IDENTIFICATION

PRODUCT CODE:	MAINDEC-11-DCKTF-C-D
PRODUCT NAME:	MEMORY MANAGEMENT ABORT TESTS
DATE CREATED:	MARCH 21, 1975
MAINTAINER:	DIAGNOSTIC GROUP
AUTHOR:	JOHN ADAMS

1.0 ABSTRACT

PROGRAM DCKTF TESTS THE MEMORY MANAGEMENT ABORT LOGIC. THE PROGRAM IS WRITTEN TO CAUSE A MEMORY MANAGEMENT ABORT AT EVERY PDP11/45 MICRO STATE WHERE A MEMORY REFERENCE (BUST) IS INITIATED. THE PROGRAM ALSO TESTS MEMORY MANAGEMENT ABORTS USING FLOATING POINT INSTRUCTIONS. ABORTS ARE IN ALL CASES TRAPPED TO THE KERNEL, HOWEVER, THE INSTRUCTIONS CAUSING THE ABORT ARE EXECUTED IN ALL MODES (KERNEL, SUPERVISOR, AND USER).

2.0 REQUIREMENTS

2.1 EQUIPMENT

PDP-11/45 WITH KT11-C (MEM. MGMT) INSTALLED

OPTIONAL FP11-A (FLOATING POINT PROCESSER)

2.2 STORAGE

PROGRAM STORAGE - THE ROUTINE USES MEMORY 0-17777

2.3 PRELIMINARY PROGRAMS

TESTS DCKTA-DCKTE

3.0 LOADING AND STARTING PROCEDURE

LOAD PROGRAM INTO MEMORY USING ABS LOADER
LOAD ADDRESS 200
PRESS START.
THE PROGRAM WILL LOOP AND RING BELL ON COMPLETION.
PASS COUNT MAY BE MONITORED IN THE DISPLAY REGISTER.

4.0 SWITCH SETTINGS

SW8 = 1 OR UP .... LOAD PDP11/45 MICRO BREAK REGISTER
SW7-SW0,..... VALUE TO BE LOADED

5.0 SUBROUTINE ABSTRACTS

5.1 HLT

THE HLT (HALT) INSTRUCTION IS EXECUTED WHEN AN ERROR IS DETECTED NOTE THAT THE HLT (HALT) INSTRUCTION TRAPS TO LOC 4 IN SUPERVISORY/USER MODE. IF A HLT (HALT) INSTRUCTION IS EXECUTED IN THESE MODES THE TRAP IS TAKEN AND THE PROGRAM HALTS AT LOCATION 176 IN KERNEL MODE. PRESSING CONTINUE RESTARTS THE TEST. NOTE: THE SUPERVISORY/USER STACK POINTERS ARE NOT AFFECTED. TO DETRMINE WHICH TEST THE PROGRAM WAS EXECUTING WHEN THE HLT OCCURRED REFER TO R1 WHOSE CONTENTS ARE THE LAST TEST SUCCESSFULLY EXECUTED AND ALSO THE KERNEL STACK THE TOP WORD OF WHICH IS THE VIRTUAL PC OF THE HLT INSTRUCTION +2.

5.2 SCOPE

THE SCOPE (EMT) SERVICE ROUTINE STORES IN R1 THE PC OF THE LAST TEST SUCCESSFULLY EXECUTED AND MAY BE USED AS AN AID IN DEBUGGING IF THE PROGRAM 'BOMBS' BECAUSE OF A HARDWARE FAILURE. A BRANCH INSTRUCTION MAY BE INSERTED AT THE SCOPE LOCATION TO THE PREVIOUS SCOPE (EMT) INSTRUCTION TO CONTINOUSLY LOOP A TEST. ADDITIONALLY THE SCOPE ROUTINE SETS ALL STACK POINTERS TO THEIR INITIAL SETTINGS (SEE SEC 8.2) AND ENTERS EACH TEST IN KERNEL MODE, PREVIOUS KERNEL MODE. THE SCOPE ROUTINE ALSO CONTAINS INSTRUCTIONS TO LOAD THE MICRO BREAK REGISTER (SEE SEC 4.0 FOR SWITCH SETTINGS). ALL TESTS MAY BE RESTARTED AT THE PREVIOUS SCOPE.

6.0 ERRORS

THE TEST HALTS WHEN AN ERROR IS DETECTED AND DISPLAYS THE PC+2 OF THE HLT (HALT) INSTRUCTION IN THE ADDRESS LIGHTS.

6.1 ERROR RECOVERY

PRESS CONTINUE OR RESTART AT 200 OR PREVIOUS SCOPE.

6.2 ERROR LOOPING

TO LOOP ON AN ERROR REPLACE THE HLT INSTRUCTION WITH A BRANCH BACK TO THE PREVIOUS SCOPE. NOTE: IF THE ERROR IS INTERMITTENT THE TEST WILL DROP THROUGH THE HLT AND CONTINUE TO THE NEXT TEST. TO CONTINUOSLY LOOP THE TEST REPLACE THE BEQ .+4 PRECEEDING THE HLT WITH THE BRANCH.

7.0 RESTRICTIONS

7.1 STARTING RESTRICTION

NONE

7.2 OPERATIONAL RESTRICTION

NONE

8.0 MISCELLANEOUS

IF THE PROGRAM HALTS IN THE TRAP INTERRUPT VECTOR AREA (0-1000) EXAMINE REGISTER 6 (THE KERNEL STACK PTR). REGISTER 6 CONTAINS THE ADDRESS WHERE THE PC OF THE INSTRUCTION THAT CAUSED THE TRAP IS STORED. EXAMINE ALSO R1 (R1 SPECIFIES THE LAST TEST SUCCESSFULLY COMPLETED)

8.2 STACK POINTER

THE STACK POINTERS ARE INITIALLY SET TO THE FOLLOWING VALUES

KERNEL =1760
SUPERVISOR = 700
USER = 600

AND ARE RESET TO THESE VALUES AT THE START OF EACH SUBTEST (BY SCOPE).

8.3 PASS COUNT

1200(8) PASSES ARE REQUIRED FOR COMPLETION OF THIS PROGRAM AT WHICH TIME THE BELL WILL RING AT THE TTY. THE PASS COUNT MAY BE OBSERVED BY TURNING THE SWITCH TO THE DISPLAY POSITION, AND IS STORED IN LOC 1000 THE PASS THE COUNT SHOULD BE MONITORED IN THE EVENT THAT THE PROGRAM ENTERS AN UNDEFINED LOOP.

8.4 DEBUGGING TIPS

WHEN THE FAILING SUBTEST HAS BEEN ISOLATED, REPLACE THE FIRST WORD OF THE INSTRUCTION PRECEEDING THE INSTRUCTION THAT CAUSES THE ABORT WITH A BR SELF (000777), AND RESTART THE PROGRAM. WHEN THE PROGRAM EXECUTES THE BR SELF STOP THE PROGRAM USING SINGLE INSTRUCTION, RESTORE THE INSTRUCTION, AND USING THE MAINTENANCE CARD SINGLE STEP THE PROGRAM THROUGH EACH MICRO STATE OBSERVING THE FLOW IN THE DATA/ADDRESS LIGHTS. THIS PRACTICE HAS BEEN FOUND TO BE SUCCESSFUL IN FINDING MOST MEMORY MANAGEMENT ERRORS.

8.5 MEMORY MANAGEMENT MEMORY MAP

THE MAPPING OF THE MEM MGMT REGISTERS IS DONE AT THE BEGINNING OF THE PROGRAM BEFORE ANY TESTING IS STARTED. THE USER SHOULD ACQUAINT HIMSELF WITH THE MEMORY MANAGEMENT MAP BEFORE USING THIS PROGRAM.

```
                        .NLIST  SEQ
                        .LIST   ME
                        .ABS
                        .TITLE  TEST DCKTF-C MEMORY MGMT ABORT TRAPS
                ;THIS TEST CHECKS MEMORY MANAGEMENT ABORTS AT ALL 'BUST' MICRO STATES,
                ;MEMORY MANAGEMENTGEMENT ABORT TEST, THIS PROGRAM TESTS MEMORY MGMT ABORT ERRORS

                ;GENERAL REGISTER ASSIGNMENTS
000000                  R0=%0
000001                  R1=%1
000002                  R2=%2
000003                  R3=%3
000004                  R4=%4
000005                  R5=%5
000006                  SP=%6
000007                  PC=%7
000000                  R10=%0
000001                  R11=%1
000002                  R12=%2
000003                  R13=%3
000004                  R14=%4
000005                  R15=%5

                ;FLOATING POINT REGISTERS
000000                  AC0=%0
000001                  AC1=%1
000002                  AC2=%2
000003                  AC3=%3
000004                  AC4=%4
000005                  AC5=%5

                ;STACK POINTER REGISTERS
000006                  KSP=%6                  ;KERNEL STACK POINTER
000006                  SSP=%6                  ;SUPERVISOR STACK POINTER
000006                  USP=%6                  ;USER STACK POINTER

                ;STATUS REGISTER BIT ASSIGNMENTS
000001                  C=1
000002                  V=2
000004                  Z=4
000010                  N=10
000020                  T=20                    ;'T' BIT
000340                  PRTY7=340               ;PRIORITY LEVEL 7
000200                  PRTY4=200               ;PRIORITY LEVEL 4
004000                  REG=4000                ;SELECTS R10-R15
000000                  KM=000000               ;KERNEL MODE
040000                  SM=040000                       ;SUPERVISORY MODE
140000                  UM=140000               ;USER MODE
000000                  PKM=000000              ;PREVIOUS KERNEL MODE
010000                  PSM=010000              ;PREVIOUS SUPERVISORY MODE
030000                  PUM=030000              ;PREVIOUS USER MODE
004000                  REG=004000              ;SELECT R10-R15

                ;VECTOR ADDRESSES
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000004                  ERRVEC=4                ;ADDRESS OF ERROR VECTOR
000010                  RESVEC=10               ;ADDRESS OF RESERVED INST, TRAP VECTOR
000014                  TBITVEC=14              ;ADDRESS OF 'T' BIT TRAP VECTOR
000020                  IOTVEC=20               ;ADDRESS OF IOT TRAP VECTOR
000024                  PFVEC=24                ;ADDRESS OF POWER FAIL TRAP VECTOR
000030                  EMTVEC=30               ;ADDRESS OF EMT VECTOR
000034                  TRAPVEC=34              ;ADDRESS OF TRAP VECTOR
000064                  TPVEC=64                ;ADDRESS OF TTY PRINTER INTERRUPT VECTOR
000240                  PIRVEC=240              ;ADDRESS OF PIRQ VECTOR
000244                  FPVEC=244               ;ADDRESS OF FLOATING POINT INT, VECTOR
000250                  MMVEC=250               ;ADDRESS OF MEMORY MGMT ERROR TRAP VECTOR

                ;REGISTER ADDRESSES
177776                  PSW=177776              ;ADDRESS OF STATUS REGISTER
177774                  SLR=177774              ;ADDRESS OF STACK LIMIT REGISTER
177772                  PIRQ=177772             ;ADDRESS OF PROGRAM INTERRUPT REQUEST
177770                  UBREAK=177770           ;ADDRESS OF MICRO BREAK REGISTER
177560                  TKS=177560              ;ADDRESS OF KEYBOARD CSR
177562                  TKB=177562              ;ADDRESS OF KEYBOARD BUFFER
177564                  TPS=177564              ;ADDRESS OF TELEPRINTER CSR
177566                  TPB=177566              ;ADDRESS OF TELEPRINTER BUFFER
177570                  SWR=177570              ;ADDRESS OF CONSOL SWITCH REGISTER
177570                  DISPLAY=177570          ;ADDRESS OF CONSOL DISPLAY REGISTER

                ;INITIAL STACK POINTER SETTINGS
001060                  KPTR=1060               ;BOTTOM OF KERNEL STACK
000700                  SPTR=700                ;SUPERVISORY STACK SETTING
000600                  UPTR=600                ;USER STACK SETTING
000740                  REQPTR=740              ;REQ STACK PTR

                ;MISCELLANEOUS BIT ASSIGNMENTS
100000                  BIT15=100000
040000                  BIT14=40000
020000                  BIT13=20000
000400                  BIT8=400
000100                  BIT6=100
010000                  PIR4=10000              ;LEVEL 4 PROGRAM INT, RQST,

                ;MEMORY MANAGEMENT REGISTER SR0 BIT ASSIGNMENTS
000001                  ENMM=1                  ;ENABLE MEMORY MANAGEMENT
000000                  VS0=0
000002                  VS1=2
000004                  VS2=4
000006                  VS3=6
000010                  VS4=10
000012                  VS5=12
000014                  VS6=14
000016                  VS7=16
000020                  DS=20
000000                  IS=00
000140                  UPG=140
000040                  SPG=40
000000                  KPG=000
000200                  IC=200                  ;INSTRUCTION COMPLETE
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000400                  DM=400                  ;DESTINATION MODE
001000                  TE=1000                 ;TRAP ENABLE
004000                  OST=4000                ;OS) ABORT FLAG
010000                  MMT=10000               ;MEMORY MANAGEMENT TRAP
020000                  AVA=20000               ;ACCESS VIOLATION ABORT
040000                  PLA=40000               ;PAGE LENGTH ABORT
100000                  NRA=100000              ;NON-RESIDENT ABORT

                        ;PAGE DESCRIPTOR REGISTER (PDR) BIT ASSSIGNMENTS
000010                  ED=10                   ;EXPANSION DIRECTION BIT IN PDR
000000                  UP=0                    ;EXPAND UP
000010                  DWN=10                  ;EXPAND DOWN
000200                  A=200                   ;'A' BIT IN PDR
000100                  W=100                   ;'W' BIT IN PDR

                        ;SR1 BIT ASSIGNMENTS
000010                  S1=10
000020                  S2=20
000040                  S4=40
000060                  S6=60
000100                  S8=100
000370                  SM1=370
000360                  SM2=360
000340                  SM4=340
000320                  SM6=320
000300                  SM8=300
000000                  D0=0
004000                  D1=4000
010000                  D2=10000
174000                  DM1=174000
170000                  DM2=170000
000000                  DR0=000
000400                  DR1=400
001000                  DR2=1000
001400                  DR3=1400
002000                  DR4=2000
002400                  DR5=2400
003000                  DR6=3000
003400                  DR7=3400

                        ;SR3 BIT ASSIGNMENTS
000001                  UDE=1                   ;USER 'D' SPACE ENABLE
000002                  SDE=2                   ;SUPERVISOR 'D' SPACE ENABLE
000004                  KDE=4                   ;KERNEL 'D' SPACE ENABLE

                        ;MEMORY MANAGEMENT REGISTER ADDRESS ASSIGNMENTS
177572                  SR0=177572              ;ADDRESS OF MEMORY MGMT REGISTER SR0
177574                  SR1=177574              ;   "    "      "          "   SR1
177576                  SR2=177576              ;   "    "      "          "   SR2
172516                  SR3=172516              ;ADDRESS OF MEMORY MGMT REGISTER SR3

177600                  UIPDR0=177600           ;ADDRESS OF USER 'I' PDR'S
177602                  UIPDR1=177602
177604                  UIPDR2=177604
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177606                  UIPDR3=177606
177610                  UIPDR4=177610
177612                  UIPDR5=177612
177614                  UIPDR6=177614
177616                  UIPDR7=177616

177620                  UDPDR0=177620           ;ADDRESS OD USER 'D' PDR'S
177622                  UDPDR1=177622
177624                  UDPDR2=177624
177626                  UDPDR3=177626
177630                  UDPDR4=177630
177632                  UDPDR5=177632
177634                  UDPDR6=177634
177636                  UDPDR7=177636

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

177660                  UDPAR0=177660
177662                  UDPAR1=177662
177664                  UDPAR2=177664
177666                  UDPAR3=177666
177670                  UDPAR4=177670
177672                  UDPAR5=177672
177674                  UDPAR6=177674
177676                  UDPAR7=177676

172200                  SIPDR0=172200
172202                  SIPDR1=172202
172204                  SIPDR2=172204
172206                  SIPDR3=172206
172210                  SIPDR4=172210
172212                  SIPDR5=172212
172214                  SIPDR6=172214
172216                  SIPDR7=172216

172220                  SDPDR0=172220
172222                  SDPDR1=172222
172224                  SDPDR2=172224
172226                  SDPDR3=172226
172230                  SDPDR4=172230
172232                  SDPDR5=172232
172234                  SDPDR6=172234
172236                  SDPDR7=172236

172240                  SIPAR0=172240
172242                  SIPAR1=172242
172244                  SIPAR2=172244
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                172246                  SIPAR3=172246
                172250                  SIPAR4=172250
                172252                  SIPAR5=172252
                172254                  SIPAR6=172254
                172256                  SIPAR7=172256

                172260                  SDPAR0=172260
                172262                  SDPAR1=172262
                172264                  SDPAR2=172264
                172266                  SDPAR3=172266
                172270                  SDPAR4=172270
                172272                  SDPAR5=172272
                172274                  SDPAR6=172274
                172276                  SDPAR7=172276

                172300                  KIPDR0=172300
                172302                  KIPDR1=172302
                172304                  KIPDR2=172304
                172306                  KIPDR3=172306
                172310                  KIPDR4=172310
                172312                  KIPDR5=172312
                172314                  KIPDR6=172314
                172316                  KIPDR7=172316

                172320                  KDPDR0=172320
                172322                  KDPDR1=172322
                172324                  KDPDR2=172324
                172326                  KDPDR3=172326
                172330                  KDPDR4=172330
                172332                  KDPDR5=172332
                172334                  KDPDR6=172334
                172336                  KDPDR7=172336

                172340                  KIPAR0=172340
                172342                  KIPAR1=172342
                172344                  KIPAR2=172344
                172346                  KIPAR3=172346
                172350                  KIPAR4=172350
                172352                  KIPAR5=172352
                172354                  KIPAR6=172354
                172356                  KIPAR7=172356

                172360                  KDPAR0=172360
                172362                  KDPAR1=172362
                172364                  KDPAR2=172364
                172366                  KDPAR3=172366
                172370                  KDPAR4=172370
                172372                  KDPAR5=172372
                172374                  KDPAR6=172374
                172376                  KDPAR7=172376

                                ;ACCESS CONTROL FIELD DEFINITIONS (IN PDR)
                000000                  NR0=0                   ;NON-RESIDENT ABORT ALL REFS.
                000001                  RDOT=1                  ;TRAP ON READ,ABORT ON WRITE
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                000002                  RDO=2                   ;READ,ABORT ON WRITE
                000003                  NR3=3                   ;UNUSED ABORT ALL
                000004                  RWT=4                   ;TRAP ON READ & WRITE
                000005                  RWTW=5                  ;READ,TRAP ON WRITE
                000006                  RW=6                    ;READ & WRITE
                000007                  NR7=7                   ;ABORT ALL

                                ;INSTRUCTION EQUATES
                000000                  HLT=HALT
                104000                  SCOPE=EMT               ;SCOPE IS AN EMT TRAP


                                ;VIRTUAL ADDRESSES
                001100                  KD0=1100
                016700                  KI0=16700
                140000                  KD6=140000
                040000                  SI2=40000
                020000                  SD1=20000
                120000                  UI5=120000
                100000                  UD4=100000
                                ;CORRESPONDING PHYSICAL ADDRESSES
                016600                  PKI0=16600
                016700                  PKD6=16700
                017000                  PSI2=17000
                017100                  PSD1=17100
                017200                  PUI5=17200
                017300                  PUD4=17300
                                        .LIST   ME
                                        .NLIST  MC,MD,SEQ

                                ;FILL TRAP AND INTERRUPT VECTOR AREA WITH
                                        .,+2
                                        ;HALT
                                ;UNEXPECTED TRAPS/INTERRUPTS WILL HALT AT VECTOR ADDRESS +2
                                ;AND DISPLAY VECTOR ADDRESS+4 NOTE: LISTING DOES NOT SHOW LOADING THE
                                ;VECTOR AREA.

                                        .NLIST  MC,SEQ
                000004                  .=ERRVEC
        000004  000400                  .WORD   SHLT
                000030                  .=EMTVEC
        000030  000434                  .WORD   SCOPEA
                000046                  .=46
        000046  016442                  LOGICAL
                000052                  .=52
        000052  040000                  40000

                000176                  .=176
        000176  000000                  HALT                    ;ERROR!  TO IDENTIFY WHICH TEST FAILED
                                ;EXAMINE R1(R11), THE CONTENTS OF WHICH IS THE PC OF THE LAST TEST SUC-
                                ;CESSFULLY COMPLETED, THE TOP WORD ON THE KERNEL STACK CONTAINS THE VIRTUAL
                                ;ADDRESS OF THE HLT INSTRUCTION IN THE TEST THAT FAILED.
                000200                  .=200
        000200  000167  000204          JMP     START           ;GO START TEST
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        000400                          .=400
                                ;SUPERVISOR/USER HLT (HALT) TRAP SERVICE ROUTINE
000400  042737  000001  177572  SHLT:   BIC     #1,@#SR0          ;TURN MEM MGMT OFF
000406  162716  000002                  SUB     #2,(KSP)          ;POINT PC TO TRAPPING INST.
000412  005776  000000                  TST     @(KSP)            ;WAS IT A HLT (HALT)
000416  001404                          BEQ     SHLTA
000420  062716  000002                  ADD     #2,(KSP)          ;RESTORE PC TO TRAPPING INST.
000424  000137  000006                  JMP     @#ERRVEC+2        ;GO HALT AT 6
000430  000137  000176          SHLTA:  JMP     @#176             ;GO HALT AT ADDRESS 176

                                ;SCOPE (EMT) SERVICE ROUTINE
000434                          SCOPEA:
000434  005037  177572                  CLR     @#SR0             ;DISABLE MEMORY MGMT
000440  011601                          MOV     (KSP),R1          ;SAVE PC IN R1
000442  012706  001060                  MOV     #KPTR,KSP         ;SET KERNEL STACK PTR
000446  005046                          CLR     -(KSP)            ;SET UP FOR KERNEL MODE ON RETURN
000450  010146                          MOV     R1,-(KSP)         ;RETURN IN LINE
000452  012746  000700                  MOV     #SPTR,-(KSP)      ;SUPER STACK PTR ON KERNEL STACK
000456  012746  000600                  MOV     #UPTR,-(KSP)      ;USER STACK PTR ON KERNEL STACK
000462  012737  030000  177776          MOV     #PUM,@#PSW        ;PREVIOUS USER MODE
000470  106606                          MTPD    USP               ;SET USER STACK PTR
000472  006237  177776                  ASR     @#PSW             ;PREV SUPER MODE
000476  106606                          MTPD    SSP               ;SET SUPER STACK PTR
000500  032737  000400  177570          BIT     #BIT8,@#SWR       ;LOAD MICRO BREAK REG?
000506  001403                          BEQ     SCOPEX
000510  113737  177570  177770          MOVB    @#SWR,@#UBREAK    ;LOAD SR0-7 INTO MICRO BREAK REG.
000516  000006                  SCOPEX: RTT                       ;RETURN TO NEXT TEST IN KERNEL MODE
                                                                  ;WITH ALL STACK PTRS SET UP

        001000                          .=1000
                                ;TAGS
001000  000000                  ICNT:   0                         ;CONTAINS PASS COUNT
001002  000000                  SR0T:   0                         ;CONTAINS SR0 CONTENTS ON ERROR
        001004                          TEMP=.
        001012                          .=.+6


        001110                          .=1110
                                ;START MEMORY MANAGEMENT TEST.
001110  000240                  START:  NOP
001112  005067  177662                  CLR     ICNT                      ;CLEAR PASS COUNT
001116  016737  177656  177570  BEGIN:  MOV     ICNT,@#DISPLAY    ;DISPLAY PASS COUNT
001124  012706  001060                  MOV     #KPTR,KSP         ;SET KERNEL STACK PTR
001130  104000                          SCOPE                     ;SCOPE SETS ALL STACK PTRS
001132  012737  000400  177774          MOV     #400,@#SLR        ;SET STACK LIMIT = 1000
001140  005037  000252                  CLR     @#MMVEC+2         ;KERNEL MODE ON ABORT
001144  012737  000007  172516          MOV     #KDE+SDE+UDE,@#SR3
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                                ;ROUTINE TO CLEAR MEMORY MANAGEMENT REGISTERS.
001152  000240                  MM0:    NOP
001154  005067  176412                  CLR     SR0
001160  012702  177600                  MOV     #UIPDR0,R2
001164  012703  000040                  MOV     #40,R3
001170  005022                          CLR     (R2)+
001172  077302                          SOB     R3,.-2
001174  012702  172200                  MOV     #SIPDR0,R2
001200  012703  000100                  MOV     #100,R3
001204  005022                          CLR     (R2)+
001206  077302                          SOB     R3,.-2

001210                          MMK:
001210  012737  073006  172300          MOV     #167*256.-400+UP+RW,@#KIPDR0    ;SET KIPDR0=RW UP 167 BLOCKS
001216  012737  004006  172320          MOV     #11*256.-400+UP+RW,@#KDPDR0     ;SET KDPDR0=RW UP 11 BLOCKS
001224  012737  000006  172334          MOV     #1*256.-400+UP+RW,@#KDPDR6      ;SET KDPDR6=RW UP 1 BLOCKS
001232  012737  077406  172336          MOV     #200*256.-400+UP+RW,@#KDPDR7    ;SET KDPDR7=RW UP 200 BLOCKS
001240  012737  073006  172200          MOV     #167*256.-400+UP+RW,@#SIPDR0    ;SET SIPDR0=RW UP 167 BLOCKS
001246  012737  004006  172220          MOV     #11*256.-400+UP+RW,@#SDPDR0     ;SET SDPDR0=RW UP 11 BLOCKS
001254  012737  000006  172222          MOV     #1*256.-400+UP+RW,@#SDPDR1      ;SET SDPDR1=RW UP 1 BLOCKS
001262  012737  000006  172204          MOV     #1*256.-400+UP+RW,@#SIPDR2      ;SET SIPDR2=RW UP 1 BLOCKS
001270  012737  073006  177600          MOV     #167*256.-400+UP+RW,@#UIPDR0    ;SET UIPDR0=RW UP 167 BLOCKS
001276  012737  004006  177620          MOV     #11*256.-400+UP+RW,@#UDPDR0     ;SET UDPDR0=RW UP 11 BLOCKS
001304  012737  000006  177630          MOV     #1*256.-400+UP+RW,@#UDPDR4      ;SET UDPDR4=RW UP 1 BLOCKS
001312  012737  000006  177612          MOV     #1*256.-400+UP+RW,@#UIPDR5      ;SET UIPDR5=RW UP 1 BLOCKS

001320  005067  171014                  CLR     KIPAR0            ;VA=PA=0000-16677
001324  005067  171030                  CLR     KDPAR0            ;VA=PA=0-1077
001330  012767  000167  171036          MOV     #167,KDPAR6       ;VA=140000-140077;PA=16700-16777
001336  012767  007600  171032          MOV     #7600,KDPAR7      ;VA=160000-177776,PA=760000-777776
                                                                  ;(I/O PAGE)

001344  005067  170670                  CLR     SIPAR0            ;VA=PA=0-16677
001350  005067  170704                  CLR     SDPAR0            ;VA=PA=0-1077
001354  012767  000170  170662          MOV     #170,SIPAR2       ;VA=40000-40077/PA=17000-17077 (SUPER I SPACE)
001362  012767  000171  170672          MOV     #171,SDPAR1       ;VA=20000-20077/PA=17100-17177 (SUPER D SPACE)

001370  005067  176244                  CLR     UIPAR0            ;VA=PA=0-16677
001374  005067  176260                  CLR     UDPAR0            ;VA=PA=0000-1077
001400  012767  000172  176244          MOV     #172,UIPAR5       ;VA=120000-120077/PA=17200-17277 (USER I SPACE)
001406  012767  000173  176254          MOV     #173,UDPAR4       ;VA=100000-100077/PA=17300-17377 (USER D SPACE)
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                                ;CHECK ABORT AT S13,00
                                ;ABORTS WHEN SOURCE OPERAND IS FETCHED

                                ;SOURCE MODE=1
                                T01:
001414
001414  012737  001450  000250        MOV     #T0C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
001422  005067  176624                CLR     MMVEC+2
001426  012703  016676                MOV     #K10-2,R3
001432  010302                        MOV     R3,R2
001434  005013                        CLR     (R3)
001436  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
001442  000277                        SCC
001444  011302                T0A:    MOV     (R3),R2         ;MEM MGMT LENGTH ABORT AT S13,10
001446  000000                T0B:    HLT                     ;ERROR! DID NOT ABORT

001450                          T0C:
001450  022706  001054                CMP     #KPTR+4,KSP     ;CHECK STACK PTR
001454  001401                        BEQ     .+4             ;AFTER ABORT
001456  000000                        HLT                     ;ERROR! INCORRECT STACK PTR
001460  022766  000017  000002        CMP     #17,2(KSP)      ;CHECK THAT CORRECT STATUS
001466  001401                        BEQ     .+4             ;WAS SAVED ON THE STACK
001470  000000                        HLT                     ;ERROR! INCORRECT STATUS
001472  022767  040021  176072        CMP     #PLA+US+VS0+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
001500  001401                        BEQ     .+4             ;& FAILING PAGE #)
001502  000000                        HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
001504  022767  000000  176062        CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
001512  001401                        BEQ     .+4
001514  000000                        HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
001516  022767  001444  176052        CMP     #T0A,SR2        ;CHECK CONTENTS OF SR2
001524  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
001526  000000                        HLT                     ;ERROR! INCORRECT PC IN SR2
001530  020203                        CMP     R2,R3           ;CHECK THAT INSTRUCTIONS AS ABORTED
001532  001401                        BEQ     .+4
001534  000000                        HLT                     ;ERROR!
001536  104000                        SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;ABORTS WHEN SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE=2,BYTE INSTRUCTION
001540  012737  001566  000250        MOV     #T1C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
001546  012702  016700                MOV     #K10,R2
001552  010204                        MOV     R2,R4
001554  005012                        CLR     (R2)
001556  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
001562  122202                T1A:    CMPB    (R2)+,R2        ;SEG LENGTH ABORT AT S13,10
001564  000000                T1B:    HLT                     ;ERROR! DID NOT ABORT

001566                          T1C:
001566  022706  001054                CMP     #KPTR+4,KSP     ;CHECK STACK PTR
001572  001401                        BEQ     .+4             ;AFTER ABORT
001574  000000                        HLT                     ;ERROR! INCORRECT STACK PTR
001576  022767  040021  176766        CMP     #PLA+US+VS0+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
001604  001401                        BEQ     .+4             ;& FAILING PAGE #)
001606  000000                        HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
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001610  022767  000012  176756        CMP     #S1+R2,SR1      ;CHECK SR1 (REGISTER CHANGES)
001616  001401                        BEQ     .+4
001620  000000                        HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
001622  022767  001562  176746        CMP     #T1A,SR2        ;CHECK CONTENTS OF SR2
001630  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
001632  000000                        HLT                     ;ERROR! INCORRECT PC IN SR2
                                ;CHECK THAT REGISTER INCREMENTED PROPERLY
001634  022702  016701                CMP     #K10+1,R2
001640  001401                        BEQ     .+4
001642  000000                        HLT                     ;ERROR!
001644  104000                        SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;ABORTS WHEN ADDRESS OF SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE=3
001646  012767  004000  176122        MOV     #REG,PSW        ;KERNEL MODE!!!,PREV KERNEL MODE!!
001654  012737  001702  000250        MOV     #T2C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
001662  012705  016700                MOV     #K10,R15
001666  010504                        MOV     R15,R14
001670  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
001674  000277                        SCC                     ;PRESET CC'S
001676  153504                T2A:    BISB    @(R15)+,R14     ;NON-RES ABORT AT S13,10
001700  000000                T2B:    HLT                     ;ERROR! FAILED TO ABORT

001702                          T2C:
001702  022766  004017  000002        CMP     #REG+17,2(KSP)  ;CHECK THAT CORRECT STATUS
001710  001401                        BEQ     .+4             ;WAS SAVED ON THE STACK
001712  000000                        HLT                     ;ERROR! INCORRECT STATUS
001714  022767  040021  175650        CMP     #PLA+US+VS0+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
001722  001401                        BEQ     .+4             ;& FAILING PAGE #)
001724  000000                        HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
001726  022767  000025  175640        CMP     #S2+R5,SR1      ;CHECK SR1 (REGISTER CHANGES)
001734  001401                        BEQ     .+4
001736  000000                        HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
001740  022767  001676  175630        CMP     #T2A,SR2        ;CHECK CONTENTS OF SR2
001746  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
001750  000000                        HLT                     ;ERROR! INCORRECT PC IN SR2
001752  052767  004000  176016        BIS     #REG,PSW
001760  022705  016702                CMP     #K10+2,R15
001764  001401                        BEQ     .+4
001766  000000                        HLT                     ;ERROR! R15 DID NOT AUTO-INCREMENT
001770  104000                        SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT S45,10
                                ;ABORTS WHEN SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE=4,SUPERV|SORY MODE
001772  012737  002026  000250        MOV     #T3C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
002000  012767  050000  175770        MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
002006  012702  040002                MOV     #S12+2,R2
002012  010203                        MOV     R2,R3
002014  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
002020  000277                        SCC                     ;PRESET CC'S
002022  064203                T3A:    ADD     -(R2),R3        ;NON-RESIDENT ABORT AT S45,10
002024  000000                T3B:    HLT                     ;ERROR! FAILED TO ABORT
```

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002026                          T3C:
002026  022706  001054                    CMP     #KPTR+4,KSP             ;CHECK STACK PTR
002032  001401                            BEQ     .+4                     ;AFTER ABORT
002034  000000                            HLT                             ;ERROR: INCORRECT STACK PTR
002036  022766  050017  000002            CMP     #SM+PSM+17,2(KSP)       ;CHECK THAT CORRECT STATUS
002044  001401                            BEQ     .+4                     ;WAS SAVED ON THE STACK
002046  000000                            HLT                             ;ERROR: INCORRECT STATUS
002050  022767  130065  175514            CMP     #NRA+SPG+DS+VS2+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
002056  001401                            BEQ     .+4                     ;& FAILING PAGE #)
002060  000000                            HLT                             ;ERROR: INCORRECT ABORT CONDITIONS OR PAGE IDENT
002062  022767  000362  175504            CMP     #SM2+R2,SR1             ;CHECK SR1 (REGISTER CHANGES)
002070  001401                            BEQ     .+4
002072  000000                            HLT                             ;ERROR: INCORRECT REGISTER CHANGES RECORDED IN SR1
002074  022767  002022  175474            CMP     #T3A,SR2                ;CHECK CONTENTS OF SR2
002102  001401                            BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
002104  000000                            HLT                             ;ERROR: INCORRECT PC IN SR2
                                ;CHECK CONTENTS OF REFERENCED PAGE DESCRIPTOR REGISTER (SDPDR2)
002106  032767  000300  176110            BIT     #A+W,SDPDR2             ;CHECK CONTENTS OF REFERENCED PDR
002114  001401                            BEQ     .+4
002116  000000                            HLT                             ;ERROR!
002120  042767  000300  176076            BIC     #A+W,SDPDR2
002126  022742  040000                    CMP     #SI2,-(R2)              ;CHECK THAT AUTO-DECREMENT TOOK PLACE
002132  001401                            BEQ     .+4
002134  000000                            HLT                             ;ERROR: R2 FAILED TO AUTO-DECREMENT
002136  022703  040002                    CMP     #SI2+2,R3               ;CHECK THAT R3 WAS NOT CHANGED
002142  001401                            BEQ     .+4
002144  000000                            HLT                             ;ERROR!
002146  104040                            SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;ABORTS WHEN ADDRESS OF SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE=5,USER MODE
002150  012737  002210  000250            MOV     #T4C,@#MMVEC            ;LOAD MEM MGMT ERROR VECTOR
002156  012767  170000  175612            MOV     #UM+PUM,PSW             ;USER MODE!!!,PREV USER MODE!!
002164  012704  120002                    MOV     #UI5+2,R4
002170  010405                            MOV     R4,R5
002172  012737  177777  017200            MOV     #-1,@#PUI5
002200  005237  177572                    INC     @#SR0                   ;ENABLE MEMORY MGMT
002204  145405                    T4A:    BICB    @-(R4),R5               ;NON-RESIDENT ABORT AT S45,10
002206  000000                    T4B:    HLT                             ;ERROR: FAILED TO ABORT

002210                          T4C:
002210  022706  001054                    CMP     #KPTR+4,KSP             ;CHECK STACK PTR
002214  001401                            BEQ     .+4                     ;AFTER ABORT
002216  000000                            HLT                             ;ERROR: INCORRECT STACK PTR
002220  022767  100173  175344            CMP     #NRA+UPG+DS+VS5+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
002226  001401                            BEQ     .+4                     ;& FAILING PAGE #)
002230  000000                            HLT                             ;ERROR: INCORRECT ABORT CONDITIONS OR PAGE IDENT
002232  022767  000364  175334            CMP     #SM2+R4,SR1             ;CHECK SR1 (REGISTER CHANGES)
002240  001401                            BEQ     .+4
002242  000000                            HLT                             ;ERROR: INCORRECT REGISTER CHANGES RECORDED IN SR1
002244  022767  002204  175324            CMP     #T4A,SR2                ;CHECK CONTENTS OF SR2
002252  001401                            BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
002254  000000                            HLT                             ;ERROR: INCORRECT PC IN SR2
                                ;CHECK CONTENTS OF REFERENCED PAGE DESCRIPTOR REGISTER (UDPDR5)
```



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002256  032767  000300  175346            BIT     #A+W,UDPDR5             ;CHECK CONTENTS OF REFERENCED PDR
002264  001401                            BEQ     .+4
002266  000000                            HLT                             ;ERROR!
002270  042767  000300  175334            BIC     #A+W,UDPDR5
002276  022704  120000                    CMP     #UI5,R4 ;CHECK AUTO-DECREMENT
002302  001401                            BEQ     .+4
002304  000000                            HLT                             ;ERROR: FAILED TO AUTO-DECREMENT R4
002306  022705  120002                    CMP     #UI5+2,R5               ;CHECK THAT R5 WAS UNCHANGED
002312  001401                            BEQ     .+4
002314  000000                            HLT                             ;ERROR!
002316  104000                            SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT MTU,10
                                ;ABORTS WHEN DATA IS POPPED OFF THE SUPER STACK
002320  012767  050000  175450            MOV     #SM+PSM,PSW             ;SUPER MODE!!!,PREV SUPER MODE!!
002326  012737  002360  000250            MOV     #T5C,@#MMVEC            ;LOAD MEM MGMT ERROR VECTOR
002334  012706  040000                    MOV     #SI2,SSP                ;SUPER STACK PTR IS NON-RESIDENT
002340  012737  177777  017000            MOV     #-1,@#PSI2
002346  005002                            CLR     R2
002350  005237  177572                    INC     @#SR0                   ;ENABLE MEMORY MGMT
002354  106602                    T5A:    MTPD    R2                      ;NON-RES ABORT AT MTU,10
002356  000000                    T5B:    HLT                             ;ERROR: FAILED TO ABORT

002360                          T5C:
002360  022706  001054                    CMP     #KPTR+4,KSP             ;CHECK STACK PTR
002364  001401                            BEQ     .+4                     ;AFTER ABORT
002366  000000                            HLT                             ;ERROR: INCORRECT STACK PTR
002370  022767  100065  175174            CMP     #NRA+SPG+DS+VS2+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
002376  001401                            BEQ     .+4                     ;& FAILING PAGE #)
002400  000000                            HLT                             ;ERROR: INCORRECT ABORT CONDITIONS OR PAGE IDENT
002402  022767  000026  175164            CMP     #S2+SP,SR1              ;CHECK SR1 (REGISTER CHANGES)
002410  001401                            BEQ     .+4
002412  000000                            HLT                             ;ERROR: INCORRECT REGISTER CHANGES RECORDED IN SR1
002414  022767  002354  175154            CMP     #T5A,SR2                ;CHECK CONTENTS OF SR2
002422  001401                            BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
002424  000000                            HLT                             ;ERROR: INCORRECT PC IN SR2
002426  005702                            TST     R2                      ;CHECK THAT R2 WAS NOT CHANGED
002430  001401                            BEQ     .+4
002432  000000                            HLT                             ;ERROR!
002434  106506                            MFPD    SSP                     ;PUSH SSP ONTO KERNEL STACK
002436  022716  040002                    CMP     #SI2+2,(KSP)            ;CHECK THAT SUPER STACK PTR POPPED
002442  001401                            BEQ     .+4
002444  000000                            HLT
002446  104000                            SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT S67,20
                                ;ABORTS WHEN SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE = 6
002450  012737  002474  000250            MOV     #T6C,@#MMVEC            ;LOAD MEM MGMT ERROR VECTOR
002456  012702  177777                    MOV     #-1,R2
002462  005237  177572                    INC     @#SR0                   ;ENABLE MEMORY MGMT
002466  016702  014206                    MOV     K10,R2                  ;SEG LENGTH ABORT AT S67,20
002472  000000                    T6B:    HLT                             ;ERROR: FAILED TO ABORT
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002474                          T6C:
002474  022767  040021  175070          CMP     #PLA+US+VS0+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
002502  001401                          BEQ     .+4                     ;& FAILING PAGE #)
002504  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002506  022767  000000  175060          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
002514  001401                          BEQ     .+4
002516  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
002520  022767  002466  175050          CMP     #T6A,SR2                ;CHECK CONTENTS OF SR2
002526  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
002530  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
002532  005202                          INC     R2                      ;CHECK THAT R2 WAS NOT CHANGED
002534  001401                          BEQ     .+4
002536  000000                          HLT                             ;ERROR!
002540  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;ABORTS WHEN ADDRESS OF SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE # 7, PC
002542  012737  002564  000250          MOV     #T7C,@#MMVEC            ;LOAD MEM MGMT ERROR VECTOR
002550  005004                          CLR     R4
002552  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
002556  067404  016700          T7A:    ADD     @K10(R4),R4             ;SEG LEN ABORT AT S67,20
002562  000000          T7B:    HLT                                     ;ERROR! FAILED TO ABORT

002564                          T7C:
002564  022767  040021  175000          CMP     #PLA+US+1,SR0           ;CHECK SR0 (ABORT CONDITIONS
002572  001401                          BEQ     .+4                     ;& FAILING PAGE #)
002574  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002576  022767  000000  174770          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
002604  001401                          BEQ     .+4
002606  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
002610  022767  002556  174760          CMP     #T7A,SR2                ;CHECK CONTENTS OF SR2
002616  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
002620  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
002622  005704                          TST     R4
002624  001401                          BEQ     .+4
002626  000000                          HLT
002630  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT S13,30
                                ;ABORTS WHEN SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE # 3,PC
002632  012737  002654  000250          MOV     #T10C,@#MMVEC           ;LOAD MEM MGMT ERROR VECTOR
002640  005003                          CLR     R3
002642  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
002646  013703  016700          T10A:   MOV     @#K10,R3                ;SEG LEN ABORT AT S13,30
002652  000000          T10B:   HLT                                     ;ERROR! FAILED TO ABORT

002654                          T10C:
002654  022767  040021  174710          CMP     #PLA+US+1,SR0           ;CHECK SR0 (ABORT CONDITIONS
002662  001401                          BEQ     .+4                     ;& FAILING PAGE #)
002664  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002666  022767  000027  174700          CMP     #S2+PC,SR1              ;CHECK SR1 (REGISTER CHANGES)
002674  001401                          BEQ     .+4
002676  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
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002700  022767  002646  174670          CMP     #T10A,SR2               ;CHECK CONTENTS OF SR2
002706  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
002710  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
002712  005703                          TST     R3
002714  001401                          BEQ     .+4
002716  000000                          HLT                             ;ERROR!
002720  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ; ABORTS WHEN SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE # 5
002722  012737  002752  000250          MOV     #T11C,@#MMVEC           ;LOAD MEM MGMT ERROR VECTOR
002730  012703  140002                  MOV     #KD6+2,R3
002734  012737  016700  016700          MOV     #K10,@#PKD6
002742  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
002746  155303          T11A:   BISB    @-(R3),R3               ;SEG LENGTH ABORT AT S13,30
002750  000000          T11B:   HLT                                     ;ERROR! FAILED TO ABORT

002752                          T11C:
002752  022767  040021  174612          CMP     #PLA+US+VS0+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
002760  001401                          BEQ     .+4                     ;& FAILING PAGE #)
002762  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002764  022767  000363  174602          CMP     #SM2+R3,SR1             ;CHECK SR1 (REGISTER CHANGES)
002772  001401                          BEQ     .+4
002774  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
002776  022767  002746  174572          CMP     #T11A,SR2               ;CHECK CONTENTS OF SR2
003004  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
003006  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
003010  022703  140000                  CMP     #KD6,R3
003014  001401                          BEQ     .+4
003016  000000                          HLT
003020  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;ABORTS WHEN SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE=7,PC
003022  012737  003062  000250          MOV     #T12C,@#MMVEC           ;LOAD MEM MGMT ERROR VECTOR
003030  012767  050000  174740          MOV     #SM+PSM,PSW             ;SUPER MODE!!!,PREV SUPER MODE!!
003036  012737  040000  017100          MOV     #S12,@#PSD1
003044  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
003050  000277                          SCC                             ;PRESET CC'S
003052  167737  017722  017100  T12A:   SUB     @SD1,@#PSD1             ;NON-RES ABORT
003060  000000          T12B:   HLT                                     ;ERROR! FAILED TO ABORT

003062                          T12C:
003062  022766  050017  000002          CMP     #SM+PSM+17,2(KSP)       ;CHECK THAT CORRECT STATUS
003070  001401                          BEQ     .+4                     ;WAS SAVED ON THE STACK
003072  000000                          HLT                             ;ERROR! INCORRECT STATUS
003074  022767  130365  174470          CMP     #NRA+SPG+DS+VS2+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
003102  001401                          BEQ     .+4                     ;& FAILING PAGE #)
003104  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003106  022767  000000  174460          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
003114  001401                          BEQ     .+4
003116  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
003120  022767  003052  174450          CMP     #T12A,SR2               ;CHECK CONTENTS OF SR2
003126  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
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003130  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003132  005037  177572                  CLR     @#SR0           ;DISABLE MEMORY MGMT
003136  022737  040000  017100          CMP     #SI2,@#PSW1
003144  001401                          BEQ     .+4
003146  000000                          HLT                     ;ERROR!
003150  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT RTI,1@
                                ;ABORTS WHEN TOP WORD OFF STACK (PC) IS FETCHED
003152  012737  003214  000250          MOV     #T13C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003160  012767  050000  174610          MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
003166  012706  040000                  MOV     #SI2,SSP        ;SUPER STACK PTR IS NON-RES
003172  012737  003212  017000          MOV     #T13D,@#PSI2    ;LOAD 'NEW' PC
003200  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
003204  000277                          SCC
003206  000002          T13A:   RTI                             ;NON-RES ABORT AT RTI,1@
003210  000000          T13B:   HLT                             ;ERROR! FAILED TO ABORT
003212  000000          T13D:   HLT                             ;ERROR! RTI FAILED & DID NOT ABORT

003214                  T13C:
003214  022706  001054                  CMP     #KPTR+4,KSP     ;CHECK STACK PTR
003220  001401                          BEQ     .+4             ;AFTER ABORT
003222  000000                          HLT                     ;ERROR! INCORRECT STACK PTR
003224  022766  050017  000002          CMP     #SM+PSM+17,2(KSP)       ;CHECK THAT CORRECT STATUS
003232  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
003234  000000                          HLT                     ;ERROR! INCORRECT STATUS
003236  022767  100065  174326          CMP     #NRA+SPG+DS+VS2+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
003244  001401                          BEQ     .+4             ;& FAILING PAGE #)
003246  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003250  022767  000026  174316          CMP     #S2+SP,SR1      ;CHECK SR1 (REGISTER CHANGES)
003256  001401                          BEQ     .+4
003260  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
003262  022767  003206  174306          CMP     #T13A,SR2       ;CHECK CONTENTS OF SR2
003270  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003272  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003274  106506                          MFPD    SSP             ;PUSH SUPER STACK PTR ONTO KERNEL STACK
003276  022716  040002                  CMP     #SI2+2,(KSP)    ;CHECK THAT SUPER STACK PTR WAS POPPED
003302  001401                          BEQ     .+4
003304  000000                          HLT                     ;ERROR!
003306  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT RTI,3@
                                ;ABORTS WHEN SECOND WORD ON STACK (STATUS) IS FETCHED
003310  012737  003354  000250          MOV     #T14C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003316  012767  170000  174492          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
003324  012706  100076                  MOV     #UD4+76,USP
003330  012737  003352  017376          MOV     #T14D,@#PUD4+76 ;LOAD USER STACK (PHYS ADRS,)
003336  005037  017400                  CLR     @#PUD4+100      ;AND 'NEW' STATUS
003342  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
003346  000006          T14A:   RTT                             ;SEE LEN ABORT AFTER FIRST POP RTI,3@
003350  000000          T14B:   HLT                             ;ERROR! FAILED TO ABORT
003352  000000          T14D:   HLT                             ;ERROR!

003354                  T14C:
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003354  022767  040171  174210          CMP     #PLA+UPG+DS+VS4+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
003362  001401                          BEQ     .+4             ;& FAILING PAGE #)
003364  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003366  022767  013026  174200          CMP     #D2+DM+S2+SP,SR1        ;CHECK SR1 (REGISTER CHANGES)
003374  001401                          BEQ     .+4
003376  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
003400  022767  003346  174170          CMP     #T14A,SR2       ;CHECK CONTENTS OF SR2
003406  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003410  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003412  106506                          MFPD    USP             ;PUSH USER STACK PTR ONTO KERNEL STACK
003414  022716  100102                  CMP     #UD4+102,(KSP)  ;CHECK THAT USER STACK PTR POPPED TWICE
003420  001401                          BEQ     .+4
003422  000000                          HLT
003424  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT RTS,1@
                                ;ABORTS WHEN TOP WORD ON SUPER STACK (RETURN PC) IS FETCHED
003426  012767  050000  174342          MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
003434  012706  040000                  MOV     #SI2,SSP
003440  012737  003464  000250          MOV     #T16C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003446  012705  003462                  MOV     #T16D,R5
003452  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
003456  000205          T16A:   RTS     5               ;ABORTS AT RTS,1@ (STACK IS NON-RES)
003460  000000          T16B:   HLT                             ;ERROR! RTS& ABORT FAILED
003462  000000          T16D:   HLT                             ;ERROR! ABORT FAILED

003464                  T16C:
003464  022706  001054                  CMP     #KPTR+4,KSP     ;CHECK STACK PTR
003470  001401                          BEQ     .+4             ;AFTER ABORT
003472  000000                          HLT                     ;ERROR! INCORRECT STACK PTR
003474  022767  100065  174070          CMP     #NRA+SPG+DS+VS2+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
003502  001401                          BEQ     .+4             ;& FAILING PAGE #)
003504  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003506  022767  000026  174060          CMP     #S2+SP,SR1      ;CHECK SR1 (REGISTER CHANGES)
003514  001401                          BEQ     .+4
003516  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
003520  022767  003456  174050          CMP     #T16A,SR2       ;CHECK CONTENTS OF SR2
003526  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003530  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003532  022705  003462                  CMP     #T16D,R5        ;CHECK THAT R5 DID NOT CHANGE
003536  001401                          BEQ     .+4
003540  000000                          HLT                     ;ERROR!
003542  106506                          MFPD    SSP             ;PUSH SUPER STACK PTR ONTO KERNEL STACK
003544  022716  040002                  CMP     #SI2+2,(KSP)    ;CHECK THAT SUPER STACK WAS POPPED
003550  001401                          BEQ     .+4
003552  000000                          HLT                     ;ERROR! INCORRECT SUPER STACK PTR
003554  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT MRK,1@
                                ;ABORTS WHEN TOP WORD ON STACK IS FETCHED
003556  012737  003614  000250          MOV     #T17C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003564  012737  006404  016676          MOV     #6404,@#K1@-2   ;6404 IS A MARK  @ INST,
003572  012705  003612                  MOV     #T17D,R5        ;PRESET R5
003576  005037  016700                  CLR     @#K1@
```

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003602  005237  177572                 INC     @#SR0           ;ENABLE MEMORY MGMT
003606  000137  016676                 JMP     @#KI0+2         ;GO TO MARK INSTRUCTION
        003612                          RETURN=,
                                ;********************** NOTE PC CHANGE **********************************
        016676                          .=KI0+2
016676  006400                  T17A:   MARK    0               ;SEG LEN ABORT AT MRK,10
016700  000000                  T17B:   HLT                     ;ERROR! DID NOT ABORT
                                ;********************** RETURN PC***************************************
        003612                          .=RETURN
003612  000000                  T17D:   HLT                     ;ERROR! FAILED TO ABORT
003614                          T17C:
003614  022706  001054                 CMP     #KPTR+4,KSP     ;CHECK STACK PTR
003620  001401                         BEQ     .+4             ;AFTER ABORT
003622  000000                         HLT                     ;ERROR! INCORRECT STACK PTR
003624  022767  040021  173740         CMP     #PLA+US+VS0+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
003632  001401                         BEQ     .+4             ;& FAILING PAGE #)
003634  000000                         HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003636  022767  000000  173730         CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
003644  001401                         BEQ     .+4
003646  000000                         HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
003650  022767  016676  173720         CMP     #T17A,SR2       ;CHECK CONTENTS OF SR2
003656  001401                         BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003660  000000                         HLT                     ;ERROR! INCORRECT PC IN SR2
003662  022705  003612                 CMP     #T17D,R5        ;CHECK THAT R5 IS UNCHANGED
003666  001401                         BEQ     .+4
003670  000000                         HLT                     ;ERROR!
003672  104000                         SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT IND,00
                                ;ABORTS WHEN SOURCE INDEX IS FETCHED
                                ;SOURCE MODE = 6, PC
003674  012737  003736  000250         MOV     #T20C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003702  012702  177777                 MOV     #-1,R2          ;PRESET DEST REG
003706  012737  016702  016676         MOV     #16702,@#KI0+2  ;16702,000000 IS A MOV ,+4,R2
003714  005037  016700                 CLR     @#KI0           ;INSTRUCTION
003720  005037  016702                 CLR     @#KI0+2
003724  005237  177572                 INC     @#SR0           ;ENABLE MEMORY MGMT
003730  000277                         SCC                     ;PRESET CC'S
003732  000137  016676                 JMP     @#KI0+2         ;GO TO MOV INST,
        003736                          RETURN=,
                                ;********************** NOTE PC CHANGE **********************************
        016676                          .=KI0+2
016676  016702  000000          T20A:   MOV     .+4,R2          ;SEG LEN ABORT WHEN INDEX VALUE IS FETCHED
016702  000000                  T20B:   HLT                             ;ERROR! FAILED TO ABORT
                                ;********************** RETURN PC ***************************************
        003736                          .=RETURN
003736                          T20C:
003736  022706  001054                 CMP     #KPTR+4,KSP     ;CHECK STACK PTR
003742  001401                         BEQ     .+4             ;AFTER ABORT
003744  000000                         HLT                     ;ERROR! INCORRECT STACK PTR
003746  022766  000017  000002         CMP     #17,2(KSP)      ;CHECK THAT CORRECT STATUS
003754  001401                         BEQ     .+4             ;WAS SAVED ON THE STACK
003756  000000                         HLT                     ;ERROR! INCORRECT STATUS
003762  022767  040001  173604         CMP     #PLA+1S+VS0+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
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003766  001401                         BEQ     .+4             ;& FAILING PAGE #)
003770  000000                         HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003772  022767  000000  173574         CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
004000  001401                         BEQ     .+4
004002  000000                         HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
004004  022767  016676  173564         CMP     #T20A,SR2       ;CHECK CONTENTS OF SR2
004012  001401                         BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004014  000000                         HLT                     ;ERROR! INCORRECT PC IN SR2
004016  005202                         INC     R2
004020  001401                         BEQ     .+4
004022  000000                         HLT
004024  104000                         SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;ABORTS WHEN SOURCE INDEX IS FETCHED
                                ;SOURCE MODE = 7
004026  012737  004070  000250         MOV     #T21C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004034  012737  177777  016700         MOV     #-1,@#PKD6
004042  012702  140000                 MOV     #KD6,R2         ;LOAD INDEX REGISTER
004046  012737  017202  016676         MOV     #017202,@#KI0+2 ;017202,000000 IS A MOV  @@(R2),R2
004054  005037  016700                 CLR     @#KI0           ;INSTRUCTION
004060  005237  177572                 INC     @#SR0           ;ENABLE MEMORY MGMT
004064  000137  016676                 JMP     @#KI0+2
        004070                          RETURN=,
                                ;********************** NOTE PC CHANGE **********************************
        016676                          .=KI0+2
016676  017202  000000          T21A:   MOV     @0(R2),R2       ;SEG LEN ABORT AT 567,20
016702  000000                  T21B:   HLT                     ;ERROR! FAILED TO ABORT
        004070                          .=RETURN
                                ;********************** RETURN PC ***************************************

004070                          T21C:
004070  022767  040001  173474         CMP     #PLA+1S+VS0+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
004076  001401                         BEQ     .+4             ;& FAILING PAGE #)
004100  000000                         HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004102  022767  000000  173464         CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
004110  001401                         BEQ     .+4
004112  000000                         HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
004114  022767  016676  173454         CMP     #T21A,SR2       ;CHECK CONTENTS OF SR2
004122  001401                         BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004124  000000                         HLT                     ;ERROR! INCORRECT PC IN SR2
004126  022702  140000                 CMP     #KD6,R2 ;CHECK THAT R2 IS UNCHANGED
004132  001401                         BEQ     .+4
004134  000000                         HLT                     ;ERROR!
004136  104000                         SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT SOB,20
                                ;ABORTS WHEN INST FOLLOWING SOB IS FETCHED
004140  012703  000001                 MOV     #1,R3
004144  012737  077302  016676         MOV     #077302,@#KI0+2 ;077302=SOB  R3,.+2
004152  005037  016674                 CLR     @#KI0-4         ;CLEAR INST, PRECEDING SOB (.-2)
004156  005037  016700                 CLR     @#KI0           ;PUT HLT FOLLOWING SOB
004162  012737  004202  000250         MOV     #T22C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004170  005237  177572                 INC     @#SR0           ;ENABLE MEMORY MGMT
004174  000277                         SCC                     ;PRESET CC'S
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004176  000137  016676          JMP     @#K10+2         ;GO TO SOB INST.

                004202          RETURN=.
                016674          .=K10+4
016674  000000          T22I:   HLT                     ;ERROR! SOB BRANCHED & FAILED TO ABORT
016676  077302          T22AI:  SOB     R3,.+2          ;ABORTS WHEN NEXT INST. IS FETCHED
016700  000000          T22AA:  HLT                     ;ERROR! FAILED TO ABORT
016702  000000          T22BI:  0
                004202          .=RETURN

004202                  T22CI:
004202  022706  001054          CMP     #KPTR+4,KSP     ;CHECK STACK PTR
004206  001401                  BEQ     .+4             ;AFTER ABORT
004210  000000                  HLT                     ;ERROR! INCORRECT STACK PTR
004212  022766  000017  000002  CMP     #17,2(KSP)      ;CHECK THAT CORRECT STATUS
004220  001401                  BEQ     .+4             ;WAS SAVED ON THE STACK
004222  000000                  HLT                     ;ERROR! INCORRECT STATUS
004224  022767  040001  173340  CMP     #PLA+1+S+VS0+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
004232  001401                  BEQ     .+4             ;& FAILING PAGE #)
004234  000000                  HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004236  022767  000000  173330  CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
004244  001401                  BEQ     .+4
004246  000000                  HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
004250  022767  016700  173320  CMP     #T22AA,SR2      ;CHECK CONTENTS OF SR2
004256  001401                  BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004260  000000                  HLT                     ;ERROR! INCORRECT PC IN SR2
004262  005703                  TST     R3              ;CHECK THAT R3 DECREMENTD
004264  001401                  BEQ     .+4
004266  000000                  HLT                     ;ERROR! R3 WAS NOT DECREMENTED BY SOB
004270  104000                  SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;CHECK ABORT AT SPL,1@
                        ;ABORTS WHEN INST FOLLOWING SPL IS FETCHED
004272  012767  000340  173476  MOV     #PRTY7,PSW      ;KERNEL MODE!!!,PREV KERNEL MODE!!
004300  012737  004334  000250  MOV     #T23C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004306  012737  000230  016676  MOV     #230,@#K10+2    ;230=SPL  0
004314  005037  016700          CLR     @#K10
004320  005237  177572          INC     @#SR0           ;ENABLE MEMORY MGMT
004324  000257                  SPL     7
004326  000277                  SCC
004330  000137  016676          JMP     @#K10+2
                004334          RETURN=.
                016676          .=K10+2
016676  000230          T23AI:  SPL     7               ;SEG LEN ABORT WHEN NEXT INST IS FETCHED
016700  000000          T23AAI: HLT                     ;ERROR! FAILED TO ABORT AT SPL,1@
016702  000000          T23BI:  0
                004334          .=RETURN

004334                  T23CI:
004334  022706  001054          CMP     #KPTR+4,KSP     ;CHECK STACK PTR
004340  001401                  BEQ     .+4             ;AFTER ABORT
004342  000000                  HLT                     ;ERROR! INCORRECT STACK PTR
004344  022766  000017  000002  CMP     #17,2(KSP)      ;CHECK THAT CORRECT STATUS
004352  001401                  BEQ     .+4             ;WAS SAVED ON THE STACK
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004354  000000          T24CI:  HLT                     ;ERROR! INCORRECT STATUS
004356  022767  040001  173206  CMP     #PLA+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
004364  001401                  BEQ     .+4             ;& FAILING PAGE #)
004366  000000                  HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004370  022767  000000  173176  CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
004376  001401                  BEQ     .+4
004400  000000                  HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
004402  022767  016700  173166  CMP     #T23AA,SR2      ;CHECK CONTENTS OF SR2
004410  001401                  BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004412  000000                  HLT                     ;ERROR! INCORRECT PC IN SR2
004414  104000                  SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;CHECK ABORT AT D12,01
                        ;ABORTS WHEN DEST OPERAND IS FETCHED
004416  012737  010000  177776  MOV     #KM+PSM,@#PSW   ;KERNEL MODE!!!,PREV SUPER MODE!!
004424  012737  004446  000250  MOV     #T24C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004432  012702  040000          MOV     #SI2,R2
004436  005237  177572          INC     @#SR0           ;ENABLE MEMORY MGMT
004442  106522          T24AI:  MFPD    (R2)+           ;NON-RESIDENT ABORT AT D12,01
004444  000000          T24BI:  HLT

004446                  T24CI:
004446  022706  001054          CMP     #KPTR+4,KSP     ;CHECK STACK PTR
004452  001401                  BEQ     .+4             ;AFTER ABORT
004454  000000                  HLT                     ;ERROR! INCORRECT STACK PTR
004456  022767  100065  173106  CMP     #NRA+SPG+DS+VS2+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
004464  001401                  BEQ     .+4             ;& FAILING PAGE #)
004466  000000                  HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004470  022767  000022  173076  CMP     #S2+R2,SR1      ;CHECK SR1 (REGISTER CHANGES)
004476  001401                  BEQ     .+4
004500  000000                  HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
004502  022767  004442  173066  CMP     #T24A,SR2       ;CHECK CONTENTS OF SR2
004510  001401                  BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004512  000000                  HLT                     ;ERROR! INCORRECT PC IN SR2
004514  022702  040002          CMP     #SI2+2,R2       ;CHECK THAT R2 AUTO-INCREMENTED
004520  001401                  BEQ     .+4
004522  000000                  HLT                     ;ERROR! R2 DID NOT AUTO-INCREMENT
004524  104000                  SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;CHECK ABORT AT D12,@@
                        ;ABORTS WHEN DEST OPERAND IS FETCHED
004526  012737  004556  000250  MOV     #T25C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004534  012702  177572          MOV     #SR0,R2
004540  012767  050000  173230  MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
004546  005237  177572          INC     @#SR0           ;ENABLE MEMORY MGMT
004552  005012          T25AI:  CLR     (R2)            ;ABORT AT D12,@@
004554  000000          T25BI:  HLT                     ;ERROR! FAILED TO ABORT

004556                  T25CI:
004556  022706  001054          CMP     #KPTR+4,KSP     ;CHECK STACK PTR
004562  001401                  BEQ     .+4             ;AFTER ABORT
004564  000000                  HLT                     ;ERROR! INCORRECT STACK PTR
004566  022767  140077  172776  CMP     #NRA+PLA+SPG+DS+VS7+1,SR2       ;CHECK SR0 (ABORT CONDITIONS
004574  001401                  BEQ     .+4             ;& FAILING PAGE #)
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004576  000000                  HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004600  022767  000000  172766  CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
004606  001401                  BEQ     .+4
004610  000000                  HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
004612  022767  004552  172756  CMP     #T29A,SR2       ;CHECK CONTENTS OF SR2
004620  001401                  BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004622  000000                  HLT                     ;ERROR! INCORRECT PC IN SR2
004624  104000                  SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PIRS

                        ;CHECK ABORT AT D12,20
                        ;ABORTS WHEN INST FOLLOWING INST AT T26A IS FETCHED
004626  012737  004676  000250  MOV     #T26C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004634  005002                  CLR     R2
004636  012703  140000          MOV     #KD0,R3
004642  012737  177777  016700  MOV     #-1,@#PKD6
004650  012737  010223  016676  MOV     #010223,@#KI0+2 ;010223=MOV  R2,(R3)+
004656  005037  016700          CLR     @#KI0
004662  005237  177572          INC     @#SR0           ;ENABLE MEMORY MGMT
004666  000237                  SPL     7               ;PRESET PRIORITY
004670  000257                  CCC
004672  000137  016676          JMP     @#KI0+2
        004676                  RETURN=.
        016676                  .=KI0+2
016676  010223          T26A1   MOV     R2,(R3)+        ;ABORTS WHEN NEXT INST. IS FETCHED
016700  000000          T26AA1  HLT                     ;ERROR! FAILED TO ABORT AT D12,20
016702  000000          T26B1   0
        004676                  .=RETURN

004676                  T26C1
004676  022766  000344  000002  CMP     #PRTY7+2,2(KSP) ;CHECK THAT CORRECT STATUS
004704  001401                  BEQ     .+4             ;WAS SAVED ON THE STACK
004706  000000                  HLT                     ;ERROR! INCORRECT STATUS
004710  022767  040001  172694  CMP     #PLA+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
004716  001401                  BEQ     .+4             ;& FAILING PAGE #)
004720  000000                  HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004722  022767  000000  172664  CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
004730  001401                  BEQ     .+4
004732  000000                  HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
004734  022767  016700  172634  CMP     #T26AA,SR2      ;CHECK CONTENTS OF SR2
004742  001401                  BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004744  000000                  HLT                     ;ERROR! INCORRECT PC IN SR2
004746  005037  177572          CLR     @#SR0           ;DISABLE MEMORY MGMT
004752  005737  016700          TST     @#PKD0          ;CHECK THAT MOV INST COMPLETED
004756  001401                  BEQ     .+4
004760  000000                  HLT                     ;ERROR!
004762  022703  140002          CMP     #KD0+2,R3       ;CHECK AUTO-INCREMENT
004766  001401                  BEQ     .+4
004770  000000                  HLT                     ;ERROR!
004772  104000                  SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PIRS

                        ;CHECK ABORT AT D12,80
                        ;ABORTS WHEN DEST OPERAND IS FETCHED
                        ;DM=2
004774  012737  005032  000250  MOV     #T27C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
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005002  012704  100000          MOV     #UD4,R4
005006  012767  070000  172762  MOV     #SM+PUM,PSW     ;SUPER MODE!!!,PREV USER MODE!!
005014  012706  000700          MOV     #SPTR,SSP       ;SET SUPER STACK PTR
005020  005016                  CLR     (SSP)
005022  005237  177572          INC     @#SR0           ;ENABLE MEMORY MGMT
005026  026624          T27A1   MTPI    (R4)+           ;NON-RESIDENT ABORT AT D12,80
005030  000000          T27B1   HLT                     ;ERROR! FAILED TO ABORT

005032                  T27C1
005032  022767  100151  172532  CMP     #NRA+UPG+IS+VS4+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
005040  001401                  BEQ     .+4             ;& FAILING PAGE #)
005042  000000                  HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005044  022767  012026  172522  CMP     #D2+DM4+S2+SP,SR1       ;CHECK SR1 (REGISTER CHANGES)
005052  001401                  BEQ     .+4
005054  000000                  HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
005056  022767  005026  172512  CMP     #T27A,SR2       ;CHECK CONTENTS OF SR2
005064  001401                  BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
005066  000000                  HLT                     ;ERROR! INCORRECT PC IN SR2
005070  106506                  MFPD    SSP             ;PUSH SUPER STACK PTR ONTO KERNEL STACK
005072  022716  000702          CMP     #SPTR+2,(KSP)   ;CHECK THAT SUPER STACK PTR POPPPED
005076  001401                  BEQ     .+4
005100  000000                  HLT                     ;ERROR! SUPER STACK PTR FAILED TO POP
005102  022704  100002          CMP     #UD4+2,R4       ;CHECK AUTO-INC OF R4
005106  001401                  BEQ     .+4
005110  000000                  HLT                     ;ERROR! AUTO-INC FAILED
005112  104000                  SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PIRS

                        ;CHECK ABORT AT D12,90
                        ;ABORTS WHEN DEST OPERAND IS FETCHED
005114  012737  005144  000250  MOV     #T30C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
005122  012703  001077          MOV     #KD0-1,R3
005126  012737  177777  001100  MOV     #-1,@#KU0
005134  005237  177572          INC     @#SR0           ;ENABLE MEMORY MGMT
005140  142323          T30A1   BICB    (R3)+,(R3)+     ;SEG LENGTH ABORT AT D12,90
005142  000000                  HLT                     ;ERROR! FAILED TO ABORT

005144                  T30C1
005144  022767  040021  172420  CMP     #PLA+DS+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
005152  001401                  BEQ     .+4             ;& FAILING PAGE #)
005154  000000                  HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005156  022767  005413  172410  CMP     #D1+DM3+S1+R3,SR1       ;CHECK SR1 (REGISTER CHANGES)
005164  001401                  BEQ     .+4
005166  000000                  HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
005170  022767  005140  172400  CMP     #T30A,SR2       ;CHECK CONTENTS OF SR2
005176  001401                  BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
005200  000000                  HLT                     ;ERROR! INCORRECT PC IN SR2
005202  005037  177572          CLR     @#SR0           ;DISABLE MEMORY MGMT
005206  022703  001101          CMP     #KD0+1,R3       ;CHECK AUTO-INC TWICE
005212  001401                  BEQ     .+4
005214  000000                  HLT                     ;ERROR!
005216  005237  001100          INC     @#KU0
005222  001401                  BEQ     .+4
005224  000000                  HLT                     ;ERROR!
005226  104000                  SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PIRS
```

```
                                ;CHECK ABORT AT D30,90
                                ;ABORTS WHEN ADDRESS OF DEST OPERAND IS FETCHED
005230  012737  005300  000250        MOV     #T31C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
005236  012702  040000                MOV     #S12,R2
005242  012703  017100                MOV     #PSD1,R3
005246  012713  177777                MOV     #-1,(R3)
005252  011337  017000                MOV     (R3),@#PS12
005256  012703  020002                MOV     #SD1+2,R3       ;R3= SUPER VIRTUAL ADDRESS
005262  012767  050000  172506        MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
005270  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
005274  114332                T31A:   MOVB    -(R3),@(R2)+    ;NON-RESIDENT ABORT AT D30,9@
005276  000000                T31B:   HLT                     ;ERROR! FAILED TO ABORT

005300                          T31C:
005300  022767  100065  172264        CMP     #NRA+SPG+DS+VS2+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
005306  001401                        BEQ     .+4             ;& FAILING PAGE #)
005310  000000                        HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005312  022767  011373  172254        CMP     #D2+DM2+SM1+R3,SR1      ;CHECK SR1 (REGISTER CHANGES)
005320  001401                        BEQ     .+4
005322  000000                        HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
005324  022767  005274  172244        CMP     #T31A,SR2       ;CHECK CONTENTS OF SR2
005332  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
005334  000000                        HLT                     ;ERROR! INCORRECT PC IN SR2
005336  022702  040002                CMP     #S12+2,R2       ;CHECK AUTO-INC
005342  001401                        BEQ     .+4
005344  000000                        HLT                     ;ERROR!
005346  022703  020001                CMP     #SD1+1,R3       ;CHECK AUTO DECREMENT OF R3
005352  001401                        BEQ     .+4
005354  000000                        HLT                     ;ERROR! R3 NOT AUTO-DECREMENTED
005356  104000                        SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D10,50
005360  012737  005422  000250        MOV     #T32C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
005366  012767  050000  172402        MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
005374  012706  000700                MOV     #SPTR,SSP       ;SET SUPER STACK PTR
005400  005016                        CLR     (SSP)
005402  012702  020000                MOV     #SD1,R2
005406  010237  017100                MOV     R2,@#PSU1
005412  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
005416  006632                T32A:   MTPI    @(R2)+          ;NON-RESIDENT ABORT AT D10,5@
005420  000000                T32B:   HLT                     ;ERROR! FAILED TO ABORT

005422                          T32C:
005422  022767  100043  172142        CMP     #NRA+SPG+IS+VS1+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
005430  001401                        BEQ     .+4             ;& FAILING PAGE #)
005432  000000                        HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005434  022767  011026  172132        CMP     #D2+DM2+S2+SP,SR1       ;CHECK SR1 (REGISTER CHANGES)
005442  001401                        BEQ     .+4
005444  000000                        HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
005446  022767  005410  172122        CMP     #T32A,SR2       ;CHECK CONTENTS OF SR2
005454  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
005456  000000                        HLT                     ;ERROR! INCORRECT PC IN SR2
005460  106506                        MFPD    SSP             ;PUSH SUPER STACK PTR ONTO KERNEL STACK
```



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005462  022716  000702                CMP     #SPTR+2,(KSP)   ;CHECK THAT SUPER STACK PTR POPPED
005466  001401                        BEQ     .+4
005470  000000                        HLT                     ;ERROR!
005472  022702  020002                CMP     #SD1+2,R2       ;CHECK AUTO-INC
005476  001401                        BEQ     .+4
005500  000000                        HLT                     ;ERROR!
005502  104000                        SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D30,80
                                ;ABORTS WHEN ADDRESS OF DEST OPERAND IS FETCHED
005504  012737  005544  000250        MOV     #T33C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
005512  012767  070000  172296        MOV     #SM+PUM,PSW     ;SUPER MODE!!!,PREV USER MODE!!
005520  012716  120000                MOV     #U15,(SSP)      ;PUSH DEST ADRS ON SUPER STACK
005524  005046                        CLR     -(SSP)          ;PUSH DATA ON SUPER STACK
005526  012737  177777  017200        MOV     #-1,@#PU15
005534  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
005540  106636                T33A:   MTPD    @(SSP)+         ;NON-RESIDENT ABORT AT D10,50 WHEN MTPD
                                                                ;ADDRESSES FINAL ADDRESS
005542  000000                T33B:   HLT                     ;ERROR! FAILED TO ABORT

005544                          T33C:
005544  022767  100173  172020        CMP     #NRA+WPG+DS+VS5+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
005552  001401                        BEQ     .+4             ;& FAILING PAGE #)
005554  000000                        HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005556  022767  013026  172010        CMP     #D2+DM6+S2+SP,SR1       ;CHECK SR1 (REGISTER CHANGES)
005564  001401                        BEQ     .+4
005566  000000                        HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
005570  022767  005540  172000        CMP     #T33A,SR2       ;CHECK CONTENTS OF SR2
005576  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
005600  000000                        HLT                     ;ERROR! INCORRECT PC IN SR2
005602  106506                        MFPD    SSP             ;GET SUPER STACK PTR
005604  022716  000702                CMP     #SPTR+2,(KSP)   ;CHECK THAT SUPER STACK PTR POPPED TWICE
005610  001401                        BEQ     .+4
005612  000000                        HLT                     ;ERROR!
005614  104000                        SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D30,00
                                ;ABORTS WHEN ADDRESS OF SHIFT COUNT IS FETCHED
005616  012737  005646  000250        MOV     #T34C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
005624  012703  016700                MOV     #K10,R3
005630  010304                        MOV     R3,R4
005632  012713  177777                MOV     #-1,(R3)        ;FINAL ADDRESS IS ODD
005636  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
005642  072433                T34A:   ASH     @(R3)+,R4       ;SEG LENGTH ERROR AT D30,00
005644  000000                T34B:   HLT                     ;ERROR! FAILED TO ABORT

005646                          T34C:
005646  022767  040021  171716        CMP     #PLA+US+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
005654  001401                        BEQ     .+4             ;& FAILING PAGE #)
005656  000000                        HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005660  022767  000023  171706        CMP     #S2+R3,SR1      ;CHECK SR1 (REGISTER CHANGES)
005666  001401                        BEQ     .+4
005670  000000                        HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
005672  022767  005642  171676        CMP     #T34A,SR2       ;CHECK CONTENTS OF SR2
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005700  001401                          BEQ     .+4                 ;(PC OF ABORTED INSTRUCTION)
005702  000000                          HLT                         ;ERROR! INCORRECT PC IN SR2
005704  022704  016700                  CMP     #KI0,R4
005710  001401                          BEQ     .+4
005712  000000                          HLT                         ;ERROR!
005714  022703  016702                  CMP     #KI0+2,R3           ;CHECK AUTO-INC
005720  001401                          BEQ     .+4
005722  000000                          HLT                         ;ERROR!
005724  104000                          SCOPE                       ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D90,20
                                ;ABORTS WHEN ADDRESS OF DEST OPERAND IS FETCHED
                                ;DM=5
005726  012737  005760  000250          MOV     #T39C,@#MMVEC       ;LOAD MEM MGMT ERROR VECTOR
005734  012704  016700                  MOV     #KI0,R4
005740  012714  177777                  MOV     #-1,(R4)
005744  005237  177572                  INC     @#SR0               ;ENABLE MEMORY MGMT
005750  000277                          SCC
005752  112754  177777          T35A:   MOVB    #-1,@-(R4)          ;SEG LENGTH ABORT AT D90,20
005756  000000                  T35B:   HLT                         ;ERROR! FAILED TO ABORT

005760                          T39C:
005760  022766  000017  000002          CMP     #17,2(KSP)          ;CHECK THAT CORRECT STATUS
005766  001401                          BEQ     .+4                 ;WAS SAVED ON THE STACK
005770  000000                          HLT                         ;ERROR! INCORRECT STATUS
005772  022767  040021  171572          CMP     #PLA+US+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
006000  001401                          BEQ     .+4                 ;& FAILING PAGE #)
006002  000000                          HLT                         ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006004  022767  172027  171562          CMP     #DM2+UR4+S2+PC,SR1  ;CHECK SR1 (REGISTER CHANGES)
006012  001401                          BEQ     .+4
006014  000000                          HLT                         ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
006016  022767  005752  171552          CMP     #T35A,SR2           ;CHECK CONTENTS OF SR2
006024  001401                          BEQ     .+4                 ;(PC OF ABORTED INSTRUCTION)
006026  000000                          HLT                         ;ERROR! INCORRECT PC IN SR2
006030  022704  016676                  CMP     #KI0-2,R4
006034  001401                          BEQ     .+4
006036  000000                          HLT                         ;ERROR!
006040  104000                          SCOPE                       ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D40,30
                                ;ABORTS WHEN DEST OPERAND IS FETCHED
                                ;DM=4
006042  012737  006074  000250          MOV     #T36C,@#MMVEC       ;LOAD MEM MGMT ERROR VECTOR
006050  012704  140002                  MOV     #KD0+2,R4
006054  012703  016702                  MOV     #KI0+2,R3
006060  012713  177777                  MOV     #-1,(R3)
006064  005237  177572                  INC     @#SR0               ;ENABLE MEMORY MGMT
006070  154443                  T36A:   BISB    -(R4),-(R3)         ;SEG LENGTH ABORT AT 40,30
006072  000000                  T36B:   HLT                         ;ERROR! FAILED TO ABORT

006074                          T36C:
006074  022767  040021  171470          CMP     #PLA+US+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
006102  001401                          BEQ     .+4                 ;& FAILING PAGE #)
006104  000000                          HLT                         ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
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006106  022767  175774  171460          CMP     #DM1+UR3+SM1+R4,SR1 ;CHECK SR1 (REGISTER CHANGES)
006114  001401                          BEQ     .+4
006116  000000                          HLT                         ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
006120  022767  006070  171450          CMP     #T36A,SR2           ;CHECK CONTENTS OF SR2
006126  001401                          BEQ     .+4                 ;(PC OF ABORTED INSTRUCTION)
006130  000000                          HLT                         ;ERROR! INCORRECT PC IN SR2
006132  022703  016701                  CMP     #KI0+1,R3           ;CHECK AUTO-DEC
006136  001401                          BEQ     .+4
006140  000000                          HLT                         ;ERROR!
006142  022704  140001                  CMP     #KD0+1,R4           ;CHECK AUTO-DEC
006146  001401                          BEQ     .+4
006150  000000                          HLT                         ;ERROR! AUTO-DEC FAILED
006152  104000                          SCOPE                       ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D67,80
                                ;ABORTS WHEN INST FETCHES DEST INDEX
                                ;DM=6
006154  012737  006220  000250          MOV     #T37C,@#MMVEC       ;LOAD MEM MGMT ERROR VECTOR
006162  012767  030000  171006          MOV     #SM+PUM,PSW         ;SUPER MODE!!!,PREV USER MODE!!
006170  012706  000700                  MOV     #SPTR,SSP           ;SET SUPER STACK PTR
006174  005016                          CLR     (SSP)
006176  012737  106667  017076          MOV     #106667,@#PSI2+76   ;106667,000000 = MTPD  .+4
006204  005037  017100                  CLR     @#PSI2+100          ;INSTRUCTION
006210  005237  177572                  INC     @#SR0               ;ENABLE MEMORY MGMT
006214  000137  040076                  JMP     @#SI2+76
        006220                          RETURN=.
        017076                          .=PSI2+76
017076  106667  000000          T37A:   MTPD    .+4                 ;SEG LENGTH ABORT WHEN INDEX WORD
                                                                    ;IS FETCHED AT D67,80
017102  000000                  T37B:   HLT                         ;ERROR! FAILED TO ABORT

        006220                          .=RETURN

006220                          T37C:
006220  022767  040045  171344          CMP     #PLA+SPG+VS2+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
006226  001401                          BEQ     .+4                 ;& FAILING PAGE #)
006230  000000                          HLT                         ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006232  022767  000026  171334          CMP     #S2+SP,SR1          ;CHECK SR1 (REGISTER CHANGES)
006240  001401                          BEQ     .+4
006242  000000                          HLT                         ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
006244  022767  040076  171324          CMP     #SI2+76,SR2         ;CHECK CONTENTS OF SR2
006252  001401                          BEQ     .+4                 ;(PC OF ABORTED INSTRUCTION)
006254  000000                          HLT                         ;ERROR! INCORRECT PC IN SR2
006256  106506                          MFPD    SSP                 ;GET SUPER STACK PTR
006260  022716  000702                  CMP     #SPTR+2,(KSP)
006264  001401                          BEQ     .+4
006266  000000                          HLT                         ;ERROR!
006270  104000                          SCOPE                       ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D67,90
                                ;WHEN INSTRUCTION FETCHES DESTINATION INDEX VALUE
006272  012737  006340  000250          MOV     #T40C,@#MMVEC       ;LOAD MEM MGMT ERROR VECTOR
006300  012767  050000  171470          MOV     #SM+PSM,PSW         ;SUPER MODE!!!,PREV SUPER MODE!!
006306  012737  113767  017074          MOV     #113767,@#PSI2+74   ;113767,022001,177776
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006314  012737  020001  017076          MOV     #20001,@#PS12+76        ;IS A MOVB  @#20001,,+4
006322  012737  177776  017100          MOV     #177776,@#PS12+100      ;INSTRUCTION
006330  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
006334  000137  040074                  JMP     @#S12+74
        006340                          RETURN=,
        017074                          ,=PS12+74
017074  113767  020001  177776  T40A1   MOVB    @#20001,,+4             ;SEC LENGTH ABORT WHEN INST, FETCHES
                                                                        ;DEST INDEX WORD AT D67,90
017102  000000                  T40B1   HLT                             ;ERROR! FAILED TO ABORT
        006340                          ,=RETURN

006340                          T40C1
006340  022767  040045  171224          CMP     #PLA+SPC+VS2+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
006346  001401                          BEQ     .+4                     ;& FAILING PAGE #)
006350  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006352  022767  000027  171214          CMP     #S2+PC,SR1              ;CHECK SR1 (REGISTER CHANGES)
006360  001401                          BEQ     .+4
006362  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
006364  022767  040074  171204          CMP     #S12+74,SR2             ;CHECK CONTENTS OF SR2
006372  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
006374  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
006376  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D40,20
                                ;WHEN INSTRUCTION FETCHES DESTINATION OPERAND
006400  012737  006446  000250          MOV     #T41C,@#MMVEC           ;LOAD MEM MGMT ERROR VECTOR
006406  012767  170000  171162          MOV     #UM+PUM,PSW             ;USER MODE!!!,PREV USER MODE!!
006414  012703  100000                  MOV     #UD4,R3
006420  012704  100102                  MOV     #UD4+102,R4
006424  012737  012344  017200          MOV     #012344,@#PUI5          ;012344 = MOV  (R3)+,-(R4)
006432  005037  017202                  CLR     @#PUI5+2
006436  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
006442  000137  120000                  JMP     @#UI5
        006446                          RETURN=,
        017200                          ,=PUI5
017200  012344                  T41A1   MOV     (R3)+,-(R4)             ;ABORT AT D40,20
017202  000000                  T41B1   HLT             ;ERROR! FAILED TO ABORT
        006446                          ,=RETURN

006446                          T41C1
006446  022767  040171  171116          CMP     #PLA+UPC+DS+VS4+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
006454  001401                          BEQ     .+4                     ;& FAILING PAGE #)
006456  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006460  022767  172025  171106          CMP     #DM2+UR4+S2+R3,SR1      ;CHECK SR1 (REGISTER CHANGES)
006466  001401                          BEQ     .+4
006470  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
006472  022767  120000  171076          CMP     #UI5,SR2                ;CHECK CONTENTS OF SR2
006500  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
006502  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
006504  022704  100100                  CMP     #UD4+100,R4
006510  001401                          BEQ     .+4
006512  000000                          HLT
006514  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS
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                                ;CHECK ABORT AT D50,30
                                ;(WHEN INSTRUCTION FETCHES ADDRESS OF DESTINATION OPERAND)
006516  012737  006554  000250          MOV     #T42C,@#MMVEC           ;LOAD MEM MGMT ERROR VECTOR
006524  012737  010000  177776          MOV     #KM+PSM,@#PSW           ;KERNEL MODE!!!,PREV SUPER MODE!!
006532  012703  140102                  MOV     #KD6+102,R3
006536  012737  177777  017000          MOV     #-1,@#PKD6+100
006544  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
006550  106653                  T42A1   MTPD    @-(R3)                  ;SEC LENGTH ABORT AT D50,30
006552  000000                  T42B1   HLT                             ;ERROR! FAILED TO ABORT

006554  022706  001056          T42C1   CMP     #KPTR+2,KSP             ;CHECK STACK PTR ( 1 POP, 2 PUSHES)
006560  001401                          BEQ     .+4
006562  000000                          HLT                             ;ERROR! INCORRECT STACK PTR
006564  022767  040035  171000          CMP     #PLA+US+VS6+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
006572  001401                          BEQ     .+4                     ;& FAILING PAGE #)
006574  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006576  022767  171426  170770          CMP     #DM2+UR3+S2+SP,SR1      ;CHECK SR1 (REGISTER CHANGES)
006604  001401                          BEQ     .+4
006606  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
006610  022767  006550  170760          CMP     #T42A,SR2               ;CHECK CONTENTS OF SR2
006616  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
006620  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
006622  022703  140100                  CMP     #KD6+100,R3             ;CHECK AUTO-DECREMENT
006626  001401                          BEQ     .+4
006630  000000                          HLT                             ;ERROR! DID NOT AUTO-DEC
006632  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D30,00
                                ;ABORTS WHEN ADDRESS TO JUMP TO IS FETCHED
006634  012737  006702  000250          MOV     #T43C,@#MMVEC           ;LOAD MEM MGMT ERROR VECTOR
006642  012737  000137  017076          MOV     #137,@#PS12+76          ;000137,T43D =JMP  @#T43D
006650  012737  006700  017100          MOV     #T43D,@#PS12+100
006656  005037  017102                  CLR     @#PS12+102
006662  012767  070000  171106          MOV     #SM+PUM,PSW             ;SUPER MODE!!!,PREV USER MODE!!
006670  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
006674  000137  040076                  JMP     @#S12+76                ;GO DO INSTRUCTION
        006700                          RETURN=,
        017076                          ,=PS12+76
017076  000137  006700          T43A1   JMP     @#T43D
017102  000000                  T43B1   HLT                             ;ERROR! JMP FAILED
        006700                          ,=RETURN
006700  000000                  T43D1   HLT                             ;ERROR! FAILED TO ABORT
006702                          T43C1
006702  022767  040045  170662          CMP     #PLA+SPC+VS2+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
006710  001401                          BEQ     .+4                     ;& FAILING PAGE #)
006712  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006714  022767  000027  170652          CMP     #S2+PC,SR1              ;CHECK SR1 (REGISTER CHANGES)
006722  001401                          BEQ     .+4
006724  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
006726  022767  040076  170642          CMP     #S12+76,SR2             ;CHECK CONTENTS OF SR2
006734  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
006736  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
006740  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS
```

```
                                ;CHECK ABORT AT D10,00
                                ;WHEN INSTRUCTION FETCHES ADDRESS OF DEST. OPERAND, (UI5+4)
006742  012737  007012  000250          MOV     #T44C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
006750  012767  170000  171040          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
006756  012706  000600                  MOV     #UPTR,USP       ;SET USER STACK PTR
006762  012703  120006                  MOV     #UI5+6,R3
006766  012737  177777  017204          MOV     #-1,@#PUI5+4
006774  012737  004753  017200          MOV     #4753,@#PUI5    ;004753 = JSR 7,@-(R3)
007002  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
007006  000137  120000                  JMP     @#UI5           ;GO DO INST,
        007012                          RETURN#,
        017200                          ,#PUI5
017200  004753                  T44A1   JSR     7,@-(R3)
017202  000000                  T44B1   HLT                     ;ERROR!
        007012                          ,#RETURN

007012                          T44C1
007012  022706  001054                  CMP     #KPTR+4,KSP     ;CHECK STACK PTR
007016  001401                          BEQ     .+4             ;AFTER ABORT
007020  000000                          HLT                     ;ERROR! INCORRECT STACK PTR
007022  022767  140173  170042          CMP     #NRA+UPG+DS+VS5+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
007030  001401                          BEQ     .+4             ;& FAILING PAGE #)
007032  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
007034  022767  000363  170032          CMP     #SM2+R3,SR1     ;CHECK SR1 (REGISTER CHANGES)
007042  001401                          BEQ     .+4
007044  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
007046  022767  120000  170022          CMP     #UI5,SR2        ;CHECK CONTENTS OF SR2
007054  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
007056  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
007060  106506                          MFPD    USP             ;GET USER STACK PTR (ON KERNEL STACK)
007062  022716  000000                  CMP     #UPTR,(KSP)     ;CHECK THAT USER STACK DID NOT
007066  001401                          BEQ     .+4             ;GET PUSHED
007070  000000                          HLT                     ;ERROR!
007072  022703  120004                  CMP     #UI5+4,R3       ;CHECK AUTO-DEC
007076  001401                          BEQ     .+4
007100  000000                          HLT                     ;ERROR!
007102  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D10,30
                                ;WHEN INSTRUCTION FETCHES DESTINATION OPERAND (UIPDR5)
007104  012737  007156  000250          MOV     #T45C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
007112  012767  170000  170096          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
007120  012706  000600                  MOV     #UPTR,USP       ;SET USER STACK PTR
007124  005016                          CLR     (USP)
007126  012737  012667  017200          MOV     #012667,@#PUI5  ;012667,257606 = MOV  (USP)+,UIPDR5
007134  012737  257606  017202          MOV     #257606,@#PUI5+2 ;INSTRUCTION
007142  005037  017204                  CLR     @#PUI5+4
007146  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
007152  000137  120000                  JMP     @#UI5
        007156                          RETURN#,
        017200                          ,#PUI5
017200  012667  257606          T45A1   MOV     (USP)+,UIPDR5-UI5+PUI5
017204  000000                  T45B1   HLT                     ;ERROR! FAILED TO ABORT
        007156                          ,#RETURN
```



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007156                          T45C1
007156  022767  140177  170026          CMP     #NRA+PLA+UPG+DS+VS7+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
007164  001401                          BEQ     .+4             ;& FAILING PAGE #)
007166  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
007170  022767  000026  170376          CMP     #S2+SP,SR1      ;CHECK SR1 (REGISTER CHANGES)
007176  001401                          BEQ     .+4
007200  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
007202  022767  120000  170366          CMP     #UI5,SR2        ;CHECK CONTENTS OF SR2
007210  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
007212  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
007214  005037  177572                  CLR     @#SR0           ;DISABLE MEMORY MGMT
007220  005737  177612                  TST     @#UIPDR5
007224  001001                          BNE     .+4
007226  000000                          HLT
007230  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT ASC,60
                                ;ABORTS WHEN INSTRUCTION FOLLOWING ASH IS FETCHED
007232  012737  007302  000250          MOV     #T46C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
007240  012737  073204  017276          MOV     #073204,@#PUI5+76       ;073204 IS AN ASHC R4,R2 INST,
007246  005037  017300                  CLR     @#PUI5+100
007252  012767  170000  170516          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
007260  012704  000001                  MOV     #1,R4           ;SHIFT COUNT = +1 (1 PLACE LEFT)
007264  012702  100000                  MOV     #100000,R2
007270  005003                          CLR     R3
007272  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
007276  000137  120076                  JMP     @#UI5+76
        007302                          RETURN#,
        017276                          ,=PUI5+76
017276  000257                          CCC                     ;PRESET CC'S
017300  073204                  T46A1   ASHC    R4,R2           ;SEQ DEN ABORT WHEN NEXT INST, IS FETCHED
017302  000000                  T46B1   HLT
        007302                          ,#RETURN
007302                          T46C1
007302  022706  001054                  CMP     #KPTR+4,KSP     ;CHECK STACK PTR
007306  001401                          BEQ     .+4             ;AFTER ABORT
007310  000000                          HLT                     ;ERROR! INCORRECT STACK PTR
007312  122767  000007  171536          CMPB    #Z+V+C,KPTR+2   ;CHECK THAT 'C','V','Z' BITS SET ON SHIFT
007320  001401                          BEQ     .+4
007322  000000                          HLT                     ;ERROR! INCORRECT STATUS SAVED ON ABORT
007324  022767  040153  170240          CMP     #PLA+UPG+IS+VS5+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
007332  001401                          BEQ     .+4             ;& FAILING PAGE #)
007334  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
007336  022767  000300  170230          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
007344  001401                          BEQ     .+4
007346  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
007350  022767  120100  170220          CMP     #UI5+100,SR2    ;CHECK CONTENTS OF SR2
007356  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
007360  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
007362  005702                          TST     R2              ;CHECK THAT SHIFT COMPLETED
007364  001401                          BEQ     .+4
007366  000000                          HLT
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007370  005713                  TST     R3
007372  001401                  BEQ     .+4
007374  000000                  HLT
007376  104000                  SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT ASC,8Ø
                                ;ABORTS WHEN INST FOLLOWING ASHC IS FETCHED
007400  012737  007454  000250  T47C:  MOV     #T47C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
007406  012767  050000  173362          MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
007414  012737  073422  017076          MOV     #073422,@#PSI2+76       ;073422 IS AN ASHC  (R2)+,R4 INST
007422  012702  001004                  MOV     #TEMP,R2                ;LOAD R2 = ADRS OF SHIFT COUNT
007426  005012                          CLR     (R2)                    ;SHIFT COUNT = Ø
007430  012705  000001                  MOV     #1,R5           ;LOAD CONSTANTS
007434  010504                          MOV     R5,R4
007436  005037  017100                  CLR     @#PSI2+100      ;HALT AFTER INST,
007442  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
007446  000277                          SCC
007450  000137  040076                  JMP     @#SI2+76        ;GO TO ASHC INST,
        007454                          RETURN=,
        017076                          ,=PSI2+76
017076  073422                  ASHC    (R2)+,R4
017100  000000          T47A1:  HLT                     ;SEQ LENGTH ABORT WHEN THIS INST IS FETCHED
        007454                  ,=RETURN
007454  105737  001056          T47C1:  TSTB    @#KPTR+2        ;CHECK STATUS ON STACK
007460  001401                  BEQ     .+4
007462  000000                  HLT                     ;ERROR! INCORRECT STATUS ON STACK
007464  022767  040045  170100          CMP     #PLA+SPG+IS+VS2+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
007472  001401                  BEQ     .+4             ;& FAILING PAGE #)
007474  000000                  HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM!
007476  022767  000000  170070          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
007504  001401                  BEQ     .+4
007506  000000                  HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
007510  022767  040100  170060          CMP     #SI2+100,SR2    ;CHECK CONTENTS OF SR2
007516  001401                  BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
007520  000000                  HLT                     ;ERROR! INCORRECT PC IN SR2
007522  027702  001000                  CMP     #TEMP+2,R2
007526  001401                  BEQ     .+4
007530  000000                  HLT
007532  104000                  SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT JSR,3Ø
                                ;ABORTS WHEN REGISTER (R5) IS PUSHED ON USER STACK
007534  012737  007604  000250  T50C:  MOV     #T50C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
007542  012767  170000  173226          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
007550  012706  100000                  MOV     #UD4,USP        ;SET USER STACK PTR
007554  005037  017276                  CLR     @#PUD4+2
007560  005005                          CLR     R5
007562  012767  007602  171214          MOV     #T50D,TEMP
007570  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
007574  004577  171204          T50A1:  JSR     5,@TEMP         ;NON-RES ABORT AT JSR,3Ø
007600  000000          T50B1:  HLT                     ;JSR FAILED & DID NOT ABORT
007602  000000          T50D1:  HLT                     ;ERROR! FAILED TO ABORT

007604                  T50C1:
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007604  022767  140167  167760          CMP     #NRA+PLA+UPG+DS+VS3+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
007612  001401                          BEQ     .+4             ;& FAILING PAGE #)
007614  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM!
007616  022767  000366  167750          CMP     #SM2+SP,SR1     ;CHECK SR1 (REGISTER CHANGES)
007624  001401                          BEQ     .+4
007626  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
007630  022767  007574  167740          CMP     #T50A,SR2       ;CHECK CONTENTS OF SR2
007636  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
007640  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
007642  106506                          MFPD    USP             ;PUSH USER STACK PTR ONTO KERNEL STACK
007644  022716  077776                  CMP     #UD4+2,(KSP)    ;CHECK THAT USER STACK PTR DEC'
007650  001401                          BEQ     .+4             ;REMENTED
007652  000000                          HLT                     ;ERROR!
007654  005705                          TST     R5
007656  001401                          BEQ     .+4
007660  000000                          HLT
007662  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT SVC,8Ø (MFPI)
                                ;ABORTS WHEN DATA IS PUSHED ONTO SUPER STACK
007664  012737  007724  000250  T51C:  MOV     #T51C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
007672  012767  070000  170076          MOV     #SM+PUM,PSW     ;SUPER MODE!!!,PREV USER MODE!!
007700  005046                          CLR     SSP             ;SET SUPERVISOR STACK PTR
007702  012737  120000  000000          MOV     #U15,@#0        ;LOAD STACK
007710  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
007714  000240                          NOP
007716  006576  000000          T51A1:  MFPI    @(SSP)          ;SEQ LENGTH ABORT AT SVC,8Ø
007722  000000          T51B1:  HLT                     ;ERROR! FAILED TO ABORT

007724                  T51C1:
007724  022706  001054                  CMP     #KPTR+4,KSP     ;CHECK STACK PTR
007730  001401                          BEQ     .+4             ;AFTER ABORT
007732  000000                          HLT                     ;ERROR! INCORRECT STACK PTR
007734  022767  140077  167630          CMP     #NRA+PLA+SPG+DS+VS7+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
007742  001401                          BEQ     .+4             ;& FAILING PAGE #)
007744  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM!
007746  022767  000360  167620          CMP     #SM2+SP,SR1     ;CHECK SR1 (REGISTER CHANGES)
007754  001401                          BEQ     .+4
007756  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
007760  022767  007716  167610          CMP     #T51A,SR2       ;CHECK CONTENTS OF SR2
007766  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
007770  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
007772  106506                          MFPD    SSP
007774  022716  177776                  CMP     #0-2,(KSP)
010000  001401                          BEQ     .+4
010002  000000                          HLT
010004  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT SVC,6Ø (SUPERVISORY MODE)
                                ;ABORTS WHEN STATUS IS PUSHED ONTO SUPER STACK
010006  012737  010060  000250          MOV     #T52C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
010014  012767  040000  170030          MOV     #SM,IUTVEC+2
010022  012767  010056  167770          MOV     #T52D,IUTVEC
010030  012767  [illegible]  167742      MOV     #SM+PSM,PS+     ;SUPER MODE!!!,PREV SUPER MODE!!
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010036  005046                          CLR     SSP             ;SET SUPER STACK PTR
010040  012767  170000  167730          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
010046  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
010052  000004                  T52A!   IOT                     ;NON-RESIDENT ABORT AT SVC,60
010054  000000                  T52B!   HLT                     ;ERROR! IOT & ABORT FAILED
010056  000000                  T52D!   HLT                     ;ERROR! ABORT FAILED

010060                          T52C!
010060  022706  001054                  CMP     #KPTR+4,KSP     ;CHECK STACK PTR
010064  001401                          BEQ     .+4             ;AFTER ABORT
010066  000000                          HLT                     ;ERROR! INCORRECT STACK PTR
010070  022766  170000  000002          CMP     #UM+PUM,2(KSP)  ;CHECK THAT CORRECT STATUS
010076  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
010100  000000                          HLT                     ;ERROR! INCORRECT STATUS
010102  022767  140077  167462          CMP     #NRA+PLA+SPG+DS+VS7+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
010110  001401                          BEQ     .+4             ;& FAILING PAGE #)
010112  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
010114  022767  173366  167452          CMP     #UM2+UR6+SM2+SP,SR1     ;CHECK SR1 (REGISTER CHANGES)
010122  001401                          BEQ     .+4
010124  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
010126  022767  010052  167442          CMP     #T52A,SR2       ;CHECK CONTENTS OF SR2
010134  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
010136  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
010140  122737  000060  177777          CMPB    #60,@#PSW+1     ;CHECK FOR CORRECT PSW ON ABORT
010146  001401                          BEQ     .+4             ;(KM+PUM IN HIGH BYTE)
010150  000000                          HLT                     ;ERROR! INCORRECT PSW AFTER ABORT
010152  012737  010000  177776          MOV     #KM+PSM,@#PSW   ;KERNEL MODE!!!,PREV SUPER MODE!!
010160  106506                          MFPD    SSP             ;PUSH SUPER STACK PTR ONTO KERNEL STACK
010162  022716  177774                  CMP     #0-4,(KSP)      ;CHECK PUSHES
010166  001401                          BEQ     .+4
010170  000000                          HLT                     ;ERROR!
010172  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT SVC,80
                                ;ABORTS WHEN RETURN PC IS PUSHED ONTO SUPERVISOR STACK
010174  012737  010250  000250          MOV     #T53C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
010202  012767  050000  167366          MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
010210  012706  020002                  MOV     #SD1+2,SSP      ;SET SUPER STACK PTR
010214  012767  010246  167376          MOV     #T53D,IOTVEC
010222  012767  040340  167372          MOV     #SM+PRTY7,IOTVEC+2
010230  012767  170000  167340          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
010236  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
010242  000004                  T53A!   IOT                     ;NON-RESIDENT ABORT AT SVC,80
010244  000000                  T53B!   HLT                     ;ERROR! IOT & ABORT FAILED
010246  000000                  T53D!   HLT                     ;ERROR! ABORT FAILED

010250                          T53C!
010250  022706  001054                  CMP     #KPTR+4,KSP     ;CHECK STACK PTR
010254  001401                          BEQ     .+4             ;AFTER ABORT
010256  000000                          HLT                     ;ERROR! INCORRECT STACK PTR
010260  022716  010244                  CMP     #T53B,(KSP)     ;CHECK RETURN PC ON THE STACK
010264  001401                          BEQ     .+4
010266  000000                          HLT                     ;ERROR! INCORRECT PC ON THE STACK
010270  022766  170000  000002          CMP     #UM+PUM,2(KSP)  ;CHECK THAT CORRECT STATUS
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010276  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
010300  000000                          HLT                     ;ERROR! INCORRECT STATUS
010302  022767  040061  167262          CMP     #PLA+SPG+DS+VS0+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
010310  001401                          BEQ     .+4             ;& FAILING PAGE #)
010312  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
010314  022767  173366  167252          CMP     #UM2+UR6+SM2+SP,SR1     ;CHECK SR1 (REGISTER CHANGES)
010322  001401                          BEQ     .+4
010324  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
010326  022767  010242  167242          CMP     #T53A,SR2       ;CHECK CONTENTS OF SR2
010334  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
010336  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
010340  012737  010000  177776          MOV     #KM+PSM,@#PSW   ;KERNEL MODE!!!,PREV SUPER MODE!!
010346  106506                          MFPD    SSP             ;PUSH SUPER STACK PTR ONTO KERNEL STACK
010350  022716  017776                  CMP     #SD1-2,(KSP)    ;CHECK THAT SUPER STACK PTR WAS
010354  001401                          BEQ     .+4             ;DECREMENTED BY 4
010356  000000                          HLT                     ;ERROR!
010360  005067  167430                  CLR     IOTVEC+2
010364  012767  000022  167426          MOV     #IOTVEC+2,IOTVEC
010372  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT THP,10
                                ;WHEN VECTOR AT 20 IS FETCHED
010374  012737  010452  000250          MOV     #T54C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
010402  012737  010450  000020          MOV     #T54B,@#IOTVEC  ;SET IOT TRAP VECTOR
010410  012737  040340  000022          MOV     #SM+PRTY7,@#IOTVEC+2    ;SUPER MODE ON IOT
010416  013737  172320  001004          MOV     @#KDPDR0,@#TEMP ;SAVE KDPDR0
010424  012737  000416  172320          MOV     #2+256.-400+DWN+RW,@#KDPDR0     ;SET KDPDR0=RW DWN 2 BLOCKS
                                ;ALL BUT 0-76 IS ENABLED IN KERNEL 'D' SPACE
010432  012767  170000  167336          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
010440  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
010444  000004                  T54A!   IOT                     ;IOT WILL ABORT WHEN ADDRESS VECTOR IS
                                                                ;FETCHED FROM KERNEL 'D' SPACE
010446  000000                          HLT                     ;ERROR! IOT FAILED TO TRAP
010450  000000                  T54B!   HLT                     ;ERROR! IOT FAILED TO ABORT
010452                          T54C!
010452  022706  001054                  CMP     #KPTR+4,KSP     ;CHECK STACK PTR
010456  001401                          BEQ     .+4             ;AFTER ABORT
010460  000000                          HLT                     ;ERROR! INCORRECT STACK PTR
010462  022766  170000  000002          CMP     #UM+PUM,2(KSP)  ;CHECK THAT CORRECT STATUS
010470  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
010472  000000                          HLT                     ;ERROR! INCORRECT STATUS
010474  022767  040021  167070          CMP     #PLA+DS+KPG+VS0+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
010502  001401                          BEQ     .+4             ;& FAILING PAGE #)
010504  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
010506  022767  000000  167060          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
010514  001401                          BEQ     .+4
010516  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
010520  022767  010444  167050          CMP     #T54A,SR2       ;CHECK CONTENTS OF SR2
010526  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
010530  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
010532  005037  177572                  CLR     @#SR0           ;DISABLE MEMORY MGMT
010536  000257                          CCC
010540  022737  030000  177776          CMP     #KM+PUM,@#PSW   ;CHECK STATUS
010546  001401                          BEQ     .+4
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010552  012737  000022  000020          MOV     #.IOTVEC+2,@#IOTVEC     ;ERROR! INCORRECT STATUS AFTER ABORT
010560  016737  170220  172320          MOV     TEMP,@#KDPDR0           ;RESTORE KDPDR0
010566  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT BRK,3B
                                ;WHEN VECTOR AT 4 IS FETCHED
010570  012737  010646  000250          MOV     #T55C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
010576  012737  010644  000010          MOV     #T55B,@#RESVEC
010604  012702  000001                  MOV     #1,R2           ;R2 CONTAINS AN ODD ADDRESS
010613  013737  172320  001004          MOV     @#KDPDR0,@#TEMP
010616  012737  000416  172320          MOV     #2+25.,-400+DWN+RW,@#KDPDR0     ;SET KDPDR0=RW DWN 2 BLOCKS
                                ;ALL BUT 0-76 IS ENABLED IN KERNEL I/D SPACE
010624  012767  170000  167144          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
010632  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
010636  000277                          SCC                     ;PRESET CC'S
010640  106622                  T55A:   MTPD    (R2)+           ;ODD ADDRESS TRAP ALSO ABORTS WHEN VECTOR
                                                                ;AT 4 IS FETCHED
010642  000000                          HALT                    ;ERROR! FAILED TO TRAP/ABORT
010644  000000                  T55B:   HALT                    ;ERROR! FAILED TO ABORT
010646  013700  177776          T55C:   MOV     @#PSW,R0        ;GET NEW STATUS
010652  022700  030000                  CMP     #KM+PUM,R0      ;CHECK NEW STATUS
010656  001401                          BEQ     .+4
010660  000000                          HALT                    ;ERROR! INCORRECT STATUS AFTER ABORT
010662  022706  001054                  CMP     #KPTR+4,KSP     ;CHECK STACK PTR
010666  001401                          BEQ     .+4             ;AFTER ABORT
010670  000000                          HALT                    ;ERROR! INCORRECT STACK PTR
010672  022766  170017  000002          CMP     #UM+PUM+17,2(KSP)       ;CHECK THAT CORRECT STATUS
010700  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
010702  000000                          HALT                    ;ERROR! INCORRECT STATUS
010704  022767  040221  166000          CMP     #PLA+IC+DS+KPG+VS0+1,SR0        ;CHECK SR0 (ABORT CONDITIONS
010712  001401                          BEQ     .+4             ;& FAILING PAGE #)
010714  000000                          HALT                    ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM
010716  022767  000300  166650          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
010724  001401                          BEQ     .+4
010726  000000                          HALT                    ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
010730  022767  000004  166640          CMP     #ERRVEC,SR2     ;CHECK CONTENTS OF SR2
010736  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
010740  000000                          HALT                    ;ERROR! INCORRECT PC IN SR2
010742  005037  177572                  CLR     @#SR0           ;DISABLE MEMORY MGMT
010746  106506                          MFPD    USP             ;GET USER STACK PTR
010750  022716  000002                  CMP     #UPTR+2,(KSP)   ;CHECK THAT MTPD POPPED USER STACK
010754  001401                          BEQ     .+4
010756  000000                          HALT                    ;ERROR! INCORRECT USER STACK PTR
010760  022702  000003                  CMP     #3,R2           ;CHECK AUTO-INC OF R2
010764  001401                          BEQ     .+4
010766  000000                          HALT                    ;ERROR! R2 DID NOT AUTO-INC
010770  016737  170010  172320          MOV     TEMP,@#KDPDR0   ;RESTORE KDPDR0
010776  012737  000312  000010          MOV     #RESVEC+2,@#RESVEC
011004  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT FET,00
011006  012737  011050  000250          MOV     #T56C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
011014  012767  050000  166754          MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
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011022  012706  000700                  MOV     #SPTR,SSP       ;SET SUPER STACK PTR
011026  012746  040000                  MOV     #SM,-(SSP)
011032  012746  040100                  MOV     #SI2+100,-(SSP)
011036  005037  017100                  CLR     @#PSI2+100
011042  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
011046  000002                          RTI
        011050                          RETURN=.
        017100                          .=PSI2+100
017100  000000                  T56A:   HLT                     ;ERROR! FAILED TO ABORT AT FET,00
        011050                          .=RETURN

011050                          T56C:
011050  022706  001054                  CMP     #KPTR+4,KSP     ;CHECK STACK PTR
011054  001401                          BEQ     .+4             ;AFTER ABORT
011056  000000                          HALT                    ;ERROR! INCORRECT STACK PTR
011060  022767  040045  166504          CMP     #PLA+UPG+VS2+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
011066  001401                          BEQ     .+4             ;& FAILING PAGE #)
011070  000000                          HALT                    ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM
011072  022767  000000  166474          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
011100  001401                          BEQ     .+4
011102  000000                          HALT                    ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
011104  022767  040100  166464          CMP     #SI2+100,SR2    ;CHECK CONTENTS OF SR2
011112  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
011114  000000                          HALT                    ;ERROR! INCORRECT PC IN SR2
011116  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT FET,01 (V1A D10,40)
011120  012737  011156  000250          MOV     #T57C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
011126  012767  170000  166642          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
011134  012737  012646  017276          MOV     #012646,@#PUI5+76 ;012646=MOV (6)+,-(6)
011142  005037  017300                  CLR     @#PUI5+100      ;INSTRUCTION
011146  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
011152  000137  120076                  JMP     @#UI5+76
        011156                          RETURN=.
        017276                          .=PUI5+76
017276  012646                          MOV     (6)+,-(6)
017300  000000                  T57A:   HLT                     ;ABORTS AT FET,01
        011156                          .=RETURN

011156                          T57C:
011156  022767  040153  166406          CMP     #PLA+UPG+VS5+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
011164  001401                          BEQ     .+4             ;& FAILING PAGE #)
011166  000000                          HALT                    ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM
011170  022767  000000  166376          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
011176  001401                          BEQ     .+4
011200  000000                          HALT                    ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
011202  022767  120100  166366          CMP     #UI5+100,SR2    ;CHECK CONTENTS OF SR2
011210  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
011212  000000                          HALT                    ;ERROR! INCORRECT PC IN SR2
011214  106506                          MFPD    USP             ;GET USER STACK PTR
011216  022716  000000                  CMP     #UPTR,(KSP)     ;CHECK USER STACK PTR
011222  001401                          BEQ     .+4
011224  000000                          HALT                    ;ERROR! INCORRECT USER STACK PTR
011226  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS
```

```
                                ;CHECK ABORT AT FET,0$
011230  012767  050000  166540          MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
011236  012737  011270  000250          MOV     #T60C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
011244  012737  000005  017076          MOV     #5,@#PSI2+76    ;5 IS A RESET INSTRUCTION
011252  005037  017100                  CLR     @#PSI2+100
011256  005005                          CLR     R5
011260  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
011264  000137  040076                  JMP     @#SI2+76        ;GO EXECUTE RESET
                011270                  RETURN=,
                017076                  ,=PSI2+76
017076  000005                  T60A1:  RESET                   ;ABORTS WHEN NEXT INST, FETCHED
017100  000000                          HLT                     ;ERROR! FAILED TO ABORT
                011270                  ,=RETURN

011270                          T60C1:
011270  022767  040045  166274          CMP     #PLA+SPG+V52+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
011276  001401                          BEQ     .+4             ;& FAILING PAGE #)
011300  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
011302  022767  000000  166264          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
011310  001401                          BEQ     .+4
011312  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
011314  022767  040100  166254          CMP     #SI2+100,SR2    ;CHECK CONTENTS OF SR2
011322  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
011324  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
011326  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT FET,0@
011330  012767  170000  166440          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
011336  012737  011400  000250          MOV     #T61C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
011344  012704  000001                  MOV     #1,R4
011350  012702  100000                  MOV     #100000,R2
011354  005003                          CLR     R3
011356  012737  071204  017276          MOV     #071204,@#PUI5+76       ;071204 = DIV  R4,R2 INST,
011364  005037  017300                  CLR     @#PUI5+100      ;HALT FOLLOWS DIV INST,
011370  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
011374  000137  120076                  JMP     @#UI5+76        ;GO DO DIVIDE
                011400                  RETURN=,
                017276                  ,=PUI5+76
017276  071204                          DIV     R4,R2
017300  000000                  T61A1:  HLT                     ;SEQ LEN ABORT WHEN THIS INST FETCHED
                011400                  ,=RETURN
011400                          T61C1:
011400  022767  040153  166164          CMP     #PLA+SPG+V55+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
011406  001401                          BEQ     .+4             ;& FAILING PAGE #)
011410  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
011412  022767  000000  166154          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
011420  001401                          BEQ     .+4
011422  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
011424  022767  120100  166144          CMP     #UI5+100,SR2    ;CHECK CONTENTS OF SR2
011432  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
011434  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
011436  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT MUL,5@
```



```
                                ;ABORTS WHEN INST FOLLOWING MUL IS FETCHED
011440  012767  050000  166330          MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
011446  012737  011510  000250          MOV     #T62C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
011454  012703  000002                  MOV     #2,R3
011460  012704  000001                  MOV     #1,R4
011464  005005                          CLR     R5
011466  012737  070403  017076          MOV     #070403,@#PSI2+76       ;070403 = MUL  R3,R4 INST,
011474  005037  017100                  CLR     @#PSI2+100              ;HALT FOLLOWS INST,
011500  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
011504  000137  040076                  JMP     @#SI2+76        ;GO DO MUL INST
                011510                  RETURN=,
                017076                  ,=PSI2+76
017076  070403                          MUL     R3,R4
017100  000000                  T62A1:  HLT                     ;ABORT WHEN THIS INST FETCHED AT MUL,5@
                011510                  ,=RETURN
011510                          T62C1:
011510  022767  040045  166054          CMP     #PLA+SPG+V52+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
011516  001401                          BEQ     .+4             ;& FAILING PAGE #)
011520  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
011522  022767  000000  166044          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
011530  001401                          BEQ     .+4
011532  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
011534  022767  040100  166034          CMP     #SI2+100,SR2    ;CHECK CONTENTS OF SR2
011542  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
011544  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
011546  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT MRK,3@
                                ;ABORTS WHEN INST FOLLOWING MARK IS FETCHED
011550  012767  050000  166220          MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
011556  012737  011606  000250          MOV     #T63C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
011564  012746                          MOV     (PC)+,-(SSP)    ;PUSH MARK INST ON SUPER STACK
011566  006401                          MARK    1               ;PUSH THIS  INST ON SUPER STACK
011570  012705  040100                  MOV     #SI2+100,R5     ;AFTER MARK EXECUTE INST AT T63A
011574  005037  017100                  CLR     @#T63A          ;WHICH IS A HALT
011600  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
011604  000116                          JMP     (SSP)           ;GO EXECUTE MARK AT SP+2
                011606                  RETURN=,
                017100                  ,=PSI2+100
017100  000000                  T63A1:  HLT                     ;SEQ ABORT WHEN THIS INST, FETCHED AT MRK,3@
                011606                  ,=RETURN

011606                          T63C1:
011606  022706  001054                  CMP     #KPTR+4,KSP     ;CHECK STACK PTR
011612  001401                          BEQ     .+4             ;AFTER ABORT
011614  000000                          HLT                     ;ERROR! INCORRECT STACK PTR
011616  022767  040045  165746          CMP     #PLA+SPG+V52+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
011624  001401                          BEQ     .+4             ;& FAILING PAGE #)
011626  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
011630  022767  000000  165736          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
011636  001401                          BEQ     .+4
011640  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
011642  022767  040100  165726          CMP     #SI2+100,SR2    ;CHECK CONTENTS OF SR2
011650  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
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011652  000000                  HLT                     ;ERROR! INCORRECT PC IN SR2
011654  106506                  MFPD    SSP             ;PUSH SUPER STACK PTR ONTO KERNEL STACK
011656  022716  000704          CMP     #SPTR+4,(KSP)   ;CHECK SUPER STACK PTR
011662  001401                  BEQ     .+4
011664  000000                  HLT                     ;ERROR! INCORRECT SUPER STACK PTR
011666  023705  000702          CMP     @#SPTR+2,R5     ;CHECK CONTENTS OF R5
011672  001401                  BEQ     .+4
011674  000000                  HLT                     ;ERROR!
011676  104000                  SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;CHECK ABORT AT TST,10
                        ;ABORTS WHEN INST FOLLOWING TST IS FETCHED
011700  012737  011734  000250  MOV     #T64C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
011706  012702  177777          MOV     #-1,R2          ;R2=STATUS WORD ADDRESS (ODD BYTE)
011712  012737  105722  016676  MOV     #105722,@#KI0+2 ;105722=TSTB (R2)+
011720  005037  016700          CLR     @#KI0
011724  005237  177572          INC     @#SR0           ;ENABLE MEMORY MGMT
011730  000137  016676          JMP     @#KI0+2         ;GO EXECUTE INSTRUCTION
        011734                  RETURN=.
        016676                  .=KI0+2
016676  105722          T64A:   TSTB    (R2)+           ;ABORTS WHEN NEXT INST. IS FETCHED
016700  000000          T64B:   HLT                     ;ERROR! FAILED TO ABORT
        011734                  .=RETURN
011734                  T64C:
011734  022767  040001  165630          CMP     #PLA+KPG+IS+VS0+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
011742  001401                          BEQ     .+4                     ;& FAILING PAGE #)
011744  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM
011746  022767  000000  165620          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
011754  001401                          BEQ     .+4
011756  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
011760  022767  016700  165610          CMP     #T64B,SR2               ;CHECK CONTENTS OF SR2
011766  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
011770  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
011772  005702                          TST     R2                      ;CHECK AUTO-INC
011774  001401                          BEQ     .+4
011776  000000                          HLT                             ;ERROR! AUTO-INC FAILED
012000  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;CHECK ABORT AT ASC,6
                        ;ABORTS WHEN INSTRUCTION FOLLOWING ASC IS FETCHED
012002  012737  012054  000250          MOV     #T65C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
012010  012700  017102                  MOV     #PSI2+102,R0
012014  005040                          CLR     -(R0)           ;SET UP CODE (HALT)
012016  012740                          MOV     (7)+,-(R0)      ;
012020  073205                          ASHC    R5,R2           ;ASC R5,R2
012022  012705  177777                  MOV     #-1,R5          ;SHIFT COUNT = -1 (1 PLACE RIGHT)
012026  005002                          CLR     R2
012030  012703  100001                  MOV     #100001,R3
012034  012767  050000  165734          MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
012042  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
012046  000261                          SEC
012050  000137  040076                  JMP     @#SI2+76        ;GO EXECUTE ASC INSTRUCTION
        012054                          RETURN=.
        017076                          .=PSI2+76
```



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017076  073205          T65A:   ASHC    R5,R2           ;SEQ LENGTH ABORT WHEN NEXT INST
017100  000000                  HLT                     ;ERROR! FAILED TO ABORT HERE
        012054                  .=RETURN
012054                  T65C:
012054  022706  031054          CMP     #KPTR+4,KSP     ;CHECK STACK PTR
012060  001401                  BEQ     .+4             ;AFTER ABORT
012062  000000                  HLT                     ;ERROR! INCORRECT STACK PTR
012064  122767  000001  166764  CMPB    #C,KPTR+2       ;CHECK STATUS ON STACK
012072  001401                  BEQ     .+4
012074  000000                  HLT                     ;ERROR! INCORRECT STATUS ON STACK
012076  022767  040045  165466          CMP     #PLA+KPG+IS+VS2+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
012104  001401                          BEQ     .+4                     ;& FAILING PAGE #)
012106  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM
012110  022767  000000  165456          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
012116  001401                          BEQ     .+4
012120  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
012122  022767  040100  165446          CMP     #SI2+100,SR2            ;CHECK CONTENTS OF SR2
012130  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
012132  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
012134  005702                          TST     R2                      ;CHECK RESULT
012136  001401                          BEQ     .+4
012140  000000                          HLT                             ;ERROR! INCORRECT RESULT IN R2
012142  022703  040000                  CMP     #040000,R3              ;CHECK RESULT
012146  001401                          BEQ     .+4
012150  000000                          HLT                             ;ERROR! INCORRECT RESULT IN R3
012152  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;CHECK ABORT AT 000,90
                        ;ABORTS WHEN INSTRUCTION FOLLOWING MOVB IS FETCHED
012154  012737  012212  000250          MOV     #T66C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
012162  012703  016700                  MOV     #KI0,R3
012166  005013                          CLR     (3)             ;SET UP CODE (HALT)
012170  012743                          MOV     (7)+,-(R3)
012172  114203                          MOVB    -(R2),R3        ;THIS INSTRUCTION IS NOT EXECUTED
012174  012702  001004                  MOV     #TEMP,R2
012200  012722  100000                  MOV     #100000,(R2)+
012204  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
012210  000113                          JMP     (R3)            ;GO EXECUTE MOVB INSTRUCTION
        012212                          RETURN=.
        016676                          .=KI0+2
016676  114203          T66A:   MOVB    -(R2),R3        ;ABORTS WHEN THE NEXT INST IS FETCHED
016700  000000          T66B:   HLT                     ;ERROR! FAILED TO ABORT HERE
        012212                  .=RETURN
012212                  T66C:
012212  022767  040001  165392          CMP     #PLA+KPG+IS+VS0+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
012220  001401                          BEQ     .+4                     ;& FAILING PAGE #)
012222  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM
012224  022767  030000  165342          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
012232  001401                          BEQ     .+4
012234  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
012236  022767  016700  165332          CMP     #T66B,SR2               ;CHECK CONTENTS OF SR2
012244  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
012246  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
012252  022703  177600                  CMP     #177600,R3              ;MOVB TO A REGISTER EXTENDS
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```
012254  001401                          BEQ     .+4                 ;THE SIGN
012256  000000                          HLT                         ;ERROR! INCORRECT RESULT IN R3
012260  104000                          SCOPE                       ;SCOPE STORES PC IN R1 & SETS ALL STACK PINS

                                ;CHECK ABORT AT FET07 (VIA ASH,30)
                                ;ABORTS WHEN INSTRUCTION FOLLOWING ASH IS FETCHED
012262  012737  012321  000250          MOV     #T67C,@#MMVEC       ;LOAD MEM MGMT ERROR VECTOR
012270  012702  016700                  MOV     #KI0,R2
012274  005012                          CLR     (R2)
012276  012742                          MOV     (7)+,-(R2)
012300  072403                          ASH     R3,R4
012302  012703  177777                  MOV     #-1,R3              ;SHIFT COUNT=-1=1 PLACE RIGHT
012306  012704  100001                  MOV     #100001,R4          ;R4=DATA TO BE SHIFTED
012312  005237  177572                  INC     @#SR0               ;ENABLE MEMORY MGMT
012316  000112                          JMP     (R2)
        012320                          RETURN=,
        016676                          ,=KI0=2
016676  072403                  T67A:   ASH     R3,R4               ;ABORTS WHEN NEXT INSTRUCTION IS FETCHED
016700  000000                  T67B:   HLT
        012320                          ,=RETURN
012320  122766  000011  000002  T67C:   CMPB    #N+C,2(6)           ;CHECK STATUS ON THE STACK
012326  001401                          BEQ     .+4
012330  000000                          HLT
012332  022767  040001  165232          CMP     #PLA+KPG+IS+VS0+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
012340  001401                          BEQ     .+4                 ;& FAILING PAGE #)
012342  000000                          HLT                         ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
012344  022767  000000  165222          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
012352  001401                          BEQ     .+4
012354  000000                          HLT                         ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
012356  022767  016700  165212          CMP     #T67B,SR2           ;CHECK CONTENTS OF SR2
012364  001401                          BEQ     .+4                 ;(PC OF ABORTED INSTRUCTION)
012366  000000                          HLT                         ;ERROR! INCORRECT PC IN SR2
012370  022704  140000                  CMP     #140000,R4
012374  001401                          BEQ     .+4
012376  000000                          HLT
012400  104000                          SCOPE                       ;SCOPE STORES PC IN R1 & SETS ALL STACK PINS

                                ;CHECK ABORT AT FET,05 (VIA ASH,40)
                                ;ABORTS WHEN INSTRUCTION FOLLOWING ASH IS FETCHED
012402  012737  012446  000250          MOV     #T70C,@#MMVEC       ;LOAD MEM MGMT ERROR VECTOR
012410  012705  016700                  MOV     #KI0,R5
012414  005015                          CLR     (R5)
012416  012745                          MOV     (7)+,-(R5)
012420  072223                          ASH     (3)+,R2
012422  012703  001004                  MOV     #TEMP,R3
012426  012713  000001                  MOV     #1,(R3)             ;SHIFT COUNT =1=1 PLACE LEFT
012432  012702  100000                  MOV     #100000,R2
012436  005237  177572                  INC     @#SR0               ;ENABLE MEMORY MGMT
012442  000261                          SEC
012444  000115                          JMP     (R5)
        012446                          RETURN=,
        016676                          ,=KI0=2
016676  072223                  T70A:   ASH     (R3)+,R2
016700  000000                  T70B:   HLT
```



```
        012446                          ,=RETURN
012446                          T70C:
012446  022767  040001  165116          CMP     #PLA+KPG+IS+VS0+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
012454  001401                          BEQ     .+4                 ;& FAILING PAGE #)
012456  000000                          HLT                         ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
012460  022767  000000  165106          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
012466  001401                          BEQ     .+4
012470  000000                          HLT                         ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
012472  022767  016700  165076          CMP     #T70B,SR2           ;CHECK CONTENTS OF SR2
012500  001401                          BEQ     .+4                 ;(PC OF ABORTED INSTRUCTION)
012502  000000                          HLT                         ;ERROR! INCORRECT PC IN SR2
012504  005702                          TST     R2
012506  001401                          BEQ     .+4
012510  000000                          HLT
012512  022703  001006                  CMP     #TEMP+2,R3
012516  001401                          BEQ     .+4
012520  000000                          HLT
012522  104000                          SCOPE                       ;SCOPE STORES PC IN R1 & SETS ALL STACK PINS

                                ;CHECK ABORT AT FET,04
                                ;ABORT OCCURS WHEN INST FOLLOWING DIV IS FETCHED
012524  012737  012560  000250          MOV     #T71C,@#MMVEC       ;LOAD MEM MGMT ERROR VECTOR
012532  012705  016676                  MOV     #KI0-2,R5
012536  012725                          MOV     (PC)+,(R5)+
012540  071220                          DIV     (R0)+,R2            ;LOAD INSTRUCTION
012542  005015                          CLR     (R5)                ;LOAD HALT FOLLOWING DIVIDE
012544  012700  001004                  MOV     #TEMP,R0
012550  005010                          CLR     (R0)                ;DIVISOR IS 0
012552  005237  177572                  INC     @#SR0               ;ENABLE MEMORY MGMT
012556  000145                          JMP     -(R5)               ;GO EXECUTE DIVIDE INSTRUCTION
        012560                          RETURN=,
        016676                          ,=KI0=2
016676  071220                  T71A:   DIV     (R0)+,R2            ;ABORTS WHEN NEXT INSTRUCTION FETCHED
016700  000000                  T71B:   HLT                         ;ERROR! FAILED TO ABORT
        012560                          ,=RETURN
012560                          T71C:
012560  022767  040001  165004          CMP     #PLA+KPG+IS+VS0+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
012566  001401                          BEQ     .+4                 ;& FAILING PAGE #)
012570  000000                          HLT                         ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
012572  022767  000000  164774          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
012600  001401                          BEQ     .+4
012602  000000                          HLT                         ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
012604  022767  016700  164764          CMP     #T71B,SR2           ;CHECK CONTENTS OF SR2
012612  001401                          BEQ     .+4                 ;(PC OF ABORTED INSTRUCTION)
012614  000000                          HLT                         ;ERROR! INCORRECT PC IN SR2
012616  022700  001006                  CMP     #TEMP+2,R0          ;CHECK AUTO-INCREMENT
012622  001401                          BEQ     .+4
012624  000000                          HLT                         ;ERROR! AUTO-INC FAILED
012626  104000                          SCOPE                       ;SCOPE STORES PC IN R1 & SETS ALL STACK PINS

                                ;CHECK ACCESS VIOLATION ABORT
                                ;ABORTS WHEN SOURCE DATA IS FETCHED USING DATIP WITH DEST ADDRESS READ ONLY
012630  012737  012662  000250          MOV     #T72C,@#MMVEC       ;LOAD MEM MGMT ERROR VECTOR
012636  112737  000002  172334          MOVB    #RDD,@#KDPDR6       ;SET KERNEL 'D' ADDRESS 140000-140077
```

```
                                                        ;READ ABORT ON WRITE
012644  005037  016700            CLR     @#PKD0          ;CLEAR CORRESPONDING PHYSICAL ADDRESS
012650  005237  177572            INC     @#SR0           ;ENABLE MEMORY MGMT
012654  000261                    SEC                     ;SET 'C'
012656  005537  140000    T72A:   ADC     @#KD6           ;ABORTS WHEN DATA IS FETCHED USING DATIP

012662                    T72C:
012662  022767  020035  164702    CMP     #AVA+KPG+DS+VS6+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
012670  001401                    BEQ     .+4             ;& FAILING PAGE #)
012672  000000                    HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
012674  022767  000027  164672    CMP     #S2+PC,SR1      ;CHECK SR1 (REGISTER CHANGES)
012702  001401                    BEQ     .+4
012704  000000                    HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
012706  022767  012656  164662    CMP     #T72A,SR2       ;CHECK CONTENTS OF SR2
012714  001401                    BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
012716  000000                    HLT                     ;ERROR! INCORRECT PC IN SR2
012720  022766  000001  000002    CMP     #C,2(KSP)       ;CHECK THAT CORRECT STATUS
012726  001401                    BEQ     .+4             ;WAS SAVED ON THE STACK
012730  000000                    HLT                     ;ERROR! INCORRECT STATUS
012732  005037  177572            CLR     @#SR0           ;DISABLE MEMORY MGMT
012736  005737  016700            TST     @#PKD0          ;CHECK THAT ADDRESS WAS NOT WRITTEN
012742  001401                    BEQ     .+4
012744  000000                    HLT                     ;ERROR! DATA WRITTEN INTO READ ONLY ADDRESS
012746  104000                    SCOPE

                                ;CHECK ACCESS VIOLATION ABORT
                                ;ABORTS WHEN SOURCE DATA IS FETCHED FROM READ ONLY SPACE USING A DATIP,
012750  012737  012774  000250    MOV     #T73C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
012756  005037  016700            CLR     @#PKD0          ;PRESET ADDRESS
012762  005237  177572            INC     @#SR0           ;ENABLE MEMORY MGMT
012766  000261                    SEC                     ;SET 'C'
012770  106037  140001    T73A:   RORB    @#KD6+1         ;ABORTS WHEN RESULT IS WRITTEN

012774                    T73C:
012774  022767  020035  164570    CMP     #AVA+KPG+DS+VS6+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
013002  001401                    BEQ     .+4             ;& FAILING PAGE #)
013004  000000                    HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
013006  022767  000027  164560    CMP     #S2+PC,SR1      ;CHECK SR1 (REGISTER CHANGES)
013014  001401                    BEQ     .+4
013016  000000                    HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
013020  022767  012770  164550    CMP     #T73A,SR2       ;CHECK CONTENTS OF SR2
013026  001401                    BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
013030  000000                    HLT                     ;ERROR! INCORRECT PC IN SR2
013032  022766  000001  000002    CMP     #C,2(KSP)       ;CHECK THAT CORRECT STATUS
013040  001401                    BEQ     .+4             ;WAS SAVED ON THE STACK
013042  000000                    HLT                     ;ERROR! INCORRECT STATUS
013044  005037  177572            CLR     @#SR0           ;DISABLE MEMORY MGMT
013050  005737  016700            TST     @#PKD0
013054  001401                    BEQ     .+4
013056  000000                    HLT                     ;ERROR! ADDRESS WAS WRITTEN
013062  012737  000006  172334    MOV     #6,@#KDPDR0     ;SET KDPDR R/W
013066  104030                    SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT FET,02
```



```
013070  012737  013152  000250    MOV     #T75C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
013076  000237                    SPL     7               ;SET PRIORITY LEVEL 7
013100  012737  010000  177772    MOV     #PIR4,@#PIRQ    ;BOOK INT REQUEST AT LEVEL 4
013106  012737  140000  000240    MOV     #KD0,@#PIRVEC   ;SET PIRQ INT VECTOR
013114  012737  000340  000242    MOV     #340,@#PIRVEC+2 ;PRIORITY LEVEL 7 ON INTERRUPT
013122  012737  000340  000252    MOV     #340,@#MMVEC+2  ;PRIORITY LEVEL 7 ON ABORT TRAP
013130  005037  016700            CLR     @#PKD0
013134  005237  177572            INC     @#SR0           ;ENABLE MEMORY MGMT
013140  000264                    SEZ                     ;SET 'Z'
013142  000233                    SPL     3               ;ALLOW BOOKED INTERRUPT
013144  001001            T75A:   BNE     .+4             ;SHOULD NOT BRANCH
013146  000000                    HLT                     ;ERROR! DID NOT INTERRUPT & BRANCH FAILED
013150  000000                    HLT                     ;ERROR! DID NOT INTERRUPT
        013152                    RETURN@,
        016700                    .@PKD6
016700  000000            T75B:   HLT                     ;ERROR! DID NOT ABORT WHEN THIS INST
                                                        ;WAS FETCHED
        013152                    .=RETURN
013152                    T75C:
013152  022767  100015  164412    CMP     #NRA+KPG+IS+VS6+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
013160  001401                    BEQ     .+4             ;& FAILING PAGE #)
013162  000000                    HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
013164  022767  000000  164402    CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
013172  001401                    BEQ     .+4
013174  000000                    HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
013176  022767  140000  164372    CMP     #KD0,SR2        ;CHECK CONTENTS OF SR2
013204  001401                    BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
013206  000000                    HLT                     ;ERROR! INCORRECT PC IN SR2
013210  005037  177772            CLR     @#PIRQ          ;CLEAR REQUEST
013214  012737  000242  000240    MOV     #PIRVEC+2,@#PIRVEC
013222  005037  000242            CLR     @#PIRVEC+2
013226  104000                    SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT SVC,B0 USING 'T' BIT TRAP
                                ;ABORTS WHEN RETURN PC IS PUSHED ONTO SUPERVISOR STACK
013230  012737  013322  000250    MOV     #T76C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
013236  012737  013404  000014    MOV     #T76D,@#TBITVEC ;SET 'T' BIT TRAP VECTOR
013244  012737  040000  000016    MOV     #SM,@#TBITVEC+2 ;SUPER MODE ON TRAP
013252  012767  050000  164516    MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
013260  012706  020002            MOV     #SD1+2,SSP      ;SET SUPER STACK PTR
013264  012767  170000  164504    MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
013272  005000                    CLR     R0              ;PRESET R0
013274  013746  177776            MOV     @#PSW,-(USP)    ;SET UP TO
013300  005237  177572            INC     @#SR0           ;ENABLE MEMORY MGMT
013304  052716  000020            BIS     #T,(USP)        ;SET 'T' BIT
013310  012746  013316            MOV     #.+6,-(USP)
013314  000006                    RTT                     ;RTT SETS THE 'T' BIT
013316  005200                    INC     R0              ;TRAP AFTER THIS INST
013320  000000            T76A:   HLT                     ;ERROR! FAILED TO TRAP

013322                    T76C:
013322  022767  040261  164242    CMP     #PLA+IC+DS+SPG+VS0+1,SR0        ;CHECK SR0 (ABORT CONDITIONS
013330  001401                    BEQ     .+4             ;& FAILING PAGE #)
013332  000000                    HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
```

```
013334  022767  173366  164232          CMP     #UM+UR0+SM2+SP,SR1      ;CHECK SR1 (REGISTER CHANGES)
013342  001401                          BEQ     .+4
013344  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
013346  022767  000014  164222          CMP     #TBITVEC,SR2            ;CHECK CONTENTS OF SR2
013354  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
013356  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
013360  022766  170020  000002          CMP     #UM+PUM+I,2(KSP)        ;CHECK THAT CORRECT STATUS
013366  001401                          BEQ     .+4                     ;WAS SAVED ON THE STACK
013370  000000                          HLT                             ;ERROR! INCORRECT STATUS
013372  022716  013320                  CMP     #T76A,(KSP)             ;CHECK RETURN PC ON
013376  001401                          BEQ     .+4                     ;STACK
013400  000000                          HLT                             ;ERROR! INCORRECT RETURN PC ON STACK
013402  000401                          BR      T76EX                   ;EXIT TEST
013404  000000                  T76D!   HLT                             ;ERROR! FAILED TO ABORT AT SVC,80
013406  012737  000010  000014  T76EX!  MOV     #TBITVEC+2,@#TBITVEC
013414  005037  000016                  CLR     @#TBITVEC+2
013420  104000                          SCOPE

                                ;CHECK RELATIONSHIP BETWEEN SEG ABORT TRAP & FATAL STACK ERROR TRAP
013422  012737  010000  177776          MOV     #KM+PSM,@#PSW           ;KERNEL MODE!!!,PREV SUPER MODE!!
013430  012737  013466  000250          MOV     #T100B,@#MMVEC          ;LOAD MEM MGMT ERROR VECTOR
013436  012737  013470  000004          MOV     #T100C,@#ERRVEC         ;LOAD FATAL STACK ERROR TRAP VECTOR
013444  012706  000740                  MOV     #REDPTR,KSP             ;SET KERNEL STACK PTR IN RED ZONE
013450  005037  000000                  CLR     @#0                     ;PRESET RED STACK
013454  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
013460  006537  040100          T100A!  MFPI    @#SI2+100               ;SEG ABORT WHEN DATA AT SI2+100 IS FETCHED
013464  000000                          HLT                             ;ERROR! NO FATAL STACK ERR NOR SEG ABORT
013466  000000                  T100B!  HLT                             ;ERROR! NO FATAL STACK ERROR TRAP
013470  005706                  T100C!  TST     KSP                     ;CHECK THAT KERNEL STACK PTR WAS FORCED
013472  001401                          BEQ     .+4                     ;TO 0
013474  000000                          HLT                             ;ERROR! FATAL STACK ERROR TRAP FAILED
013476  022737  013466  000000          CMP     #T100B,@#0              ;CHECK THAT RETURN ADDRESS WAS SAVED
013504  001401                          BEQ     .+4
013506  000000                          HLT                             ;ERROR! RETURN ADDRESS NOT SAVED
013510  012706  001060                  MOV     #KPTR,KSP               ;RESTORE KERNEL STACK PTR
013514  022767  040045  164030          CMP     #PLA+IS+SPG+VS2+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
013522  001401                          BEQ     .+4                     ;& FAILING PAGE #)
013524  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM!
013526  022767  000027  164040          CMP     #S2+PC,SR1              ;CHECK SR1 (REGISTER CHANGES)
013534  001401                          BEQ     .+4
013536  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
013540  022767  013460  164030          CMP     #T100A,SR2              ;CHECK CONTENTS OF SR2
013546  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
013550  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
013552  012737  000400  000004          MOV     #SHLT,@#ERRVEC          ;RESTORE ERROR TRAP
013560  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT WHEN PSW IS NON-RESIDENT
013562  012737  013616  000250          MOV     #T102C,@#MMVEC          ;LOAD MEM MGMT ERROR VECTOR
013570  005002                          CLR     R2                      ;PRESET DESTINATION
013572  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
013576  012746  040017                  MOV     #SM+17,-(KSP)           ;"NEW" STATUS ON STACK
013602  012746  013610                  MOV     #.+6,-(KSP)             ;RETURN PC
013606  000002                          RTI                             ;SET STATUS AND EXECUTE NEXT INST,
```



```
013610  013732  177776          T102A!  MOV     @#PSW,R2                ;PSW IS NON-RESIDENT IN SUPER MODE
013614  000000                          HLT                             ;ERROR! FAILED TO ABORT

013616                          T102C!
013616  022767  140077  163746          CMP     #NRA+PLA+SPG+DS+VS7+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
013624  001401                          BEQ     .+4                     ;& FAILING PAGE #)
013626  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM!
013630  022767  000027  163736          CMP     #S2+PC,SR1              ;CHECK SR1 (REGISTER CHANGES)
013636  001401                          BEQ     .+4
013640  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
013642  022767  013610  163726          CMP     #T102A,SR2              ;CHECK CONTENTS OF SR2
013650  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
013652  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
013654  022766  040017  000002          CMP     #SM+17,2(KSP)           ;CHECK THAT CORRECT STATUS
013662  001401                          BEQ     .+4                     ;WAS SAVED ON THE STACK
013664  000000                          HLT                             ;ERROR! INCORRECT STATUS
013666  005702                          TST     R2                      ;CHECK THAT R2 WAS NOT LOADED
013670  001401                          BEQ     .+4
013672  000000                          HLT                             ;ERROR! DEST (R2) WAS CHEANGED
013674  104000                          SCOPE

                                ;CHECK ABORT WHEN DEST ADDRESS IS PSW AND PSW IS NON-RESIDENT
013676  012737  010000  177776          MOV     #KM+PSM,@#PSW           ;KERNEL MODE!!!,PREV SUPER MODE!!
013704  012737  013740  000250          MOV     #T103C,@#MMVEC          ;LOAD MEM MGMT ERROR VECTOR
013712  005046                          CLR     -(KSP)                  ;DATA TO STACK
013714  012746  177776                  MOV     #PSW,-(KSP)             ;ADDRESS OF PSW TO STACK
013720  005046                          CLR     -(KSP)                  ;DATA TO STACK
013722  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
013726  052737  000357  177776          BIS     #PRTY7+17,@#PSW         ;PRESET STATUS
013734  106636                  T103A!  MTPD    @(KSP)+                 ;DEST ADRS(PSW) IS NON-RES
013736  000000                          HLT                             ;ERROR! FAILED TO ABORT

013740  013730  177776          T103C!  MOV     @#PSW,R0                ;SAVE CURRECT STATUS
013744  022700  000340                  CMP     #KM+PKM+PRTY7,R0                ;CHECK CURRENT STATUS
013750  001401                          BEQ     .+4
013752  000000                          HLT                             ;ERROR! INCORRECT STATUS AFTER ABORT
013754  022767  140077  163610          CMP     #NRA+PLA+SPG+DS+VS7+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
013762  001401                          BEQ     .+4                     ;& FAILING PAGE #)
013764  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM!
013766  022767  013026  163600          CMP     #U2+DM6+S2+KSP,SR1      ;CHECK SR1 (REGISTER CHANGES)
013774  001401                          BEQ     .+4
013776  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
014000  022767  013734  163570          CMP     #T103A,SR2              ;CHECK CONTENTS OF SR2
014006  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
014010  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
014012  022766  010345  000002          CMP     #PSM+PRTY7+Z+C,2(KSP)   ;CHECK THAT CORRECT STATUS
014020  001401                          BEQ     .+4                     ;WAS SAVED ON THE STACK
014022  000000                          HLT                             ;ERROR! INCORRECT STATUS
014024  104000                          SCOPE

                                ;CHECK ABORT WHEN ADDRESS IS ONE OF THE MEMORY MANAGEMENT REGISTERS,
014026  012737  077402  177636          MOV     #200*256.+400+UP+RDU,@#UDPDR7   ;SET UDPDR7=RDU UP 200 BLOCKS
014034  012737  007600  177676          MOV     #7600,@#UDPAR7          ;SET TO I/O PAGE
014042  012737  014076  000250          MOV     #T104C,@#MMVEC          ;LOAD MEM MGMT ERROR VECTOR
```

```
014050  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
014054  012737  140000  177776        MOV     #UM,@#PSW       ;SET USER MODE IN PSW
014062  005737  177636        T104A:  TST     @#UDPDR7        ;SHOULD NOT ABORT
014066  013737  177676  177636  T104B:  MOV     @#UDPAR7,@#UDPDR7       ;SHOULD ABORT
014074  000000                        HLT                     ;ERROR: FAILED TO ABORT
                                ;NOTE:  IF ABOVE TEST FAILED TO ABORT OR TRAPPED CHECK THAT M8186
                                ;MODULE IS UP TO REV F...

014076                          T104C:
014076  022767  020177  163466        CMP     #AVA+UPG+DS+VS7+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
014104  001401                        BEQ     .+4             ;& FAILING PAGE #)
014106  000000                        HLT                     ;ERROR: INCORRECT ABORT CONDITIONS OR PAGE IDENT
014110  022767  013427  163456        CMP     #U2+DM7+S2+PC,SR1       ;CHECK SR1 (REGISTER CHANGES)
014116  001401                        BEQ     .+4
014120  000000                        HLT                     ;ERROR: INCORRECT REGISTER CHANGES RECORDED IN SR1
014122  022767  014066  163446        CMP     #T104B,SR2      ;CHECK CONTENTS OF SR2
014130  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
014132  000000                        HLT                     ;ERROR: INCORRECT PC IN SR2
014134  022766  140000  000002        CMP     #UM,2(KSP)      ;CHECK THAT CORRECT STATUS
014142  001401                        BEQ     .+4             ;WAS SAVED ON THE STACK
014144  000000                        HLT                     ;ERROR: INCORRECT STATUS
014146  022737  077402  177636        CMP     #77402,@#UDPDR7 ;CHECK THAT UDPDR7 WAS NOT CHANGED
014154  001401                        BEQ     .+4
014156  000000                        HLT                     ;ERROR: UDPDR7 WAS CHANGED
014160  005037  177636                CLR     @#UDPDR7
014164  104000                        SCOPE

                                ;CHECK IF FLOATING POINT OPTION IS AVAILABLE
014166  012737  014200  000010        MOV     #NOFP,@#RESVEC  ;LOAD ERROR VECTOR
014174  170001                        SETF                    ;DO A FLOATING POINT INST,
014176  000402                        BR      STFP            ;START FP TEST IF AVAILABLE
014200  000167  002174        NOFP:   JMP     END             ;END OF TEST IF NO FLOATING POINT
014204  012737  000012  000010  STFP:  MOV     #RESVEC+2,@#RESVEC      ;RESTORE USER/SUPER HLT TRAP


                                ;START FLOATING POINT TESTS
                                ;CHECK ABORT AT
                                ;ABORTS WHEN INSTRUCTION FOLLOWING FIRST ADDF IS FETCHED
014212  012737  014264  000250        MOV     #F0C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
014220  012767  030000  163550        MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
014226  012705  017076                MOV     #PSI2+76,R5
014232  172427  040200                LDF     #1,AC0
014236  172500                        LDF     AC0,AC1
014240  012725                        MOV     (7)+,(5)+       ;LOAD INSTRUCTION
014242  172100                        ADDF    AC0,AC1         ;THESE INSTRUCTIONS
014244  012725                        MOV     (7)+,(5)+
014246  172100                        ADDF    AC0,AC1         ;WILL BE
014250  012715                        MOV     (7)+,(5)
014252  000000                        HLT                     ;EXECUTED IN THIS TEST
014254  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
014260  000137  040076                JMP     @#PSI2+76       ;GO DO FLOATING POINT INST,
        014264                          RETURN=.
        017076                          .=PSI2+76
```



```
017076  172100                        ADDF    AC0,AC1         ;DO THIS INST, ABORT ON NEXT
017100  172100        F0A:    ADDF    AC0,AC1         ;SEQ LEN ABORT AT FET,00
017102  000000                HLT                     ;ERROR: FAILED TO ABORT
        014264                  .=RETURN

014264                  F0C:
014264  022706  001054                CMP     #KPTR+4,KSP     ;CHECK STACK PTR
014270  001401                        BEQ     .+4             ;AFTER ABORT
014272  000000                        HLT                     ;ERROR: INCORRECT STACK PTR
014274  022767  040045  163270        CMP     #PLA+SPG+VS2+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
014302  001401                        BEQ     .+4             ;& FAILING PAGE #)
014304  000000                        HLT                     ;ERROR: INCORRECT ABORT CONDITIONS OR PAGE IDENT
014306  022767  000004  163260        CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
014314  001401                        BEQ     .+4
014316  000000                        HLT                     ;ERROR: INCORRECT REGISTER CHANGES RECORDED IN SR1
014320  022767  040100  163250        CMP     #SI2+100,SR2    ;CHECK CONTENTS OF SR2
014326  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
014330  000000                        HLT                     ;ERROR: INCORRECT PC IN SR2
014332  005037  177572                CLR     @#SR0           ;DISABLE MEMORY MGMT
014336  173527  040400                CMPF    #2,AC1
014342  170000                        CFCC
014344  001401                        BEQ     .+4
014346  000000                        HLT                     ;ERROR: FOP DID NOT COMPLETE,
014350  104000                        SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PINS

                                ;CHECK ABORT AT D12,80
014352  012737  014420  000250        MOV     #F1C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
014360  012767  170000  163410        MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
014366  172427  040200                LDF     #1,AC0
014372  174037  017200                STF     AC0,@#PUI5
014376  012703  120000                MOV     #UI5,R3
014402  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
014406  172023                F1A:    ADDF    (3)+,AC0        ;NON-RES ABORT AT D12,80
014410  000240                        NOP
014412  000240                        NOP
014414  000240                        NOP
014416  000000                        HLT                     ;ERROR: FAILED TO ABORT

014420                          F1C:
014420  022767  100173  163144        CMP     #NRA+UPG+DS+VS5+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
014426  001401                        BEQ     .+4             ;& FAILING PAGE #)
014430  000000                        HLT                     ;ERROR: INCORRECT ABORT CONDITIONS OR PAGE IDENT
014432  022767  030043  163134        CMP     #S4+R3,SR1      ;CHECK SR1 (REGISTER CHANGES)
014440  001401                        BEQ     .+4
014442  000000                        HLT                     ;ERROR: INCORRECT REGISTER CHANGES RECORDED IN SR1
014444  022767  014406  163124        CMP     #F1A,SR2        ;CHECK CONTENTS OF SR2
014452  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
014454  000000                        HLT                     ;ERROR: INCORRECT PC IN SR2
014456  173427  040200                CMPF    #1,AC0          ;CHECK THAT INST, ABORTED
014462  170000                        CFCC
014464  001401                        BEQ     .+4
014466  000000                        HLT                     ;ERROR:
014470  104000                        SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PINS
```

```
                                ;BEGIN TESTING FLOATING POINT DOUBLE INSTRUCTION ABORT TRAPS
                                ;AUTO INCREMENT FIRST DATA WORD

014472  012767  050000  163276        MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
014500  012737  014540  000250        MOV     #F2C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
014506  170127  000200                LDFPS   #200
014512  172427  040200                LDD     #1,AC0          ;PRESET AC0
014516  012703  020100                MOV     #SD1+100,R3
014522  005037  017200                CLR     @#PSD1+100      ;PRESET PHYSICAL ADDRESS
014526  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
014532  172423                F2A:    LDD     (R3)+,AC0       ;ABORTS WHEN FIRST DATA IS FETCHED
014534  000000                        HLT                     ;ERROR! FAILED TO ABORT
014536  000240                        NOP
014540                          F2C:
014540  022767  040063  163024        CMP     #PLA+SPG+DS+VS1+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
014546  001401                        BEQ     .+4             ;& FAILING PAGE #)
014550  000000                        HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
014552  022767  000103  163014        CMP     #S8+R3,SR1      ;CHECK SR1 (REGISTER CHANGES)
014560  001401                        BEQ     .+4
014562  000000                        HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
014564  022767  014532  163004        CMP     #F2A,SR2        ;CHECK CONTENTS OF SR2
014572  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
014574  000000                        HLT                     ;ERROR! INCORRECT PC IN SR2
014576  174067  164202                STF     AC0,TEMP        ;PUT AC0 IN TEMP
014602  173427  040200                CMPD    #1,AC0          ;CHECK THAT AC0 WAS NOT CHANGED
014606  170000                        CFCC                    ;COPY FLOATING CC'S INTO PSW
014610  001401                        BEQ     .+4
014612  000000                        HLT                     ;ERROR! AC0 WAS ALTERED
014614  104000                        SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS
    .
                                ;AUTO INCREMENT SECOND DATA WORD
014616  012767  170000  163192        MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
014624  012737  014654  000250        MOV     #F3C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
014632  170127  000200                LDFPS   #200
014636  012704  100076                MOV     #UD4+76,R4
014642  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
014646  172024                F3A:    ADDD    (R4)+,AC0       ;ABORTS WHEN SECOND DATA IS FETCHED
014650  000000                        HLT                     ;ERROR! FAILED TO ABORT
014652  000240                        NOP
014654                          F3C:
014654  022767  040171  162710        CMP     #PLA+UPG+DS+VS4+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
014662  001401                        BEQ     .+4             ;& FAILING PAGE #)
014664  000000                        HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
014666  022767  000104  162700        CMP     #S8+R4,SR1      ;CHECK SR1 (REGISTER CHANGES)
014674  001401                        BEQ     .+4
014676  000000                        HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
014702  022767  014646  162670        CMP     #F3A,SR2        ;CHECK CONTENTS OF SR2
014710  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
014712  000000                        HLT                     ;ERROR! INCORRECT PC IN SR2
014714  022704  100106                CMP     #UD4+106,R4     ;CHECK AUTO INC
014720  001401                        BEQ     .+4
014722  000000                        HLT                     ;ERROR! R4 NOT AUTO-INC TWICE
014724  170200                        STFPS   R0              ;STORE FPS IN R0
014726  022700  000200                CMP     #200,R0         ;CHECK FP STATUS AFTER ABORT
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```
014730  001401                        BEQ     .+4
014732  000000                        HLT                     ;ERROR! INCORRECT FPS AFTER ABORT
014734  174067  164044                STF     AC0,TEMP        ;PUT AC0 IN TEMP
014740  173427  040200                CMPD    #1,AC0          ;CHECK THAT AC0 WAS NOT CHANGED
014744  170000                        CFCC                    ;COPY FLOATING CC'S INTO PSW
014746  001401                        BEQ     .+4
014750  000000                        HLT                     ;ERROR! AC0 WAS ALTERED
014752  104000                        SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;AUTO INCREMENT THIRD DATA WORD
014754  012737  015002  000250        MOV     #F4C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
014762  170127  000200                LDFPS   #200
014766  012702  001074                MOV     #KD0-4,R2
014772  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
014776  171022                F4A:    MULD    (R2)+,AC0       ;ABORTS WHEN THIRD DATA IS FETCHED
015000  000000                        HLT                     ;ERROR! FAILED TO ABORT
015002                          F4C:
015002  022767  040021  162502        CMP     #PLA+KPG+DS+VS0+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
015010  001401                        BEQ     .+4             ;& FAILING PAGE #)
015012  000000                        HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
015014  022767  000102  162552        CMP     #S8+R2,SR1      ;CHECK SR1 (REGISTER CHANGES)
015022  001401                        BEQ     .+4
015024  000000                        HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
015026  022767  014776  162542        CMP     #F4A,SR2        ;CHECK CONTENTS OF SR2
015034  001401                        BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
015036  000000                        HLT                     ;ERROR! INCORRECT PC IN SR2
015040  022702  001104                CMP     #KD0+4,R2       ;CHECK AUTO-INC THRE TIMES
015044  001401                        BEQ     .+4
015046  000000                        HLT                     ;ERROR! R2 NOT AUTO-INC THREE TIMES
015050  005037  177572                CLR     @#SR0           ;DISABLE MEMORY MGMT
015054  170200                        STFPS   R0              ;STORE FPS IN R0
015056  022700  000200                CMP     #200,R0         ;CHECK FP STATUS AFTER ABORT
015062  001401                        BEQ     .+4
015064  000000                        HLT                     ;ERROR! INCORRECT FPS AFTER ABORT
015066  174067  163712                STF     AC0,TEMP        ;PUT AC0 IN TEMP
015072  173427  040200                CMPD    #1,AC0          ;CHECK THAT AC0 WAS NOT CHANGED
015076  170000                        CFCC                    ;COPY FLOATING CC'S INTO PSW
015100  001401                        BEQ     .+4
015102  000000                        HLT                     ;ERROR! AC0 WAS ALTERED
015104  104000                        SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;AUTO INCREMENT FOURTH DATA WORD
015106  012767  170000  162662        MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
015114  012737  015144  000250        MOV     #F5C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
015122  170127  000200                LDFPS   #200
015126  012700  100074                MOV     #UD4+74,R0
015132  005237  177572                INC     @#SR0           ;ENABLE MEMORY MGMT
015136  174420                F5A:    DIVD    (R0)+,AC0       ;ABORTS WHEN FOURTH DATA IS FETCHED
015140  000000                        HLT                     ;ERROR! FAILED TO ABORT
015142  000240                        NOP
015144                          F5C:
015144  022767  040171  162420        CMP     #PLA+UPG+DS+VS4+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
015152  001401                        BEQ     .+4             ;& FAILING PAGE #)
015154  000000                        HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
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015156  022767  000100  162410          CMP     #S8+R0,SR1      ;CHECK SR1 (REGISTER CHANGES)
015164  001401                          BEQ     .+4
015166  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
015170  022767  015136  162400          CMP     #F5A,SR2        ;CHECK CONTENTS OF SR2
015176  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
015200  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
015202  022700  100104                  CMP     #UD4+104,R0     ;CHECK AUTO INC 4 TIMES
015206  001401                          BEQ     .+4
015210  000000                          HLT                     ;ERROR! R0 NOT AUTO-INC 4 TIMES
015212  170200                          STFPS   R0              ;STORE FPS IN R0
015214  022700  000200                  CMP     #200,R0         ;CHECK FP STATUS AFTER ABORT
015220  001401                          BEQ     .+4
015222  000000                          HLT                     ;ERROR! INCORRECT FPS AFTER ABORT
015224  174067  163554                  STF     AC0,TEMP                ;PUT AC0 IN TEMP
015230  173427  040200                  CMPD    #1,AC0          ;CHECK THAT AC0 WAS NOT CHANGED
015234  170000                          CFCC                    ;COPY FLOATING CC'S INTO PSW
015236  001401                          BEQ     .+4
015240  000000                          HLT                     ;ERROR! AC0 WAS ALTERED
015242  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;AUTO DECREMENT FIRST DATA WORD
015244  012767  050000  162524          MOV     #SM+PSM,PSW     ;SUPER MODE!!!,PREV SUPER MODE!!
015252  012737  015302  000250          MOV     #F6C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
015260  170127  000200                  LDFPS   #200
015264  012703  020000                  MOV     #SD1,R3
015270  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
015274  173043          F6A:    SUBD    -(R3),AC0       ;ABORTS WHEN FIRST DATA IS FETCHED
015276  000000                          HLT                     ;ERROR! FAILED TO ABORT
015300  000240                          NOP
015302                  F6C:
015302  022767  040061  162262          CMP     #PLA+SPG+DS+VS0+1,SR0   ;CHECK SR0 (ABORT CONDITIONS    +
015310  001401                          BEQ     .+4             ;& FAILING PAGE #)
015312  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
015314  022767  000303  162252          CMP     #SM0+R3,SR1     ;CHECK SR1 (REGISTER CHANGES)
015322  001401                          BEQ     .+4
015324  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
015326  022767  015274  162242          CMP     #F6A,SR2        ;CHECK CONTENTS OF SR2
015334  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
015336  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
015340  005037  177572                  CLR     @#SR0           ;DISABLE MEMORY MGMT
015344  022703  017770                  CMP     #SD1-8.,R3      ;CHECK AUTO-DEC
015350  001401                          BEQ     .+4
015352  000000                          HLT                     ;ERROR! R3 NOT AUTO-DEC
015354  170200                          STFPS   R0              ;STORE FPS IN R0
015356  022700  000200                  CMP     #200,R0         ;CHECK FP STATUS AFTER ABORT
015362  001401                          BEQ     .+4
015364  000000                          HLT                     ;ERROR! INCORRECT FPS AFTER ABORT
015366  174067  163412                  STF     AC0,TEMP                ;PUT AC0 IN TEMP
015372  173427  040200                  CMPD    #1,AC0          ;CHECK THAT AC0 WAS NOT CHANGED
015376  170000                          CFCC                    ;COPY FLOATING CC'S INTO PSW
015400  001401                          BEQ     .+4
015402  000000                          HLT                     ;ERROR! AC0 WAS ALTERED
015404  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS
```



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                        ;AUTO DECREMENT SECOND DATA WORD
015406  012767  170000  162362          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
015414  012737  015444  000250          MOV     #F7C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
015422  170127  000200                  LDFPS   #200
015426  012704  100002                  MOV     #UD4+2,R4
015432  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
015436  177444          F7A:    LDCFD   -(R4),AC0       ;ABORTS WHEN SECOND DATA WORD IS FETCHED
015440  000000                          HLT                     ;ERROR! FAILED TO ABORT
015442  000240                          NOP
015444                  F7C:
015444  022767  140167  162120          CMP     #NRA+PLA+UPG+DS+VS3+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
015452  001401                          BEQ     .+4             ;& FAILING PAGE #)
015454  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
015456  022767  000344  162110          CMP     #SM4+R4,SR1     ;CHECK SR1 (REGISTER CHANGES)
015464  001401                          BEQ     .+4
015466  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
015470  022767  015436  162100          CMP     #F7A,SR2        ;CHECK CONTENTS OF SR2
015476  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
015500  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
015502  022704  077776                  CMP     #UD4-2,R4       ;CHECK AUTO-DEC TWICE
015506  001401                          BEQ     .+4
015510  000000                          HLT                     ;ERROR! R4 NOT AUTO-DEC TWICE
015512  174067  163266                  STF     AC0,TEMP                ;PUT AC0 IN TEMP
015516  173427  040200                  CMPD    #1,AC0          ;CHECK THAT AC0 WAS NOT CHANGED
015522  170000                          CFCC                    ;COPY FLOATING CC'S INTO PSW
015524  001401                          BEQ     .+4
015526  000000                          HLT                     ;ERROR! AC0 WAS ALTERED
015530  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;AUTO DECREMENT THIRD DATA WORD
015532  012737  015562  000250          MOV     #F10C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
015540  170127  000200                  LDFPS   #200
015544  012702  140004                  MOV     #KD6+4,R2
015550  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
015554  173442          F10A:   CMPD    -(R2),AC0
015556  000000                          HLT
015560  000240                          NOP
015562                  F10C:
015562  022767  140033  162002          CMP     #NRA+PLA+KPG+DS+VS5+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
015570  001401                          BEQ     .+4             ;& FAILING PAGE #)
015572  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
015574  022767  000302  161772          CMP     #SM0+R2,SR1     ;CHECK SR1 (REGISTER CHANGES)
015602  001401                          BEQ     .+4
015604  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
015606  022767  015554  161762          CMP     #F10A,SR2       ;CHECK CONTENTS OF SR2
015614  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
015616  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
015620  022702  137774                  CMP     #KD6-4,R2       ;CHECK AUTO DEC 3 TIMES
015624  001401                          BEQ     .+4
015626  000000                          HLT                     ;ERROR! R2 NOT AUTO-DEC 3 TIMES
015630  170200                          STFPS   R0              ;STORE FPS IN R0
015632  022700  000200                  CMP     #200,R0         ;CHECK FP STATUS AFTER ABORT
015636  001401                          BEQ     .+4
015640  000000                          HLT                     ;ERROR! INCORRECT FPS AFTER ABORT
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016642  174067  163130                  STF     AC0,TEMP                ;PUT AC0 IN TEMP
016646  173427  040200                  CMPD    #1,AC0          ;CHECK THAT AC0 WAS NOT CHANGED
016652  170000                          CFCC                    ;COPY FLOATING CC'S INTO PSW
016654  001401                          BEQ     .+4
016656  000000                          HLT                     ;ERROR! AC0 WAS ALTERED
016660  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;AUTO DECREMENT FOURTH WORD
016662  012767  070000  162106          MOV     #SM+PUM,PSW     ;SUPER MODE!!!,PREV USER MODE!!
016670  012737  015720  000250          MOV     #F11C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
016676  170127  000200                  LDFPS   #200
016702  012700  020006                  MOV     #SD1+6,R0
016706  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
016712  171440                  F11A:   MODD    -(R0),AC0
016714  000000                          HLT
016716  000240                          NOP
016720                          F11C:
016720  022767  040001  161644          CMP     #PLA+SPG+D3+VS0+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
016726  001401                          BEQ     .+4             ;& FAILING PAGE #)
016730  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
016732  022767  000300  161634          CMP     #SM8+R0,SR1     ;CHECK SR1 (REGISTER CHANGES)
016740  001401                          BEQ     .+4
016742  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
016744  022767  015712  161624          CMP     #F11A,SR2       ;CHECK CONTENTS OF SR2
016752  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
016754  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
016756  005037  177572                  CLR     @#SR0           ;DISABLE MEMORY MGMT
016762  022700  017776                  CMP     #SD1-2,R0       ;CHECK AUTO-DEC 4 TIMES
016766  001401                          BEQ     .+4
016770  000000                          HLT                     ;ERROR! R0 NOT AUTO-DEC 4 TIMES
016772  170200                          STFPS   R0              ;STORE FPS IN R0
016774  022700  000200                  CMP     #200,R0         ;CHECK FP STATUS AFTER ABORT
017000  001401                          BEQ     .+4
017002  000000                          HLT                     ;ERROR! INCORRECT FPS AFTER ABORT
017004  174067  162774                  STF     AC0,TEMP                ;PUT AC0 IN TEMP
017010  173427  040200                  CMPD    #1,AC0          ;CHECK THAT AC0 WAS NOT CHANGED
017014  170000                          CFCC                    ;COPY FLOATING CC'S INTO PSW
017016  001401                          BEQ     .+4
017020  000000                          HLT                     ;ERROR! AC0 WAS ALTERED
017022  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT FET,09
                                ;ABORTS WHEN INST FOLLOWING MODD IS FETCHED
017024  012767  070000  161744          MOV     #SM+PUM,PSW     ;SUPER MODE!!!,PREV USER MODE!!
017032  012737  017074  000250          MOV     #F12C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
017040  170127  000200                  LDFPS   #200
017044  012702  017100                  MOV     #PSI2+100,R2
017050  005012                          CLR     (R2)
017052  012742                          MOV     (7)+,-(R2)
017054  171443                          MODD    -(R3),AC0
017056  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
017062  012703  020000                  MOV     #SD1,R3
017066  174023                          STD     AC0,(R3)+
017070  000137  040076                  JMP     @#SI2+76        ;GO EXECUTE MODD INST
```



```
        017074                          RETURN=.
        017076                          .=PSI2+76
017076  171443                  F12A:   MODD    -(R3),AC0
017100  000000                          HLT                     ;ABORTS AT FET,09 WHEN FETCHED
        017074                          .=RETURN
017074                          F12C:
017074  022767  040045  161470          CMP     #PLA+SPG+I3+VS2+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
017102  001401                          BEQ     .+4             ;& FAILING PAGE #)
017104  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
017106  322767  000000  161460          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
017114  001401                          BEQ     .+4
017116  000000                          HLT                     ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
017120  022767  040100  161450          CMP     #SI2+100,SR2    ;CHECK CONTENTS OF SR2
017126  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
017130  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
017132  022703  020000                  CMP     #SD1,R3         ;CHECK THAT R3 WAS DECREMENTED BY 8,
017136  001401                          BEQ     .+4
017140  000000                          HLT                     ;ERROR! R0 NOT DECREMENTED PROPERLY
017142  170200                          STFPS   R0              ;STORE FPS IN R0
017144  022700  000204                  CMP     #204,R0         ;CHECK FP STATUS AFTER ABORT
017150  001401                          BEQ     .+4
017152  000000                          HLT                     ;ERROR! INCORRECT FPS AFTER ABORT
017154  174067  162624                  STF     AC0,TEMP                ;PUT AC0 IN TEMP
017160  173427  000000                  CMPD    #0,AC0          ;CHECK THAT AC0 WAS NOT CHANGED
017164  170000                          CFCC                    ;COPY FLOATING CC'S INTO PSW
017166  001401                          BEQ     .+4
017170  000000                          HLT                     ;ERROR! AC0 WAS ALTERED
017172  174167  162606                  STF     AC1,TEMP                ;PUT AC1 IN TEMP
017176  173527  040200                  CMPD    #1,AC1          ;CHECK THAT AC1 WAS NOT CHANGED
017202  170000                          CFCC                    ;COPY FLOATING CC'S INTO PSW
017204  001401                          BEQ     .+4
017206  000000                          HLT                     ;ERROR! AC1 WAS ALTERED
017210  104000                          SCOPE

                                ;CHECK RELATIONSHIP BETWEEN MEM MGMT ABORT AND FLOATING POINT EXCEPT-
                                ;ION INTERRUPT.
017212  012737  017266  000250          MOV     #F13C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
017220  012737  017346  000244          MOV     #F13D,@#FPVEC   ;LOAD FP INTERRUPT VECTOR
017226  012700  001004                  MOV     #TEMP,R0
017232  005020                          CLR     (R0)+           ;LOAD TEMP
017234  005020                          CLR     (R0)+           ;AND TEMP+2
017236  170127  007400                  LDFPS   #7400           ;ENABLE INTERRUPTS (FP)
017242  172440                          LDF     -(R0),AC0
017244  012702  017676                  MOV     #KI0-2,R2
017250  012722                          MOV     (PC)+,(R2)+     ;LOAD INSTRUCTION
017252  174410                          DIVF    (R0),AC0
017254  005012                          CLR     (R2)            ;HALT FOLLOWS MULF
017256  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
017262  000137  017676                  JMP     @#KI0+2         ;GO EXECUTE MULF
        017266                          RETURN=.
        017676                          .=KI0+2
017676  174410                          DIVF    (R0),AC0        ;WILL INTERRUPT
017702  000000                  F13A:   HALT                    ;ABORTS WHEN THIS INST IS FETCHED
        017266                          .=RETURN
```

```
016266                          F13C:
016266  022767  040001  161276          CMP     #PLA+KPG+IS+VS0+1,SR0   ;CHECK SR0 (ABORT CONDITIONS
016274  001401                          BEQ     .+4                     ;& FAILING PAGE #)
016276  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE NUM
016300  022767  000000  161266          CMP     #0,SR1  ;CHECK SR1 (REGISTER CHANGES)
016306  001401                          BEQ     .+4
016310  000000                          HLT                             ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
016312  022767  016700  161256          CMP     #F13A,SR2               ;CHECK CONTENTS OF SR2
016320  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
016322  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
016324  005732                          TST     R2                      ;FP INTERRUPT SERV ROUTINE CLEARS R2
016326  001401                          BEQ     .+4
016330  000000                          HLT                             ;ERROR! FP DID NOT INTERRUPT
016332  170200                          STFPS   R0                      ;STORE FPS IN R0
016334  022700  107404                  CMP     #107404,R0              ;CHECK FP STATUS AFTER ABORT
016340  001401                          BEQ     .+4
016342  000000                          HLT                             ;ERROR! INCORRECT FPS AFTER ABORT
016344  000402                          BR      F13EX                   ;EXIT TEST
016346  005002                  F13D:   CLR     R2                      ;CLEAR R2
016350  000002                          RTI
016352  170127  000000          F13EX:  LDFPS   #0                      ;CLEAR FLOATING POINT STATUS
016356  012737  000252  000250          MOV     #MMVEC+2,@#MMVEC        ;LOAD MEM MGMT ERROR VECTOR
016364  005037  000252                  CLR     @#MMVEC+2
016370  012737  000246  000244          MOV     #FPVEC+2,@#FPVEC
016376  104000                          SCOPE

016400  005267  162374          END:    INC     ICNT
016404  022767  004400  162366          CMP     #4400,ICNT
016412  001402                          BEQ     DONE
016414  000167  162476                  JMP     BEGIN
016420  012767  000007  161140  DONE:   MOV     #7,TPB
016426  105767  161132                  TSTB    TPS
016432  100375                          BPL     .+4
016434  013702  000042                  MOV     @#42,R2         ;GET DECTAPE MONITOR RETURN ADDRESS
016440  001404                          BEQ     DONE1           ;DO NOT RETURN TO MON IF (42)=0
016442  004712                  LOGICAL:JSR     7,(2)           ;RETURN TO DECTAPE MONITOR
016444  000240                          NOP                     ;ACT11
016446  000240                          NOP                     ;OVERLAY
016450  000240                          NOP                     ;AREA
016452  000167  162432          DONE1:  JMP     START

        000001                          .END
```



```
A       = 000200        AC0     =%000000        AC1     =%000001        AC2     =%000002
AC3     =%000003        AC4     =%000004        AC5     =%000005        AVA     = 020000
BEGIN   001116          BIT13   = 020000        BIT14   = 040000        BIT15   = 100000
BIT6    = 000100        BIT8    = 000400        C       = 000001        DISPLA= 177570
DM      = 030000        DM1     = 174000        DM2     = 170000        DONE    016420
DONE1   016452          DR0     = 000000        DR1     = 000400        DR2     = 001000
DR3     = 001400        DR4     = 002000        DR5     = 002400        DR6     = 003000
DR7     = 003400        DS      = 000020        DWN     = 000010        D0      = 000000
D1      = 000001        D2      = 000002        ED      = 000010        EMTVEC= 000030
END     016400          ENMM    = 000001        ERRVEC= 000004        FPVEC = 000244
F0A     017100          F0C     014264          F1A     014400          F1C     014420
F10A    015554          F10C    015562          F11A    015712          F11C    015720
F12A    017076          F12C    016074          F13A    016700          F13C    016266
F13D    016346          F13EX   016352          F2A     014532          F2C     014540
F3A     014646          F3C     014654          F4A     014770          F4C     015002
F5A     015136          F5C     015144          F6A     015274          F6C     015302
F7A     015436          F7C     015444          HLT     = 000000        IC      = 000200
ICNT    001000          IOTVEC= 000020          IS      = 000000        KDE     = 000004
KDPAR0= 172360          KDPAR1= 172362          KDPAR2= 172364          KDPAR3= 172366
KDPAR4= 172370          KDPAR5= 172372          KDPAR6= 172374          KDPAR7= 172376
KDPDR0= 172320          KDPDR1= 172322          KDPDR2= 172324          KDPDR3= 172326
KDPDR4= 172330          KDPDR5= 172332          KDPDR6= 172334          KDPDR7= 172336
KDS     = 001100        KDS     = 172000        KIPAR0= 172340          KIPAR1= 172342
KIPAR2= 172344          KIPAR3= 172346          KIPAR4= 172350          KIPAR5= 172352
KIPAR6= 172354          KIPAR7= 172356          KIPDR0= 172300          KIPDR1= 172302
KIPDR2= 172304          KIPDR3= 172306          KIPDR4= 172310          KIPDR5= 172312
KIPDR6= 172314          KIPDR7= 172316          KIS     = 016700        KM      = 000000
KPG     = 000000        KPTR    = 001060        KSP     =%000006        LOGICA  016442
MMK     001210          MMT     = 013000        MMVEC   = 000250        MMS     001152
N       = 000010        NOFP    014200          NRA     = 100000        NR0     = 000000
NR3     = 000003        NR7     = 000007        OST     = 004000        PC      =%000007
PFVEC   = 000024        PIRQ    = 177772        PIRVEC= 000240        PIR4    = 010000
PKD6    = 016700        PKI0    = 015600        PKM     = 000000        PLA     = 040000
PRTY4   = 000200        PRTY7   = 000340        PSD1    = 017100        PSI2    = 017000
PSM     = 010000        PSW     = 177776        PUD4    = 017300        PUI5    = 017200
PUM     = 030000        RUC     = 000002        RDOT    = 000001        REDPTR= 000740
REG     = 004000        RESVEC= 000010        RETURN= 016266        RW      = 000006
RWT     = 000004        RWTW    = 000005        R0      =%000000        R1      =%000001
R10     =%000010        R11     =%000011        R12     =%000012        R13     =%000013
R14     =%000014        R15     =%000015        R2      =%000002        R3      =%000003
R4      =%000004        R5      =%000005        SCOPE   = 104000        SCOPEA  000434
SCOPEX  000516          SDE     = 000002        SDPAR0= 172260          SDPAR1= 172262
SDPAR2= 172264          SDPAR3= 172266          SDPAR4= 172270          SDPAR5= 172272
SDPAR6= 172274          SDPAR7= 172276          SDPDR0= 172220          SDPDR1= 172222
SDPDR2= 172224          SDPDR3= 172226          SDPDR4= 172230          SDPDR5= 172232
SDPDR6= 172234          SDPDR7= 172236          SD1     = 020000        SMLT    000420
SMLTA   000430          SIPAR0= 172240          SIPAR1= 172242          SIPAR2= 172244
SIPAR3= 172246          SIPAR4= 172250          SIPAR5= 172252          SIPAR6= 172254
SIPAR7= 172256          SIPDR0= 172200          SIPDR1= 172202          SIPDR2= 172204
SIPDR3= 172206          SIPDR4= 172210          SIPDR5= 172212          SIPDR6= 172214
SIPDR7= 172216          SI2     = 340000        SLR     = 177774        SM      = 340000
SM1     = 000370        SM2     = 000360        SM4     = 000340        SM5     = 000320
SM8     = 000300        SP      =%000006        SPG     = 200000        SPTR    = 000700
SRC     = 177572        SRDT    001022          SR1     = 177574        SR2     = 177576
```

```
SR3    = 172516         SSP    =%000006          START   001110         STFP    014204
SWR    = 177570         S1     = 000010          S2    = 000020         S4    = 000040
S6     = 000060         S8     = 000100          T     = 000020         TBITVE= 000014
TE     = 001000         TEMP   = 001004          TKB   = 177562         TKS   = 177560
TPB    = 177566         TPS    = 177564          TPVEC = 000064         TRAPVE= 000034
T0       001414         T0A      001444          T0B     001446         T0C     001450
T1A      001562         T1B      001564          T1C     001566         T10A    002646
T10B     002652         T10C     002654          T100A   013460         T100B   013466
T100C    013470         T102A    013610          T102C   013616         T103A   013734
T103C    013740         T104A    014062          T104B   014066         T104C   014076
T11A     002746         T11B     002750          T11C    002752         T12A    003052
T12B     003060         T12C     003062          T13A    003206         T13B    003210
T13C     003214         T13D     003212          T14A    003346         T14B    003350
T14C     003354         T14D     003352          T16A    003456         T16B    003460
T16C     003464         T16D     003462          T17A    016676         T17B    016700
T17C     003614         T17D     003612          T2A     001676         T2B     001700
T2C      001702         T20A     016676          T20B    016702         T20C    003736
T21A     016676         T21B     016702          T21C    004070         T22     016674
T22A     016676         T22AA    016700          T22B    016702         T22C    004202
T23A     016676         T23AA    016700          T23B    016702         T23C    004334
T24A     004442         T24B     004444          T24C    004446         T25A    004552
T25B     004554         T25C     004556          T26A    016676         T26AA   016700
T26B     016702         T26C     004676          T27A    005026         T27B    005030
T27C     005032         T3A      002022          T3B     002024         T3C     002026
T30A     005140         T30C     005144          T31A    005274         T31B    005276
T31C     005300         T32A     005416          T32B    005420         T32C    005422
T33A     005540         T33B     005542          T33C    005544         T34A    005642
T34B     005644         T34C     005646          T35A    005752         T35B    005756
T35C     005760         T36A     006070          T36B    006072         T36C    006074
T37A     017076         T37B     017102          T37C    006220         T4A     002204
T4B      002206         T4C      002210          T40A    017074         T40B    017102
T40C     006340         T41A     017200          T41B    017202         T41C    006446
T42A     006550         T42B     006552          T42C    006554         T43A    017076
T43B     017102         T43C     006702          T43D    006700         T44A    017200
T44B     017202         T44C     007012          T45A    017200         T45B    017204
T45C     007156         T46A     017300          T46B    017302         T46C    007302
T47A     017100         T47C     007454          T5A     002354         T5B     002356
T5C      002360         T50A     007574          T50B    007600         T50C    007604
T50D     007602         T51A     007716          T51B    007722         T51C    007724
T52A     010052         T52B     010054          T52C    010060         T52D    010056
T53A     010242         T53B     010244          T53C    010250         T53D    010246
T54A     010444         T54B     010450          T54C    010452         T55A    010640
T55B     010644         T55C     010646          T56A    017100         T56C    011050
T57A     017300         T57C     011156          T6A     002466         T6B     002472
T6C      002474         T60A     017076          T60C    011270         T61A    017300
T61C     011400         T62A     017100          T62C    011510         T63A    017100
T63C     011606         T64A     016676          T64B    016700         T64C    011734
T65A     017076         T65C     012054          T66A    016676         T66B    016700
T66C     012212         T67A     016676          T67B    016700         T67C    012320
T7A      002556         T7B      002562          T7C     002564         T70A    016676
T70B     016700         T70C     012446          T71A    016676         T71B    016700
T71C     012560         T72A     012656          T72C    012662         T73A    012770
T73C     012774         T75A     013144          T75B    016700         T75C    013152
T76A     013320         T76C     013322          T76D    013404         T76EX   013406
```



```
UBREAK= 177770          UDE    = 000001          UDPAR0= 177660         UDPAR1= 177662
UDPAR2= 177664          UDPAR3= 177666           UDPAR4= 177670         UDPAR5= 177672
UDPAR6= 177674          UDPAR7= 177676           UDPDR0= 177620         UDPDR1= 177622
UDPDR2= 177624          UDPDR3= 177626           UDPDR4= 177630         UDPDR5= 177632
UDPDR6= 177634          UDPDR7= 177636           UD4   = 100000         UIPAR0= 177640
UIPAR1= 177642          UIPAR2= 177644           UIPAR3= 177646         UIPAR4= 177650
UIPAR5= 177652          UIPAR6= 177654           UIPAR7= 177656         UIPDR0= 177600
UIPDR1= 177602          UIPDR2= 177604           UIPDR3= 177606         UIPDR4= 177610
UIPDR5= 177612          UIPDR6= 177614           UIPDR7= 177616         UI5   = 120000
UM    = 140000          UP     = 000000          UPG   = 000140         UPTK  = 000600
USP   =%000006          V      = 000002          VS0   = 000000         VS1   = 000002
VS2   = 000004          VS3    = 000006          VS4   = 000010         VS5   = 000012
VS6   = 000014          VS7    = 000016          W     = 000100         Z     = 000004
.     = 016456
```

ERRORS DETECTED: 0

*DCKTFC,DCKTFC←DCKTFC,P11
RUN-TIME: 13 23 0 SECONDS
CORE USED: 6K