
7508  037540  111000                        MOVB    (R0),R0         ;;GET RIGHT BYTE OF TRAP
7509  037542  006300                        ASL     R0              ;;POSITION FOR INDEXING
7510  037544  016000  037564                MOV     $TRPAD(R0),R0   ;;INDEX TO TABLE
7511  037550  000200                        RTS     R0              ;;GO TO ROUTINE
7512
7513
7514                                ;;THIS IS USE TO HANDLE THE "GETPRI" MACRO
7515
7516  037552  011646                $TRAP2: MOV     (SP),-(SP)      ;;MOVE THE PC DOWN
7517  037554  016666  000004  000002        MOV     4(SP),2(SP)     ;;MOVE THE PSW DOWN
7518  037562  000002                        RTI                     ;;RESTORE THE PSW
7519
7520                                .MACRO  SETTRAP A,B,MSG
7521                                        $$SET   A,B,\<TRAP+$TRP>,\$TRP,<MSG>
7522                                .NLIST
7523                                $TRP=$TRP+1
7524                                .LIST
7525                                .ENDM   SETTRAP
7526                                .MACRO  $$SET   A,B,C,D,COMNT
7527                                .IF EQ $TRP-1
7528                                .SBTTL  TRAP TABLE
7529
7530                                ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
```

```
7531                                    ;*BY THE "TRAP" INSTRUCTION.
7532
7533                                    ;       ROUTINE
7534                                    ;       -------
7535                                    $TRPAD: .WORD   $TRAP2
7536                                    .ENDC
7537                                    .IIF NDF GNS,.NLIST
7538                                            A=      C
7539                                    .IIF NDF GNS,.LIST
7540                                            B       ;;CALL=A        TRAP+D(C)       COMNT
7541                                    .ENDM   $$SET
7542                                    .MACRO  TRMTRP
7543                                    $TERM=.-$TRPAD
7544                                    .ENDM   TRMTRP
7545                                    .SBTTL  TRAP TABLE
7546
7547                                    ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
7548                                    ;*BY THE "TRAP" INSTRUCTION.
7549
7550                                    ;       ROUTINE
7551                                    ;       -------
7552  037564  037552                    $TRPAD: .WORD   $TRAP2
7553  037566  036502                            $TYPE   ;;CALL=TYPE     TRAP+1(104401)  TTY TYPEOUT ROUTINE
7554  037570  037326                            $TYPOC  ;;CALL=TYPOC    TRAP+2(104402)  TYPE OCTAL NUMBER (WITH LEADING ZEROS)
7555  037572  037302                            $TYPOS  ;;CALL=TYPOS    TRAP+3(104403)  TYPE OCTAL NUMBER (NO LEADING ZEROS)
7556  037574  037342                            $TYPON  ;;CALL=TYPON    TRAP+4(104404)  TYPE OCTAL NUMBER (AS PER LAST CALL)
7557  037576  037056                            $TYPDS  ;;CALL=TYPDS    TRAP+5(104405)  TYPE DECIMAL NUMBER (WITH SIGN)
7558
7559
7560                                    .SBTTL  APT COMMUNICATIONS ROUTINE
7561
7562                                    ;;**************************************************************************
7563  037600  112767  000001  000236  $ATY1:  MOVB    #1,$FFLG        ;;TO REPORT FATAL ERROR
7564  037606  112767  000001  000226  $ATY3:  MOVB    #1,$MFLG        ;;TO TYPE A MESSAGE
7565  037614  000403                            BR      $ATYC
7566  037616  112767  000001  000220  $ATY4:  MOVB    #1,$FFLG        ;;TO ONLY REPORT FATAL ERROR
7567  037624                            $ATYC:
7568  037624  010046                            MOV     R0,-(SP)        ;;PUSH R0 ON STACK
7569  037626  010146                            MOV     R1,-(SP)        ;;PUSH R1 ON STACK
7570  037630  105767  000206                    TSTB    $MFLG           ;;SHOULD TYPE A MESSAGE?
7571  037634  001450                            BEQ     5$              ;;IF NOT:  BR
7572  037636  122767  000001  141154          CMPB    @APTENV,$ENV    ;;OPERATING UNDER APT?
7573  037644  001031                            BNE     3$              ;;IF NOT:  BR
7574  037646  132767  000100  141145          BITB    @APTSPOOL,$ENVM ;;SHOULD SPOOL MESSAGES?
7575  037654  001425                            BEQ     3$              ;;IF NOT:  BR
7576  037656  017600  000004                    MOV     @4(SP),R0       ;;GET MESSAGE ADDR.
7577  037662  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
7578  037670  005767  141104          1$:     TST     $MSGTYPE        ;;SEE IF DONE W/ LAST XMISSION?
7579  037674  001375                            BNE     1$              ;;IF NOT:  WAIT
7580  037676  010067  141112                    MOV     R0,$MSGAD       ;;PUT ADDR IN MAILBOX
7581  037702  105720                  2$:     TSTB    (R0)+           ;;FIND END OF MESSAGE
7582  037704  001376                            BNE     2$
7583  037706  166700  141102                    SUB     $MSGAD,R0       ;;SUB START OF MESSAGE
7584  037712  006200                            ASR     R0              ;;GET MESSAGE LNGTH IN WORDS
7585  037714  010067  141076                    MOV     R0,$MSGLGT      ;;PUT LENGTH IN MAILBOX
7586  037720  012767  000004  141052          MOV     #4,$MSGTYPE     ;;TELL APT TO TAKE MSG.
```

```
7587  037726  000413                          BR      5$
7588  037730  017667  000004  000016  3$:     MOV     @4(SP),4$       ;;PUT MSG ADDR IN JSR LINKAGE
7589  037736  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDRESS
7590  037744  016746  140026                  MOV     177776,-(SP)    ;;PUSH 177776 ON STACK
7591  037750  004767  176526                  JSR     PC,$TYPE        ;;CALL TYPE MACRO
7592  037754  000000                  4$:     .WORD   0
7593  037756                          5$:
7594  037756  105767  000062          10$:    TSTB    $FFLG           ;;SHOULD REPORT FATAL ERROR?
7595  037762  001416                          BEQ     12$             ;;IF NOT:  BR
7596  037764  005767  141030                  TST     $ENV            ;;RUNNING UNDER APT?
7597  037770  001413                          BEQ     12$             ;;IF NOT:  BR
7598  037772  005767  141002          11$:    TST     $MSGTYPE        ;;FINISHED LAST MESSAGE?
7599  037776  001375                          BNE     11$             ;;IF NOT:  WAIT
7600  040000  017667  000004  140774          MOV     @4(SP),$FATAL   ;;GET ERROR #
7601  040006  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
7602  040014  005267  140760                  INC     $MSGTYPE        ;;TELL APT TO TAKE ERROR
7603  040020  105067  000020          12$:    CLRB    $FFLG           ;;CLEAR FATAL FLAG
7604  040024  105067  000013                  CLRB    $LFLG           ;;CLEAR LOG FLAG
7605  040030  105067  000006                  CLRB    $MFLG           ;;CLEAR MESSAGE FLAG
7606  040034  012601                          MOV     (SP)+,R1        ;;POP STACK INTO R1
7607  040036  012600                          MOV     (SP)+,R0        ;;POP STACK INTO R0
7608  040040  000207                          RTS     PC              ;;RETURN
7609  040042     000          $MFLG:  .BYTE   0               ;;MESSG. FLAG
7610  040043     000          $LFLG:  .BYTE   0               ;;LOG FLAG
7611  040044     000          $FFLG:  .BYTE   0               ;;FATAL FLAG
7612          040046                  .EVEN
7613          000200          APTSIZE=200
7614          000001          APTENV=001
7615          000100          APTSPOOL=100
7616          000040          APTCSUP=040
7617                          ;;**************************************************************
7618                          ;THIS ROUTINE WILL INCREMENT THE ERROR COUNT AND THEN PASS THE UNIQUE
7619                          ;ERROR NUMBER TO THE APT ERROR ROUTINE TO BE REPORTED TO THE APT SYSTEM.
7620
7621  040046  005267  141000          $ERROR: INC     $ERFLG                  ;INCREMENT ERROR FLAG
7622  040052  001775                          BEQ     $ERROR                  ;DON'T LET IT GO TO ZERO
7623  040054  005267  140764                  INC     ERRCNT                  ; NCREMENT THE ERROR COUNT
7624  040060  021627  001002                  CMP     (SP),   #1002           ;IS ERROR FROM VECTOR AREA
7625  040064  101010                          BHI     1$                      ;IF YES THEN
7626  040066  012767  007777  000106          MOV     #7777,  3$              ;REPORT AN UNEXPECTED TRAP
7627  040074  012637  001062                  MOV     (SP)+,@#SAVSP1          ;SAVE UNEXPECTED TRAP DATA
7628  040100  012637  001064                  MOV     (SP)+,@#SAVSP2          ;AND RESTORE SP
7629  040104  000430                          BR      2$                      ;ELSE
7630  040106  017667  000000  000066  1$:     MOV     @(SP),  3$              ;REPORT UNIQUE ERROR NUMBER TO APT
7631  040114  011667  000072                  MOV     (SP),101$               ;SAVE ERROR PC
7632  040120  062716  000002                  ADD     #2,     (SP)            ;GET OVER UNIQUE ERROR NUMBER FOR RETURN
7633  040124  017637  000000  040134  100$:   MOV     @(SP),@#102$
7634  040132  104401                          TYPE                            ;TYPE ERROR MESSAGE
7635  040134  000000                  102$:   .WORD   0
7636  040136  062716  000002                  ADD     #2,(SP)                 ;GET OVER ERROR MESSAGE
7637  040142  104401  002046                  TYPE    ,ERR1                   ;
7638  040146  016746  000030                  MOV     3$,-(SP)                ;PUSH UNIQUE ERROR NUMBER ON THE STACK
7639  040152  104402                          TYPOC                           ;TYPE OCTAL ERROR NUMBER
7640  040154  104401  002062                  TYPE    ,ERR2                   ;
7641  040160  016746  000026                  MOV     101$,-(SP)              ;PUSH ERROR PC ON THE STACK
7642  040164  104402                          TYPOC                           ;TYPE THE ERROR PC
```

```
 7643  040166  122767  000001  140624  2$:     CMPB    @APTENV,$ENV        ;CHECK TO MAKE SURE WE'RE IN APT MODE
 7644  040174  001004                  BNE     5$                          ;IF YES THEN
 7645  040176  004767  177414          JSR     PC,     $ATY4               ;GO REPORT ERROR TO APT
 7646  040202  000000                  3$:     .WORD   0                   ;STORAGE FOR ERROR NUMBER
 7647  040204  000777                  4$:     BR      4$                  ;LOOP HERE AFTER REPORTING ERROR TO APT
 7648  040206  000000                  5$:     HALT                        ;IF NOT APT THEN HALT
 7649  040210  000002                          RTI                         ;ALLOW RECOVERY FROM HALT
 7650  040212  000000                  101$:   .WORD   0
 7651  040214                          $PATCH::
 7652  040214  000010                          .BLKW   10
 7653          000001                  .END
```

```
ABASE  = 000000            547
ACDW1  = 000000            547
ACDW2  = 000000            547
ACPUOP = 000000            547     562
ADDT     003556           1083    1091    1099    1107    1116    1132#
ADDW0  = 000000            547
ADDW1  = 000000            547
ADDW10 = 000000            547
ADDW11 = 000000            547
ADDW12 = 000000            547
ADDW13 = 000000            547
ADDW14 = 000000            547
ADDW15 = 000000            547
ADDW2  = 000000            547
ADDW3  = 000000            547
ADDW4  = 000000            547
ADDW5  = 000000            547
ADDW6  = 000000            547
ADDW7  = 000000            547
ADDW8  = 000000            547
ADDW9  = 000000            547
ADEVCT = 000000            547     553
ADEVM  = 000000            547
AENV   = 000000            547     558
AENVM  = 000000            547     559
AFATAL = 000000            547     550
ALLCTR   001056           5895
AMADR1 = 000000            547
AMADR2 = 000000            547
AMADR3 = 000000            547
AMADR4 = 000000            547
AMAMS1 = 000000            547
AMAMS2 = 000000            547
AMAMS3 = 000000            547
AMAMS4 = 000000            547
AMSGAD = 000000            547     555
AMSGLG = 000000            547     556
AMSGTY = 000000            547     549
AMTYP1 = 000000            547
AMTYP2 = 000000            547
AMTYP3 = 000000            547
AMTYP4 = 000000            547
APASS  = 000000            547     552
APRIOR = 000000            547
APTCSU = 000040           7276    7616#
APTENV = 000001           7269    7572    7614#   7643
APTSIZ = 000200            867    7613#
APTSPO = 000100           7271    7574    7615#
ASWREG = 000000            547     560
ATESTN = 000000            547     551
AUNIT  = 000000            547     554
AUSWR  = 002000            466#    547     561
AVECT1 = 000000            547
AVECT2 = 000000            547
BEVENT = 177546            458#
BFA      003610           1077    1085    1093    1101    1110    1119    1138#
```

```
BFAC1    003352            1078    1083#
BFAC2    003376            1086    1091#
BFAC3    003422            1094    1099#
BFAC4    003446            1102    1107#
BFAC5    003474            1111    1116#
BFAE     003650            1120    1125    1148#
BFB      003646            1139    1141    1143    1145#
BIT0   = 000001             279#
BIT00  = 000001             269#    279
BIT01  = 000002             268#    278
BIT02  = 000004             267#    277
BIT03  = 000010             266#    276
BIT04  = 000020             265#    275
BIT05  = 000040             264#    274
BIT06  = 000100             263#    273
BIT07  = 000200             262#    272
BIT08  = 000400             261#    271
BIT09  = 001000             260#    270
BIT1   = 000002             278#
BIT10  = 002000             259#
BIT11  = 004000             258#
BIT12  = 010000             257#
BIT13  = 020000             256#
BIT14  = 040000             255#
BIT15  = 100000             254#
BIT2   = 000004             277#
BIT3   = 000010             276#
BIT4   = 000020             275#
BIT5   = 000040             274#
BIT6   = 000100             273#
BIT7   = 000200             272#
BIT8   = 000400             271#
BIT9   = 001000             270#
BOARDT= 000001               1#    509     606     761
BPTVEC= 000014              286#
BTER     002650             934     936     938     941#
BTEXP    001066             596#    897     913     916     919     922     925     929     933     935     937     939     1056
                           1058*   1059*   1060*   1061*   1062    1065    1068    1070    1072    1074    1127*   1128*   1129*
                           1130*   1132*   1133*   1134*   1135*   1138    1140    1142    1144
BTGO     002450            902#    1017
BTRES    001076            597#    898     914*    917*    920*    923*    933     935     937     939     953*    962*    971*
                           980*    990*    1000*   1025    1027    1029    1031    1057    1076*   1084*   1092*   1100*   1109*
                          1118*   1138    1140    1142    1144
BTTST    003150            954     963     972     981     991     1001    1025#
BTTSTE   003176           1026    1028    1030    1032#
BT1    = ******  U          883
CACHET= 000001               1#    156     159     177     509     594     609     752     761     831     874     7194    7245
                           7497
CCR    = 177746             452#    832*    875*
CHECK7   005132            1474    1478    1486    1490    1496#
CHEC10   005366            1545    1549    1557    1561    1567#
CHEC26   010616            2321    2332    2343    2356    2367    2381#
CHEC27   011162            2441    2459    2477    2489#
CHEC30   011530            2549    2567    2585    2596#
CHEC32   012166            2701    2712    2723    2734#
CHEC33   012464            2788    2799    2810    2821#
```

```
CHEK7   005136          1497#   1503
CHK10   005404          1569    1574#
CHK7    005150          1498    1503#
CH10    005372          1568#   1574
CLRD  = ****** U        5809
CLRI  = ****** U        5840
CMPD  = ****** U        4039
CMPRTN  017730          4047    4056    4065    4073    4095#
COUNT   001040           581#    817*    822*    823*   2919    2964    3004    3040    3070    3106    3144    3175    3194
                        3211    3229    3263    3282    3313    3332    3357    3371    3403    3415    3431    3444    3476
                        3512    3550    3575    3597    3619    3651    3670    3697    3711    3742    3780    3805    3843
                        3868    3906    3938    3968    4006    4030    4122    4361    4560    4779    4987    5206    5217
                        5506    5517    5622    5762    5824    6191    6369    6498    6797    7026
CPEREG= 177766           455#
CPUTST= 000001             1#     166     509     603     756     877    7233
CR    = 000015           194#    752     756     761     763     766    7233    7241    7332    7344
CRLF  = 000200           195#   7286    7344
DATAM= 000001             1#     874
DATVER  002146           820#   2918    2963    3003    3039    3069    3105    3143    3174    3193    3210    3228    3262
                        3281    3312    3331    3356    3370    3402    3414    3430    3443    3475    3511    3549    3574
                        3596    3618    3650    3669    3696    3710    3741    3779    3804    3842    3867    3905    3937
                        3967    4005    4029    4121    4559    4986    5505    5516    5621    5823    6190    6497    6796
DATVFR  002130           815#   4360    4778    5205    5216    5761    6368    7025
DAT1    002160           818     823#    826
DCOUNT  001054           588#
DDISP = 177570           201#    585     848
DISPLA  001050           585#    848*    856*
DISPRE  000174           495#    856
DIVD  = ****** U        4381
DIVF  = ****** U        4133
DSWR  = 177570           200#    584     847
DVDSUB  022000          4389    4401    4413    4424    4435    4446    4457    4468    4480    4506#
DVFSUB  021002          4141    4151    4160    4168    4177    4185    4193    4201    4209    4217    4225    4233    4241
                        4250    4258    4267    4276    4285    4307#

D1      004236          1275#   1291    1296
D2      004250          1278*   1279#
D3      004252          1280#   1304
D4      004270          1288#   1325    1331
D5      004304          1289    1292#
D6      004314          1293    1295#
D7      004320          1294    1297#
EMTVEC= 000030           289#    836*    837*
ERR     002126           794#
ERRCNT  001044           583#   7623*
ERRFP   002124           793#
ERRMSG  001766 G         752#
ERRNUM= 000514           465#    785     788#    941     945#    956     959#    965     968#    974     977#    983     986#
                         993     996#   1003    1006#   1079    1082#   1087    1090#   1095    1098#   1103    1106#   1112
                        1115#   1121    1124#   1175    1178#   1208    1211#   1228    1231#   1236    1239#   1246    1249#
                        1254    1257#   1284    1287#   1306    1309#   1314    1317#   1326    1330#   1333    1337#   1340
                        1344#   1364    1367#   1371    1374#   1380    1384#   1404    1407#   1412    1415#   1421    1424#
                        1429    1432#   1448    1452#   1499    1502#   1506    1510#   1570    1573#   1577    1581#   1616
                        1619#   1623    1626#   1652    1655#   1658    1661#   1685    1688#   1692    1695#   1699    1702#
                        1708    1712#   1737    1740#   1745    1748#   1752    1755#   1761    1765#   1791    1794#   1798
                        1801#   1805    1808#   1813    1816#   1820    1823#   1829    1833#   1858    1861#   1865    1868#
                        1873    1876#   1880    1883#   1889    1893#   1919    1922#   1925    1928#   1932    1935#   1940
```

```
1943#  1947   1950#  1956   1960#  1985   1988#  1993   1996#  2001   2004#  2008   2011#
2017   2021#  2048   2051#  2055   2058#  2062   2065#  2069   2072#  2076   2079#  2085
2089#  2115   2118#  2123   2126#  2130   2133#  2139   2143#  2169   2172#  2176   2179#
2185   2189#  2216   2219#  2223   2226#  2229   2232#  2236   2239#  2245   2249#  2273
2276#  2281   2284#  2289   2292#  2296   2299#  2316   2319#  2327   2330#  2338   2341#
2351   2354#  2362   2365#  2372   2375#  2384   2387#  2437   2440#  2445   2448#  2454
2457#  2463   2466#  2472   2475#  2481   2484#  2493   2496#  2545   2548#  2553   2556#
2562   2565#  2571   2574#  2580   2583#  2589   2592#  2600   2603#  2650   2653#  2657
2660#  2664   2667#  2674   2678#  2705   2708#  2716   2719#  2727   2730#  2738   2741#
2792   2795#  2803   2806#  2814   2817#  2825   2828#  2871   2874#  2878   2881#  2884
2887#  2906   2909#  2912   2915#  2922   2925#  2945   2948#  2951   2954#  2957   2960#
2966   2969#  2992   2995#  2998   3001#  3006   3009#  3028   3031#  3034   3037#  3042
3045#  3063   3066#  3072   3075#  3094   3097#  3100   3103#  3108   3111#  3131   3134#
3139   3142#  3146   3149#  3168   3171#  3177   3180#  3189   3192#  3196   3199#  3205
3208#  3213   3216#  3224   3227#  3231   3234#  3257   3260#  3265   3268#  3276   3279#
3284   3287#  3308   3311#  3315   3318#  3326   3329#  3334   3337#  3359   3362#  3373
3376#  3397   3400#  3405   3408#  3417   3420#  3433   3436#  3446   3449#  3470   3473#
3478   3481#  3489   3492#  3498   3501#  3505   3508#  3514   3517#  3527   3530#  3536
3539#  3543   3546#  3552   3555#  3569   3572#  3577   3580#  3591   3594#  3599   3602#
3613   3616#  3621   3624#  3645   3648#  3653   3656#  3664   3667#  3672   3675#  3699
3702#  3713   3716#  3736   3739#  3744   3747#  3757   3760#  3766   3769#  3773   3776#
3782   3785#  3799   3802#  3807   3810#  3820   3823#  3829   3832#  3836   3839#  3845
3848#  3862   3865#  3870   3873#  3883   3886#  3894   3897#  3900   3903#  3908   3911#
3932   3935#  3940   3943#  3953   3956#  3962   3965#  3970   3973#  3984   3987#  4000
4003#  4008   4011#  4024   4027#  4032   4035#  4112   4115#  4124   4127#  4323   4326#
4332   4335#  4341   4344#  4354   4357#  4363   4366#  4374   4377#  4522   4525#  4531
4534#  4540   4543#  4553   4556#  4562   4565#  4573   4576#  4741   4744#  4750   4753#
4759   4762#  4772   4775#  4781   4784#  4793   4796#  4949   4952#  4958   4961#  4967
4970#  4980   4983#  4989   4992#  5001   5004#  5167   5170#  5176   5179#  5185   5188#
5199   5202#  5208   5211#  5219   5222#  5230   5233#  5467   5470#  5476   5479#  5485
5488#  5499   5502#  5508   5511#  5519   5522#  5530   5533#  5615   5618#  5624   5627#
5630   5634#  5726   5729#  5735   5738#  5744   5747#  5755   5758#  5764   5767#  5776
5779#  5796   5799#  5802   5805#  5826   5829#  5833   5836#  5853   5856#  5859   5862#
5880   5883#  5886   5889#  5892   5895#  5900   5903#  5921   5924#  5927   5930#  5933
5936#  5941   5944#  5964   5967#  5970   5973#  5976   5979#  5984   5987#  6005   6008#
6011   6014#  6017   6020#  6025   6028#  6048   6051#  6054   6057#  6060   6063#  6068
6071#  6089   6092#  6095   6098#  6101   6104#  6109   6112#  6132   6135#  6138   6141#
6144   6147#  6152   6155#  6176   6179#  6183   6186#  6193   6196#  6362   6365#  6371
6374#  6380   6383#  6491   6494#  6500   6503#  6509   6512#  6758   6761#  6767   6770#
6776   6779#  6790   6793#  6799   6802#  6811   6814#  6990   6993#  6999   7002#  7008
7011#  7019   7022#  7028   7031#  7040   7043#  7169   7172#  7176   7179#  7185   7188#
 463#
 282#   845    846*   857*
 761#  7637
 763#  7640
 579#
1040
1169   1180#
1565   1596#
1630   1636#
1706   1715#
1759   1768#
1827   1836#
1887   1896#
1954   1963#
1199   1213#

ERRTN  = 000000
ERRVEC = 000004
ERR1     002046
ERR2     002062
EXPDAT   001034
FACU   = ****** U
FIN1     003742
FIN10    005450
FIN11    005560
FIN13    006004
FIN14    006160
FIN15    006400
FIN16    006572
FIN17    007006
FIN2     004044
```

```
FIN20   007206          2015    2024#
FIN21   007430          2083    2092#
FIN22   007616          2137    2146#
FIN23   007754          2183    2191#
FIN24   010156          2243    2252#
FIN26   010720          2379    2415#
FIN27   011264          2487    2523#
FIN30   011632          2594    2630#
FIN31   011774          2672    2681#
FIN32   012270          2732    2768#
FIN33   012566          2819    2855#
FIN4    004444          1302    1346#
FIN5    004554          1378    1386#
FIN6    004760          1437    1454#
FIN7    005214          1494    1525#
FLAG    001042           582#   4046*  4055*  4064*  4116   4140*  4150*  4159*  4167*  4176*  4184*  4192*  4200*
                        4208*  4216*  4224*  4232*  4240*  4249*  4257*  4266*  4275*  4284*  4321   4330   4367
                        4388*  4400*  4412*  4423*  4434*  4445*  4456*  4467*  4479*  4520   4529   4566   4587*
                        4595*  4603*  4611*  4619*  4627*  4635*  4643*  4651*  4659*  4667*  4675*  4684*  4693*
                        4702*  4739   4748   4785   4806*  4817*  4828*  4839*  4850*  4861*  4872*  4883*  4895*
                        4906*  4947   4956   4993   5014*  5023*  5032*  5041*  5050*  5060*  5069*  5078*  5087*
                        5096*  5105*  5114*  5123*  5165   5174   5223   5247*  5260*  5273*  5286*  5299*  5312*
                        5325*  5338*  5351*  5364*  5378*  5391*  5405*  5419*  5465   5474   5523   5646*  5654*
                        5662*  5670*  5678*  5686*  5724   5733   5768   6524*  6534*  6544*  6554*  6564*  6574*
                        6585*  6596*  6607*  6618*  6629*  6639*  6649*  6660*  6671*  6681*  6692*  6702*  6713*
                        6756   6765   6803   6826*  6834*  6842*  6850*  6858*  6866*  6874*  6882*  6890*  6898*
                        6906*  6914*  6922*  6930*  6938*  6946*  6988   6997   7032   7055*  7063*  7071*  7079*
FPPERR  002013           756#   787    944    958    967    976    985    995   1005   1081   1089   1097   1105
                        1114   1123   1177   1210   1230   1238   1248   1256   1286   1308   1316   1329   1336
                        1343   1366   1373   1383   1406   1414   1423   1431   1451   1501   1509   1572   1580
                        1518   1625   1654   1660   1687   1694   1701   1711   1739   1747   1754   1764   1793
                        1800   1807   1815   1822   1832   1860   1867   1875   1882   1892   1921   1927   1934
                        1942   1949   1959   1987   1995   2003   2010   2020   2050   2057   2064   2071   2078
                        2088   2117   2125   2132   2142   2171   2178   2188   2218   2225   2231   2238   2248
                        2275   2283   2291   2298   2318   2329   2340   2353   2364   2374   2386   2439   2447
                        2456   2465   2474   2483   2495   2547   2555   2564   2573   2582   2591   2602   2652
                        2659   2666   2677   2707   2718   2729   2740   2794   2805   2816   2827   2873   2880
                        2886   2908   2914   2924   2947   2953   2959   2968   2994   3000   3008   3030   3036
                        3044   3065   3074   3096   3102   3110   3133   3141   3148   3170   3179   3191   3198
                        3207   3215   3226   3233   3259   3267   3278   3286   3310   3317   3328   3356   3361
                        3375   3399   3407   3419   3435   3448   3472   3480   3491   3500   3507   3516   3529
                        3538   3545   3554   3571   3579   3593   3601   3615   3623   3647   3655   3666   3674
                        3701   3715   3738   3746   3759   3768   3775   3784   3801   3809   3822   3831   3838
                        3847   3864   3872   3885   3896   3902   3910   3934   3942   3955   3964   3972   3986
                        4002   4010   4026   4034   4114   4126   4325   4334   4343   4356   4365   4376   4524
                        4533   4542   4555   4564   4575   4743   4752   4761   4774   4783   4795   4951   4960
                        4969   4982   4991   5003   5169   5178   5187   5201   5210   5221   5232   5469   5478
                        5487   5501   5510   5521   5532   5617   5626   5633   5728   5737   5746   5757   5766
                        5778   5798   5804   5828   5835   5855   5861   5882   5888   5894   5902   5923   5929
                        5935   5943   5966   5972   5978   5986   6007   6013   6019   6027   6050   6056   6062
                        6070   6091   6097   6103   6111   6134   6140   6146   6154   6178   6185   6195   6364
                        6373   6382   6493   6502   6511   6760   6769   6778   6792   6801   6813   6992   7001
                        7010   7021   7030   7042   7171   7178   7187
FPPTST= ******  U          1    166    509    596    609    610    756    761    782    877   7233
FPTS1 = ******  U       1152
FPTS10= ******  U       1527
```

```
FPTS11= ****** U          1598
FPTS12= ****** U          1638
FPTS13= ****** U          1665
FPTS14= ****** U          1717
FPTS15= ****** U          1770
FPTS16= ****** U          1838
FPTS17= ****** U          1898
FPTS2 = ****** U          1182
FPTS20= ****** U          1965
FPTS21= ****** U          2026
FPTS22= ****** U          2093
FPTS23= ****** U          2148
FPTS24= ****** U          2193
FPTS25= ****** U          2254
FPTS26= ****** U          2302
FPTS27= ****** U          2417
FPTS3 = ****** U          1215
FPTS30= ****** U          2525
FPTS31= ****** U          2632
FPTS32= ****** U          2683
FPTS33= ****** U          2770
FPTS4 = ****** U          1261
FPTS5 = ****** U          1348
FPTS6 = ****** U          1388
FPTS7 = ****** U          1456
FPVEC = 000244             449#  3485*  3521*  3561*  3754*  3789*  3814*  3852*  3877*  4308*  4507*  4726*  4934*
                          5150*  5450*  5599*  5711*  5875*  5916*  5959*  6000*  6043*  6084*  6127*  6168*  6346*
                          6475*  6740*  6971*  7153*
FSRCMO= ****** U          2857
GNS   = ****** U           494   7553   7554   7555   7556   7557
HITMIS= 177752             454#
HOP10   021244            4294   4380#
HOP11   022242            4492   4579#
HOP12   023304            4712   4798#
HOP13   024336            4919   5006#
HOP14   025436            5133   5238#
HOP15   027136            5434   5536#
HOP16   027456            5585   5637#
HOP17   030144            5695   5782#
HOP18   032464            6329   6385#
HOP19   033106            6459   6515#
HOP20   034532            6725   6817#
HOP21   035622            6955   7046#
HOP22   036274            7139   7192#
HOP44   020056            4080   4129#
HT    = 000011             192#   7284   7342
HYBRID= 000001               1#    471    604    874   7205   7221   7233   7246   7497   7560
ILL     004544            1356   1380#
ILLOP1  004340            1270   1304#
ILLOP2  004434            1274   1340#
IOTVEC= 000020             287#    871*   872*
KDPAR0= 172360             430#
KDPAR1= 172362             431#
KDPAR2= 172364             432#
KDPAR3= 172366             433#
KDPAR4= 172370             434#
```

```
KDPAR5= 172372            4350
KDPAR6= 172374            4360
KDPAR7= 172376            4370
KDPDR0= 172320            4080
KDPDR1= 172322            4090
KDPDR2= 172324            4100
KDPDR3= 172326            4110
KDPDR4= 172330            4120
KDPDR5= 172332            4130
KDPDR6= 172334            4140
KDPDR7= 172336            4150
KIPAR0= 172340            4190
KIPAR1= 172342            4200
KIPAR2= 172344            4210
KIPAR3= 172346            4220
KIPAR4= 172350            4230
KIPAR5= 172352            4240
KIPAR6= 172354            4250
KIPAR7= 172356            4260
KIPDR0= 172300            3970
KIPDR1= 172302            3980
KIPDR2= 172304            3990
KIPDR3= 172306            4000
KIPDR4= 172310            4010
KIPDR5= 172312            4020
KIPDR6= 172314            4030
KIPDR7= 172316            4040
LCD   = ****** U          6387
LCDSUB  032760            6394    6401    6408    6415    6422    6429    6436    6443    6450    6474#
LCF   = ****** U          6201
LCFSUB  032336            6208    6214    6220    6226    6232    6238    6244    6250    6256    6262    6268    6274    6280
                          6286    6292    6298    6304    6310    6316    6322    6345#
LDC   = ****** U          3915
LDC2  = ****** U          6159
LDDM2 = ****** U          2891
LDDM3 = ****** U          2928
LDDM4 = ****** U          2972
LDDM5 = ****** U          3012
LDDM6 = ****** U          3048
LDDM7 = ****** U          3078
LDM27 = ****** U          3114
LF    = 000012             193#     752     756     761     763     766    7233    7241    7336    7344
LOOPIN  001060             590#
LOST    003722            1160    1162    1164    1166    1171#
LS1   = ****** U          5866
LS2   = ****** U          5907
LS3   = ****** U          5948
LS4   = ****** U          5991
LS5   = ****** U          6032
LS6   = ****** U          6075
LS7   = ****** U          6116
LXP   = ****** U          6517
LXPSUB  034262            6525    6535    6545    6555    6565    6575    6586    6597    6608    6619    6630    6640    6650
                          6661    6672    6682    6693    6703    6714    6739#
MACE    002610             915     918     921     924     933#
MACO    002500             911     913#
```

```
MACOA   002504          9140#   928     932
MAC1    002514          9160#
MAC2    002530          9190#
MAC3    002544          9220#
MAC4    002560          9250#
MAC5    002574          9290#
MBTE    003200          1021    1037#
MBT1    002422          8830#
MBT2    002430          8960#
MBT2A   002442          8990#   1022
MBT8    002656          940     947#
MBT8A   002712          950     952     955     960#
MBT8B   002740          961     964     969#
MBT8C   002766          970     973     978#
MBT8D   003014          979     982     987#
MBT8E   003044          988     992     997#
MBT8F   003074          998     1002    1007#
MBT8FG  003110          1010    1012#
MBT8I   003134          1016    1019#
MCLRD   030214          5809#
MCLRI   030306          5840#
MCMPD   017542          4039#
MDDSUB  026636          5248    5261    5274    5287    5300    5313    5326    5339    5352    5365    5379    5392    5406
                        5420    5449#
MDFSUB  025126          5015    5024    5033    5042    5051    5061    5070    5079    5088    5097    5106    5115    5124
                        5149#
MDIVD   021244          4381#
MDIVF   020056          4133#
MFA     003206          1054#
MFACU   003200          1040#
MFSRCM  012566          2857#
MLCD    032464          6339#
MLCF    031626          6201#
MLDC    017120          3915#
MLDC2   031506          6159#
MLDDM2  012656          2891#
MLDDM3  012764          2928#
MLDDM4  013124          2972#
MLDDM5  013250          3012#
MLDDM6  013360          3048#
MLDDM7  013460          3078#
MLDM27  013566          3114#
MLDSUB  024074          4807    4818    4829    4840    4851    4862    4873    4884    4896    4907    4933#
MLFSUB  023042          4588    4596    4604    4612    4620    4628    4636    4644    4652    4660    4668    4676    4685
                        4694    4703    4725#
MLS1    030356          5866#
MLS2    030474          5907#
MLS3    030612          5948#
MLS4    030746          5991#
MLS5    031066          6032#
MLS6    031222          6075#
MLS7    031346          6116#
MLXP    033106          6517#
MMODD   025436          5240#
MMODF   024336          5007#
MMULD   023304          4799#
```

```
MMULF   022242          4580#
MMUTST= 000001            1#    166     509     595     752     756     761     782     874     877    7233    7497
MMVEC = 000250          298#
MNGOP   015104          3454#
MNNRM1  013700          3152#
MNNRM2  014164          3238#
MNNRM3  014342          3291#
MNNRM4  014510          3341#
MNRM    016066          3679#
MODD  = ****** U        5240
MODF  = ****** U        5007
MODGAR  025426          5154    5236#   5454
MSB     015720          3629#
MSCD    034532          6819#
MSCF    035622          7048#
MSDF    027456          5639#
MSER  = 177744           453#
MSFD    027136          5537#
MSFDI   030144          5783#
MSG1    036402          7207    7233#
MSG2    036456          7217    7241#
MSXP    035770          7089#
MULD  = ****** U        4799
MULF  = ****** U        4580
MUVAD   016212          3719#
MXDF1   014634          3380#
MXVDEL= 000001            1#
NGOP  = ****** U        3454
NNRM1 = ****** U        3152
NNRM2 = ****** U        3238
NNRM3 = ****** U        3291
NNRM4 = ****** U        3341
NRM   = ****** U        3679
PARRAM= 000001            1#
PIRQ  = 177772          199#
PIRQVE= 000240          293#
PR0   = 000000          216#
PR1   = 000040          217#
PR2   = 000100          218#
PR3   = 000140          219#
PR4   = 000200          220#
PR5   = 000240          221#
PR6   = 000300          222#
PR7   = 000340          223#
PS    = 177776          196#    197
PSW   = 177776          197#
PWRVEC= 000024          288#
QBUSEX= 000001            1#    602
RBUF  = 177562          460#
RCSR  = 177560          459#
RECDAT  001036          580#
RECDST  001126          600#   2897    2934    2962    2978    3018    3054    3084    3120    3159*   3160*   3172    3244
                       3297    3351    3389    3466    3494    3[illegible]    3565    3587    3609    3638    3693    3708    3732
                       3762    3795    3825    3858    3888    3928    3958    3996    4020    4108    4350    4549    4768
                       4976    5194    5494    5603    5715    5814    6138    6347    6476    6741    6972    7154    7174
RECFEC  001106          598#   2865    5772    6807    7036
```

```
TAB29   001556          7050#  3604
TAB29A  001566          7070#  3617
TAB3    001216          6180#  2979    2996    3002
TAB30   001576          7100#  3688
TAB31   001606          7120#  3687
TAB32   001616          7140#  3703
TAB33   001626          7160#  3704
TAB34   001636          7180#  3695
TAB4    001226          6220#  3261    3280
TAB40   001646          7200#  3727    3728    3751    3752
TAB41   001656          7220#  3791    3816    3853    3878
TAB42   001666          7240#  3854    3879
TAB43   001676          7260#  3904
TAB45   001706          7280#  3924    3930    3947    3951    3992
TAB46   001716          7300#  3936
TAB47   001726          7320#  3991    5815
TAB47A  001736          7340#
TAB48   001746          7360#  4004    4016
TAB49   001756          7380#  3966
TAB5    001236          6260#  3121
TAB5A   001246          6300#  3841
TAB6    001256          6340#  2980    3158    3245    3298    3649    3668    3740    3778    3803    3866    3925    4015
                       4028    4118    5822
TAB6A   001266          6380#  6187
TAB7    001276          6420#  3349    3790    3815
TAB8    001306          6460#  3350    3363    3364
TAB9    001316          6500#  3355
TAGRAM= 000001            10#   874
TBITVE= 000014          2840#
TIMECU  004424          1272    1333#
TKVEC = 000060          2910#
TPVEC = 000064          2920#
TRAPVE= 000034          2900#   838*    839*
TRPFLG  002122          7920#  1158*   1188*   1221*   1267*   1354*   1394*   1462*   1533*   1604*   1644*   1673*   1725*
                       1778*   1846*   1906*   1971*   2032*   2099*   2154*   2199*   2260*   2308*   2423*   2531*   2638*
                       2689*   2776*
TRTVEC= 000014          2850#
TSD31   011662          2643#  2654
TSFP1   003650          1152#
TSFP10  005214          1527#
TSFP11  005450          1598#
TSFP12  005560          1638#
TSFP13  005634          1665#
TSFP14  006004          1717#
TSFP15  006160          1770#
TSFP16  006400          1833#
TSFP17  006572          1898#
TSFP2   003742          1182#
TSFP20  007006          1965#
TSFP21  007206          2026#
TSFP22  007430          2093#
TSFP23  007616          2148#
TSFP24  007754          2193#
TSFP25  010156          2254#
TSFP26  010320          2302#
TSFP27  010720          2417#
```

TSEP3	004044	1215#											
TSEP30	011264	2525#											
TSEP31	011632	2632#											
TSEP32	011774	2683#											
TSEP33	012270	2770#											
TSEP4	004164	1261#											
TSEP5	004444	1348#											
TSEP6	004554	1388#											
TSEP7	004760	1456#											
TSF10	005410	1537	1577#										
TSF13	005774	1672	1708#										
TSF14	006150	1724	1761#										
TSF15	006370	1777	1829#										
TSF16	006562	1845	1889#										
TSF17	006776	1905	1956#										
TSF2	004014	1190	1192	1194	1196	1201#							
TSF20	007176	1973	2017#										
TSF21	007420	2034	2085#										
TSF22	007606	2101	2139#										
TSF23	007744	2156	2185#										
TSF24	010146	2201	2245#										
TSF31	011764	2640	2674#										
TSF6	004750	1398	1448#										
TSF7	005154	1466	1506#										
TSTLOC	001136	608#	1417	1419	1472	1475	1484	1488	1543	1546	1555	1559	1611	1677
		1680	1683	1729	1732	1735	1741	1782	1785*	1786	1789	1795	1796	1850
		1853	1856	1910	1913*	1914	1917	1923	1977	1980	1983	1989	2038	2041*
		2042	2045	2051	2060	2105	2108*	2109*	2111	2160	2163*	2166	2205	2208*
		2209*	2211	2220	2264	2267	2270	2276	2427	2431	2434	2448	2451	2457
		2466	2469	2475	2535	2539	2542	2556	2559	2565	2574	2577	2585	2693
		2697*	2699	2708*	2710	2719*	2721	2780	2784*	2786	2795*	2797	2806*	2808
		2934*	2935	2936*	2937	2949	2955	3019	3020*	3052	3086*	3089	5872	5878
		5913	5919	5954	5955*	5956*	5957	5958*	5962	5968	5997	5998*	6003	6038
		6039*	6040*	6041	6042*	6046	6052	6081	6082*	6083	6087	6093	6099	6122
		6123*	6124*	6125	6126*	6130	6136	6142						
TST1	002422	893#												
TST10	004554	1392#												
TST100	031066	6036#												
TST101	031222	6079#												
TST102	031346	6120#												
TST103	031506	6167#												
TST104	031626	6205#												
TST105	032464	6371#												
TST106	033106	6521#												
TST107	034532	6823#												
TST11	004760	1460#												
TST110	035622	7052#												
TST111	035770	7093#												
TST12	005214	1531#												
TST13	005450	1602#												
TST14	005560	1642#												
TST15	005634	1669#												
TST16	006004	1721#												
TST17	006160	1774#												
TST2	003200	1048#												
TST20	006400	1842#												

```
$$NEWT    294#    884   1041   1153   1183   1216   1262   1349   1389   1457   1528   1599   1639   1666   1718
         1771   1839   1899   1966   2027   2094   2149   2194   2255   2303   2418   2526   2633   2684   2771
         2858   2892   2929   2973   3013   3049   3079   3115   3153   3239   3292   3342   3381   3455   3630
         3680   3720   3916   4040   4134   4382   4581   4800   5008   5241   5538   5640   5784   5810   5841
         5867   5908   5949   5992   6033   6076   6117   6160   6202   6388   6518   6820   7049   7090
$$SET     7526#  7545   7554   7555   7556   7557
$$SETM     859#   866
$$SKIP     294#
.EQUAT     159#   184
.HEADE     161#   166
.KT11      159#   294
.SETUP     161#   471
.$ACT1     161#   499
.$APT8     159#   544
.$APTH     161#   509
.$APTY     162#  7560
.$EOP      159#  7196
.$ERRO     162#
.$READ     162#
.$TRAP     161#  7497
.$TYPD     160#  7353
.$TYPE     160#  7246
.$TYPO     162#  7420
.$40CA     159#   472

. ABS.  040234     000

 ERRORS DETECTED:  0

 CZKDLB/EN:ABS,CZKDLB.SEQ/CRF/DOC/SOL/NL:TOC=SYSMAC.SML/ML,CZKDLB.MAC/ML,KDJ11A.MAC
 RUN-TIME: 249 141 10 SECONDS
 RUN-TIME RATIO: 539/400=1.3
 CORE USED:  52K  (103 PAGES)

 DOCUMENT PAGES:  165
```

KDJ11A.MAC 15-MAR....B1
KDJ11A.MAC 15-MAR....C1
KDJ11A.MAC 15-MAR....D1
KDJ11A.MAC 15-MAR....E1
KDJ11A.MAC 15-MAR....F1
KDJ11A.MAC 15-MAR....G1
KDJ11A.MAC 15-MAR....H1
KDJ11A.MAC 15-MAR....I1
KDJ11A.MAC 15-MAR....J1
KDJ11A.MAC 15-MAR....K1
KDJ11A.MAC 15-MAR....L1
KDJ11A.MAC 15-MAR....M1
KDJ11A.MAC 15-MAR....N1

KDJ11A.MAC 15-MAR....B2
KDJ11A.MAC 15-MAR....C2
KDJ11A.MAC 15-MAR....D2
KDJ11A.MAC 15-MAR....E2
KDJ11A.MAC 15-MAR....F2
KDJ11A.MAC 15-MAR....G2
KDJ11A.MAC 15-MAR....H2
KDJ11A.MAC 15-MAR....I2
KDJ11A.MAC 15-MAR....J2
KDJ11A.MAC 15-MAR....K2
KDJ11A.MAC 15-MAR....L2
KDJ11A.MAC 15-MAR....M2
KDJ11A.MAC 15-MAR....N2

KDJ11A.MAC 15-MAR....B3
KDJ11A.MAC 15-MAR....C3
KDJ11A.MAC 15-MAR....D3
KDJ11A.MAC 15-MAR....E3
KDJ11A.MAC 15-MAR....F3
KDJ11A.MAC 15-MAR....G3
KDJ11A.MAC 15-MAR....H3
KDJ11A.MAC 15-MAR....I3
KDJ11A.MAC 15-MAR....J3
KDJ11A.MAC 15-MAR....K3
KDJ11A.MAC 15-MAR....L3
KDJ11A.MAC 15-MAR....M3
KDJ11A.MAC 15-MAR....N3

KDJ11A.MAC 15-MAR....B4
KDJ11A.MAC 15-MAR....C4
KDJ11A.MAC 15-MAR....D4
KDJ11A.MAC 15-MAR....E4
KDJ11A.MAC 15-MAR....F4
KDJ11A.MAC 15-MAR....G4
KDJ11A.MAC 15-MAR....H4
KDJ11A.MAC 15-MAR....I4
KDJ11A.MAC 15-MAR....J4
KDJ11A.MAC 15-MAR....K4
KDJ11A.MAC 15-MAR....L4
KDJ11A.MAC 15-MAR....M4
KDJ11A.MAC 15-MAR....N4

KDJ11A.MAC 15-MAR....B5
KDJ11A.MAC 15-MAR....C5
KDJ11A.MAC 15-MAR....D5
KDJ11A.MAC 15-MAR....E5
KDJ11A.MAC 15-MAR....F5
KDJ11A.MAC 15-MAR....G5
KDJ11A.MAC 15-MAR....H5
KDJ11A.MAC 15-MAR....I5
KDJ11A.MAC 15-MAR....J5
KDJ11A.MAC 15-MAR....K5
KDJ11A.MAC 15-MAR....L5
KDJ11A.MAC 15-MAR....M5
KDJ11A.MAC 15-MAR....N5

KDJ11A.MAC 15-MAR....B6
KDJ11A.MAC 15-MAR....C6
KDJ11A.MAC 15-MAR....D6
KDJ11A.MAC 15-MAR....E6
KDJ11A.MAC 15-MAR....F6
KDJ11A.MAC 15-MAR....G6
KDJ11A.MAC 15-MAR....H6
KDJ11A.MAC 15-MAR....I6
KDJ11A.MAC 15-MAR....J6
KDJ11A.MAC 15-MAR....K6
KDJ11A.MAC 15-MAR....L6
KDJ11A.MAC 15-MAR....M6
KDJ11A.MAC 15-MAR....N6

KDJ11A.MAC 15-MAR....B7
KDJ11A.MAC 15-MAR....C7
KDJ11A.MAC 15-MAR....D7
KDJ11A.MAC 15-MAR....E7
KDJ11A.MAC 15-MAR....F7
KDJ11A.MAC 15-MAR....G7
KDJ11A.MAC 15-MAR....H7
KDJ11A.MAC 15-MAR....I7
KDJ11A.MAC 15-MAR....J7
KDJ11A.MAC 15-MAR....K7
KDJ11A.MAC 15-MAR....L7
KDJ11A.MAC 15-MAR....M7
KDJ11A.MAC 15-MAR....N7

KDJ11A.MAC 15-MAR....B8
KDJ11A.MAC 15-MAR....C8
KDJ11A.MAC 15-MAR....D8
KDJ11A.MAC 15-MAR....E8
KDJ11A.MAC 15-MAR....F8
KDJ11A.MAC 15-MAR....G8
KDJ11A.MAC 15-MAR....H8
KDJ11A.MAC 15-MAR....I8
KDJ11A.MAC 15-MAR....J8
KDJ11A.MAC 15-MAR....K8
KDJ11A.MAC 15-MAR....L8
KDJ11A.MAC 15-MAR....M8
KDJ11A.MAC 15-MAR....N8

KDJ11A.MAC 15-MAR....B9
KDJ11A.MAC 15-MAR....C9
KDJ11A.MAC 15-MAR....D9
KDJ11A.MAC 15-MAR....E9
KDJ11A.MAC 15-MAR....F9
KDJ11A.MAC 15-MAR....G9
KDJ11A.MAC 15-MAR....H9
KDJ11A.MAC 15-MAR....I9
KDJ11A.MAC 15-MAR....J9
KDJ11A.MAC 15-MAR....K9
KDJ11A.MAC 15-MAR....L9
KDJ11A.MAC 15-MAR....M9
KDJ11A.MAC 15-MAR....N9

KDJ11A.MAC 15-MAR....B10
KDJ11A.MAC 15-MAR....C10
KDJ11A.MAC 15-MAR....D10
KDJ11A.MAC 15-MAR....E10
KDJ11A.MAC 15-MAR....F10
KDJ11A.MAC 15-MAR....G10
KDJ11A.MAC 15-MAR....H10
KDJ11A.MAC 15-MAR....I10
KDJ11A.MAC 15-MAR....J10
KDJ11A.MAC 15-MAR....K10
KDJ11A.MAC 15-MAR....L10
KDJ11A.MAC 15-MAR....M10
KDJ11A.MAC 15-MAR....N10

KDJ11A.MAC 15-MAR....B11
KDJ11A.MAC 15-MAR....C11
KDJ11A.MAC 15-MAR....D11
KDJ11A.MAC 15-MAR....E11
KDJ11A.MAC 15-MAR....F11
KDJ11A.MAC 15-MAR....G11
KDJ11A.MAC 15-MAR....H11
KDJ11A.MAC 15-MAR....I11
KDJ11A.MAC 15-MAR....J11
KDJ11A.MAC 15-MAR....K11
KDJ11A.MAC 15-MAR....L11
KDJ11A.MAC 15-MAR....M11
KDJ11A.MAC 15-MAR....N11

KDJ11A.MAC 15-MAR....B12
KDJ11A.MAC 15-MAR....C12
KDJ11A.MAC 15-MAR....D12
KDJ11A.MAC 15-MAR....E12
KDJ11A.MAC 15-MAR....F12
KDJ11A.MAC 15-MAR....G12
KDJ11A.MAC 15-MAR....H12
KDJ11A.MAC 15-MAR....I12
KDJ11A.MAC 15-MAR....J12
KDJ11A.MAC 15-MAR....K12
KDJ11A.MAC 15-MAR....L12
KDJ11A.MAC 15-MAR....M12
KDJ11A.MAC 15-MAR....N12

KDJ11A.MAC 15-MAR....B13
KDJ11A.MAC 15-MAR....C13
KDJ11A.MAC 15-MAR....D13
KDJ11A.MAC 15-MAR....E13
KDJ11A.MAC 15-MAR....F13
KDJ11A.MAC 15-MAR....G13
KDJ11A.MAC 15-MAR....H13
KDJ11A.MAC 15-MAR....I13
KDJ11A.MAC 15-MAR....J13