

# PDP11/34

MEM MANG EXERCISER  
MD-11-DFKTF-A

EP-DFKTF-A-DL-A

OCT 1976

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FICHE 1 OF 1

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11-11-76

.REM \*

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DFKTF-A-D  
PRODUCT NAME: 11/34 MEMORY MANAGEMENT ABORT TESTS  
DATE CREATED: DECEMBER 21, 1975  
MAINTAINER: DIAGNOSTIC ENGINEERING  
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## 1.0 ABSTRACT

PROGRAM DFKTF TESTS THE MEMORY MANAGEMENT ABORT LOGIC. THE PROGRAM IS WRITTEN TO CAUSE A MEMORY MANAGEMENT ABORT AT EVERY PDP11/34 MICRO STATE WHERE A MEMORY REFERENCE IS INITIATED. ABORTS ARE IN ALL CASES TRAPPED TO THE KERNEL, HOWEVER, THE INSTRUCTIONS CAUSING THE ABORT ARE EXECUTED IN BOTH MODES (KERNEL AND USER).

## 2.0 REQUIREMENTS

## 2.1 EQUIPMENT

PDP-11/34

## 2.2 STORAGE

PROGRAM STORAGE - THE ROUTINE USES MEMORY 0-17777

## 2.3 PRELIMINARY PROGRAMS

TESTS DFKTA-DFKTD

## 3.0 LOADING AND STARTING PROCEDURE

LOAD PROGRAM INTO MEMORY USING ABS LOADER  
LOAD ADDRESS 200  
START.

THE PROGRAM WILL LOOP AND RING BELL ON COMPLETION.

## 4.0 SWITCH SETTINGS

## 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 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 USER STACK POINTER IS NOT AFFECTED. TO DETERMINE 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 (ENT) 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 MEMORY FAIL E. A BRANCH INSTRUCTION MAY BE INSERTED AT THE SCOPE LOCATION TO THE PREVIOUS SCOPE (ENT) INSTRUCTION TO CONTINUOUSLY 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.

## 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 CONTINUOUSLY LOOP THE TEST REPLACE THE BEQ .+4 PRECEDING 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 PTH). 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 = 1060

USER = 600

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

**8.3 PASS COUNT**

1000(8) PASSES ARE REQUIRED FOR COMPLETION OF THIS PROGRAM; AT WHICH TIME THE BELL WILL RING AT THE TTY.

**8.4 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.

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*
; COPYRIGHT 1975, DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASS.
; MEMORY MANAGEMENT ABORT TEST. THIS PROGRAM TESTS MEMORY MGMT ABORT ERRORS
; THIS PROGRAM IS A MODIFICATION OF THE 11/40 TEST, D6KTF. THIS
; VERSION HAS BEEN MODIFIED TO ACCOUNT FOR ANY 11/40-11/34 DIFFERENCE.
; THIS PROGRAM IS INTENDED TO BE RUN ONLY ON 11/34 PROCESSORS.
    
```

; GENERAL REGISTER ASSIGNMENTS

```

000000      R0=X0
000001      R1=X1
000002      R2=X2
000003      R3=X3
000004      R4=X4
000005      R5=X5
000006      SP=X6
000007      PC=X7
    
```

; STACK POINTER REGISTERS

```

000006      KSP=X6      ; KERNEL STACK POINTER
000006      USP=X6      ; USER STACK POINTER
    
```

; STATUS REGISTER BIT ASSIGNMENTS

```

000001      C=1
000002      V=2
000004      Z=4
000010      N=10
000020      T=20
000340      PRTY7=340
000200      PRTY4=200
000000      KM=000000
140000      UM=140000
000000      PKM=000000
030000      PUM=030000

; 'T' BIT
; PRIORITY LEVEL 7
; PRIORITY LEVEL 4
; KERNEL MODE
; USER MODE
; PREVIOUS KERNEL MODE
; PREVIOUS USER MODE
    
```

; VECTOR ADDRESSES

```

000010      ERRVEC=10      ; ADDRESS OF ERROR 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
000244      FPVEC=244      ; ADDRESS OF FLOATING POINT INT. VECTOR
000250      MMVEC=250      ; ADDRESS OF MEMORY MGMT ERROR TRAP VECTOR
    
```

; REGISTER ADDRESSES

```

177776      PSM=177776     ; ADDRESS OF STATUS 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
    
```

; INITIAL STACK POINTER SETTINGS

```

001100      KPTR=1100     ; BOTTOM OF KERNEL STACK
000600      UPTR=600      ; USER STACK SETTING
    
```

```

100000
040000
020000
000400
000100

;MISCELLANEOUS BIT ASSIGNMENTS
      BIT15=100000
      BIT14=40000
      BIT13=20000
      BIT8=400
      BIT6=100

000001
000000
000002
000004
000006
000010
000012
000014
000016
000000
000140
000000
000400
020000
040000
100000

;MEMORY MANAGEMENT REGISTER SRO BIT ASSIGNMENTS
      ENMM=1 ;ENABLE MEMORY MANAGEMENT
      VS0=0
      VS1=2
      VS2=4
      VS3=6
      VS4=10
      VS5=12
      VS6=14
      VS7=16
      IS=00
      UPG=140
      KPG=000
      DM=400
      AVA=20000
      PLA=40000
      NRA=100000
      ;DESTINATION MODE
      ;ACCESS VIOLATION ABORT
      ;PAGE LENGTH ABORT
      ;NON-RESIDENT ABORT

000010
000000
000010
000100

;PAGE DESCRIPTOR REGISTER (PDR) BIT ASSSIGNMENTS
      ED=10 ;EXPANSION DIRECTION BIT IN PDR
      UP=0 ;EXPAND UP
      DWN=10 ;EXPAND DOWN
      W=100 ;'W' BIT IN PDR

177572
177574
177576

;MEMORY MANAGEMENT REGISTER ADDRESS ASSIGNMENTS
      SRO=177572 ;ADDRESS OF MEMORY MGMT REGISTER SRO
      SR1=177574 ;SR1
      SR2=177576 ;SR2

!77600
177602
177604
177606
177610
177612
177614
177616

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

177640
177642
177644
177646
177650
177652
177654
177656

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

172300
      KIPDR0=172300

```

# H01

DFKTFA MACY11 27(732) 10-SEP-76 09:50 PAGE 7  
DFKTFA.P11

172302  
172304  
172306  
172310  
172312  
172314  
172316

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

172340  
172342  
172344  
172346  
172350  
172352  
172354  
172356

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

000000  
000002  
000004  
000006

;ACCESS CONTROL FIELD DEFINITIONS (IN PDR)  
NR0=0 ;NON-RESIDENT ABORT ALL REFS.  
RD0=2 ;READ, ABORT ON WRITE  
RW1=4 ;TRAP ON READ & WRITE  
RW6 ;READ & WRITE

000000  
104000

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

016700  
140000  
120000  
100000  
040000  
020000  
060000

;VIRTUAL ADDRESSES  
K10=16700  
K16=140000  
U15=120000  
U14=100000  
U12=40000  
U11=20000  
U13=60000

016600  
016700  
017200  
017300  
017400  
017000  
017100

;CORRESPONDING PHYSICAL ADDRESSES  
PK10=16600  
PK16=16700  
PUI5=17200  
PUI4=17300  
PUI3=17400  
PUI2=17000  
PUI1=17100

.LIST ME  
.NLIST MC,MD  
;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.

000010 000010  
000400 000400

.NLIST MC  
.=ERRVEC  
.WORD SHLT

000030 000030  
000442 000442  
000046 000046  
000046 007010  
000052 000052  
000052 000000

.=ENTVEC  
.WORD SCOPEA  
.=46  
LOGIC  
.=52  
0

000176 000176  
000000 000000

.=176  
HALT  
;EXAMINE R1, THE CONTENTS OF WHICH IS THE PC OF THE PRESENT TEST  
;THE TOP WORD ON THE KERNEL STACK CONTAINS THE VIRTUAL  
;ADDRESS OF THE HLT INSTRUCTION IN THE TEST THAT FAILED.  
:ERROR! TO IDENTIFY WHICH TEST FAILED

000200 000200 001006  
000167 000167

.=200  
JMP START ;GO START TEST

000400 000400

000400 042737 000001 177572  
000406 042737 140000 177776  
000414 162716 000002  
000420 005776 000000  
000424 001404  
000426 062716 000002  
000432 000137 000012  
000436 000137 000176

.=400  
:USER HLT (HALT) TRAP SERVICE ROUTINE  
SHLT: BIC #1,#SRO ;TURN MEM MGMT OFF  
BIC #140000,#PSW ;RETURN TO KERNEL  
SUB #2,(KSP) ;POINT PC TO TRAPPING INST.  
TST #0(KSP) ;WAS IT A HLT (HALT)  
BEQ SHLTA  
ADD #2,(KSP) ;RESTORE PC TO TRAPPING INST.  
JMP #ERRVEC+2 ;GO HALT AT 6  
SHLTA: JMP #176 ;GO HALT AT ADDRESS 176

000442 005037 177572  
000446 011601  
000450 012706 001100  
000454 005046  
000456 010146  
000460 012746 000600  
000464 012737 030000 177776  
000472 106606  
000474 001400  
000476 000006

.=SCOPE (ENT) SERVICE ROUTINE  
SCOPEA: CLR #SRO ;DISABLE MEMORY MGMT  
MOV (KSP),R1 ;SAVE PC IN R1  
MOV #KPTR,KSP ;SET KERNEL STACK PTR  
CLR -(KSP) ;SET UP FOR KERNEL MODE ON RET.  
MOV R1,-(KSP) ;RETURN IN LINE  
MOV #UPTR,-(KSP) ;USER STACK PTR ON KERNEL STACK  
MOV #PUM,#PSW ;PREVIOUS USER MODE  
MTPD USP ;SET USER STACK PTR  
BEQ SCOPEX  
SCOPEX: RTT ;RETURN TO NEXT TEST IN KERNEL MODE  
;WITH ALL STACK PTRS SET UP

001200 001200  
001200 000000  
001202 000000  
001204  
001212

.=1200  
:TAGS  
ICNT: 0 ;CONTAINS PASS COUNT  
SROT: 0 ;CONTAINS SRO CONTENTS ON ERROR  
TEMP=.  
.=.+6

```

;START MEMORY MANAGEMENT TEST.
START:  NOP
        CLR      ICNT
BEGIN:  MOV      #KPTR,KSP      ;CLEAR PASS COUNT
        SCOPE
        CLR      @#MMVEC+2    ;SET KERNEL STACK PTR
        ;SCOPE SETS ALL STACK PTRS
        ;KERNEL MODE ON ABORT

;ROUTINE TO CLEAR MEMORY MANAGEMENT REGISTERS.
MMO:    NOP
        CLR      SR0
        MOV      #UIPDR0,R2
        MOV      @8,R3
        CLR      (R2)+
        SOB      R3,-2
        MOV      #UIPAR0,R2
        MOV      @8,R3
        CLR      (R2)+
        SOB      R3,-2
        MOV      #KIPDR0,R2
        MOV      @8,R3
        CLR      (R2)+
        SOB      R3,-2
        MOV      #KIPAR0,R2
        MOV      @8,R3
        CLR      (R2)+
        SOB      R3,-2

MMK:    MOV      #73006,@#KIPDR0 ;RW, UP 167 BLOCKS
        MOV      @6,@#KIPDR6    ;RW, UP 1 BLOCK
        MOV      #77406,@#KIPDR7 ;RW, UP 200 BLOCKS
        MOV      #73006,@#UIPDR0 ;RW, UP 167 BLOCKS
        MOV      @6,@#UIPDR2    ;RW, UP 1 BLOCK
        MOV      @6,@#UIPDR1    ;RW, UP 1 BLOCK
        MOV      @6,@#UIPDR4    ;RW, UP 1 BLOCK
        MOV      @6,@#UIPDR5    ;RW, UP 1 BLOCK

        CLR      KIPAR0        ;VA=PA=0000-16677
        MOV      #167,KIPAR6   ;VA=14000-14077;PA=16700-16777
        MOV      #7600,KIPAR7  ;VA=160000-177776,PA=760000-777776
        CLR      UIPAR0        ;VA=PA=0-16677
        MOV      #170,UIPAR2    ;VA=40000-40077/PA=17000-17077
        MOV      #171,UIPAR1    ;VA=20000-20077/PA=17100-17177
        MOV      #172,UIPAR5    ;VA=120000-120077/PA=17200-17277
        MOV      #173,UIPAR4    ;VA=100000-100077/PA=17300-17377
    
```

```

001212 000240
001214 005067 177760
001220 012706 001100
001224 104000
001226 005037 000252
    
```

```

001232 000240
001234 005067 176332
001240 012702 177600
001244 012703 000010
001250 005022
001252 077302
001254 012702 177640
001260 012703 000010
001264 005022
001266 077302
001270 012702 172300
001274 012703 000010
001300 005022
001302 077302
001304 012702 172340
001310 012703 000010
001314 005022
001316 077302
    
```

```

001320 012737 073006 172300
001326 012737 000006 172314
001334 012737 077406 172316
001342 012737 073006 177600
001350 012737 000006 177604
001356 012737 000006 177602
001364 012737 000006 177610
001372 012737 000006 177612
    
```

```

001400 005067 170734
001404 012767 000167 170742
001412 012767 007600 170736
001420 005067 176214
001424 012767 000170 176212
001432 012767 000171 176202
001440 012767 000172 176204
001446 012767 000173 176174
    
```

# K01

```

;CHECK
;ABORTS WHEN SOURCE OPERAND IS FETCHED
;SOURCE MODE=1
TO:
001454 001454 012737 001510 000250      MOV      #TDC,2#MMVEC      ;LOAD MEM MGMT ERROR VECTOR
001462 001462 005067 176564              CLR      MMVEC+2
001466 001466 012703 016700              MOV      #K10,R3
001472 001472 010302              MOV      R3,R2
001474 001474 005013              CLR      (R3)
001476 001476 005237 177572              INC      2#SR0              ;ENABLE MEMORY MGMT
001502 001502 000277              SCC
001504 001504 011302              TOA:    MOV      (R3),R2      ;MEM MGMT LENGTH ABORT AT SRC00
001506 001506 000000              TOB:    HLT
001510 001510 022706 001074              TOC:    CMP      #KPTR-4,KSP  ;CHECK STACK PTR
001514 001514 001401              BEQ     .+4
001516 001516 000000              HLT
001520 001520 022766 000017 000002      CMP      #17,2(KSP)      ;CHECK THAT CORRECT STATUS
001526 001526 001401              BEQ     .+4              ;WAS SAVED ON THE STACK
001530 001530 000000              HLT              ;ERROR! INCORRECT STATUS
001532 001532 022767 040001 176032      CMP      #PLA+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
001540 001540 001401              BEQ     .+4              ; & FAILING PAGE #)
001542 001542 000000              HLT              ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
001544 001544 022767 001504 176024      CMP      #TOA,SR2        ;CHECK CONTENTS OF SR2
001552 001552 001401              BEQ     .+4              ;(PC OF ABORTED INSTRUCTION)
001554 001554 000000              HLT              ;ERROR! INCORRECT PC IN SR2
001556 001556 020203              CMP      R2,R3           ;CHECK THAT INSTRUCTIONS AS ABORTED
001560 001560 001401              BEQ     .+4
001562 001562 000000              HLT
001564 001564 104000              HLT              ;ERROR!
SCOPE                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

```

```

;CHECK
;ABORTS WHEN SOURCE OPERAND IS FETCHED
;SOURCE MODE=2,BYTE INSTRUCTION
001566 001566 012737 001614 000250      MOV      #T1C,2#MMVEC      ;LOAD MEM MGMT ERROR VECTOR
001574 001574 012702 016700              MOV      #K10,R2
001600 001600 010204              MOV      R2,R4
001602 001602 005012              CLR      (R2)
001604 001604 005237 177572              INC      2#SR0              ;ENABLE MEMORY MGMT
001610 001610 122202              T1A:    CMPB     (R2)+,R2      ;SEG LENGTH ABORT AT SRC01
001612 001612 000000              T1B:    HLT
001614 001614 022706 001074              T1C:    CMP      #KPTR-4,KSP  ;CHECK STACK PTR
001620 001620 001401              BEQ     .+4
001622 001622 000000              HLT
001624 001624 022767 040001 175740      CMP      #PLA+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
001632 001632 001401              BEQ     .+4              ; & FAILING PAGE #)
001634 001634 000000              HLT              ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
001636 001636 022767 001610 175732      CMP      #T1A,SR2        ;CHECK CONTENTS OF SR2
001644 001644 001401              BEQ     .+4              ;(PC OF ABORTED INSTRUCTION)
001646 001646 000000              HLT              ;ERROR! INCORRECT PC IN SR2
;CHECK THAT REGISTER INCREMENTED PROPERLY
001650 001650 022702 016700              CMP      #K10,R2
001654 001654 001401              BEQ     .+4
001656 001656 000000              HLT
001660 001660 104000              HLT              ;ERROR!
SCOPE                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

```

```

;CHECK
;ABORTS WHEN ADDRESS OF SOURCE OPERAND IS FETCHED
;SOURCE MODE=3
001662 012737 001710 000250      MOV      #T2C, @#MMVEC      ;LOAD MEM MGMT ERROR VECTOR
001670 012705 01670C      MOV      #K10, R5
001674 010504      MOV      R5, R4
001676 005237 177572      INC      @#SR0              ;ENABLE MEMORY MGMT
001702 000277      SCC                      ;PRESET CC'S
001704 153504      T2A:    B1SB      @ (R5)+, R4 ;NON-RES ABORT AT 513.10
001706 000000      T2B:    HLT                      ;ERROR! FAILED TO ABORT
001710 022766 000017 000002      CMP      #17, 2(KSP)       ;CHECK THAT CORRECT STATUS
001716 001401      BEQ      .+4              ;WAS SAVED ON THE STACK
001720 000000      HLT                      ;ERROR! INCORRECT STATUS
001722 022767 040001 175642      CMP      #PLA+1, SR0      ;CHECK SR0 (ABORT CONDITIONS
001730 001401      BEQ      .+4              ; & FAILING PAGE #)
001732 000000      HLT                      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
001734 022767 001704 175634      CMP      #T2A, SR2        ;CHECK CONTENTS OF SR2
001742 001401      BEQ      .+4              ; (PC OF ABORTED INSTRUCTION)
001744 000000      HLT                      ;ERROR! INCORRECT PC IN SR2
001746 022705 016700      CMP      #K10, R5
001752 001401      BEQ      .+4
001754 000000      HLT
001756 1C 4000      HLT                      ;ERROR! RS DID NOT AUTO-INCREMENT
;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

```

```

;CHECK
;ABORTS WHEN SOURCE OPERAND IS FETCHED
;SOURCE MODE=4, USER MODE
001760 012737 002014 000250      MOV      #T3C, @#MMVEC      ;LOAD MEM MGMT ERROR VECTOR
001766 012767 170000 176002      MOV      #UM+PUM, PSW      ;USER MODE!!!, PREV USER MODE
001774 012702 100000      MOV      #UI4, R2
002000 010203      MOV      R2, R3
002002 005237 177572      INC      @#SR0              ;ENABLE MEMORY MGMT
002006 000277      SCC                      ;PRESET CC'S
002010 064203      T3A:    ADD      -(R2), R3 ;NON-RESIDENT ABORT
002012 000000      T3B:    HLT                      ;ERROR! FAILED TO ABORT
002014 022706 001074      T3C:    CMP      #KPTR-4, KSP ;CHECK STACK PTR
002020 001401      BEQ      .+4
002022 000000      HLT
002024 022766 170017 000002      CMP      #UM+PUM+17, 2(KSP) ;CHECK THAT CORRECT STATUS
002032 001401      BEQ      .+4              ;WAS SAVED ON THE STACK
002034 000000      HLT                      ;ERROR! INCORRECT STATUS
002036 022767 140147 175526      CMP      #NRA+PLA+UPG+VS3+1, SR0 ;CHECK SR0 (ABORT CONDITIONS
002044 001401      BEQ      .+4              ; & FAILING PAGE #)
002046 000000      HLT                      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002050 022767 002010 175520      CMP      #T3A, SR2        ;CHECK CONTENTS OF SR2
002056 001401      BEQ      .+4              ; (PC OF ABORTED INSTRUCTION)
002060 000000      HLT                      ;ERROR! INCORRECT PC IN SR2
;CHECK CONTENTS OF REFERENCED PAGE DESCRIPTOR REGISTER (UIPDR2)
002062 032767 000100 175514      BIT      #W, UIPDR2        ;CHECK CONTENTS OF REFERENCED PDR
002070 001401      BEQ      .+4
002072 000000      HLT                      ;ERROR!
002074 042767 000100 175502      BIC      #W, UIPDR2
002102 022702 077776      CMP      #UI4-2, R2
002106 001401      BEQ      .+4              ;CHECK THAT AUTO- DECREMENT TOOK PLACE

```

# MO1

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002110 000000          HLT          ;ERROR! R2 FAILED TO AUTO-DECREMENT
002112 022703 100000  CMP          #UI4,R3    ;CHECK THAT R3 WAS NOT CHANGED
002116 001401          BEQ          .+4
002120 000000          HLT          ;ERROR!
002122 104000          SCOPE        ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN ADDRESS OF SOURCE OPERAND IS FETCHED
;SOURCE MODE=5, USER MODE
002124 012737 002164 000250  MOV      #T4C, @#MMVEC ;LOAD MEM MGMT ERROR VECTOR
002132 012767 170000 175636  MOV      #UM+PUM, PSW  ;USER MODE!!!, PREV USER MODE!!
002140 012704 120002          MOV      #UI5+2, R4
002144 010405          MOV      R4, R5
002146 012737 177777 017200  MOV      #-1, @#PUI5
002154 005237 177572          INC      @#SR0          ;ENABLE MEMORY MGMT
002160 145405          T4A: BICB      @-(R4), R5 ;NON-RESIDENT ABORT
002162 000000          T4B: HLT          ;ERROR! FAILED TO ABORT
002164 022706 001074          T4C: CMP      #KPTR-4, KSP ;CHECK STACK PTR
002170 001401          BEQ          .+4
002172 000000          HLT
002174 022767 140157 175370  CMP      #NRA+PLA+UPG+VS7:1, SR0 ;CHECK SR0 (ABORT CONDITIONS
002202 001401          BEQ          .+4          ;& FAILING PAGE #)
002204 000000          HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002206 022767 002160 175362  CMP      #T4A, SR2     ;CHECK CONTENTS OF SR2
002214 001401          BEQ          .+4          ;(PC OF ABORTED INSTRUCTION)
002216 000000          HLT          ;ERROR! INCORRECT PC IN SR2
;CHECK CONTENTS OF REFERENCED PAGE DESCRIPTOR REGISTER (UIPDR5)
002220 032767 000100 175364  BIT      #W, UIPDR5   ;CHECK CONTENTS OF REFERENCED PDR
002226 001401          BEQ          .+4
002230 000000          HLT          ;ERROR!
002232 042767 000100 175352  BIC      #W, UIPDR5
002240 022704 120000          CMP      #UI5, R4    ;CHECK AUTO-DECREMENT
002244 001401          BEQ          .+4
002246 000000          HLT          ;ERROR! FAILED TO AUTO-DECREMENT R4
002250 022705 120002          CMP      #UI5+2, R5   ;CHECK THAT R5 WAS UNCHANGED
002254 001401          BEQ          .+4
002256 000000          HLT          ;ERROR!
002260 104000          SCOPE        ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN SOURCE OPERAND IS FETCHED
;SOURCE MODE = 6
002262 012737 002306 000250  MOV      #T6C, @#MMVEC ;LOAD MEM MGMT ERROR VECTOR
002270 012702 177777          MOV      #-1, R2
002274 005237 177572          INC      @#SR0          ;ENABLE MEMORY MGMT
002300 016702 014374          T6A: MOV      KIO, R2 ;SEG LENGTH ABORT
002304 000000          T6B: HLT          ;ERROR! FAILED TO ABORT
002306          T6C:
002306 022767 04J001 175256  CMP      #PLA+1, SR0  ;CHECK SR0 (ABORT CONDITIONS
002314 001401          BEQ          .+4          ;& FAILING PAGE #)
002316 000000          HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002320 022767 002300 175250  CMP      #T6A, SR2   ;CHECK CONTENTS OF SR2
002326 001401          BEQ          .+4          ;(PC OF ABORTED INSTRUCTION)
002330 000000          HLT          ;ERROR! INCORRECT PC IN SR2
002332 005202          INC      R2          ;CHECK THAT R2 WAS NOT CHANGED
002334 001401          BEQ          .+4

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# NO1

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002336 000000          HLT          ;ERROR!
002340 104000          SCOPE        ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN ADDRESS OF SOURCE OPERAND IS FETCHED
;SOURCE  MODE = 7, PC

002342 012737 002364 000250  MOV    #T7C,@#MMVEC ;LOAD MEM MGMT ERROR VECTOR
002350 005004          CLR    R4
002352 005237 177572      INC    @#SRO          ;ENABLE MEMORY MGMT
002356 067404 016700      T7A:  ADD    @#KIO(R4),R4 ;SEG LEN ABORT
002362 000000      T7B:  HLT          ;ERROR! FAILED TO ABORT
002364          T7C:

002364 022767 040001 175200  CMP    #PLA+1,SRO   ;CHECK SRO (ABORT CONDITIONS
002372 001401          BEQ    .+4          ;& FAILING PAGE #)
002374 000000      HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002376 022767 002356 175172  CMP    #T7A,SR2    ;CHECK CONTENTS OF SR2
002404 001401          BEQ    .+4          ;(PC OF ABORTED INSTRUCTION)
002406 000000      HLT          ;ERROR! INCORRECT PC IN SR2
002410 005704          TST    R4
002412 001401          BEQ    .+4
002414 000000      HLT
002416 104000          SCOPE        ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN SOURCE OPERAND IS FETCHED
;SOURCE  MODE = 3, PC

002420 012737 002442 000250  MOV    #T10C,@#MMVEC ;LOAD MEM MGMT ERROR VECTOR
002426 005003          CLR    R3
002430 005237 177572      INC    @#SRO          ;ENABLE MEMORY MGMT
002434 013703 016700      T10A: MOV    @#KIO,R3    ;SEG LEN ABORT
002440 000000      T10B: HLT          ;ERROR! FAILED TO ABORT
002442          T10C:

002442 022767 040001 175122  CMP    #PLA+1,SRO   ;CHECK SRO (ABORT CONDITIONS
002450 001401          BEQ    .+4          ;& FAILING PAGE #)
002452 000000      HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002454 022767 002434 175114  CMP    #T10A,SR2    ;CHECK CONTENTS OF SR2
002462 001401          BEQ    .+4          ;(PC OF ABORTED INSTRUCTION)
002464 000000      HLT          ;ERROR! INCORRECT PC IN SR2
002466 005703          TST    R3
002470 001401          BEQ    .+4
002472 000000      HLT          ;ERROR!
002474 104000          SCOPE        ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN TOP WORD OFF STACK (PC) IS FETCHED

002476 012737 002544 000250  MOV    #T13C,@#MMVEC ;LOAD MEM MGMT ERROR VECTOR
002504 012767 170000 175264  MOV    #UM+PUM,PSW  ;USER MODE!!! PREV USER MODE!!
002512 012706 040100          MOV    #UI2+100,USP ;USER STACK PTR IS NON-RES
002516 012737 002542 017100  MOV    #T13D,@#PUI2+100 ;LOAD 'NEW' PC
002524 005037 017102      CLR    @#PUI2+102
002530 005237 177572      INC    @#SRO          ;ENABLE MEMORY MGMT
002534 000277          SCC
002536 000002      T13A: RTI          ;NON-RES ABORT
002540 000000      T13B: HLT          ;ERROR! FAILED TO ABORT
002542 000000      T13D: HLT          ;ERROR! RTI FAILED & DID NOT ABOPT

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002544 022706 001074 T13C: CMP #KPTR-4,KSP ;CHECK STACK PTR
002546 001401 BEQ .+4
002548 010000 HLT
002554 022766 170017 000002 CMP #UM+PUM+17,2(KSP) ;CHECK THAT CORRECT STATUS
002556 001401 BEQ .+4 ;WAS SAVED ON THE STACK
002558 000000 HLT ;ERROR! INCORRECT STATUS
002566 022767 040145 174776 CMP #PLA+UPG+VS2+1,SRO ;CHECK SRO (ABORT CONDITIONS
002568 001401 BEQ .+4 ;& FAILING PAGE #)
002576 000000 HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002580 022767 002536 174770 CMP #T13A,SR2 ;CHECK CONTENTS OF SR2
002582 001401 BEQ .+4 ;(PC OF ABORTED INSTRUCTION)
002584 000001 HLT ;ERROR! INCORRECT PC IN SR2
002586 106509 MFPD USP ;PUSH USER STACK PTR ONTO KERNEL STACK
002588 022716 040100 CMP #UI2+100,(KSP) ;CHECK THAT USER STACK PTR WAS POPPED
002590 001401 BEQ .+4
002592 000000 HLT ;ERROR!
002594 104000 SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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```

;CHECK
;ABORTS WHEN SECOND WORD ON STACK (STATUS) IS FETCHED
002626 012737 002672 000250 MOV #T14C,2#MVEC ;LOAD MEM MGMT ERROR VECTOR
002628 012767 170000 175134 MOV #UM+PUM,PSW ;USER MODE!!!,PREV USER MODE!!
002630 012706 100076 MOV #UI4+76,USP
002632 012737 002670 017376 MOV #T140,2#PUI4+76 ;LOAD USER STACK (PHYS ADRS.)
002634 005037 017400 CLR 2#PUI4+100 ;AND 'NEW' STATUS
002636 005237 177572 INC 2#SRO ;ENABLE MEMORY MGMT
002638 000006 RTT ;SEG LEN ABORT AFTER FIRST POP
002640 000000 HLT ;ERROR! FAILED TO ABORT
002642 000000 HLT ;ERROR!
002644 022767 040151 174672 CMP #PLA+UPG+VS4+1,SRO ;CHECK SRO (ABORT CONDITIONS
002646 001401 BEQ .+4 ;& FAILING PAGE #)
002648 000000 HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002650 022767 002664 174664 CMP #T14A,SR2 ;CHECK CONTENTS OF SR2
002652 001401 BEQ .+4 ;(PC OF ABORTED INSTRUCTION)
002654 000000 HLT ;ERROR! INCORRECT PC IN SR2
002656 106506 MFPD USP ;PUSH USER STACK PTR ONTO KERNEL STACK
002658 022716 100100 CMP #UI4+100,(KSP) ;CHECK THAT USER STACK PTR POPPED TWICE
002660 001401 BEQ .+4
002662 000000 HLT
002664 104000 SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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```

;CHECK
;ABORTS WHEN TOP WORD ON USER STACK (RETURN PC) IS FETCHED
002732 012767 170000 175036 MOV #UM+PUM,PSW ;USER MODE!!! PREV USER MODE!!
002734 012706 020100 MOV #UI1+100,USP
002736 012737 002770 000250 MOV #T16C,2#MVEC ;LOAD MEM MGMT ERROR VECTOR
002738 012705 002766 MOV #T160,RS
002740 005237 177572 INC 2#SRO ;ENABLE MEMORY MGMT
002742 000205 T16A: RTS 5 ;ABORTS (STACK IS NON-RES)
002744 000000 T16B: HLT ;ERROR! RTS& ABORT FAILED
002746 000000 T16D: HLT ;ERROR! ABORT FAILED
002748 022706 001074 T16C: CMP #KPTR-4,KSP ;CHECK STACK PTR
002750 001401 BEQ .+4
002752 000000 HLT
002754 022767 040143 174564 CMP #PLA+UPG+VS1+1,SRO ;CHECK SRO (ABORT CONDITIONS

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003006 001401 BEQ .+4 ; & FAILING PAGE #)
003010 000000 HLT ; ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003012 022767 002762 174556 CMP #T16A,SR2 ; CHECK CONTENTS OF SR2
003020 001401 BEQ .+4 ; (PC OF ABORTED INSTRUCTION)
003022 000000 HLT ; ERROR! INCORRECT PC IN SR2
003024 022705 002766 CMP #T16D,R5 ; CHECK THAT R5 DID NOT CHANGE
003030 001401 BEQ .+4
003032 000000 HLT ; ERROR!
003034 106506 HFPD USP ; PUSH USER STACK PTR ONTO KERNEL STACK
003036 022716 02010C CMP #UI1+100,(KSP) ; CHECK THAT USER STACK WAS POPPED
003042 001401 BEQ .+4
003044 000000 HLT ; ERROR! INCORRECT USER STACK PTR
003046 104000 SCOPE ; SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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```

; CHECK
; ABORTS WHEN SOURCE INDEX IS FETCHED
; SOURCE MODE = 6, PC

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003050 012737 003112 000250 MOV #T20C,#MMVEC ; LOAD MEM MGMT ERROR VECTOR
003056 012702 177777 MOV #-1,R2 ; PRESET DEST REG
003062 012737 016702 016676 MOV #16702,#KIO-2 ; 16702,000000 IS A MOV .+4,R2
003070 005037 016700 CLR #KIO ; INSTRUCTION
003074 005037 016702 CLR #KIO+2
003100 005237 177572 INC #SR0 ; ENABLE MEMORY MGMT
003104 000277 SCC ; PRESET CC'S
003106 000137 016676 JMP #KIO-2 ; GO TO MOV INST.
RETURN=

```

```

; ***** NOTE PC CHANGE *****

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```

016676 016676 .=KIO-2
016702 016702 000000 T20A: MOV .+4,R2 ; SEG LEN ABORT WHEN INDEX VALUE IS FETCHED
016702 000000 T20B: HLT ; ERROR! FAILED TO ABORT

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```

; ***** RETURN PC *****

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```

003112 003112 .=RETURN
003116 022706 001074 T20C: CMP #KPTR-4,KSP ; CHECK STACK PTR
003120 001401 BEQ .+4
003122 000000 HLT
003122 022766 000017 000002 CMP #17,2(KSP) ; CHECK THAT CORRECT STATUS
003130 001401 BEQ .+4 ; WAS SAVED ON THE STACK
003132 000000 HLT ; ERROR! INCORRECT STATUS
003134 022767 040001 174430 CMP #PLA+IS+VSD+1,SR0 ; CHECK SR0 (ABORT CONDITIONS)
003142 001401 BEQ .+4 ; & FAILING PAGE #)
003144 000000 HLT ; ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003146 022767 016676 174422 CMP #T20A,SR2 ; CHECK CONTENTS OF SR2
003154 001401 BEQ .+4 ; (PC OF ABORTED INSTRUCTION)
003156 000000 HLT ; ERROR! INCORRECT PC IN SR2
003160 005202 INC R2
003162 001401 BEQ .+4
003164 000000 HLT
003166 104000 SCOPE ; SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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```

; CHECK
; ABORTS WHEN SOURCE INDEX IS FETCHED
; SOURCE MODE = 7

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003170 012737 003232 000250 MOV #T21C,#MMVEC ; LOAD MEM MGMT ERROR VECTOR
003176 012737 177777 016700 MOV #-1,#PKI6
003204 012702 140000 MOV #K16,R2 ; LOAD INDEX REGISTER
003210 012737 017202 016676 MOV #017202,#KIO-2 ; 017202,000000 IS A MOV #0(R2),R2
003216 005037 016700 CLR #KIO ; INSTRUCTION

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```

003222 005237 177572      INC      @#SR0      ;ENABLE MEMORY MGMT
003226 000137 016676      JMP      @#K10-2
                                RETURN=.
;***** NOTE PC CHANGE *****
016676 016676 000000      T21A:  MOV      @0(R2),R2      ;SEG LEN ABORT
016702 000000 003232      T21B:  HLT
                                ;ERROR! FAILED TO ABORT
                                ;=RETURN
;***** RETURN PC *****

003232 022767 040001 174332      T21C:  CMP      @PLA+IS+VSO+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
003232 001401 003240      BEQ      .+4                      ;& FAILING PAGE #)
003242 000000 003244      HLT
                                ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003244 022767 016676 174324      CMP      @T21A,SR2
                                ;CHECK CONTENTS OF SR2
003252 001401 003254      BEQ      .+4                      ;(PC OF ABORTED INSTRUCTION)
003254 000000 003256      HLT
                                ;ERROR! INCORRECT PC IN SR2
003256 022702 140000 003262      CMP      @K16,R2 ;CHECK THAT R2 IS UNCHANGED
003262 001401 003264      BEQ      .+4
003264 000000 003266      HLT
                                ;ERROR!
                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS
                                SCOPE

;CHECK
;ABORTS WHEN INST FOLLOWING SOB IS FETCHED
003270 012703 000001      MOV      @1,X3
003274 012737 077302 016676      MOV      @077302,@#K10-2 ;077302=S0B R3,.-2
003302 005037 016674      CLR      @#K10-4 ;CLEAR INST. PRECEDING SOB (.-2)
003306 005037 016700      CLR      @#K10 ;PUT HLT FOLLOWING SOB
003312 012737 003332 000250      MOV      @T22C,@#MVEC ;LOAD MEM MGMT ERROR VECTOR
003320 005237 177572      INC      @#SR0 ;ENABLE MEMORY MGMT
003324 005277      SCC
003326 000137 016676      JMP      @#K10-2 ;GO TO SOB INST.

                                RETURN=.
                                ;=K10-4
016674 000000      T22:  HLT
                                ;ERROR! SOB BRANCHED & FAILED TO ABORT
016676 077302      T22A: SOB      R3,.-2 ;ABORTS WHEN NEXT INST. IS FETCHED
016700 000000      T22AA: HLT
                                ;ERROR! FAILED TO ABORT
016702 000000 003332      T22B: 0
                                ;=RETURN

003332 022706 001074      T22C: CMP      @KPTR-4,KSP ;CHECK STACK PTR
003336 001401 003340      BEQ      .+4
003342 000000 003344      HLT
                                ;CHECK THAT CORRECT STATUS
003342 022766 000017 000002      CMP      @17,2(KSP) ;WAS SAVED ON THE STACK
003350 001401 003352      BEQ      .+4 ;ERROR! INCORRECT STATUS
003352 000000 003354      HLT
                                ;CHECK SR0 (ABORT CONDITIONS
003354 022767 040001 174210      CMP      @PLA+VSO+1,SR0 ;& FAILING PAGE #)
003362 001401 003364      BEQ      .+4 ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003364 000000 003366      HLT
                                ;CHECK CONTENTS OF SR2
003366 022767 016676 174202      CMP      @T22A,SR2 ;(PC OF ABORTED INSTRUCTION)
003374 001401 003376      BEQ      .+4 ;ERROR! INCORRECT PC IN SR2
003376 000000 003400      HLT
                                ;CHECK THAT R3 DECREMENTD
003400 005703      TST      R3
003402 001401 003404      BEQ      .+4 ;ERROR! R3 WAS NOT DECREMENTED BY SOB
003404 000000      HLT

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# E02

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003406 104000                                SCOPE                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN DEST OPERAND IS FETCHED
003410 012767 030000 174360                MOV    #K1+PUM,PSW
003416 012737 003440 000250                MOV    #T24C,2#MMVEC ;LOAD MEM MGMT ERROR VECTOR
003424 012702 040000                        MOV    #UI2,R2
003430 005237 177572                        INC    2#SR0 ;ENABLE MEMORY MGMT
003434 106542                                T24A: MFPD ;NON-RESIDENT ABORT
003436 000000                                T24B: HLT
003440 022706 001074                        T24C: CMP    #KPTR-4,KSP ;CHECK STACK PTR
003444 001401                                BEQ    .+4
003446 000000                                HLT
003450 022767 040143 174114                CMP    #UPG+PLA+VS1+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
003456 001401                                BEQ    .+4 ;& FAILING PAGE #)
003460 000000                                HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003462 022767 003434 174106                CMP    #T24A,SR2 ;CHECK CONTENTS OF SR2
003470 001401                                BEQ    .+4 ;(PC OF ABORTED INSTRUCTION)
003472 000000                                HLT ;ERROR! INCORRECT PC IN SR2
003474 022702 037776                        CMP    #UI2-2,R2 ;CHECK THAT R2 AUTO-DECREMENTED
003500 001401                                BEQ    .+4
003502 000000                                HLT ;ERROR! R2 DID NOT AUTO-DECREMENT
003504 104000                                SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN DEST OPERAND IS FETCHED
003506 012737 003536 000250                MOV    #T25C,2#MMVEC ;LOAD MEM MGMT ERROR VECTOR
003514 012702 177572                        MOV    #SR0,R2
003520 012767 170000 174250                MOV    #UM+PUM,PSW
003526 005237 177572                        INC    2#SR0 ;ENABLE MEMORY MGMT
003532 000012                                T25A: CLR    (R2) ;ABORT
003534 000000                                T25B: HLT ;ERROR! FAILED TO ABORT
003536 022706 001074                        T25C: CMP    #KPTR-4,KSP ;CHECK STACK PTR
003542 001401                                BEQ    .+4
003544 000000                                HLT
003546 022767 140157 174016                CMP    #NRA+PLA+UPG+VS7+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
003554 001401                                BEQ    .+4 ;& FAILING PAGE #)
003556 000000                                HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003560 022767 003532 174010                CMP    #T25A,SR2 ;CHECK CONTENTS OF SR2
003566 001401                                BEQ    .+4 ;(PC OF ABORTED INSTRUCTION)
003570 000000                                HLT ;ERROR! INCORRECT PC IN SR2
003572 104000                                SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN DEST OPERAND IS FETCHED
003574 012737 003624 000250                MOV    #T30C,2#MMVEC ;LOAD MEM MGMT ERROR VECTOR
003602 012703 016677                        MOV    #KIO-1,R3
003606 012737 177777 016700                MOV    #-1,2#KIO
003614 005237 177572                        INC    2#SR0 ;ENABLE MEMORY MGMT
003620 142323                                T30A: BICB  (R3)+,(R3)+ ;SEG LENGTH ABORT
003622 000000                                HLT ;ERROR! FAILED TO ABORT

003624 022767 040001 173740                T30C: CMP    #PLA+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
003632 001401                                BEQ    .+4 ;& FAILING PAGE #)
003634 000000                                HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT

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003636 022767 003620 173732      CMP      @T30A,SR2      ;CHECK CONTENTS OF SR2
003644 001401                    BEQ      .+4           ;(PC OF ABORTED INSTRUCTION)
003646 000000                    HLT                        ;ERROR! INCORRECT PC IN SR2
003650 000037 177572      CLR      @SR0          ;DISABLE MEMORY MGMT
003654 022703 016700      CMP      @K10,R3 ;CHECK AUTO-INC TWICE
003660 001401                    BEQ      .+4
003662 000030                    HLT                        ;ERROR!
003664 000037 016700      INC      @K10
003670 000031                    BEQ      .+4
003672 000030                    HLT                        ;ERROR!
003674 104000                    SCOPE                    ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN ADDRESS OF DEST OPERAND IS FETCHED
003676 012737 003746 000250      MOV      @T31C,@MMVEC ;LOAD MEM MGMT ERROR VECTOR
003704 012702 040000      MOV      @UI2,R2
003710 012703 017100      MOV      @PUI1,R3
003714 012713 177777      MOV      @-1,(R3)
003720 011337 017000      MOV      (R3),@PUI2
003724 012703 020012      MOV      @UI1+2,R3 ;R3= USER VIRTUAL ADDRESS
003730 012767 170000 174040      MOV      @UM+PUM,PSW
003736 005237 177572      INC      @SR0 ;ENABLE MEMORY MGMT
003742 114332      T31A:  MOVB    -(R3),@ (R2)+ ;NON-RESIDENT ABORT
003744 000000      T31B:  HLT      ;ERROR! FAILED TO ABORT

T31C:
003746 022767 140157 173616      CMP      @NRA+PLA+UPG+VS7+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
003754 001401                    BEQ      .+4           ;& FAILING PAGE #)
003756 000000                    HLT                        ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003760 022767 003742 173610      CMP      @T31A,SR2 ;CHECK CONTENTS OF SR2
003766 001401                    BEQ      .+4           ;(PC OF ABORTED INSTRUCTION)
003770 000000                    HLT                        ;ERROR! INCORRECT PC IN SR2
003772 022702 040002      CMP      @UI2+2,R2 ;CHECK AUTO-INC
003776 001401                    BEQ      .+4
004000 000000                    HLT                        ;ERROR!
004002 022703 020001      CMP      @UI1+1,R3 ;CHECK AUTO DECREMENT OF R3
004006 001401                    BEQ      .+4
004010 000000                    HLT                        ;ERROR! R3 NOT AUTO-DECREMENTED
004012 104000                    SCOPE                    ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK ABORT
004014 012737 004060 000250      MOV      @T32C,@MMVEC ;LOAD MEM MGMT ERROR VECTOR
004022 012767 170000 173746      MOV      @UM+PUM,PSW
004030 012706 000600      MOV      @UPTR,USP
004034 000016      CLR      (USP)
004036 012702 060000      MOV      @UI3,R2
004042 012737 177777 017400      MOV      @-1,@PUI3
004050 005237 177572      INC      @SR0 ;ENABLE MEMORY MGMT
004054 000032      T32A:  MTPB    @ (R2)+ ;NON-RESIDENT ABORT
004056 000000      T32B:  HLT      ;ERROR! FAILED TO ABORT
004060 000000      T32C:
004060 022767 100147 173504      CMP      @NRA+UPG+VS3+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
004066 001401                    BEQ      .+4           ;& FAILING PAGE #)
004070 000000                    HLT                        ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004072 022767 004054 173476      CMP      @T32A,SR2 ;CHECK CONTENTS OF SR2
004100 001401                    BEQ      .+4           ;(PC OF ABORTED INSTRUCTION)

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004102 000000          HLT          ;ERROR! INCORRECT PC IN SR2
004104 000000          MFPD         USP          ;PLSH USER STACK PTR ONTO KERNEL STACK
004106 000000 000602    CMP          #UPTR+2,(KSP) ;CHECK THAT USER STACK PTR POPPED
004112 001401          BEQ          .+4
004114 000000          HLT          ;ERROR!
004116 002702 060000    CMP          #UI3,R2 ;CHECK AUTO-INC
004122 001401          BEQ          .+4
004124 000000          HLT          ;ERROR!
004126 104000          SCOPE         ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN ADDRESS OF DEST OPERAND IS FETCHED
004130 012737 004164 000250    MOV          #T33C,#MMVEC ;LOAD MEM MGMT ERROR VECTOR
004136 012767 030000 173632    MOV          #KM+PUM,PSW
004144 012716 117776          MOV          #UI5-2,(KSP) ;NON-RES ADDRESS
004150 012746 140000          MOV          #KI6,-(KSP) ;ADDRESS POINTER
004154 005237 177572          INC          #SR0 ;ENABLE MEMORY MGMT
004160 106636          T33A: MTPD      #T33C,(KSP)+ ;NON-RESIDENT ABORT WHEN MTPD
;ADDRESS FINAL ADDRESS
;ERROR! FAILED TO ABORT
004162 000000          T33B: HLT
004164          T33C:
004164 022767 040151 173400    CMP          #PLA+UPG+VS4+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
004172 001401          BEQ          .+4 ;& FAILING PAGE #)
004174 000000          HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004176 022767 004160 173372    CMP          #T33A,SR2 ;CHECK CONTENTS OF SR2
004204 001401          BEQ          .+4 ;(PC OF ABORTED INSTRUCTION)
004206 000000          HLT          ;ERROR! INCORRECT PC IN SR2
004210 106506          MFPD         KSP ;GET KERNEL STACK PTR
004212 022716 001076    CMP          #KPTR-2,(KSP) ;CHECK THAT KERNEL STACK PTR POPPED TWICE
004216 001401          BEQ          .+4
004220 000000          HLT          ;ERROR!
004222 104000          SCOPE         ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN ADDRESS OF DEST OPERAND IS FETCHED
;DN=5
004224 012737 004260 000250    MOV          #T35C,#MMVEC ;LOAD MEM MGMT ERROR VECTOR
004232 012704 016702          MOV          #KI0+2,R4
004236 012727 020000 016676    MOV          #20000,#KI0-2
004244 005237 177572          INC          #SR0 ;ENABLE MEMORY MGMT
004250 000277          SCC
004252 112754 177777          T35A: MOVVB     #-1,#-(R4) ;SEG LENGTH ABORT
004256 000000          T35B: HLT ;ERROR! FAILED TO ABORT
004260          T35C:
004260 022766 000017 000002    CMP          #17,2(KSP) ;CHECK THAT CORRECT STATUS
004266 001401          BEQ          .+4 ;WAS SAVED ON THE STACK
004270 000000          HLT          ;ERROR! INCORRECT STATUS
004272 022767 040001 173272    CMP          #PLA+VS0+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
004300 001401          BEQ          .+4 ;& FAILING PAGE #)
004302 000000          HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004304 022767 004252 173264    CMP          #T35A,SR2 ;CHECK CONTENTS OF SR2
004312 001401          BEQ          .+4 ;(PC OF ABORTED INSTRUCTION)
004314 000000          HLT          ;ERROR! INCORRECT PC IN SR2
004316 022704 016700          CMP          #KI0,R4
004322 001401          BEQ          .+4
004324 000000          HLT          ;ERROR!

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# H02

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004326 104000                                SCOPE                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN DEST OPERAND IS FETCHED
;DM=4

004330 012737 004362 000250                MOV    @T36C,@#MVEC                ;LOAD MEM MGMT ERROR VECTOR
004336 012704 140002                          MOV    @KI6+2,R4
004342 012703 016702                          MOV    @KI0+2,R3
004346 012713 177777                          MOV    @-1,(R3)
004352 005237 177572                          INC    @#SRO                        ;ENABLE MEMORY MGMT
004356 154443                                T36A: BISH                          ;SEG LENGTH ABORT
004360 000000                                T36B: HLT                          ;ERROR! FAILED TO ABORT

004362
004362 022767 040001 173202                T36C: CMP    @PLA+1,SRO                ;CHECK SRO (ABORT CONDITIONS
004370 001401                                BEQ    .+4                          ;& FAILING PAGE #)
004372 000000                                HLT                                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004374 022767 004356 173174                CMP    @T36A,SR2                    ;CHECK CONTENTS OF SR2
004402 001401                                BEQ    .+4                          ;(PC OF ABORTED INSTRUCTION)
004404 000000                                HLT                                  ;ERROR! INCORRECT PC IN SR2
004406 016703 016701                          CMP    @KI0+1,R3                    ;CHECK AUTO-DEC
004412 001401                                BEQ    .+4
004414 000000                                HLT                                  ;ERROR!
004416 014001 140001                          CMP    @KI6+1,R4                    ;CHECK AUTO-DEC
004422 001401                                BEQ    .+4
004424 000000                                HLT                                  ;ERROR! AUTO-DEC FAILED
004426 104000                                SCOPE                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;WHEN INSTRUCTION FETCHES DESTINATION INDEX VALUE

004430 012737 004476 000250                MOV    @T40C,@#MVEC                ;LOAD MEM MGMT ERROR VECTOR
004436 012767 170000 173332                MOV    @UM+PUM,PSW
004444 012737 113767 017074                MOV    @113767,@#PUI2+74           ;113767,020001,177776
004452 012737 020001 017076                MOV    @20001,@#PUI2+76           ;IS A MOVB @#20001,+.4
004460 012737 177776 017100                MOV    @177776,@#PUI2+100        ;INSTRUCTION
004466 005237 177572                          INC    @#SRO                        ;ENABLE MEMORY MGMT
004472 000137 040074                          JMP    @#PUI2+74

004476
004476 017074                                RETURN=.
017074 113767 020001 177776                T40A: MOVB  @#20001,+.4              ;SEG LENGTH ABORT WHEN INST. FETCHES
;DEST INDEX WORD
017102 000000                                T40B: HLT                          ;ERROR! FAILED TO ABORT
004476                                .=RETURN

004476
004476 022767 040145 173066                T40C: CMP    @PLA+UPG+VS2+1,SRO        ;CHECK SRO (ABORT CONDITIONS
004504 001401                                BEQ    .+4                          ;& FAILING PAGE #)
004506 000000                                HLT                                  ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004510 022767 040074 173060                CMP    @PUI2+74,SR2                ;CHECK CONTENTS OF SR2
004516 001401                                BEQ    .+4                          ;(PC OF ABORTED INSTRUCTION)
004520 000000                                HLT                                  ;ERROR! INCORRECT PC IN SR2
004522 104000                                SCOPE                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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;CHECK
;WHEN INSTRUCTION FETCHES DESTINATION OPERAND

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004524 012737 004572 000250      MOV      #T41C, @MMVEC      ;LOAD MEM MGMT ERROR VECTOR
004526 012767 170000 173236      MOV      @UM+PUM, PSM      ;USER MODE!!!, PREV USER MODE!!
004528 012703 100000
004530 012704 100102
004532 012737 010344 017200      MOV      @UI4+102, R4
004534 012737 010344 @#PUI5      ;012344 = MOV R3, -(R4)
004536 012737 017272      CLR      @#PUI5+2
004538 012737 177572      INC      @#SRO              ;ENABLE MEMORY MGMT
004540 012737 120000      JMP      @#UI5
004542 004572      RETURN=
004544 017200      .=#PUI5
017200 010344      T41A:    MOV      R3, -(R4)      ;ABORT
017202 000300      T41B:    HLT              ;ERROR! FAILED TO ABORT
004572 004572      .=#RETURN
004572 022767 040151 172772      T41C:    CMP      @PLA+UPG+VS4+1, SRO      ;CHECK SRO (ABORT CONDITIONS
004574 001401      BEQ      .+4              ;& FAILING PAGE #)
004576 000000      HLT              ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004578 022767 120000 172764      CMP      @UI5, SR2        ;CHECK CONTENTS OF SR2
004580 001401      BEQ      .+4              ;(PC OF ABORTED INSTRUCTION)
004582 000300      HLT              ;ERROR! INCORRECT PC IN SR2
004584 012704 100100      CMP      @UI4+100, R4
004586 001401      BEQ      .+4
004588 000300      HLT
004590 104000      SCOPE                    ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
; (WHEN INSTRUCTION FETCHES ADDRESS OF DESTINATION OPERAND)
004630 012737 004666 000250      MOV      #T42C, @MMVEC      ;LOAD MEM MGMT ERROR VECTOR
004632 012767 030000 173132      MOV      @KM+PUM, PSM
004634 012703 140102
004636 012737 177777 017000      MOV      @-1, @#PKI6+100
004638 005237 177572      INC      @#SRO              ;ENABLE MEMORY MGMT
004640 106653      T42A:    MTPD      @-(R3)      ;SEG LENGTH ABORT
004642 000000      T42B:    HLT              ;ERROR! FAILED TO ABORT
004666 022706 001076      T42C:    CMP      @KPTR-2, KSP      ;CHECK STACK PTR ( 1 POP, 2 PUSHES)
004668 001401      BEQ      .+4
004670 000000      HLT              ;ERROR! INCORRECT STACK PTR
004672 022767 040015 172666      CMP      @PLA+VS6+1, SRO      ;CHECK SRO (ABORT CONDITIONS
004674 001401      BEQ      .+4              ;& FAILING PAGE #)
004676 000000      HLT              ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004678 022767 004662 172660      CMP      @T42A, SR2        ;CHECK CONTENTS OF SR2
004680 001401      BEQ      .+4              ;(PC OF ABORTED INSTRUCTION)
004682 000000      HLT              ;ERROR! INCORRECT PC IN SR2
004684 022703 140100      CMP      @KI6+100, R3      ;CHECK AUTO-DECREMENT
004686 001401      BEQ      .+4
004688 000000      HLT
004690 104000      SCOPE                    ;ERROR! DID NOT AUTO-DEC
;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN ADDRESS TO JUMP TO IS FETCHED
004734 012737 005002 000250      MOV      #T43C, @MMVEC      ;LOAD MEM MGMT ERROR VECTOR
004736 012737 000137 017076      MOV      #137, @#PUI2+76      ;000137, T43D = JMP @#T43D
004738 012737 005000 017100      MOV      #T43D, @#PUI2+100
004740 005037 017102      CLR      @#PUI2+102

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004762 012767 170000 173006      MOV      #UM+PUM,PSW
004770 005237 177572                INC      @#SR0      ;ENABLE MEMORY MGMT
004774 000137 040076                JMP      @#UI2+76   ;GO DO INSTRUCTION
                                RETURN=.
                                .=PUI2+76
017076 000137 005000      T43A:   JMP      @#T430
017102 000000      T43B:   HLT
                                ;ERROR! JMP FAILED
                                .=RETURN
005000 000000      T43C:   HLT
                                ;ERROR! FAILED TO ABORT
005002 022767 040145 172562      CMP      #PLA+UPG+VS2+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
005010 001401                BEQ      .+4        ;& FAILING PAGE #)
005012 000000                HLT
                                ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005014 022767 040076 172554      CMP      #UI2+76,SR2    ;CHECK CONTENTS OF SR2
005022 001401                BEQ      .+4        ;(PC OF ABORTED INSTRUCTION)
005024 000000                HLT
                                ;ERROR! INCORRECT PC IN SR2
005026 104000                SCOPE
                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;WHEN INSTRUCTION FETCHES ADDRESS OF DEST. OPERAND. (UI5+4)
005030 012737 005100 000250      MOV      @T44C,@#MMVEC ;LOAD MEM MGMT ERROR VECTOR
005036 012767 170000 172732      MOV      #UM+PUM,PSW   ;USER MODE!!!,PREV USER MODE!!
005044 012706 000600                MOV      #UPTR,USP     ;SET USER STACK PTR
005050 012703 120006                MOV      #UI5+6,R3
005054 012737 177776 017204      MOV      @-2,@#PUI5+4
005062 012737 004753 017200      MOV      #4753,@#PUI5 ;004753 = JSR 7,@-(R3)
005070 005237 177572                INC      @#SR0      ;ENABLE MEM. MGMT
005074 000137 120000                JMP      @#UI5        ;GO DO INST.
                                RETURN=.
                                .=PUI5
017200 004753      T44A:   JSR      7,@-(R3)
017202 000000      T44B:   HLT
                                ;ERROR!
                                .=RETURN
005100 022706 001074      T44C:   CMP      #KPTR-4,KSP ;CHECK STACK PTR
005104 001401                BEQ      .+4
                                ;INCORRECT STACK PTR
005106 000000                HLT
                                ;CHECK SR0 (ABORT CONDITIONS
005110 022767 140157 172454      CMP      #NRA+PLA+UPG+VS7+1,SR0 ;& FAILING PAGE #)
005116 001401                BEQ      .+4        ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005120 000000                HLT
                                ;CHECK CONTENTS OF SR2
005122 022767 120000 172446      CMP      #UI5,SR2    ;(PC OF ABORTED INSTRUCTION)
005130 001401                BEQ      .+4        ;ERROR! INCORRECT PC IN SR2
005132 000000                HLT
                                ;GET USER STACK PTR (ON KERNEL STACK)
005134 106506                MFPO     USP
                                ;CHECK THAT USER STACK DID NOT
005136 022716 000576                CMP      #UPTR-2,(KSP) ;GET PUSHED
005142 001401                BEQ      .+4        ;ERROR!
005144 000000                HLT
                                ;CHECK AUTO-DEC
005146 022703 120004                CMP      #UI5+4,R3
005152 001401                BEQ      .+4
                                ;ERROR!
005154 000000                HLT
                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS
005156 104000                SCOPE

;CHECK
;WHEN INSTRUCTION FETCHES DESTINATION OPERAND (UIPDR5)
005160 012737 005232 000250      MOV      @T45C,@#MMVEC ;LOAD MEM MGMT ERROR VECTOR
005166 012767 170000 172602      MOV      #UM+PUM,PSW   ;USER MODE!!!,PREV USER MODE!!
005174 012706 000600                MOV      #UPTR,USP     ;SET USER STACK PTR

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# K02

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005200 005016          CLR      (USP)
005202 012737 012667 017200  MOV      @012667,@#PUIS ;012667,057606 = MOV (USP)+,UIPDRS
005210 012737 057606 017202  MOV      @57606,@#PUIS+2 ;INSTRUCTION
005216 005037 017204          CLR      @#PUIS+4
005222 005237 177572          INC      @#SR0 ;ENABLE MEMORY MGMT
005226 000137 120000          JMP      @#UIS
005232          RETURN=.
017200 012667 057606          T45A: MOV      (USP)+,UIPDRS-UIS+PUIS
017204 000000          T45B: HLT ;ERROR! FAILED TO ABORT
005232          .:=RETURN

005232          T45C:
005232 022767 140157 172332  CMP      @NRA+UPG+PLA+VS7+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
005240 001401          BEQ      .+4 ;& FAILING PAGE #)
005242 000000          HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005244 022767 120000 172324  CMP      @UIS,SR2 ;CHECK CONTENTS OF SR2
005252 001401          BEQ      .+4 ;(PC OF ABORTED INSTRUCTION)
005254 000000          HLT ;ERROR! INCORRECT PC IN SR2
005256 005037 177572          CLR      @#SR0 ;DISABLE MEMORY MGMT
005262 005737 177612          TST      @#UIPDRS
005266 001001          BNE      .+4
005270 000000          HLT
005272 104000          SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN REGISTER (RS) IS PUSHED ON USER STACK
005274 012737 005344 000250  MOV      @TS0C,@#MVEC ;LOAD MEM MGMT ERROR VECTOR
005302 012767 170000 172466  MOV      @UM+PUM,PSW ;USER MODE!!! PREV USER MODE!!
005310 012706 100000          MOV      @UI4,USP ;SET USER STACK PTR
005314 000137 017276          CLR      @#UI4-2
005320 000105          CLR      RS
005322 012767 005342 173654  MOV      @TS0D,TEMP
005330 005237 177572          INC      @#SR0 ;ENABLE MEMORY MGMT
005334 004577 173644          T50A: JSR      S,@TEMP ;NON-RES ABORT
005340 000000          T50B: HLT ;JSR FAILED & DID NOT ABORT
005342 000000          T50C: HLT ;ERROR! FAILED TO ABORT

005344          T50C:
005344 022767 140147 172220  CMP      @NRA+PLA+UPG+VS3+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
005352 001401          BEQ      .+4 ;& FAILING PAGE #)
005354 000000          HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005356 022767 005334 172212  CMP      @T50A,SR2 ;CHECK CONTENTS OF SR2
005364 001401          BEQ      .+4 ;(PC OF ABORTED INSTRUCTION)
005366 000000          HLT ;ERROR! INCORRECT PC IN SR2
005370 106506          MFPD   USP ;PUSH USER STACK PTR ONTO KERNEL STACK
005372 022716 077776          CMP      @UI4-2,(KSP) ;CHECK THAT USER STACK PTR DEC-
005376 001401          BEQ      .+4 ;REMENTED
005400 000000          HLT ;ERROR!
005402 005705          TST      RS
005404 001401          BEQ      .+4
005406 000000          HLT
005410 104000          SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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;CHECK

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;ABORTS WHEN STATUS IS PUSHED ONTO USER STACK
005412 012737 005456 000250      MOV      #T52C, @#MMVEC      ;LOAD MEM MGMT ERROR VECTOR
005420 012767 140000 172374      MOV      #UM, IOTVEC+2      ;USER MODE!!! PREV USER MODE!!
005426 012767 005454 172364      MOV      #T52D, IOTVEC      ;SET USER STACK PTR
005434 012767 170000 172334      MOV      #UM+PUM, PSM      ;ENABLE MEMORY MGMT
005442 005006      CLR      USP                ;NON-RESIDENT ABORT
005444 005237 177572      INC      @#SRD              ;ERROR! IOT & ABORT FAILED
005450 000004      T52A:   IOT                ;ERROR! ABORT FAILED
005452 000000      T52B:   HLT                ;CHECK STACK PTR
005454 000000      T52C:   HLT                ;INCORRECT STACK PTR
005456 022706 001074      T52C:   CMP      #KPTR-4, KSP ;CHECK THAT CORRECT STATUS
005462 001401      BEQ      .+4                ;WAS SAVED ON THE STACK
005464 000000      HLT      ;ERROR! INCORRECT STATUS
005466 022766 170000 000002      CMP      #UM+PUM, 2(KSP)    ;CHECK SRD (ABORT CONDITIONS
005474 001401      BEQ      .+4                ;& FAILING PAGE #)
005476 000000      HLT      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005500 022767 140157 172064      CMP      #NRA+UPG+PLA+VS7-1, SRD ;CHECK SRD (ABORT CONDITIONS
005506 001401      BEQ      .+4                ;& FAILING PAGE #)
005510 000000      HLT      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005512 022767 005450 172056      CMP      #T52A, SR2        ;CHECK CONTENTS OF SR2
005520 001401      BEQ      .+4                ;(PC OF ABORTED INSTRUCTION)
005522 000000      HLT      ;ERROR! INCORRECT PC IN SR2
005524 122737 000060 177777      CMPB     #60, @#PSW+1      ;CHECK FOR CORRECT PSW ON ABORT
005532 001401      BEQ      .+4                ;(KM+PUM IN HIGH BYTE)
005534 000000      HLT      ;ERROR! INCORRECT PSW AFTER ABORT
005536 012737 030000 177776      MOV      #KM+PUM, @#PSW    ;KERNEL MODE!!! PREV SUPER MODE!!
005544 106506      MFPD     USP                ;PUSH USER STACK PTR ONTO KERNEL STACK
005546 022716 177776      CMP      #0-2, (KSP)      ;CHECK PUSHES
005552 001401      BEQ      .+4
005554 000000      HLT      ;ERROR!
005556 10406J      SCOPE     ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK
;ABORTS WHEN RETURN PC IS PUSHED ONTO USER STACK
005560 012737 005626 000250      MOV      #T53C, @#MMVEC      ;LOAD MEM MGMT ERROR VECTOR
005566 012767 170000 172202      MOV      #UM+PUM, PSM      ;USER MODE, PREV. USER MODE
005574 012706 040002      MOV      #UI2+2, USP        ;SET USER STACK PTR
005600 012767 005624 172212      MOV      #T53D, IOTVEC      ;ENABLE MEMORY MGMT
005606 012767 140340 172206      MOV      #UM+PRTY7, IOTVEC+2 ;NON-RESIDENT ABORT AT TRP14
005614 005237 177572      INC      @#SRD              ;ERROR! IOT & ABORT FAILED
005620 000004      T53A:   IOT                ;ERROR! ABORT FAILED
005622 000000      T53B:   HLT                ;CHECK STACK PTR
005624 000000      T53C:   HLT                ;INCORRECT STACK PTR
005626 022706 001074      T53C:   CMP      #KPTR-4, KSP ;CHECK RETURN PC
005632 001401      BEQ      .+4                ;INCORRECT STACK PTR
005634 000000      HLT      ;CHECK RETURN PC
005636 022716 005622      CMP      #T53B, (KSP)      ;CHECK THAT CORRECT STATUS
005642 001401      BEQ      .+4                ;WAS SAVED ON THE STACK
005644 000000      HLT      ;ERROR! INCORRECT STATUS
005646 022766 170340 000002      CMP      #UM+PUM+PRTY7, 2(KSP) ;CHECK SRD (ABORT CONDITIONS
005654 001401      BEQ      .+4                ;& FAILING PAGE #)
005656 000000      HLT      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005660 022767 040143 171704      CMP      #PLA+UPG+VS1+1, SRD ;CHECK SRD (ABORT CONDITIONS
005666 001401      BEQ      .+4                ;& FAILING PAGE #)
005670 000000      HLT      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005672 022767 005620 171676      CMP      #T53A, SR2        ;CHECK CONTENTS OF SR2

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# M02

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005700 001401      BEQ      .+4      ;(PC OF ABORTED INSTRUCTION)
005702 000000      HLT      ;ERROR! INCORRECT PC IN SR2
005704 012767 030000 172064      MOV      #KM+PUM,PSW
005712 105506      MFPO     USP      ;PUSH USER STACK PTR ONTO KERNEL STACK
005714 022716 037776      CMP      #UI2-2,(KSP) ;CHECK THAT USER STACK PTR WAS
005720 001401      BEQ      .+4      ;DECREMENTED BY 4
005722 000000      HLT      ;ERROR!
005724 005067 172072      CLR      IOTVEC+2
005730 012767 000022 172062      MOV      #IOTVEC+2,IOTVEC
005736 104000      SCOPE     ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK ABORT
005740 012737 006002 000250      MOV      #T56C,@#MMVEC ;LOAD MEM MGMT ERROR VECTOR
005746 012767 170000 172022      MOV      #UM+PUM,PSW
005754 012706 000600      MOV      #UPTR,USP
005760 012746 140000      MOV      #UM -(USP)
005764 012746 040100      MOV      #UI2+100 -(USP)
005770 005037 017100      CLR      @#PUI2+100
005774 005237 177572      INC      @#SRO      ;ENABLE MEMORY MGMT
006000 000002      T56B:    RTI
006002 006002      RETURN=.
017100 017100      T56A:    .=#PUI2+100
006002 022706 001074      T56C:    CMP      #KPTR-4,KSP ;CHECK STACK PTR
006006 001401      BEQ      .+4
006010 000000      HLT
006012 022767 040145 171552      CMP      #PLA+UPG+VS2+1,SRO ;CHECK SRO (ABORT CONDITIONS
006020 001401      BEQ      .+4      ;& FAILING PAGE #)
006022 000000      HLT      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006024 022767 006000 171544      CMP      #T56B,SR2 ;CHECK CONTENTS OF SR2
006032 001401      BEQ      .+4      ;(PC OF ABORTED INSTRUCTION)
006034 000000      HLT      ;ERROR! INCORRECT PC IN SR2
006036 104000      SCOPE     ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK ABORT
006040 012767 170000 171730      MOV      #UM+PUM,PSW
006046 012737 006100 000250      MOV      #T60C,@#MMVEC ;LOAD MEM MGMT ERROR VECTOR
006054 012737 000005 017076      MOV      #5,@#PUI2+76 ;5 IS A RESET INSTRUCTION
006062 005037 017100      CLR      @#PUI2+100
006066 005005      CLR      RS
006070 005237 177572      INC      @#SRO      ;ENABLE MEMORY MGMT
006074 000137 040076      JMP      @#UI2+76 ;GO EXECUTE RESET
006100 006100      RETURN=.
017076 017076      T60A:    .=#PUI2+76
017100 000005      RESET   ;ABORTS WHEN NEXT INST. FETCHED
017100 000000      HLT      ;ERROR! FAILED TO ABORT
017100 006100      .=#RETURN

T60C:
006100 022767 040145 171464      CMP      #PLA+UPG+VS2+1,SRO ;CHECK SRO (ABORT CONDITIONS
006106 001401      BEQ      .+4      ;& FAILING PAGE #)
006110 000000      HLT      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006112 022767 040076 171456      CMP      #UI2+76,SR2 ;CHECK CONTENTS OF SR2
006120 001401      BEQ      .+4      ;(PC OF ABORTED INSTRUCTION)
006122 000000      HLT      ;ERROR! INCORRECT PC IN SR2

```

006124 104000 SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

```

;CHECK
;ABORTS WHEN INST FOLLOWING MARK IS FETCHED
006126 012767 170000 171642 MOV #UM+PUM,PSW ;LOAD MEM MGMT ERROR VECTOR
006134 012737 006164 000250 MOV #T63C,@MMVEC ;PUSH MARK INST ON USER STACK
006142 012746 MOV (PC)+,-(USP) ;PUSH THIS INST ON USER STACK
006144 006401 MARK 1 ;AFTER MARK EXECUTE INST AT T63A
006146 012705 040100 MOV #UI2+100,R5 ;WHICH IS A HALT
006152 005037 017100 CLR @#T63A ;ENABLE MEMORY MGMT
006156 005237 177572 INC @#SR0 ;GO EXECUTE MARK AT SPTR-2
006162 000116 JMP (USP)
006164 006164 RETURN=.
017100 017100 .=PUI2+100
000000 T63A: HLT ;SEG ABORT WHEN THIS INST. FETCHED AT
006164 006164 .=RETURN
006170 022706 001074 T63C: CMP #KPTR-4,KSP ;CHECK STACK PTR
006172 001401 BEQ .+4
006174 022767 040145 171370 HLT ;CHECK SR0 (ABORT CONDITIONS
006202 001401 CMP #PLA+UPG+VS2+1,SR0 ;& FAILING PAGE #)
006204 000000 BEQ .+4 ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006206 022767 000576 171362 HLT ;CHECK CONTENTS OF SR2
006214 001401 CMP #UPTR-2,SR2 ;(PC OF ABORTED INSTRUCTION)
006216 000000 BEQ .+4 ;ERROR! INCORRECT PC IN SR2
006220 106506 MFPO USP ;PUSH USER STACK PTR ONTO KERNEL STACK
006222 022716 000604 CMP #UPTR+4,(KSP) ;CHECK USER STACK PTR
006226 001401 BEQ .+4
006230 000000 HLT ;ERROR! INCORRECT USER STACK PTR
006232 023705 000602 CMP @#UPTR+2,R5 ;CHECK CONTENTS OF R5
006236 001401 BEQ .+4
006240 000000 HLT ;ERROR!
006242 104000 SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

```

```

;CHECK
;ABORTS WHEN INST FOLLOWING TST IS FETCHED
006244 012737 006300 000250 MOV #T64C,@MMVEC ;LOAD MEM MGMT ERROR VECTOR
006252 012702 177777 MOV #-1,R2 ;R2=STATUS WORD ADDRESS (ODD BYTE)
006256 012737 105722 015676 MOV #105722,@#KIO-2 ;105722=TSTB (R2)+
006264 005037 016700 CLR @#KIO
006270 005237 177572 INC @#SR0 ;ENABLE MEMORY MGMT
006274 000137 016676 JMP @#KIO-2 ;GO EXECUTE INSTRUCTION
006300 006300 RETURN=.
016676 016676 .=KIO-2
016700 105722 T64A: TSTB (R2)+ ;ABORTS WHEN NEXT INST. IS FETCHED
000000 T64B: HLT ;ERROR! FAILED TO ABORT
006300 006300 .=RETURN
006300 022767 040001 171264 T64C: CMP #PLA+VS0+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
006306 001401 BEQ .+4 ;& FAILING PAGE #)
006310 000000 HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006312 022767 016676 171256 CMP #T64A SR2 ;CHECK CONTENTS OF SR2
006320 001401 BEQ .+4 ;(PC OF ABORTED INSTRUCTION)
006322 000000 HLT ;ERROR! INCORRECT PC IN SR2
006324 005702 TST R2 ;CHECK AUTO-INC

```

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006326 001401          BEQ      .+4
006330 000000          HLT
006332 104000          SCOPE          ;ERROR! AUTO-INC FAILED
                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK
                                ;ABORTS WHEN INSTRUCTION FOLLOWING MOV B IS FETCHED
006334 012737 006372 00250  MOV      @T66C, @MMVEC          ;LOAD MEM MGMT ERROR VECTOR
006342 012703 016700          MOV      @K10, R3
006346 005013          CLR      (3)                    ;SET UP CODE (HALT)
006350 012743          MOV      (7)+, -(R3)
006352 114203          MOV B   -(R2), R3              ;THIS INSTRUCTION IS NOT EXECUTED
006354 012702 001204          MOV      @TEMP, R2
006360 012722 100000          MOV      @100000, (R2)+
006364 005237 177572          INC      @SR0
006370 000113          JMP      (R3)                    ;ENABLE MEMORY MGMT
                                ;GO EXECUTE MOV B INSTRUCTION
                                ;RETURN=
                                ;.=K10-2
016676 114203          T66A:  MOV B   -(R2), R3          ;ABORTS WHEN THE NEXT INST IS FETCHED
016700 000000          T66B:  HLT
                                ;ERROR! FAILED TO ABORT HERE
                                ;.=RETURN
006372 006372          T66C:
006372 022767 040001 171172  CMP      @PLA+VS0+1, SR0        ;CHECK SR0 (ABORT CONDITIONS
006400 001401          BEQ      .+4                    ;& FAILING PAGE #)
006402 000000          HLT
                                ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006404 022767 016676 171164  CMP      @T66A, SR2            ;CHECK CONTENTS OF SR2
006412 001401          BEQ      .+4                    ;(PC OF ABORTED INSTRUCTION)
006414 000000          HLT
                                ;ERROR! INCORRECT PC IN SR2
006416 022703 177600          CMP      @177600, R3           ;MOV B TO A REGISTER EXTENDS
006422 001401          BEQ      .+4                    ;THE SIGN
006424 000000          HLT
                                ;ERROR! INCORRECT RESULT IN R3
006426 104000          SCOPE          ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ACCESS VIOLATION ABORT
                                ;ABORTS WHEN SOURCE DATA IS FETCHED USING DATIP WITH DEST ADDRESS READ ONLY
006430 012737 006442 000250  MOV      @T72C, @MMVEC          ;LOAD MEM MGMT ERROR VECTOR
006436 112737 00000? 172314  MOV B   @R00, @KIPDR6          ;SET KERNEL ADDRESS 140000-140077
                                ;READ ABORT ON WRITE
006444 005037 016700          CLR      @PKI6                 ;CLEAR CORRESPONDING PHYSICAL ADDRESS
006450 005237 177572          INC      @SR0
                                ;ENABLE MEMORY MGMT
006454 000261          SEC
                                ;SET 'C'
006456 005537 140000          T72A:  ADC      @K16
                                ;ABORTS WHEN DATA IS FETCHED USING DATIP

                                ;CHECK SR0 (ABORT CONDITIONS
                                ;& FAILING PAGE #)
                                ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006462 022767 020015 171102  CMP      @AVA+VS6+1, SR0
006462 001401          BEQ      .+4
006470 000000          HLT
                                ;CHECK CONTENTS OF SR2
006472 000000          HLT
                                ;(PC OF ABORTED INSTRUCTION)
006474 022767 006456 171074  CMP      @T72A, SR2
006502 001401          BEQ      .+4
                                ;ERROR! INCORRECT PC IN SR2
006504 000000          HLT
                                ;CHECK THAT CORRECT STATUS
006506 022766 000001 000002  CMP      @C, 2(KSP)
006514 001401          BEQ      .+4
                                ;WAS SAVED ON THE STACK
006516 000000          HLT
                                ;ERROR! INCORRECT STATUS
006520 005037 177572          CLR      @SR0
                                ;DISABLE MEMORY MGMT
006524 005737 016700          TST      @PKI6
                                ;CHECK THAT ADDRESS WAS NOT WRITTEN
006530 001401          BEQ      .+4
006532 000000          HLT
                                ;ERROR! DATA WRITTEN INTO READ ONLY ADDRESS

```

006534 104000

SCOPE

```

;CHECK ACCESS VIOLATION ABORT
;ABORTS WHEN SOURCE DATA IS FETCHED FROM READ ONLY SPACE USING A DATIP.
006536 012737 006562 000250      MOV      #T73C, @#MVEC      ;LOAD MEM MGMT ERROR VECTOR
006544 005037 016700              CLR      @#PKI6            ;PRESET ADDRESS
006550 005237 177572              INC      @#SRO            ;ENABLE MEMORY MGMT
006554 000261                      SEC                      ;SET 'C'
006556 106037 140001      T73A:  RORB   @#KI6+1      ;ABORTS WHEN RESULT IS WRITTEN
006562 022767 020015 171002      T73C:  CMP      @AVA+VS6+1, SRO ;CHECK SRO (ABORT CONDITIONS
006570 001401                      BEQ      .+4              ; & FAILING PAGE #)
006572 000000                      HLT                      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006574 022767 006556 170774      CMP      @T73A, SR2       ;CHECK CONTENTS OF SR2
006602 001401                      BEQ      .+4              ; (PC OF ABORTED INSTRUCTION)
006604 000000                      HLT                      ;ERROR! INCORRECT PC IN SR2
006606 022766 000001 000002      CMP      @C, 2(KSP)       ;CHECK THAT CORRECT STATUS
006614 001401                      BEQ      .+4              ; WAS SAVED ON THE STACK
006616 000000                      HLT                      ;ERROR! INCORRECT STATUS
006620 005037 177572              CLR      @#SRO            ;DISABLE MEMORY MGMT
006624 005737 016700              TST     @#PKI6
006630 001401                      BEQ      .+4
006632 000000                      HLT
006634 012737 000006 172314      MOV     @6, @#KIPDR6      ;ERROR! ADDRESS WAS WRITTEN
006642 104000                      SCOPE                     ;SET KIPDR R/W
;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

```

```

;CHECK ABORT USING 'T' BIT TRAP
;CHECK ABORT WHEN PSW IS NON-RESIDENT
006644 012737 006700 000250      MOV     @T102C, @#MVEC    ;LOAD MEM MGMT ERROR VECTOR
006652 005002                      CLR     R2                ;PRESET DESTINATION
006654 005237 177572              INC     @#SRO            ;ENABLE MEMORY MGMT
006660 012746 140017              MOV     @UM+17, -(KSP)   ;'NEW' STATUS ON STACK
006664 012746 006672              MOV     @.+6, -(KSP)    ;RETURN PC
006670 000002                      RTI    ;SET STATUS AND EXECUTE NEXT INST.
006672 013702 177776      T102A: MOV     @#PSW, R2    ;PSW IS NON-RESIDENT IN USER MODE
006676 000000                      HLT    ;ERROR! FAILED TO ABORT
006700 022767 140157 170664      T102C: CMP     @NRA+PLA+UPG+VS7+1, SRO ;CHECK SRO (ABORT CONDITIONS
006706 001401                      BEQ     .+4              ; & FAILING PAGE #)
006710 000000                      HLT    ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006712 022767 006672 170656      CMP     @T102A, SR2     ;CHECK CONTENTS OF SR2
006720 001401                      BEQ     .+4              ; (PC OF ABORTED INSTRUCTION)
006722 000000                      HLT    ;ERROR! INCORRECT PC IN SR2
006724 022766 140017 000002      CMP     @UM+17, 2(KSP)   ;CHECK THAT CORRECT STATUS
006732 001401                      BEQ     .+4              ; WAS SAVED ON THE STACK
006734 000000                      HLT    ;ERROR! INCORRECT STATUS
006736 005702                      TST    R2                ;CHECK THAT R2 WAS NOT LOADED
006740 001401                      BEQ     .+4
006742 000000                      HLT
006744 104000                      SCOPE
;ERROR! DEST (R2) WAS CHANGED

```

```

006746 005267 172226      END:   INC     ICNT
006752 022767 005000 172220      CMP     @5000, ICNT
006760 001402                      BEQ     DONE
006762 000167 172232      JMP     BEGIN

```

006766	012767	000007	170572	DONE:	MOV	#7,TPB
006774	105767	170564			TSTB	TPB
007000	100375				BPL	-4
007002	013702	000042			MOV	@#42,%2
007006	001404				BEQ	DONE1
007010	004712			LOGIC:	JSR	7,(2)
007012	000240				NOP	
007014	000240				NOP	
007016	000240				NOP	
007020	000167	172166		DONE1:	JMP	START
	000001					.END

```

:GET DECTAPE MONITOR RETURN ADDRESS
:DO NOT RETURN TO MON IF (42)=0
:RETURN TO DECTAPE MONITOR
:ACT11
:OVERLAY
:AREA

```



# F03

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 DFKTFA.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

KI6 = 140000	317#	770	790	956	1003	1020	1083	1098	1429#	1453#				
KM = 000000	204#	833	954	1082	1246	1279								
KPG = 000000	251#													
KPTR = 001100	229#	372	393	452	479	530	566	661	713	748	814	839	861	
	989	1089	1142	1231	1264	1301	1350							
KSP = X000006	193#	362#	363	365#	371	372#	373#	374#	375#	393#	452	455	479	
	505	530	533	556	661	664	674	698	713	726	748	751	814	
	817	819	861	943	955#	956#	958#	968	969	985	1089	1142	1152	
	1212	1231	1234	1248	1264	1267	1270	1281	1301	1350	1360	1438	1461	
	1477#	1478#	1489											
LOGIC = 007010	346	1506#												
MMK = 001320	417#													
MMVEC = 000250	218#	395#	443#	444#	472#	497#	522#	558#	591#	611#	631#	651#	681#	
	707#	733#	768#	801#	834#	855#	874#	899#	926#	953#	977#	1002#	1028#	
	1053#	1081#	1105#	1129#	1162#	1194#	1222#	1255#	1289#	1314#	1339#	1370#	1395#	
	1423#	1449#	1474#											
MMO = 001232	398#													
N = 000010	21#													
NRA = 100000	255#	536	569	864	911	936	1145	1178	1205	1237	1483			
NRO = 000000	305#													
PC = X000007	190#	1340												
PFVEC = 000024	213#													
PKIO = 016600	324#													
PKIS = 016700	325#	769#	1084#	1426#	1442	1450#	1465							
PKM = 000000	206#													
PLA = 040000	254#	458	492	508	536	569	597	617	637	667	691	716	754	
	784	820	842	864	882	911	962	988	1011	1043	1068	1092	1119	
	1145	1178	1205	1237	1273	1304	1327	1353	1382	1410	1483			
PRTY4 = 000200	203#													
PRTY7 = 000340	202#	1259	1270											
PSW = 177776	221#	361#	376#	523#	559#	652#	682#	705#	833#	857#	905#	927#	954#	
	1029#	1054#	1103#	1109#	1130#	1163#	1195#	1225#	1243	1246#	1256#	1279#	1290#	
	1313#	1308#	1460											
PUI1 = 017100	330#	901												
PUI2 = 017000	329#	654#	655#	903#	1030#	1031#	1032#	1036	1106#	1107#	1108#	1113	1294#	
	1233	1315#	1316#	1321	1347									
PUI3 = 017400	328#	931#												
PUI4 = 017300	327#	684#	685#	1197#										
PUI5 = 017200	326#	562#	1057#	1058#	1062	1133#	1134#	1138	1166#	1167#	1168#	1172	1173#	
PUM = 030000	207#	376	523	533	559	652	664	682	705	833	857	905	927	
	954	1029	1054	1082	1109	1130	1163	1195	1225	1234	1246	1256	1270	
	1279	1290	1313	1338										
R00 = 000002	306#	1424												
RETURN = 006372	741#	747	775#	780	806#	812	1035#	1040	1061#	1065	1112#	1116	1137#	
	1141	1171#	1175	1297#	1300	1320#	1324	1346#	1349	1376#	1380	1404#	1408	
	308#													
RM = 000006	307#													
RMT = 000004	183#													
R0 = X000000	184#	371#	374	404#	406#	408#	410#	412#	414#	446#	450#	464	473#	
R1 = X000001	185#	400#	402#	404#	406#	408#	410#	412#	414#	446#	450#	464	473#	
R2 = X000002	474	475#	477	489	524#	525	528	547	592#	594#	603#	734#	744#	
	760#	770#	778#	790	85#	837	848	856#	859#	900#	907#	917	930#	
	933#	946	1371#	1378	1333	1339	1400#	1401#	1406	1475#	1480#	1492		
	186#	401#	403#	405#	407#	409#	411#	413#	415#	445#	446	447#	450	
R3 = X000003	464	525#	528#	550	632#	634#	643	809#	826	875#	878#	889	901#	
	902#	903	904#	907	920	1004#	1005#	1007#	1017	1055#	1063	1083#	1086#	



T14C	002672	681	690	
T14D	002670	684	63	
T16A	002762	710	719	
T16B	002764	711		
T16C	002770	707	713	
T16D	002766	708	712	722
T2A	001704	502	511	
T2B	001706	503		
T2C	001710	497	504	
T20A	016676	744	757	
T20B	016702	745		
T20C	003112	733	748	
T21A	016676	778	787	
T21B	016702	779		
T21C	003232	778	783	
T22	016674	81		
T22A	016676	809	823	
T22B	016700	810		
T22C	016702	811		
T22D	003332	801	814	
T24A	003434	837	845	
T24B	003436	838		
T24C	003440	834	839	
T25A	003532	859	867	
T25B	003534	860		
T25C	003536	855	861	
T3A	002010	528	539	
T33	002012	529		
T3C	002014	522	530	
T30A	003620	878	885	
T30C	003624	874	881	
T31A	003742	907	914	
T31B	003744	908		
T31C	003746	899	910	
T32A	004054	933	939	
T32B	004056	934		
T32C	004060	926	935	
T33A	004160	958	965	
T33B	004162	960		
T33C	004164	953	961	
T34A	004172	952	991	
T34B	004176	953		
T35C	004180	977	984	
T36A	004186	1007	1014	
T36B	004190	1008		
T36C	004362	1002	1010	
T4A	002160	564	572	
T4B	002162	555		
T4C	002164	558	566	
T40A	017074	1037		
T40B	017102	1039		
T40C	004476	1028	1042	
T41A	017200	1063		
T41B	017202	1064		
T41C	004572	1053	1067	
T42A	004662	1086	1095	

T42B	004664	1087#		
T42C	004656	1081	1089#	
T43A	017076	1114#		
T43B	017102	1115#		
T43C	017072	1105	1118#	
T43D	017072	1107	1114	1117#
T44A	017072	1139#		
T44B	017072	1140#		
T44C	005100	1129	1142#	
T45A	017200	1173#		
T45B	017204	1174#		
T45C	017202	1162	1177#	
T50A	017334	1201#	1208	
T50B	017340	1202#		
T50C	017344	1194	1204#	
T50D	017342	1199	1203#	
T51A	017550	1211#	1240	
T51B	017552	1213#		
T52C	017556	1212	1231#	
T52D	017551	1224	1230#	
T53A	017552	1261#	1276	
T53B	017552	1262#	1267	
T53C	017552	1255	1264#	
T53D	017552	1258	1263#	
T55A	017100	1259#		
T55B	006000	1296#	1307	
T55C	006002	1289	1301#	
T6A	002300	594#	600	
T6B	002304	595#		
T6C	002306	591	596#	
T60A	017076	1322#		
T60C	006100	1314	1326#	
T63A	017100	1343#	1348#	
T63C	006164	1339	1350#	
T64A	016676	1378#	1385	
T64B	016700	1379#		
T64C	006300	1370	1381#	
T66A	016676	1406#	1413	
T66B	016700	1407#		
T66C	006372	1395	1409#	
T7A	002756	614#	620	
T7B	002752	615#		
T7C	002754	611	616#	
T72A	006456	1429#	1435	
T72C	006462	1423	1431#	
T73A	006466	1453#	1458	
T73C	006562	1449	1454#	
UIPAR0=	177640	277#	404	429#
UIPAR1=	177642	278#	431#	
UIPAR2=	177644	279#	430#	
UIPAR3=	177646	280#		
UIPAR4=	177650	281#	433#	
UIPAR5=	177652	282#	432#	
UIPAR6=	177654	283#		
UIPAR7=	177656	284#		
UIPDR0=	177600	268#	400	420#



# K03

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DFKTFA.P11 CROSS REFERENCE TABLE -- MACRO NAMES

CAC	331														
CFPS	331														
CPC	315														
CPDR	315	542	575												
CSRO	315	458	482	508	536	569	596	616	636	667	690	716	754	783	820
	845	864	881	910	935	961	983	1010	1042	1067	1092	1118	1145	1177	1204
	1237	1273	1304	1326	1353	1381	1409	1431	1454	1482					
CSR2	315	461	485	511	539	572	600	620	640	670	694	719	757	787	823
	845	867	885	914	939	965	991	1014	1046	1071	1095	1122	1148	1181	1208
	1240	1276	1307	1330	1356	1385	1413	1435	1458	1486					
CSTAT	315	455	505	533	664	751	817	984	1234	1270	1438	1461	1489		
SVEC	315	442	472	497	522	558	591	611	631	651	681	707	733	768	801
	834	855	874	899	926	953	977	1002	1028	1053	1081	1105	1129	1162	1194
	1222	1255	1289	1314	1339	1370	1395	1423	1449	1474					



# M03

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 DFKTFA.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

	1339	1340	1342	1370	1371	1372	1395	1396	1398	1400	1401	1423	1449	1468	1474
MOV8	1477	1478	1480	1501	1504										
MTPD	907	982	1037	1399	1406	1424									
MTP1	377	958	1086												
NOP	933														
RESET	391	398	1507	1508	1509										
RORB	1322														
RTI	1453														
RTS	658	1296	1479												
RTT	710														
SCC	379	687													
SEC	449	501	527	657	739	803	981								
SOB	1428	1452													
SUB	403	407	411	415	809										
TST	362														
TSTB	363	623	643	826	1185	1215	1388	1442	1465	1492					
.ENABL	1378	1502													
.END	1														
.LIST	1512														
.MACR	1	315	331	340											
.MLIST	315	331													
.REM	1	315	331	332	340										
.REPT	1														
.TITLE	340														
.WORD	1														
	342	344													

ERRORS DETECTED: 0  
 DEFAULT GLOBALS GENERATED: 0

\*Lr KTFa, DFKTFA, SEQ/SOL/CRF/DS:ERFZ/EN:ABS=DSKM:DFKTFA.P11  
 RUN-TIME: 5 10 2 SECONDS  
 RUN-TIME RATIO: 25/19=1.3  
 CORE USED: 8K (15 PAGES)

