

PDP-11

MANAGEMENT ABORT TESTS
MD-11-DCKTF-C

EP-DCKTF-C-DL-A
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FIGHE 1 OF 1

NOV 1976
digital
MADE IN USA

The image displays a grid of 48 small tables, arranged in 8 rows and 6 columns. Each table contains technical data, likely related to management abort tests for the PDP-11 system. The tables are organized into sections, with some containing headers and others containing data rows. The data appears to be organized into columns, possibly representing different test parameters or results. The overall layout is dense and structured, typical of a technical manual or test report.

11-11-76

B01

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DCKTF-C-D
PRODUCT NAME: MEMORY MANAGEMENT ABORT TESTS
DATE CREATED: 16 MAY 1973
MAINTAINER: DIAGNOSTIC GROUP
AUTHOR: JOHN ADAMS
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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 PROCESSOR)

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 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 HARDWARE FAILURE. 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. 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 CONTINUOUSLY LOOP THE TEST REPLACE THE BEQ .+4 PRECEDING THE HLT WITH THE BRANCH.

7.0 .BLANK 1
RESTRICTIONS

7.1 STARTING RESTRICTION

NONE

7.2 OPERATIONAL RESTRICTION

NONE

8.C 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 = 1060
SUPERVISOR = 700
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. 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 PRECEDING 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. C MEMORY MGMT ABORT TRAPS MACY11 27(732) 14-SEP-76 10:28 PAGE 6

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. MAP BEFORE USING THIS PROGRAM.

201

%
.NLIST SEQ
.LIST ME
.ABS

TITLE TEST DCKTF-C MEMORY NGMT ABORT TRAPS
; THIS TEST CHECKS MEMORY MANAGEMENT ABORTS AT ALL 'BUST' MICRO STATES.
; MEMORY MANAGEMENT ABORT TEST. THIS PROGRAM TESTS MEMORY NGMT 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	; 'T' BIT
000002	V=2	; PRIORITY LEVEL 7
000004	Z=4	; PRIORITY LEVEL 4
000010	N=10	; SELECTS R10-R15
000020	T=20	; KERNEL MODE
000340	PRTY7=340	; SUPERVISORY MODE
000200	PRTY4=200	; USER MODE
004000	REG=4000	; PREVIOUS KERNEL MODE
000000	KM=000000	; PREVIOUS SUPERVISORY MODE
040000	SM=040000	; PREVIOUS USER MODE
140000	UM=140000	; SELECT R10-R15
000000	PKM=000000	
010000	PSM=010000	
030000	PUM=030000	
004000	REG=004000	

; VECTOR ADDRESSES

000004	ERRVEC=4	; ADDRESS OF ERROR VECTOR
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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	REDPTR=740	; RED 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 SRO BIT ASSIGNMENTS
; ENABLE MEMORY MANAGEMENT

000001	ENMM=1	
000000	V50=0	
000002	V51=2	
000004	V52=4	
000006	V53=6	
000010	V54=10	
000012	V55=12	
000014	V56=14	
000016	V57=16	
000020	D5=20	
000000	I5=00	
000140	UPG=140	
000040	SPG=40	
000000	KPG=000	
000200	IC=200	; INSTRUCTION COMPLETE
000400	DM=400	; DESTINATION MODE
001000	TE=1000	; TRAP ENABLE
004000	OST=4000	; OST ABORT FLAG

010000
020000
040000
100000

MMT=10000
AVA=20000
PLA=40000
NRA=100000

;MEMORY MANAGEMENT TRAP
;ACCESS VIOLATION ABORT
;PAGE LENGTH ABORT
;NON-RESIDENT ABORT

000010
000000
000010
000200
000100

;PAGE DESCRIPTOR REGISTER (PDR) BIT ASSIGNMENTS
ED=10
UP=0
DWN=10
A=200
W=100

BIT ASSIGNMENTS
;EXPANSION DIRECTION BIT IN PDR
;EXPAND UP
;EXPAND DOWN
;'A' BIT IN PDR
;'W' BIT IN PDR

000010
000020
000040
000060
000100
000370
000360
000340
000320
000300
000000
004000
010000
174000
170000
000000
000400
001000
001400
002000
002400
003000
003400

;SR1 BIT ASSIGNMENTS
S1=10
S2=20
S4=40
S6=60
S8=100
SM1=370
SM2=360
SM4=340
SM6=320
SM8=300
D0=0
D1=4000
D2=10000
DM1=174000
DM2=170000
DR0=000
DR1=400
DR2=1000
DR3=1400
DR4=2000
DR5=2400
DR6=3000
DR7=3400

000001
000002
000004

;SR3 BIT ASSIGNMENTS
UDE=1
SDE=2
KDE=4

;USER 'D' SPACE ENABLE
;SUPERVISOR 'D' SPACE ENABLE
;KERNEL 'D' SPACE ENABLE

177572
177574
177576
172516

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

;ADDRESS OF MEMORY MGMT REGISTER SR0
;SR1
;SR2
;ADDRESS OF MEMORY MGMT REGISTER SR3

177600
177602
177604
177606
177610
177612
177614
177616

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

;ADDRESS OF USER 'I' PDR'S

;ADDRESS OD USER 'D' PDR'S

177620	UDPDR0=177620
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
172246	SIPAR3=172246
172250	SIPAR4=172250
172252	SIPAR5=172252
172254	SIPAR6=172254
172256	SIPAR7=172256

172260	SDPAR0=172260
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172262	SUPAR1=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

000000
000001
000002
000003
000004
000005
000006
000007

;ACCESS CONTROL FIELD DEFINITIONS (IN PDR)

NRO=0	:NON-RESIDENT ABORT ALL REFS.
RDO=1	:TRAP ON READ,ABORT ON WRITE
RDO=2	:READ,ABORT ON WRITE
NR3=3	:UNUSED ABORT ALL
RWT=4	:TRAP ON READ & WRITE
RWT=5	:READ,TRAP ON WRITE
RW=6	:READ & WRITE
NR7=7	:ABORT ALL

000000

;INSTRUCTION EQUATES
HLT=HALT

104000

SCOPE=EMT

;SCOPE IS AN EMT TRAP

;VIRTUAL ADDRESSES

001100
016700
140000
040000
020000
120000
100000

KD0=1100
KIO=16700
KD6=140000
SI2=40000
SD1=20000
UI5=120000
UD4=100000

;CORRESPONDING PHYSICAL ADDRESSES

016600
016700
017000
017100
017200
017300

PKIO=16600
PKD6=16700
PSI2=17000
PSD1=17100
PUI5=17200
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
.=ERRVEC
.WORD SHLT
.=EMTVEC
.WORD SCOPEA
.=46
LOGICAL
.=52
40000

000004 000004
000400 000400
000030 000030
000030 000434
000046 000046
000046 016442
000052 000052
000052 040000

000176 000176
000176 000000

.=176
HALT

;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.

;ERROR! TO IDENTIFY WHICH TEST FAILED

000200 000200 000704
000167

.=200
JMP START

;GO START TEST

000400

.=400

;SUPERVISOR/USER HLT (HALT) TRAP SERVICE ROUTINE

000400 042737 000001 177572
000406 162716 000002
000412 005776 000000
000416 001404
000420 062716 000002
000424 000137 000006
000430 000137 000176

SHLT: BIC #1, @#SR0 ;TURN MEM MGMT OFF
SUB #2, (KSP) ;POINT PC TO TRAPPING INST.
TST @ (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

```

:SCOPE (EMT) SERVICE ROUTINE
SCOPEA:
000434 005037 177572 CLR @#SRO ;DISABLE MEMORY MGMT
000434 011601 MOV (KSP),R1 ;SAVE PC IN R1
000440 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 #BITB,@#SWR ;LOAD MICRO BREAK REG?
000506 001403 BEQ SCOPEX
000510 113737 177570 177770 MOVB @#SWR,@#UBREAK ;LOAD SRO-7 INTO MICRO BREAK REG.
000516 000006 SCOPEX: RTT ;RETURN TO NEXT TEST IN KERNEL MODE
;WITH ALL STACK PTRS SET UP

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

001110 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

```

;ROUTINE TO CLEAR MEMORY MANAGEMENT REGISTERS.

001152 000240
001154 005067 176412
001160 012702 177600
001164 012703 000040
001170 005022
001172 077302
001174 012702 172200
001200 012703 000100
001204 005022
001206 077302

MMD: NOP
CLR SRO
MOV #UIPDR0,R2
MOV #40,R3
CLR (R2)+
SOB R3,-2
MOV #SIPDR0,R2
MOV #100,R3
CLR (R2)+
SOB R3,-2

001210
001210 012737 073006 172300
001216 012737 004006 172320
001224 012737 000006 172334
001232 012737 077406 172336
001240 012737 073006 172200
001246 012737 004006 172220
001254 012737 000006 172222
001262 012737 000006 172204
001270 012737 073006 177600
001276 012737 004006 177620
001304 012737 000006 177630
001312 012737 000006 177612

MMK: MOV #167*256.-400+UP+RW, @#KIPDR0 ;SET KIPDR0=RW UP 167 BLOCKS
MOV #11*256.-400+UP+RW, @#KDPDR0 ;SET KDPDR0=RW UP 11 BLOCKS
MOV #1*256.-400+UP+RW, @#KDPDR6 ;SET KDPDR6=RW UP 1 BLOCKS
MOV #200*256.-400+UP+RW, @#KDPDR7 ;SET KDPDR7=RW UP 200 BLOCKS
MOV #167*256.-400+UP+RW, @#SIPDR0 ;SET SIPDR0=RW UP 167 BLOCKS
MOV #11*256.-400+UP+RW, @#SDPDR0 ;SET SDPDR0=RW UP 11 BLOCKS
MOV #1*256.-400+UP+RW, @#SDPDR1 ;SET SDPDR1=RW UP 1 BLOCKS
MOV #1*256.-400+UP+RW, @#SIPDR2 ;SET SIPDR2=RW UP 1 BLOCKS
MOV #167*256.-400+UP+RW, @#UIPDR0 ;SET UIPDR0=RW UP 167 BLOCKS
MOV #11*256.-400+UP+RW, @#UDPDR0 ;SET UDPDR0=RW UP 11 BLOCKS
MOV #1*256.-400+UP+RW, @#UDPDR4 ;SET UDPDR4=RW UP 1 BLOCKS
MOV #1*256.-400+UP+RW, @#UIPDR5 ;SET UIPDR5=RW UP 1 BLOCKS

001320 005067 171014
001324 005067 171030
001330 012767 000167 171036
001336 012767 007600 171032

CLR KIPAR0 ;VA=PA=0000-16677
CLR KDPAR0 ;VA=PA=0-1077
MOV #167,KDPAR6 ;VA=140000-140077;PA=16700-16777
MOV #7600,KDPAR7 ;VA=160000-177776,PA=760000-777776
;(I/O PAGE)

001344 005067 170670
001350 005067 170704
001354 012767 000170 170662
001362 012767 000171 170672

CLR SIPAR0 ;VA=PA=0-16677
CLR SDPAR0 ;VA=PA=0-1077
MOV #170,SIPAR2 ;VA=40000-40077/PA=17000-17077 (SUPER I SPACE)
MOV #171,SDPAR1 ;VA=20000-20077/PA=17100-17177 (SUPER D SPACE)

001370 005067 176244
001374 005067 176260
001400 012767 000172 176244
001406 012767 000173 176254

CLR UIPAR0 ;VA=PA=0-16677
CLR UDPAR0 ;VA=PA=0000-1077
MOV #172,UIPAR5 ;VA=120000-120077/PA=17200-17277 (USER I SPACE)
MOV #173,UDPAR4 ;VA=100000-100077/PA=17300-17377 (USER D SPACE)

;CHECK ABORT AT S13.00
;ABORTS WHEN SOURCE OPERAND IS FETCHED

;SOURCE MODE=1

001414
001414 012737 001450 000250
001422 005067 176624
001426 012703 016676
001432 010302
001434 005013
001436 005237 177572
001442 000277
001444 011302
001446 000000

TO: MOV #TOC, @MMVEC ;LOAD MEM MGMT ERROR VECTOR
CLR MMVEC+2
MOV #K10-2, R3
MOV R3, R2
CLR (R3)
INC @SR0 ;ENABLE MEMORY MGMT
SCC
TOA: MOV (R3), R2 ;MEM MGMT LENGTH ABORT AT S13.10
TOB: HLT ;ERROR! DID NOT ABORT

001450
001450 022706 001054
001454 001401
001456 000000
001460 022766 000017 000002
001466 001401
001470 000000
001472 022767 040021 176072
001500 001401
001502 000000
001504 022767 000000 176062
001512 001401
001514 000000
001516 022767 001444 176052
001524 001401
001526 000000
001530 020203
001532 001401
001534 000000
001536 104000

TOC: CMP #KPTR-4, KSP ;CHECK STACK PTR
BEQ .+4 ;AFTER ABORT
HLT ;ERROR! INCORRECT STACK PTR
CMP #17, 2(KSP) ;CHECK THAT CORRECT STATUS
BEQ .+4 ;WAS SAVED ON THE STACK
HLT ;ERROR! INCORRECT STATUS
CMP #PLA+DS+VSO+1, SR0 ;CHECK SR0 (ABORT CONDITIONS
BEQ .+4 ;& FAILING PAGE #)
HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
CMP #0, SR1 ;CHECK SR1 (REGISTER CHANGES)
BEQ .+4
HLT ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
CMP #TOA, SR2 ;CHECK CONTENTS OF SR2
EEQ .+4 ;(PC OF ABORTED INSTRUCTION)
HLT ;ERROR! INCORRECT PC IN SR2
CMP R2, R3 ;CHECK THAT INSTRUCTIONS AS ABORTED
BEQ .+4
HLT ;ERROR!
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
001546 012702 016700
001552 010204
001554 005012
001556 005237 177572
001562 122202
001564 000000

T1A: MOV #T1C, @MMVEC ;LOAD MEM MGMT ERROR VECTOR
MOV #K10, R2
MOV R2, R4
CLR (R2)
INC @SR0 ;ENABLE MEMORY MGMT
T1B: CMPB (R2)+, R2 ;SEG LENGTH ABORT AT S13.10
HLT ;ERROR! DID NOT ABORT

001566
001566 022706 001054
001572 001401
001574 000000
001576 022767 040021 175766
001604 001401
001606 000000
001610 022767 000012 175756
001616 001401

T1C: CMP #KPTR-4, KSP ;CHECK STACK PTR
BEQ .+4 ;AFTER ABORT
HLT ;ERROR! INCORRECT STACK PTR
CMP #PLA+DS+VSO+1, SR0 ;CHECK SR0 (ABORT CONDITIONS
BEQ .+4 ;& FAILING PAGE #)
HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
CMP #S1+R2, SR1 ;CHECK SR1 (REGISTER CHANGES)
BEQ .+4


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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 100065 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 170110    BIT    #A+W,SDPDR2        ;CHECK CONTENTS OF REFERENCED PDR
002114 001401                    BEQ    .+4
002116 000000                    HLT                                ;ERROR!
002120 042767 000300 170076    BIC    #A+W,SDPDR2
002126 022702 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 104000                    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    #UIS+2,R4
002170 010405                    MOV    R4,R5
002172 012737 177777 017200    MOV    #-1, #PUIS
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

T4C:
002210                    CMP    #KPTR-4,KSP        ;CHECK STACK PTR
002210                    BEQ    .+4                ;AFTER ABORT
002214 001401                    HLT                                ;ERROR! INCORRECT STACK PTR
002216 000000                    HLT                                ;ERROR! INCORRECT STACK PTR
002220 022767 100173 175344    CMP    #NRA+UPG+DS+VSS+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)
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    #UIS,R4 ;CHECK AUTO-DECREMENT
002302 001401                    BEQ    .+4

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002304 000000          HLT          ;ERROR! FAILED TO AUTO-DECREMENT R4
002306 022705 120002  CMP          #UIS+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          #TSC,@#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          ;ERROR!
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          T6A: MOV          #KIO,R2 ;SEG LENGTH ABORT AT S67.20
002472 000000          T6B: HLT    ;ERROR! FAILED TO ABORT

002474          T6C:
002474 022767 040021 175070  CMP          #PLA+DS+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

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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      @KIO(R4), R4 ;SEG LEN ABORT AT S67.20
002562 000000      T7B:    HLT              ;ERROR! FAILED TO ABORT

T7C:
002564 022767 040021 175000      CMP      #PLA+DS+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      @#KIO, R3 ;SEG LEN ABORT AT S13.30
002652 000000      T10B:   HLT              ;ERROR! FAILED TO ABORT

T10C:
002654 022767 040021 174710      CMP      #PLA+DS+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
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
002720 104000      SCOPE          ;ERROR!
;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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; ABORTS WHEN SOURCE OPERAND IS FETCHED
;SOURCE MODE = 5

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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 513.30
002750 000000                T11B:   HLT                      ;ERROR! FAILED TO ABORT

002752                                T11C:
002752 022767 040021 174612      CMP      #PLA+DS+VSO+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      #SI2, @#PSD1
003044 005237 177572                INC      @#SR0              ;ENABLE MEMORY MGMT
003050 000277                SCC
003052 167737 014722 017100      T12A:   SUB      @SD1, @#PSD1  ;PRESET CC'S
003060 000000                T12B:   HLT                      ;NON-RES ABORT
;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 100065 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)
003130 000000                HLT                      ;ERROR! INCORRECT PC IN SR2
003132 005037 177572                CLR      @#SR0              ;DISABLE MEMORY MGMT
003136 022737 040000 017100      CMP      #SI2, @#PSD1
003144 001401                BEQ      .+4
003146 000000                HLT                      ;ERROR!
003150 104000                SCOPE                      ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK ABORT AT RTI.10
;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

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003172 012737 003212 017000      MOV      #T13D, @#PSI2      ;LOAD 'NEW' PC
003200 005237 177572              INC      @#SRO              ;ENABLE MEMORY MGMT
003204 000277                      SCC
003206 000002      T13A:    RTI              ;NON-RES ABORT AT RTI.10
003210 000000      T13B:    HLT              ;ERROR! FAILED TO ABORT
003212 000000      T13D:    HLT              ;ERROR! RTI FAILED & DID NCT ABORT

003214 003214 022706 001054      T13C:    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, SRO      ;CHECK SRO (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.30
;ABORTS WHEN SECOND WORD ON STACK (STATUS) IS FETCHED
003310 012737 003354 000250      MOV      #T14C, @#MMVEC      ;LOAD MEM MGMT ERROR VECTOR
003316 012767 170000 174452      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 005137 017400              CLR      @#PUD4+100          ;AND 'NEW' STATUS
003342 005237 177572              INC      @#SRO              ;ENABLE MEMORY MGMT
003346 000006      T14A:    RTT              ;SEG LEN ABORT AFTER FIRST POP RTI.30
003350 000000      T14B:    HLT              ;ERROR! FAILED TO ABORT
003352 000000      T14D:    HLT              ;ERROR!

003354 003354 022767 040171 174210      T14C:    CMP      #PLA+UPG+DS+VS4+1, SRO      ;CHECK SRO (ABORT CONDITIONS
003362 001401                      BEQ      .+4                ;& FAILING PAGE #)
003364 000000                      HLT      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003366 022767 013026 174200      CMP      #D2+DR6+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

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;CHECK ABORT AT RTS.10
;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      @#SRO           ;ENABLE MEMORY MGMT
003456 000205                T16A:   RTS              ;ABORTS AT RTS.10 (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
003474 022767 100065 174070      CMP      #NRA+SPG+DS+VS2+1,SRO ;CHECK SRO (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 POPPOD
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.10
;ABORTS WHEN TOP WORD ON STACK IS FETCHED
003556 012737 003614 000250      MOV      #T17C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003564 012737 006400 016676      MOV      #6400,@#KIO-2  ;6400 IS A MARK 0 INST.
003572 012705 003612                MOV      #T17D,R5       ;PRESET R5
003576 005037 016700                CLR      @#KIO
003602 005237 177572                INC      @#SRO           ;ENABLE MEMORY MGMT
003606 000137 016676                JMP      @#KIO-2        ;GO TO MARK INSTRUCTION
                                RETURN=
;***** NOTE PC CHANGE *****
016676 016676                .=KIO-2
016700 006400                T17A:   MARK 0          ;SEG LEN ABORT AT MRK.10
                                T17B:   HLT              ;ERROR! DID NOT ABORT
;***** RETURN PC*****
003612 000000                .=RETURN
003614 000000                T17D:   HLT              ;ERROR! FAILED TO ABORT
003614 022706 001054                T17C:
003620 001401                CMP      #KPTR-4,KSP     ;CHECK STACK PTR
003622 000000                BEQ      .+4             ;AFTER ABORT
003624 022767 040021 173740      CMP      #PLA+DS+VSO+1,SRO ;CHECK SRO (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 IRD.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,#KIO-2 ;16702,000000 IS A MOV .+4,R2
003714 005037 016700          CLR      #KIO ;INSTRUCTION
003720 005037 016702          CLR      #KIO+2
003724 005237 177572          INC      #SRO ;ENABLE MEMORY MGMT
003730 000277          SCC      ;PRESET CC'S
003732 000137 016676  JMP      #KIO-2 ;GO TO MOV INST.
003736          RETURN=

```

```

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

```

```

016676 016676 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

```

```

T20C:
CMP      #KPTR-4,KSP ;CHECK STACK PTR
BEQ      .+4 ;AFTER ABORT
HLT          ;ERROR! INCORRECT STACK PTR
CMP      #17,2(KSP) ;CHECK THAT CORRECT STATUS
BEQ      .+4 ;WAS SAVED ON THE STACK
HLT          ;ERROR! INCORRECT STATUS
CMP      #PLA+IS+VSO+1,SRO ;CHECK SRO (ABORT CONDITIONS)
BEQ      .+4 ;& FAILING PAGE #)
HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
CMP      #0,SR1 ;CHECK SR1 (REGISTER CHANGES)
BEQ      .+4
HLT          ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
CMP      #T20A,SR2 ;CHECK CONTENTS OF SR2
BEQ      .+4 ;(PC OF ABORTED INSTRUCTION)
HLT          ;ERROR! INCORRECT PC IN SR2
INC      R2
BEQ      .+4
HLT          ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS
SCOPE

```

```

;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, @#KIO-2 ;017202,000000 IS A MOV @0(R2),R2
004054 005037 016700                CLR      @#KIO           ;INSTRUCTION
004060 005237 177572                INC      @#SRO           ;ENABLE MEMORY MGMT
004064 000137 016676                JMP      @#KIO-2
                                RETURN=.
;***** NOTE PC CHANGE *****
                                .-KIO-2
016676 017202 000000      T21A:    MOV      @0(R2),R2 ;SEG LEN ABORT AT 567.20
016702 000000                T21B:    HLT                               ;ERROR! FAILED TO ABORT
                                .-RETURN
;***** RETURN PC *****
T21C:
004070 022767 040001 173474      CMP      #PLA+IS+VSO+1,SRO ;CHECK SRO (ABORT CONDITIONS
004076 001401                BEQ      .+4                ;& FAILING PAGE #)
004100 000000                HLT                               ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004102 022767 000000 173464      CMP      #0,SRI ;CHECK SRI (REGISTER CHANGES)
004110 001401                BEQ      .+4
004112 000000                HLT                               ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SRI
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,%3
004144 012737 077302 016676      MOV      #077302, @#KIO-2 ;077302=SOB R3,.-2
004152 005037 016674                CLR      @#KIO-4          ;CLEAR INST. PRECEDING SOB (.-2)
004156 005037 016700                CLR      @#KIO           ;PUT HLT FOLLOWING SOB
004162 012737 004202 000250      MOV      #T22C, @#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004170 005237 177572                INC      @#SRO           ;ENABLE MEMORY MGMT
004174 000277                SCC                               ;PRESET CC'S
004176 000137 016676                JMP      @#KIO-2          ;GO TO SOB INST.

                                RETURN=.
                                .-KIO-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      T22B:    0
                                .-RETURN
T22C:
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+IS+VSO+1,SRO ;CHECK SRO (ABORT CONDITIONS
004232 001401                BEQ      .+4                ;& FAILING PAGE #)
004234 000000                HLT                               ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT

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004236 022767 000000 173330      CMP      #0,SR1 ;CHECK SR1 (REGISTER CHANGES)
004244 001401                      BEQ      .+4
004246 000000                      HLT
004250 022767 016700 173320      CMP      #T22AA,SR2 ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
004256 001401                      BEQ      .+4 ;CHECK CONTENTS OF SR2
004260 000000                      HLT ;(PC OF ABORTED INSTRUCTION)
004262 005703                      TST      R3 ;ERROR! INCORRECT PC IN SR2
004264 001401                      BEQ      .+4 ;CHECK THAT R3 DECREMENTD
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.10
;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,@#KIO-2 ;230=SPL 0
004314 005037 016700          CLR      @#KIO
004320 005237 177572          INC      @#SR0 ;ENABLE MEMORY MGMT
004324 000237          SPL      7
004326 000277          SCC
004330 000137 016676          JMP      @#KIO-2
004334          RETURN=.
016676 000230          T23A: SPL      0 ;SEG LEN ABORT WHEN NEXT INST IS FETCHED
016700 000000          T23AA: HLT ;ERROR! FAILED TO ABORT AT SPL.10
016702 000000          T23B: 0
004334          .-=RETURN

```

```

T23C:
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
004354 000000                      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          T24A: MFPD (R2)+ ;NON-RESIDENT ABORT AT D12.01
004444 000000          T24B: HLT
004446          T24C:

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```

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,SRD ;CHECK SRD (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 D12.00
;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      T25A:   CLR      (R2)   ;ABORT AT D12.00
004554 000000      T25B:   HLT                      ;ERROR! FAILED TO ABORT

```

```

T25C:
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,SRD ;CHECK SRD (ABORT CONDITIONS
004574 001401      BEQ      .+4            ;& FAILING PAGE #)
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      #T25A,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 PTRS

```

```

;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      #KD6,R3
004642 012737 177777 016700    MOV      #-1,@#PKD6
004650 012737 010223 016676    MOV      #010223,@#KIO-2 ;010223=MOV R2,(R3)+
004656 005037 016700      CLR      @#KIO
004662 005237 177572      INC      @#SR0          ;ENABLE MEMORY MGMT
004666 000237      SPL      7              ;PRESET PRIORITY
004670 000257      CCC
004672 000137 016676      JMP      @#KIO-2
004676 004676      RETURN=.
016676 010223      T26A:   MOV      R2,(R3)+ ;ABORTS WHEN NEXT INST. IS FETCHED

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016700 000000 T26AA: HLT ;ERROR! FAILED TO ABORT AT D12.20
016702 000000 T26B: 0
        004676      . =RETURN

004676 T26C:
004676 022766 000344 000002 CMP #PRTY7+Z,2(KSP) ;CHECK THAT CORRECT STATUS
004704 001401 BEQ .+4 ;WAS SAVED ON THE STACK
004706 000000 HLT ;ERROR! INCORRECT STATUS
004710 022767 040001 172654 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 172644 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 @#PKD6 ;CHECK THAT MOV INST COMPLETED
004756 001401 BEQ .+4
004760 000000 HLT ;ERROR!
004762 022703 140002 CMP #KD6+2,R3 ;CHECK AUTO-INCREMENT
004766 001401 BEQ .+4
004770 000000 HLT ;ERROR!
004772 104000 SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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```

;CHECK ABORT AT D12.80
;ABORTS WHEN DEST OPERAND IS FETCHED
;DM=2

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```

004774 012737 005032 000250 MOV #T27C,@#MMVEC ;LOAD MEM MGMT ERROR VECTOR
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 006624 T27A: MTPI ;NON-RESIDENT ABORT AT D12.80
005030 000000 T27B: HLT ;ERROR! FAILED TO ABORT

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005032 T27C:
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+DR4+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 POPPED
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 PTRS

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```

;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      #KDO-1, R3
005126 012737 177777 001100      MOV      #-1, @KDO
005134 005237 177572              INC      @SR0
005140 142323              T30A:   BICB   (R3)+, (R3)+ ;ENABLE MEMORY MGMT
005142 000000              HLT                               ;SEG LENGTH ABORT AT D12.90
                                       ;ERROR! FAILED TO ABORT

005144              T30C:
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+DR3+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      #KDO+1, R3       ;CHECK AUTO-INC TWICE
005212 001401              BEQ      .+4
005214 000000              HLT                               ;ERROR!
005216 005237 001100              INC      @KDO
005222 001401              BEQ      .+4
005224 000000              HLT                               ;ERROR!
005226 104000              SCOPE                       ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;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      #SI2, R2
005242 012703 017100              MOV      #PSD1, R3
005246 012713 177777              MOV      #-1, (R3)
005252 011337 017000              MOV      (R3), @PSI2
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
005274 114332              T31A:  MOVB   -(R3), @R2+ ;ENABLE MEMORY MGMT
005276 000000              T31B:  HLT                               ;NON-RESIDENT ABORT AT D30.90
                                       ;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+DR2+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      #SI2+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

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005352 001401          BEQ      .+4
005354 000000          HLT
005356 104000          SCOPE          ;ERROR! R3 NOT AUTO-DECREMENTED
                                     ;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, @PSD1
005412 005237 177572          INC     @SRO
005416 006632          T32A:  MTPD ;ENABLE MEMORY MGMT
005420 000000          T32B:  HLT ;NON-RESIDENT ABORT AT D10.50
                                     ;ERROR! FAILED TO ABORT

005422          T32C:
005422 022767 100043 172142  CMP     #NRA+SPG+IS+VS1+1, SRO ;CHECK SRO (ABORT CONDITIONS
005430 001401          BEQ     .+4 ;& FAILING PAGE #)
005432 000000          HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005434 022767 011026 172132  CMP     #D2+DR2+S2+SP, SR1 ;CHECK SR1 (REGISTER CHANGES)
005442 001401          BEQ     .+4
005444 000000          HLT ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
005446 022767 005416 172122  CMP     #T32A, SR2 ;CHECK CONTENTS OF SR2
005454 001401          BEQ     .+4 ;(PC OF ABORTED INSTRUCTION)
005456 001000          HLT ;ERROR! INCORRECT PC IN SR2
005460 106506          MFPD   SSP ;PUSH SUPER STACK PTR ONTO KERNEL STACK
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 172256  MOV     #SM+PUM, PSW ;SUPER MODE!!! PREV USER MODE!!
005520 012716 120000          MOV     #UIS, (SSP) ;PUSH DEST ADDR ON SUPER STACK
005524 005046          CLR     -(SSP) ;PUSH DATA ON SUPER STACK
005526 012737 177777 017200  MOV     #-1, @PUI5
005534 005237 177572          INC     @SRO
005540 106636          T33A:  MTPD ;ENABLE MEMORY MGMT
                                     ;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+UPG+DS+VS5+1, SRO ;CHECK SRO (ABORT CONDITIONS
005552 001401          BEQ     .+4 ;& FAILING PAGE #)
005554 000000          HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005556 022767 013026 172010  CMP     #D2+DR6+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

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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
005614 104000          SCOPE   ;ERROR!
                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D30.00
                                ;ABORTS WHEN ADDRESS OF SHIFT COUNT IS FETCHED
005616 012737 005645 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     #SR0 ;SEG LENGTH ERROR AT D30.00
005644 000000 T34B:  HLT     ;ERROR! FAILED TO ABORT

                                T34C:
005646 022767 040021 171716  CMP     #PLA+DS+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
005646 001401          BEQ     .+4 ;& FAILING PAGE #)
005654 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
005700 001401          BEQ     .+4 ;(PC OF ABORTED INSTRUCTION)
005702 000000          HLT ;ERROR! INCORRECT PC IN SR2
005704 022704 016700          CMP     #K10,R4
005710 001401          BEQ     .+4
005712 000000          HLT ;ERROR!
005714 022703 016702          CMP     #K10+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 D50.20
                                ;ABORTS WHEN ADDRESS OF DEST OPERAND IS FETCHED
                                ;DM=5
005726 012737 005760 000250  MOV     #T35C,#MMVEC ;LOAD MEM MGMT ERROR VECTOR
005734 012704 016700          MOV     #K10,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 D50.20
005756 000000 T35B:  HLT     ;ERROR! FAILED TO ABORT

                                T35C:
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+DS+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+DR4+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

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```

006024 001401      BEQ      .+4      ;(PC OF ABORTED INSTRUCTION)
006026 000000      HLT
006030 022704 016676  CMP      #KIO-2,R4 ;ERROR! INCORRECT PC IN SR2
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 NGMT ERROR VECTOR
006050 012704 140002      MOV      #KD6+2,R4
006054 012703 016702      MOV      #KIO+2,R3
006060 012713 177777      MOV      #-1,(R3)
006064 005237 177572      INC      @#SR0 ;ENABLE MEMORY NGMT
006070 154443  T36A: BISH  -(R4),-(R3) ;SEG LENGTH ABORT AT 40.30
006072 000000  T36B: HLT      ;ERROR! FAILED TO ABORT

006074 022767 040021 171470  T36C:  CMP      #PLA+DS+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
006102 001401      BEQ      .+4      ;& FAILING PAGE #)
006104 000000      HLT      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006106 022767 175774 171460  CMP      #DM1+DR3+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      #KIO+1,R3 ;CHECK AUTO-DEC
006136 001401      BEQ      .+4
006140 000000      HLT      ;ERROR!
006142 022704 140001      CMP      #KD6+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 NGMT ERROR VECTOR
006162 012767 070000 171606  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 NGMT
006214 000137 040076      JMP      @#SI2+76
006220      RETURN=
017076 106667 000000  T37A: MTPD  .+4 ;SEG LENGTH ABORT WHEN INDEX WORD
017102 000000  T37B: HLT      ;IS FETCHED AT D67.80
;ERROR! FAILED TO ABORT
006220      .=RETURN

006220  T37C:

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```

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      ;113767,020001,177776
006314 012737 020001 017076    MOV    #20001,@PSI2+76       ;IS A MOV B @#20001,..+4
006322 012737 177776 017100    MOV    #177776,@PSI2+100     ;INSTRUCTION
006330 005237 177572            INC    @SR0                    ;ENABLE MEMORY MGMT
006334 000137 040074            JMP    @SI2+74

```

RETURN=.
.=PSI2+74

```

017074 113767 020001 177776    T40A: MOV B @#20001,..+4        ;SEG LENGTH ABORT WHEN INST. FETCHES
                                ;DEST INDEX WORD AT D67.90
017102 000000                    T40B: HLT                                ;ERROR! FAILED TO ABORT
006340 006340                    .=RETURN

```

T40C:

```

006340 022767 040045 171224    CMP    #PLA+SPG+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    #SI2+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 171362    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,@PUIS         ;012344 = MOV (R3)+,-(R4)
006432 005037 017202                    CLR    @PUIS+2
006436 005237 177572            INC    @SR0                    ;ENABLE MEMORY MGMT
006442 000137 120000            JMP    @UIS

```

RETURN=.
.=PUIS

```

017200 012344                    T41A: MOV    (R3)+,-(R4)        ;ABORT AT D40.20

```



```

017202 000000          T41B:  HLT          ;ERROR! FAILED TO ABORT
      006446          .=RETURN

006446 022767 040171 171116 T41C:  CMP      #PLA+UPG+DS+VS4+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
006446 001401          BEQ      .+4          ;& FAILING PAGE #)
006454 001401          HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006456 000000          CMP      #DM2+DR4+S2+R3,SR1 ;CHECK SR1 (REGISTER CHANGES)
006460 022767 172023 171106 BEQ      .+4
006466 001401          HLT          ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
006470 000000          CMP      #UI5,SR2          ;CHECK CONTENTS OF SR2
006472 022767 120000 171076 BEQ      .+4          ;(PC OF ABORTED INSTRUCTION)
006500 001401          HLT          ;ERROR! INCORRECT PC IN SR2
006502 000000          CMP      #UD4+100,R4
006504 022704 100100    BEQ      .+4
006510 001401          HLT
006512 000000          SCOPE
006514 104000          ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;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          T42A:  MTPD          ;SEG LENGTH ABORT AT D50.30
006552 000000          T42B:  HLT          ;ERROR! FAILED TO ABORT

006554 022706 001056    T42C:  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+DS+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+DR3+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,@#PSI2+76 ;000137,T43D =JMP @#T43D
006650 012737 006700 017100 MOV      #T43D,@#PSI2+100
006656 005037 017102    CLR      @#PSI2+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      @#SI2+76 ;GO DO INSTRUCTION
      006700          RETURN=
      017076          .=PSI2+76

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007104 012737 007156 000250      MOV      #T45C, @MMVEC      ;LOAD MEM MGMT ERROR VECTOR
007112 012767 170000 170656      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, @PUIS    ;012667, 057606 = MOV (USP)+, UIPDR5
007134 012737 057606 017202      MOV      #57606, @PUIS+2  ;INSTRUCTION
007142 005037 017204                CLR      @PUIS+4
007146 005237 177572                INC      @SRO              ;ENABLE MEMORY MGMT
007152 000137 120000                JMP      @UI5
                                RETURN=.
                                .=PUIS
017200 012667 057606      T45A:  MOV      (USP)+, UIPDR5-UI5+PUIS
017204 000000                T45B:  HLT
                                .=RETURN
                                ;ERROR! FAILED TO ABORT

007156                                T45C:
007156 022767 140177 170406      CMP      #NRA+PLA+UPG+DS+VS7+1, SRO      ;CHECK SRO (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      @SRO              ;DISABLE MEMORY MGMT
007220 005737 177612                TST      @UIPDR5
007224 001001                BNE
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, @PUIS+76 ;073204 IS AN ASHC R4, R2 INST.
007246 005037 017300                CLR      @PUIS+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      @SRO              ;ENABLE MEMORY MGMT
007276 000137 120076                JMP      @UI5+76
                                RETURN=.
                                .=PUIS+76
017276 000257                CCC                        ;PRESET CC'S
017300 073204                T46A:  ASHC      R4, R2      ;SEG LEN ABORT WHEN NEXT INST. IS FETCHED
017302 000000                T46B:  HLT

                                .=RETURN
007302                                T46C:
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

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007324 022767 040153 170240    CMP    #PLA+UPG+IS+VSS+1,SR0    ;CHECK SR0 (ABORT CONDITIONS
007332 001401                    BEQ    .+4                      ;& FAILING PAGE #)
007334 000000                    HLT                                ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
007336 022767 000000 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
007370 005703                    TST    R3
007372 001401                    BEQ    .+4
007374 000000                    HLT
007376 104000                    SCOPE                            ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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```

;CHECK ABORT AT ASC.80
;ABORTS WHEN INST FOLLOWING ASHC IS FETCHED
007400 012737 007454 000250    MOV    #T47C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
007406 012767 050000 170362    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 = 0
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.

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```

007454 007454                    RETURN=
017076 017076                    .-PSI2+76
017100 000000                    ASHC    (R2)+,R4
T47A:  HLT                                ;SEG LENGTH ABORT WHEN THIS INST IS FETCHED

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```

007454 105737 001056                    T47C: 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 IDENT
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 022702 001006                    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.30
;ABORTS WHEN REGISTER (R5) IS PUSHED ON USER STACK
007534 012737 007604 000250    MOV    #T50C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
007542 012767 170000 170226    MOV    #UM+PUM,PSW    ;USER MODE!!!,PREV USER MODE!!

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```

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      T50A:   JSR      5, @TEMP ;NON-RES ABORT AT JSR.30
007600 000000          T50B:   HLT
007602 000000          T50D:   HLT        ;JSR FAILED & DID NOT ABORT
                                ;ERROR! FAILED TO ABORT

007604          T50C:
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
007616 022767 000366 167750      CMP      #SM2+SP, SR1 ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
007624 001401          BEQ      .+4          ;CHECK SR1 (REGISTER CHANGES)
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.80 (MFPI)
                                ;ABORTS WHEN DATA IS PUSHED ONTO SUPER STACK
007664 012737 007724 000250      MOV      #T51C, @#MMVEC ;LOAD MEM MGMT ERROR VECTOR
007672 012767 070000 170076      MOV      #SM+PUM, PSW  ;SUPER MODE!!!, PREV USER MODE!!
007700 005006          CLR      SSP         ;SET SUPERVISOR STACK PTR
007702 012737 120000 000000      MOV      #UI5, @#0    ;LOAD STACK
007710 005237 177572          INC      @#SR0        ;ENABLE MEMORY MGMT
007714 000240          NOP
007716 006576 000000      T51A:   MFPI     @ (SSP) ;SEG LENGTH ABORT AT SVC.80
007722 000000          T51B:   HLT        ;ERROR! FAILED TO ABORT

007724          T51C:
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 IDENT
007746 022767 000366 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

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010004 104000                                SCOPE                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK ABORT AT SVC.60 (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 170000                MOV      #SM, IOTVEC+2
010022 012767 010056 167770                MOV      #T52D, IOTVEC
010030 012767 050000 167740                MOV      #SM+PSM, PSW           ;SUPER MODE!!!, PREV SUPER MODE!!
010036 005006                                CLR      SSP                     ;SET SUPER STACK PTR
010040 012767 170000 167730                MOV      #UM+PUM, PSW          ;USER MODE!!!, PREV USER MODE!!
010046 005237 177572                        INC      @#SRO                   ;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
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+V57+1, SRO ;CHECK SRO (ABORT CONDITIONS
010110 001401                                BEQ      .+4                    ;& FAILING PAGE #)
010112 000000                                HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
010114 022767 173366 167452                CMP      #DM2+DR6+SM2+SP, SR1 ;CHECK SR1 (REGISTER CHANGES)
010122 001401                                BEQ      .+4
010124 000000                                HLT
010126 022767 010052 167442                CMP      #T52A, SR2           ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
010134 001401                                BEQ      .+4                    ;CHECK CONTENTS OF SR2
010136 000000                                HLT                             ;(PC OF ABORTED INSTRUCTION)
010140 122737 000060 177777                CMPB     #60, @#PSW+1         ;ERROR! INCORRECT PC IN SR2
010146 001401                                BEQ      .+4                    ;CHECK FOR CORRECT PSW ON ABORT
010150 000000                                HLT                             ;(KM+PUM IN HIGH BYTE)
010152 012737 010000 177776                MOV      #KM+PSM, @#PSW       ;ERROR! INCORRECT PSW AFTER ABORT
010160 106506                                MFPD    SSP                   ;KERNEL MODE!!!, PREV SUPER MODE!!
010162 022716 177774                        CMP      #0-4, (KSP)         ;PUSH SUPER STACK PTR ONTO KERNEL STACK
010166 001401                                BEQ      .+4                    ;CHECK PUSHES
010170 000000                                HLT
010172 104000                                SCOPE                            ;ERROR!
;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 167566                MOV      #SM+PSM, PSW         ;SUPER MODE!!!, PREV SUPER MODE!!
010210 012706 020002 167576                MOV      #SD1+2, SSP          ;SET SUPER STACK PTR
010214 012767 010246 167576                MOV      #T53D, IOTVEC
010222 012767 040340 167572                MOV      #SM+PRTY7, IOTVEC+2
010230 012767 170000 167540                MOV      #UM+PUM, PSW         ;USER MODE!!!, PREV USER MODE!!
010236 005237 177572                        INC      @#SRO                   ;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

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010254 001401      BEQ      .+4      ; AFTER ABORT
010256 000000      HLT
010260 022716 010244  CMP      #T53B,(KSP) ; ERROR! INCORRECT STACK PTR
010264 001401      BEQ      .+4      ; CHECK RETURN PC ON THE STACK
010266 000000      HLT
010270 022766 170000 000002  CMP      #UM+PUM,2(KSP) ; ERROR! INCORRECT PC ON THE STACK
010276 001401      BEQ      .+4      ; CHECK THAT CORRECT STATUS
010300 000000      HLT ; WAS SAVED ON THE STACK
010302 022767 040061 167262  CMP      #PLA+SPG+DS+VSO+1 SR0 ; ERROR! INCORRECT STATUS
010310 001401      BEQ      .+4      ; & FAILING PAGE #)
010312 000000      HLT ; ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
010314 022767 173366 167252  CMP      #DM2+DR6+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,2#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 167436      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 TRP.10
; WHEN VECTOR AT 20 IS FETCHED

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010374 012737 010452 000250  MOV      #T54C,2#MMVEC ; LOAD MEM MGMT ERROR VECTOR
010402 012737 010450 000020  MOV      #T54B,2#IOTVEC ; SET IOT TRAP VECTOR
010410 012737 040340 000022  MOV      #SM+PRTY7,2#IOTVEC+2 ; SUPER MODE ON IOT
010416 013737 172320 001004  MOV      2#KDPDR0,2#TEMP ; SAVE KDPDR0
010424 012737 000416 172320  MOV      #2*256.-400+DWN+RW,2#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      2#SR0 ; ENABLE MEMORY MGMT
010444 000004      IOT ; IOT WILL ABORT WHEN ADDRESS VECTOR IS

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T54A:

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010446 000000      HLT ; IOT WILL ABORT WHEN ADDRESS VECTOR IS
010450 000000      HLT ; ERROR! IOT FAILED TO TRAP
010452 000000      HLT ; ERROR! IOT FAILED TO ABORT

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T54B:

T54C:

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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+VSO+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

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010532 005037 177572          CLR      @#SRO          ;DISABLE MEMORY MGMT
010536 000257          CCC
010540 022737 030000 177776  CMP      #KM+PUM,@#PSW ;CHECK STATUS
010546 001401          BEQ      .+4
010550 000000          HLT      ;ERROR! INCORRECT STATUS AFTER ABORT
010552 012737 000022 000020  MOV      #IOTVEC+2,@#IOTVEC
010560 016737 170220 172320  MOV      TEMP,@#KDPDRO  ;RESTORE KDPDRO
010566 104000          SCOPE          ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK ABORT AT BRK.30
;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
010610 013737 172320 001004  MOV      @#KDPDRO,@#TEMP
010616 012737 000416 172320  MOV      #2*256.-400+DWN+RW,@#KDPDRO ;SET KDPDRO=RW DWN 2 BLOCKS
;ALL BUT 0-76 IS ENABLED IN KERNEL 'D' SPACE
010624 012767 170000 167144  MOV      #UM+PUM,PSW    ;USER MODE!!!,PREV USER MODE!!
010632 005237 177572          INC      @#SRO          ;ENABLE MEMORY MGMT
010636 000277          SCC
010640 106622          T55A:  MTPD      (R2)+  ;PRESET CC'S
;ODD ADDRESS TRAP ALSO ABORTS WHEN VECTOR
;AT 4 IS FETCHED
010642 000000          HLT      ;ERROR! FAILED TO TRAP/ABORT
010644 000000          HLT      ;ERROR! FAILED TO ABORT
010646 013700 177776          T55B:  MOV      @#PSW,R0  ;GET NEW STATUS
010652 022700 030000          T55C:  CMP      #KM+PUM,R0    ;CHECK NEW STATUS
010656 001401          BEQ      .+4
010660 000000          HLT      ;ERROR! INCORRECT STATUS AFTER ABORT
010662 022706 001054          CMP      #KPTR-4,KSP   ;CHECK STACK PTR
010666 001401          BEQ      .+4          ;AFTER ABORT
010670 000000          HLT      ;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          HLT      ;ERROR! INCORRECT STATUS
010704 022767 040221 166660  CMP      #PLA+IC+DS+KPG+VSO+1,SRO ;CHECK SRO (ABORT CONDITIONS
010712 001401          BEQ      .+4          ;& FAILING PAGE #)
010714 000000          HLT      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
010716 022767 000000 166650  CMP      #0,SRI        ;CHECK SRI (REGISTER CHANGES)
010724 001401          BEQ      .+4
010726 000000          HLT      ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SRI
010730 022767 000004 166640  CMP      #ERRVEC,SR2   ;CHECK CONTENTS OF SR2
010736 001401          BEQ      .+4          ;(PC OF ABORTED INSTRUCTION)
010740 000000          HLT      ;ERROR! INCORRECT PC IN SR2
010742 005037 177572          CLR      @#SRO          ;DISABLE MEMORY MGMT
010746 106506          MFPD     USP          ;GET USER STACK PTR
010750 022716 000602          CMP      #UPTR+2,(KSP) ;CHECK THAT MTPD POPPED USER STACK
010754 001401          BEQ      .+4
010756 000000          HLT      ;ERROR! INCORRECT USER STACK PTR
010760 022702 000003          CMP      #3,R2        ;CHECK AUTO-INC OF R2
010764 001401          BEQ      .+4
010766 000000          HLT      ;ERROR! R2 DID NOT AUTO-INC
010770 016737 170010 172320  MOV      TEMP,@#KDPDRO ;RESTORE KDPDRO
010776 012737 000012 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
 011014 012767 050000 166754
 011022 012706 000700
 011026 012746 040000
 011032 012746 040100
 011036 005037 017100
 011042 005237 177572
 011046 000002
 011050
 017100 000000
 011050 011050

```

MOV #T56C, @MMVEC ;LOAD MEM MGMT ERROR VECTOR
MOV #SM+PSM, PSW ;SUPER MODE!!!, PREV SUPER MODE!!
MOV #SPTR, SSP ;SET SUPER STACK PTR
MOV #SM, -(SSP)
MOV #SI2+100, -(SSP)
CLR @PSI2+100
INC @SRO ;ENABLE MEMORY MGMT
RTI
RETURN=
.=PSI2+100
T56A: HLT ;ERROR! FAILED TO ABORT AT FET.00
.=RETURN

```

011050
 011050 022706 001054
 011054 001401
 011056 000000
 011060 022767 040045 166504
 011066 001401
 011070 000000
 011072 022767 000000 166474
 011100 001401
 011102 000000
 011104 022767 040100 166464
 011112 001401
 011114 000000
 011116 104000

```

T56C: CMP #KPTR-4, KSP ;CHECK STACK PTR
BEQ .+4 ;AFTER ABORT
HLT ;ERROR! INCORRECT STACK PTR
CMP #PLA+SPG+VS2+1, SR0 ;CHECK SR0 (ABORT CONDITIONS
BEQ .+4 ;& FAILING PAGE #)
HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
CMP #0, SR1 ;CHECK SR1 (REGISTER CHANGES)
BEQ .+4
HLT ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
CMP #SI2+100, SR2 ;CHECK CONTENTS OF SR2
BEQ .+4 ;(PC OF ABORTED INSTRUCTION)
HLT ;ERROR! INCORRECT PC IN SR2
SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

```

011120 012737 011156 000250
 011126 012767 170000 166642
 011134 012737 012646 017276
 011142 005037 017300
 011146 005237 177572
 011152 000137 120076
 011156
 017276 012646
 017300 000000
 011156

```

;CHECK ABORT AT FET.01 (VIA D10.40)
MOV #T57C, @MMVEC ;LOAD MEM MGMT ERROR VECTOR
MOV #UM+PUM, PSW ;USER MODE!!!, PREV USER MODE!!
MOV #012646, @PUI5+76 ;012646=MOV (6)+, -(6)
CLR @PUI5+100 ;INSTRUCTION
INC @SRO ;ENABLE MEMORY MGMT
JMP @PUI5+76
RETURN=
.=PUI5+76
T57A: MOV (6)+, -(6) ;ABORTS AT FET.01
HLT
.=RETURN

```

011156
 011156 022767 040153 166406
 011164 001401
 011166 000000
 011170 022767 000000 166376
 011176 001401
 011200 000000
 011202 022767 120100 166366
 011210 001401
 011212 000000
 011214 106506
 011216 022716 000600
 011222 001401
 011224 000000
 011226 104000

```

T57C: CMP #PLA+UPG+VS5+1, SR0 ;CHECK SR0 (ABORT CONDITIONS
BEQ .+4 ;& FAILING PAGE #)
HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
CMP #0, SR1 ;CHECK SR1 (REGISTER CHANGES)
BEQ .+4
HLT ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
CMP #PUI5+100, SR2 ;CHECK CONTENTS OF SR2
BEQ .+4 ;(PC OF ABORTED INSTRUCTION)
HLT ;ERROR! INCORRECT PC IN SR2
MFPD USP ;GET USER STACK PTR
CMP #UPTR, (KSP) ;CHECK USER STACK PTR
BEQ .+4
HLT ;ERROR! INCORRECT USER STACK PTR
SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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```

;CHECK ABORT AT FET.03
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
017076 000005 T60A: RESET ;ABORTS WHEN NEXT INST. FETCHED
017100 000000 HLT ;ERROR! FAILED TO ABORT
011270 011270 .=PSI2+76
011270 000005 .=RETURN
011270 011270

T60C:
011270 022767 040045 166274 CMP #PLA+SPG+VS2+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
011276 001401 .+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.06
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 011400 RETURN=.
017276 071204 DIV R4,R2
017300 000000 T61A: HLT ;SEG LEN ABORT WHEN THIS INST FETCHED
011400 011400 .=RETURN

T61C:
011400 022767 040153 166164 CMP #PLA+UPG+VSS+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
011406 001401 .+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.50
;ABORTS WHEN INST FOLLOWING MUL IS FETCHED
011440 012767 050000 166330 MOV #SM+PSM,PSW ;SUPER MODE!!!,PREV SUPER MODE!!

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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
                                RETURN=.
                                .=PSI2+76
017076 070403                MUL      R3, R4
017100 000000                HLT
                                .=RETURN
                                T62A: ;ABORT WHEN THIS INST FETCHED AT MUL.50

011510                                T62C:
011510 022767 040045 166054      CMP      #PLA+SPG+VS2+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.30
                                ;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 SPTR-2
                                RETURN=.
                                .=PSI2+100
017100 000000                HLT
                                .=RETURN
                                T63A: ;SEG ABORT WHEN THIS INST. FETCHED AT MRK.30

011606                                T63C:
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+VS2+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)
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

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011664 000000          HLT          ;ERROR! INCORRECT SUPER STACK PTR
011666 023705 000702  CMP          2#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,2#MMVEC ;LOAD MEM MGMT ERROR VECTOR
011706 012702 177777          MOV          #-1,R2 ;R2=STATUS WORD ADDRESS (ODD BYTE)
011712 012737 105722 016676  MOV          #105722,2#KIO-2 ;105722=TSTB (R2)+
011720 005037 016700          CLR          2#KIO
011724 005237 177572          INC          2#SR0 ;ENABLE MEMORY MGMT
011730 000137 016676          JMP          2#KIO-2 ;GO EXECUTE INSTRUCTION
011734 011734          RETURN=.
016676 016676          .=KIO-2
016676 105722          T64A: TSTB      (R2)+ ;ABORTS WHEN NEXT INST. IS FETCHED
016700 000000          T64B: HLT          ;ERROR! FAILED TO ABORT
011734 011734          .=RETURN
011734 022767 040001 165630  T64C: CMP          #PLA+KPG+IS+VSO+1 SR0 ;CHECK SR0 (ABORT CONDITIONS
011742 001401          .+4 ;& FAILING PAGE #)
011744 000000          HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
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.61
;ABORTS WHEN INSTRUCTION FOLLOWING ASC IS FETCHED
012002 012737 012054 000250  MOV          #T65C,2#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          2#SR0 ;ENABLE MEMORY MGMT
012046 000261          SEC
012050 000137 040076          JMP          2#SI2+76 ;GO EXECUTE ASC INSTRUCTION
012054 012054          RETURN=.
017076 073205          T65A: ASHC        R5,R2 ;SEG LENGTH ABORT WHEN NEXT INST
017100 000000          HLT          ;ERROR! FAILED TO ABORT HERE
012054 012054          .=PSI2+76
012054 022706 001054          T65C: CMP          #KPTR-4,KSP ;CHECK STACK PTR
012060 001401          BEQ          .+4 ;AFTER ABORT

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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
012076 022767 040045 165466  CMP      #PLA+SPG+IS+VS2+1,SR0 ;ERROR! INCORRECT STATUS ON STACK
                                ;CHECK SR0 (ABORT CONDITIONS
                                ;& FAILING PAGE #)
012104 001401          BEQ      .+4
012106 000000          HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
012110 022767 000000 165456  CMP      #0,SR1    ;CHECK SR1 (REGISTER CHANGES)
012116 001401          BEQ      .+4
012120 000000          HLT
012122 022767 040100 165446  CMP      #SI2+100,SR2 ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
                                ;CHECK CONTENTS OF SR2
                                ;(PC OF ABORTED INSTRUCTION)
012130 001401          BEQ      .+4
012132 000000          HLT          ;ERROR! INCORRECT PC IN SR2
012134 005702          TST      R2          ;CHECK RESULT
012136 001401          BEQ      .+4
012140 000000          HLT
012142 022703 040000          CMP      #040000,R3 ;ERROR! INCORRECT RESULT IN R2
                                ;CHECK RESULT
012146 001401          BEQ      .+4
012150 000000          HLT
012152 104000          SCOPE    ;ERROR! INCORRECT RESULT IN R3
                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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;CHECK ABORT AT D00.90
;ABORTS WHEN INSTRUCTION FOLLOWING MOV B IS FETCHED
012154 012737 012212 000250  MOV      #T66C,@#MMVEC ;LOAD MEM MGMT ERROR VECTOR
012162 012703 016700          MOV      #KIO,R3
012166 005013          CLR      (3)          ;SET UP CODE (HALT)
012170 012743          MOV      (7)+,-(R3)
012172 114203          MOV      #0,-(R2),R3 ;THIS INSTRUCTION IS NOT EXECUTED
012174 012702 001004          MOV      #TEMP,R2
012200 012722 100000          MOV      #100000,(R2)+
012204 005237 177572          INC      @#SR0
012210 000113          JMP      (R3)          ;ENABLE MEMORY MGMT
                                ;GO EXECUTE MOV B INSTRUCTION
                                RETURN=.
                                .=KIO-2

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016676 114203          T66A: MOV B   -(R2),R3 ;ABORTS WHEN THE NEXT INST IS FETCHED
016700 000000          T66B: HLT          ;ERROR! FAILED TO ABORT HERE
                                .=RETURN

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012212 022767 040001 165352  T66C: CMP      #PLA+KPG+IS+VSD+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
                                ;& FAILING PAGE #)
012220 001401          BEQ      .+4
012222 000000          HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
012224 022767 000000 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
                                ;(PC OF ABORTED INSTRUCTION)
012244 001401          BEQ      .+4
012246 000000          HLT          ;ERROR! INCORRECT PC IN SR2
012250 022703 177600          CMP      #177600,R3 ;MOV B TO A REGISTER EXTENDS
                                ;THE SIGN
012254 001401          BEQ      .+4
012256 000000          HLT          ;ERROR! INCORRECT RESULT IN R3
012260 104000          SCOPE    ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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;CHECK ABORT AT FET07 (VIA ASH.30)
;ABORTS WHEN INSTRUCTION FOLLOWING ASH IS FETCHED
012262 012737 012320 000250  MOV      #T67C,@#MMVEC ;LOAD MEM MGMT ERROR VECTOR
012270 012702 016700          MOV      #KIO,R2

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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	#SRO	; ENABLE MEMORY MGMT
012316	000112			JMP	(R2)	
	012320			RETURN=.		
	016676			.=KIO-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+VSO+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 PTRS
				; 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	#KIO, 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	#SRO	; ENABLE MEMORY MGMT
012442	000261			SEC		
012444	000115			JMP	(R5)	
	012446			RETURN=.		
	016676			.=KIO-2		
016676	072223			T70A: ASH	(R3)+, R2	
016700	000000			T70B: HLT		
	012446			.=RETURN		
012446				T70C:		
012446	022767	040001	165116	CMP	#PLA+KPG+IS+VSO+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)

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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 PTRS

;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                #KIO-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                @#SRO ;ENABLE MEMORY MGMT
012556 000145          JMP                -(R5) ;GO EXECUTE DIVIDE INSTRUCTION
012560          RETURN=.
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+VSO+1,SRO ;CHECK SRO (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 PTRS

;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               #RDO,@#KDPDR6 ;SET KERNEL 'D' ADDRESS 140000-140077
012644 005037 016700          CLR                @#PKD6 ;READ ABORT ON WRITE
012650 005237 177572  INC                @#SRO ;CLEAR CORRESPONDING PHYSICAL ADDRESS
012654 000261          SEC                ;ENABLE MEMORY MGMT
012656 005537 140000  T72A: ADC                @#KD6 ;SET 'C'
;ABORTS WHEN DATA IS FETCHED USING DATIP

012662          T72C:
012662 022767 020035 164702  CMP                #AVA+KPG+DS+VS6+1,SRO ;CHECK SRO (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

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013420	104000			SCOPE	
					;CHECK RELATIONSHIP BETWEEN SEG ABORT TRAP & FATAL STACK ERROR TRAP
013422	012737	010000	177776	MOV	#KM+PSW, @#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	@#SRO ;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	040C45	164050	CMP	#PLA+IS+SPG+VS2+1, SRO ;CHECK SRO (ABORT CONDITIONS
013522	001401			BEQ	+.4 ;& FAILING PAGE #)
013524	000000			HLT	;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
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	@#SRO ;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	013702	177776		T102A: MOV	@#PSW, R2 ;PSW IS NON-RESIDENT IN SUPER MODE
013614	000000			HLT	;ERROR! FAILED TO ABORT
					T102C:
013616				CMP	#NRA+PLA+SPG+DS+VS7+1, SRO ;CHECK SRO (ABORT CONDITIONS
013616	022767	140077	163746	BEQ	+.4 ;& FAILING PAGE #)
013624	001401			HLT	;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
013626	000000			HLT	;CHECK SR1 (REGISTER CHANGES)
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

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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+PSW,2#PSW ;KERNEL MODE!!!,PREV SUPER MODE!!
013704 012737 013740 000250  MOV      #T103C,2#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      2#SRO ;ENABLE MEMORY MGMT
013726 052737 000357 177776  BIS      #PTY7+17,2#PSW ;PRESET STATUS
013734 106636          T103A: MTPD    2(KSP)+ ;DEST ADRS(PSW) IS NON-RES
013736 000000          HLT          ;ERROR! FAILED TO ABORT

013740 013700 177776          T103C: MOV      2#PSW,RO ;SAVE CURRENT STATUS
013744 022700 000340          CMP      #KM+PKM+PTY7,RO ;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,SRO ;CHECK SRO (ABORT CONDITIONS
013762 001401          BEQ      .+4 ;& FAILING PAGE #)
013764 000000          HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
013766 022767 013026 163600  CMP      #D2+DR6+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+PTY7+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+RDO,2#UDPDR7 ;SET UDPDR7=RDO UP 200 BLOCKS
014034 012737 007600 177676  MOV      #7600,2#UDPAR7 ;SET TO I/O PAGE
014042 012737 014076 000250  MOV      #T104C,2#MMVEC ;LOAD MEM MGMT ERROR VECTOR
014050 005237 177572          INC      2#SRO ;ENABLE MEMORY MGMT
014054 012737 140000 177776  MOV      #UM,2#PSW ;SET USER MODE IN PSW
014062 005737 177636          T104A: TST      2#UDPDR7 ;SHOULD NOT ABORT
014066 013737 177676 177636  T104B: MOV      2#UDPAR7,2#UDPDR7 ;SHOULD ABORT
014074 000000          HLT          ;ERROR! FAILED TO ABORT

;NOTE: IF ABOVE TEST FAILED TO ABORT OR TRAPPED CHECK THAT M8108
;MODULE IS UP TO REV F...

014076 014076 022767 020177 163466  T104C: CMP      #AVA+UPG+DS+VS7+1,SRO ;CHECK SRO (ABORT CONDITIONS)
014104 001401          BEQ      .+4 ;& FAILING PAGE #)
014106 000000          HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
014110 022767 013427 163456  CMP      #D2+DR7+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

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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      #FOC, @#MMVEC ;LOAD MEM MGMT ERROR VECTOR
014220 012767 050000 163550  MOV      #SM+PSM, PSW ;SUPER MODE!!!, PREV SUPER MODE!!
014226 012705 017076          MOV      #PSI2+76, R5
014232 172427 040200          LDF      #1, ACO
014236 172500          LDF      ACO, AC1
014240 012725          MOV      (7)+, (5)+ ;LOAD INSTRUCTION
014242 172100          ADDF    ACO, AC1 ;THESE INSTRUCTIONS
014244 012725          MOV      (7)+, (5)+
014246 172100          ADDF    ACO, AC1 ;WILL BE
014250 012715          MOV      (7)+, (5)
014252 000000          HLT          ;EXECUTED IN THIS TEST
014254 005237 177572          INC      @#SRO ;ENABLE MEMORY MGMT
014260 000137 040076          JMP      @#SI2+76 ;GO DO FLOATING POINT INST.
          RETURN=
          . =PSI2+76

FOA: 017076 172100          ADDF    ACO, AC1 ;DO THIS INST. ABORT ON NEXT
017100 172100          ADDF    ACO, AC1 ;SEG LEN ABORT AT FET.00
017102 000000          HLT          ;ERROR! FAILED TO ABORT
          . =RETURN

FOC: 014264          CMP      #KPTR-4, KSP ;CHECK STACK PTR
014264 022706 001054          BEQ      .+4 ;AFTER ABORT
014270 001401          HLT          ;ERROR! INCORRECT STACK PTR
014272 000000          CMP      #PLA+SPG+VS2+1, SRO ;CHECK SRO (ABORT CONDITIONS
014274 022767 040045 163270  BEQ      .+4 ;& FAILING PAGE #)
014302 001401          HLT          ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
014304 000000          CMP      #0, SR1 ;CHECK SR1 (REGISTER CHANGES)
014306 022767 000000 163260  BEQ      .+4
014314 001401          HLT          ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
014316 000000          CMP      #SI2+100, SR2 ;CHECK CONTENTS OF SR2
014320 022767 040100 163250  BEQ      .+4 ;(PC OF ABORTED INSTRUCTION)
014326 001401          HLT          ;ERROR! INCORRECT PC IN SR2
014330 000000          CLR      @#SRO ;DISABLE MEMORY MGMT
014332 005037 177572          CMPF    #2, AC1
014336 173527 040400          CFCC
014342 170000          BEQ      .+4
014344 001401

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014346 000000          HLT          ;ERROR! FOP DID NOT COMPLETE.
014350 104000          SCOPE         ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;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, ACO
014372 174037 017200          STF      ACO, @#PUIS
014376 012703 120000          MOV      #UIS, R3
014402 005237 177572          INC      @#SR0 ;ENABLE MEMORY MGMT
014406 172023          F1A: ADDF    (3)+, ACO ;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 000043 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, ACO ;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 PTRS

;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, ACO ;PRESET ACO
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)+, ACO ;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      ACO, TEMP ;PUT ACO IN TEMP

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014602 173427 040200      CMPD      #1,ACD      ;CHECK THAT ACD WAS NOT CHANGED
014606 170000      CFCC      ;COPY FLOATING CC'S INTO PSW
014610 001401      BEQ      .+4
014612 000000      HLT
014614 104000      SCOPE      ;ERROR! ACD WAS ALTERED
                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;AUTO INCREMENT SECOND DATA WORD
014616 012767 170000 163152  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)+,ACD ;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
014700 022767 014646 162670  CMP      #F3A,SR2 ;CHECK CONTENTS OF SR2
014706 001401      BEQ      .+4      ; (PC OF ABORTED INSTRUCTION)
014710 000000      HLT      ;ERROR! INCORRECT PC IN SR2
014712 022704 100106      CMP      #UD4+106,R4 ;CHECK AUTO INC
014716 001401      BEQ      .+4
014720 000000      HLT      ;ERROR! R4 NOT AUTO-INC TWICE
014722 170200      STFPS   RO      ;STORE FPS IN RO
014724 022700 000200      CMP      #200,RO ;CHECK FP STATUS AFTER ABORT
014730 001401      BEQ      .+4
014732 000000      HLT      ;ERROR! INCORRECT FPS AFTER ABORT
014734 174067 164044      STF      ACD,TEMP ;PUT ACD IN TEMP
014740 173427 040200      CMPD    #1,ACD ;CHECK THAT ACD WAS NOT CHANGED
014744 170000      CFCC    ;COPY FLOATING CC'S INTO PSW
014746 001401      BEQ      .+4
014750 000000      HLT
014752 104000      SCOPE ;ERROR! ACD WAS ALTERED
                                ;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      #KDD-4,R2
014772 005237 177572      INC      @#SR0      ;ENABLE MEMORY MGMT
014776 171022      F4A:    MULD   (R2)+,ACD ;ABORTS WHEN THIRD DATA IS FETCHED
015000 000000      HLT      ;ERROR! FAILED TO ABORT
015002      F4C:
015002 022767 040021 162562  CMP      #PLA+KPG+DS+VSO+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

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015300 000240
015302 022767 040061 162262
015310 001401
015312 000000
015314 022767 000303 162252
015322 001401
015324 000000
015326 022767 015274 162242
015334 001401
015336 000000
015340 005037 177572
015344 022703 017770
015350 001401
015352 000000
015354 170200
015356 022700 000200
015362 001401
015364 000000
015366 174067 163412
015372 173427 040200
015376 170000
015400 001401
015402 000000
015404 104000

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F6C:
NUP
CMP #PLA+SPG+DS+VSD+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
BEQ .+4 ;& FAILING PAGE #)
HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
CMP #SM8+R3,SR1 ;CHECK SR1 (REGISTER CHANGES)
BEQ .+4
HLT ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
CMP #F6A,SR2 ;CHECK CONTENTS OF SR2
BEQ .+4 ;(PC OF ABORTED INSTRUCTION)
HLT ;ERROR! INCORRECT PC IN SR2
CLR @#SR0 ;DISABLE MEMORY MGMT
CMP #SD1-8.,R3 ;CHECK AUTO-DEC
BEQ .+4
HLT ;ERROR! R3 NOT AUTO-DEC
STFPS R0 ;STORE FPS IN R0
CMP #200,R0 ;CHECK FP STATUS AFTER ABORT
BEQ .+4
HLT ;ERROR! INCORRECT FPS AFTER ABORT
STF ACO,TEMP ;PUT ACO IN TEMP
CMPD #1,ACO ;CHECK THAT ACO WAS NOT CHANGED
CFCC ;COPY FLOATING CC'S INTO PSW
BEQ .+4
HLT ;ERROR! ACO WAS ALTERED
SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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015406 012767 170000 162362
015414 012737 015444 000250
015422 170127 000200
015426 012704 100002
015432 005237 177572
015436 177444
015440 000000
015442 000240
015444
015444 022767 140167 162120
015452 001401
015454 000000
015456 022767 000344 162110
015464 001401
015466 000000
015470 022767 015436 162100
015476 001401
015500 000000
015502 022704 077776
015506 001401
015510 000000
015512 174067 163266
015516 173427 040200
015522 170000
015524 001401
015526 000000
015530 104000

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;AUTO DECREMENT SECOND DATA WORD
MOV #UM+PUM,PSW ;USER MODE!!!,PREV USER MODE!!
MOV #F7C,@#MVEC ;LOAD MEM MGMT ERROR VECTOR
LDFPS #200
MOV #UD4+2,R4
INC @#SR0
F7A: LDCFD -(R4),ACO ;ENABLE MEMORY MGMT
HLT ;ABORTS WHEN SECOND DATA WORD IS FETCHED
NOP ;ERROR! FAILED TO ABORT
F7C:
CMP #NRA+PLA+UPG+DS+VS3+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
BEQ .+4 ;& FAILING PAGE #)
HLT ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
CMP #SM4+R4,SR1 ;CHECK SR1 (REGISTER CHANGES)
BEQ .+4
HLT ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
CMP #F7A,SR2 ;CHECK CONTENTS OF SR2
BEQ .+4 ;(PC OF ABORTED INSTRUCTION)
HLT ;ERROR! INCORRECT PC IN SR2
CMP #UD4-2,R4 ;CHECK AUTO-DEC TWICE
BEQ .+4
HLT ;ERROR! R4 NOT AUTO-DEC TWICE
STF ACO,TEMP ;PUT ACO IN TEMP
CMPD #1,ACO ;CHECK THAT ACO WAS NOT CHANGED
CFCC ;COPY FLOATING CC'S INTO PSW
BEQ .+4
HLT ;ERROR! ACO WAS ALTERED
SCOPE ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

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;AUTO DECREMENT THIRD DATA WORD


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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), ACO
015556 000000              HLT
015560 000240              NOP
015562              F10C:
015562 022767 140033 162002      CMP      #NRA+PLA+KPG+DS+VSS+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      #SMB+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   RO                    ;STORE FPS IN RO
015632 022700 000200      CMP      #200, RO             ;CHECK FP STATUS AFTER ABORT
015636 001401              BEQ      .+4
015640 000000              HLT      ;ERROR! INCORRECT FPS AFTER ABORT
015642 174067 163136      STF      ACO, TEMP            ;PUT ACO IN TEMP
015646 173427 040200      CMPD    #1, ACO              ;CHECK THAT ACO WAS NOT CHANGED
015652 170000              CFCC
015654 001401              BEQ      .+4                  ;COPY FLOATING CC'S INTO PSW
015656 000000              HLT      ;ERROR! ACO WAS ALTERED
015660 104000              SCOPE   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;AUTO DECREMENT FOURTH WORD
015662 012767 070000 162106      MOV      #SM+PUM, PSW        ;SUPER MODE!!!, PREV USER MODE!!
015670 012737 015720 000250      MOV      #F11C, @MMVEC      ;LOAD MEM MGMT ERROR VECTOR
015676 170127 000200              LDFPS   #200
015702 012700 020006              MOV      #SD1+6, RO
015706 005237 177572              INC      @SR0              ;ENABLE MEMORY MGMT
015712 171440              F11A:   MODD    -(RO), ACO
015714 000000              HLT
015716 000240              NOP
015720              F11C:
015720 022767 040061 161644      CMP      #PLA+SPG+DS+VSO+1, SR0      ;CHECK SR0 (ABORT CONDITIONS
015726 001401              BEQ      .+4                  ;& FAILING PAGE #)
015730 000000              HLT      ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
015732 022767 000300 161634      CMP      #SMB+RO, SR1          ;CHECK SR1 (REGISTER CHANGES)
015740 001401              BEQ      .+4
015742 000000              HLT      ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
015744 022767 015712 161624      CMP      #F11A, SR2           ;CHECK CONTENTS OF SR2
015752 001401              BEQ      .+4                  ;(PC OF ABORTED INSTRUCTION)
015754 000000              HLT      ;ERROR! INCORRECT PC IN SR2
015756 005037 177572      CLR      @SR0                ;DISABLE MEMORY MGMT
015762 022700 017776      CMP      #SD1-2, RO          ;CHECK AUTO-DEC 4 TIMES
015766 001401              BEQ      .+4
015770 000000              HLT      ;ERROR! RO NOT AUTO-DEC 4 TIMES
015772 170200              STFPS   RO                    ;STORE FPS IN RO
015774 022700 000200      CMP      #200, RO             ;CHECK FP STATUS AFTER ABORT

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016000 001401          BEQ      .+4
016002 000000          HLT
016004 174067 162774  STF      ACO,TEMP      ;ERROR! INCORRECT FPS AFTER ABORT
016010 173427 040200  CMPD    #1,ACO          ;PUT ACO IN TEMP
016014 170000          CFCC
016016 001401          BEQ      .+4          ;CHECK THAT ACO WAS NOT CHANGED
016020 000000          HLT
016022 104000          SCOPE      ;COPY FLOATING CC'S INTO PSW
                                ;ERROR! ACO WAS ALTERED
                                ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

;CHECK ABORT AT FET.09
;ABORTS WHEN INST FOLLOWING MODD IS FETCHED
016024 012767 070000 161744  MOV     #SM+PUM,PSW      ;SUPER MODE!!!,PREV USER MODE!!
016032 012737 016074 000250  MOV     #F12C,3#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
016040 170127 000200          LDFPS  #200
016044 012702 017100          MOV     #PSI2+100,R2
016050 005012          CLR     (R2)
016052 012742          MOV     (7)+,-(R2)
016054 171443          MODD   -(R3),ACO
016056 005237 177572          INC     3#SR0          ;ENABLE MEMORY MGMT
016062 012703 020000          MOV     #SD1,R3
016066 174023          STD     ACO,(R3)+
016070 000137 040076          JMP     3#SI2+76      ;GO EXECUTE MODD INST
                                RETURN=
                                .=PSI2+76
017076 171443          F12A: MODD   -(R3),ACO
017100 000000          HLT
                                .=RETURN
                                ;ABORTS AT FET.09 WHEN FETCHED

016074 022767 040045 161470  F12C: CMP     #PLA+SPG+IS+VS2+1,SR0 ;CHECK SR0 (ABORT CONDITIONS
016102 001401          BEQ     .+4          ;& FAILING PAGE #)
016104 000000          HLT
                                ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
016106 022767 000000 161460  CMP     #0,SR1 ;CHECK SR1 (REGISTER CHANGES)
016114 001401          BEQ     .+4
016116 000000          HLT
                                ;ERROR! INCORRECT REGISTER CHANGES RECORDED IN SR1
016120 022767 040100 161450  CMP     #SI2+100,SR2   ;CHECK CONTENTS OF SR2
016126 001401          BEQ     .+4          ;(PC OF ABORTED INSTRUCTION)
016130 000000          HLT
                                ;ERROR! INCORRECT PC IN SR2
016132 022703 020000          CMP     #SD1,R3
016136 001401          BEQ     .+4          ;CHECK THAT R3 WAS DECREMENTED BY 8.
016140 000000          HLT
                                ;ERROR! R0 NOT DECREMENTED PROPERLY
016142 170200          STFPS  R0
                                ;STORE FPS IN R0
016144 022700 000204          CMP     #204,R0
                                ;CHECK FP STATUS AFTER ABORT
016150 001401          BEQ     .+4
016152 000000          HLT
                                ;ERROR! INCORRECT FPS AFTER ABORT
016154 174067 162624          STF     ACO,TEMP      ;PUT ACO IN TEMP
016160 173427 000000          CMPD    #0,ACO
                                ;CHECK THAT ACO WAS NOT CHANGED
016164 170000          CFCC
                                ;COPY FLOATING CC'S INTO PSW
016166 001401          BEQ     .+4
016170 000000          HLT
                                ;ERROR! ACO WAS ALTERED
016172 174167 162606          STF     AC1,TEMP     ;PUT AC1 IN TEMP
016176 173527 040200          CMPD    #1,AC1
                                ;CHECK THAT AC1 WAS NOT CHANGED
016202 170000          CFCC
                                ;COPY FLOATING CC'S INTO PSW
016204 001401          BEQ     .+4
016206 000000          HLT
                                ;ERROR! AC1 WAS ALTERED
016210 104000          SCOPE

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;CHECK RELATIONSHIP BETWEEN MEM MGMT ABORT AND FLOATING POINT EXCEPT-
;ION INTERRUPT.

016212	012737	016266	000250		MOV	#F13C, @#MMVEC	;LOAD MEM MGMT ERROR VECTOR
016220	012737	016346	000244		MOV	#F13D, @#FPVEC	;LOAD FP INTERRUPT VECTOR
016226	012700	001004			MOV	#TEMP, R0	
016232	005020				CLR	(R0)+	;LOAD TEMP
016234	005020				CLR	(R0)+	;AND TEMP+2
016236	170127	007400			LDFPS	#7400	;ENABLE INTERRUPTS (FP)
016242	172440				LDF	-(R0), ACO	
016244	012702	016676			MOV	#KIO-2, R2	
016250	012722				MOV	(PC)+, (R2)+	;LOAD INSTRUCTION
016252	174410				DIVF	(R0), ACO	
016254	005012				CLR	(R2)	;HALT FOLLOWS MULF
016256	005237	177572			INC	@#SRO	;ENABLE MEMORY MGMT
016262	000137	016676			JMP	@#KIO-2	;GO EXECUTE MULF
	016266				RETURN=.		
	016676				.=KIO-2		
016676	174410				DIVF	(R0), ACO	;WILL INTERRUPT
016700	000000			F13A:	HALT		;ABORTS WHEN THIS INST IS FETCHED
	016266				.=RETURN		
016266				F13C:			
016266	022767	040001	161276		CMP	#PLA+KPG+IS+VSO+1, SRO	;CHECK SRO (ABORT CONDITIONS
016274	001401				BEQ	.+4	; & FAILING PAGE #)
016276	000000				HLT		;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
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	005702				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	TPB	
016432	100375				BPL	-.4	
016434	013702	000042			MOV	@#42, %2	;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
016446 000240
016450 000240
016452 000167 162432
000001

NOP
NOP
NOP
DONE1: JMP START
.END

:ACT11
:OVERLAY
:AREA

IS = 000000	305#	1104	1136	1176	1330	1419	1795	1833	2263	2303	2337	2370	2403
KDE = 000004	2437	2528	2598	3055	3104								
KDPAR0= 172360	353#	573											
KDPAR1= 172362	460#	602*											
KDPAR2= 172364	461#												
KDPAR3= 172366	462#												
KDPAR4= 172370	463#												
KDPAR5= 172372	464#												
KDPAR6= 172374	465#												
KDPAR7= 172376	466#	603*											
KDPDR0= 172320	467#	604*											
KDPDR1= 172322	442#	589*	1994	1995*	2025*	2033	2034*	2070*					
KDPDR2= 172324	443#												
KDPDR3= 172326	444#												
KDPDR4= 172330	445#												
KDPDR5= 172332	446#												
KDPDR6= 172334	447#												
KDPDR7= 172336	448#	590*	2454*	2505*									
K00 = 001100	449#	591*											
K06 = 140000	485#	1351	1352*	1368	1371*	2845	2859						
	487#	900	916	1122	1145	1280	1312	1526	1546	1649	1667	2459*	2486*
	2512	2534	2973	2988									
KIPAR0= 172340	451#	601*											
KIPAR1= 172342	452#												
KIPAR2= 172344	453#												
KIPAR3= 172346	454#												
KIPAR4= 172350	455#												
KIPAR5= 172352	456#												
KIPAR6= 172354	457#												
KIPAR7= 172356	458#												
KIPDR0= 172300	433#	588*											
KIPDR1= 172302	434#												
KIPDR2= 172304	435#												
KIPDR3= 172306	436#												
KIPDR4= 172310	437#												
KIPDR5= 172312	438#												
KIPDR6= 172314	439#												
KIPDR7= 172316	440#												
KIO = 016700	486#	627	659	680	689	710	832	855	879	901	1048*	1050*	1052
	1055	1084*	1085*	1086*	1089	1092	1123*	1124*	1126	1129	1153*	1154*	1155*
	1159	1162	1194*	1195*	1199	1201	1282*	1283*	1287	1289	1468	1485	1488
	1497	1517	1527	1543	2253*	2254*	2256	2258	2323	2332	2354	2363	2387
	2398	2423	2432	3092	3097	3099							
KM = 000000	247#	1227	1648	1941	1980	2021	2044	2582	2639	2650			
KPG = 000000	308#	2010	2053	2263	2337	2370	2403	2437	2462	2489	2528	2850	2979
	3104												
KPTR = 001060	281#	541	569	636	667	728	768	805	963	1024	1062	1098	1170
	1208	1235	1262	1655	1716	1789	1792	1830	1891	1923	1962	2004	2047
	2089	2228	2297	2300	2597	2731							
KSP = %000006	234#	530*	531	533*	540	541*	542*	543*	544*	545*	569*	636	639
	667	697	728	731	768	805	821	932	963	966	979	1007	1024
	1040	1062	1098	1101	1170	1173	1208	1211	1235	1262	1296	1340	1429
	1460	1505	1581	1655	1716	1729	1789	1871	1891	1904	1923	1926	1943
	1962	1965	1968	1982	2004	2007	2047	2050	2064	2089	2127	2228	2241
	2297	2471	2498	2569	2572	2585*	2591	2597*	2614*	2615*	2630	2641*	2642*
	2643*	2646*	2656	2662	2689	2731							

SDPAR2=	172264	426#																			
SDPAR3=	172266	427#																			
SDPAR4=	172270	428#																			
SDPAR5=	172272	429#																			
SDPAR6=	172274	430#																			
SDPAR7=	172276	431#																			
SDPDR0=	172220	406#	593*																		
SDPDR1=	172222	407#	594*																		
SDPDR2=	172224	408#	744	747*																	
SDPDR3=	172226	409#																			
SDPDR4=	172230	410#																			
SDPDR5=	172232	411#																			
SDPDR6=	172234	412#																			
SDPDR7=	172236	413#																			
SD1 =	320000	489#	928	1383	1402	1412	1432	1952	1982	2548	2786	2911	2927	3006							
		3022	3046	3064																	
SHLT	000400	511	529#	2607																	
SHLTA	000430	532	535#																		
SIPAR0=	172240	415#	607*																		
SIPAR1=	172242	416#																			
SIPAR2=	172244	417#	609*																		
SIPAR3=	172246	418#																			
SIPAR4=	172250	419#																			
SIPAR5=	172252	420#																			
SIPAR6=	172254	421#																			
SIPAR7=	172256	422#																			
SIPDR0=	172200	397#	582	592*																	
SIPDR1=	172202	398#																			
SIPDR2=	172204	399#	595*																		
SIPDR3=	172206	400#																			
SIPDR4=	172210	401#																			
SIPDR5=	172212	402#																			
SIPDR6=	172214	403#																			
SIPDR7=	172216	404#																			
SI2 =	040000	488#	720	748	751	797	821	925	945	954	979	1015	1040	1229							
		1247	1379	1399	1561	1577	1594	1609	1680	1694	1824	1839	2079	2098							
		2138	2152	2194	2207	2218	2237	2290	2309	2588	2721	2740	3048	3061							
SLR =	177774	270#	571*																		
SM =	040000	248#	719	731	795	924	932	953	966	1014	1256	1322	1384	1409							
		1440	1555	1589	1678	1815	1882	1912	1914	1951	1954	1993	2076	2078							
		2132	2186	2214	2287	2546	2547	2614	2630	2710	2782	2908	3003	3038							
SM1 =	000370	331#	1393	1537																	
SM2 =	000360	332#	737	774	910	1722	1864	1897	1932	1974	2563										
SM4 =	000340	333#	2954																		
SM6 =	000320	334#																			
SM8 =	000300	335#	2920	2982	3015																
SP =	%000006	216#	811	972	1000	1030	1333	1422	1453	1574	1661	1758	1864	1897							
		1932	1974	2563																	
SPG =	000040	307#	734	808	935	969	1027	1238	1265	1390	1419	1571	1603	1688							
		1833	1894	1929	1971	2092	2146	2201	2231	2303	2560	2598	2621	2653							
		2734	2793	2917	3012	3055															
SPTR =	000700	282#	544	1323	1340	1410	1429	1460	1556	1581	2077	2241	2244								
SRO =	177572	356#	529*	539*	577*	630*	642	662*	670	691*	700	722*	734	763*							
		771	800*	808	831*	836	854*	859	878*	883	902*	907	926*	935							
		944*	956*	969	991*	997	1018*	1027	1051*	1065	1087*	1104	1125*	1136							
		1157*	1176	1196*	1214	1230*	1238	1255	1257*	1265	1284*	1299	1308*	1325*							

		1330	1353*	1358	1367*	1385*	1390	1414*	1419	1444*	1450	1471*	1476	1499*
		1508	1529*	1534	1560*	1571	1593*	1603	1622*	1631	1651*	1658	1679*	1688
		1707*	1719	1746*	1755	1764*	1779*	1795	1822*	1833	1855*	1861	1885*	1894
		1917*	1929	1956*	1971	1998*	2010	2019*	2037*	2053	2062*	2081*	2092	2108*
		2117	2137*	2146	2165*	2173	2193*	2201	2220*	2231	2255*	2263	2288*	2303
		2329*	2337	2360*	2370	2394*	2403	2429*	2437	2457*	2462	2474*	2484*	2489
		2501*	2516*	2528	2552*	2560	2587*	2598	2613*	2621	2644*	2653	2671*	2680
		2720*	2734	2743*	2756*	2764	2788*	2793	2814*	2819	2846*	2850	2862*	2879*
		2884	2912*	2917	2926*	2946*	2951	2974*	2979	3007*	3012	3021*	3045*	3055
		3096*	3104											
SRDT	= 001002	559#												
SR1	= 177574	357#	645	673	703	737	774	811	839	862	886	910	938	972
		1000	1030	1068	1107	1139	1179	1217	1241	1268	1302	1333	1361	1393
		1422	1453	1479	1511	1537	1574	1606	1634	1661	1691	1722	1758	1798
		1836	1864	1897	1932	1974	2013	2056	2095	2120	2149	2176	2204	2234
		2266	2306	2340	2373	2406	2440	2465	2492	2531	2563	2601	2624	2656
SR2	= 177576	2683	2737	2767	2796	2822	2853	2887	2920	2954	2982	3015	3058	3107
		358#	648	676	706	740	777	814	842	865	889	913	941	975
		1003	1033	1071	1110	1142	1182	1220	1244	1271	1305	1336	1364	1396
		1425	1456	1482	1514	1540	1577	1609	1637	1664	1694	1725	1761	1801
		1839	1867	1900	1935	1977	2016	2059	2098	2123	2152	2179	2207	2237
		2269	2309	2343	2376	2409	2443	2468	2495	2534	2566	2604	2627	2659
		2686	2740	2770	2799	2825	2856	2890	2923	2957	2985	3018	3061	3110
SR3	= 172516	359#	573*											
SSP	= %000006	235#	549*	797*	820	954*	978	1015*	1039	1323*	1324*	1339	1410*	1411*
		1428	1441*	1442*	1445*	1459	1556*	1557*	1580	1883*	1887	1903	1915*	1942
		1952*	1981	2077*	2078*	2079*	2216*	2221	2240	2548*				
		525	566#	3142										
START	001110	2701	2703#											
STFP	014204	277#	550	552										
SWR	= 177570	326#	673	1361										
S1	= 000010	327#	703	811	886	972	1000	1030	1241	1333	1422	1453	1479	1511
S2	= 000020	1574	1606	1634	1661	1691	1758	2465	2492	2601	2624	2656	2683	
S4	= 000040	328#	2767											
S6	= 000060	329#												
S8	= 000100	330#	2796	2822	2853	2887								
T	= 000020	243#	2553	2569										
TBITVE	= 000014	258#	2545*	2546*	2566	2577*	2578*							
TE	= 001000	311#												
TEMP	= 001004	560#	1817	1842	1854*	1856	1994*	2025	2033*	2070	2327	2391	2415	2427
		2446	2802*	2835*	2867*	2900*	2934*	2963*	2995*	3029*	3071*	3076*	3087	
TKB	= 177562	274#												
TKS	= 177560	273#												
TPB	= 177566	276#	3133*											
TPS	= 177564	275#	3134											
TPVEC	= 000064	263#												
TRAPVE	= 000034	262#												
TO	001414	624#												
TOA	001444	632#	648											
TOB	001446	633#												
TOC	001450	625	635#											
T1A	001562	663#	676											
T1B	001564	664#												
T1C	001566	658	666#											
T10A	002646	879#	889											
T10B	002652	880#												

T10C	002654	876	882#	
T100A	013460	2588#	2604	
T100B	013466	2583	2590#	2594
T100C	013470	2584	2591#	
T102A	013610	2617#	2627	
T102C	013616	2611	2620#	
T103A	013734	2646#	2659	
T103C	013740	2640	2649#	
T104A	014062	2673#		
T104B	014066	2674#	2686	
T104C	014076	2670	2679#	
T11A	002746	903#	913	
T11B	002750	904#		
T11C	002752	899	906#	
T12A	003052	928#	941	
T12B	003060	929#		
T12C	003062	923	931#	
T13A	003206	958#	975	
T13B	003210	959#		
T13C	003214	952	962#	
T13D	003212	955	960#	
T14A	003346	992#	1003	
T14B	003350	993#		
T14C	003354	986	996#	
T14D	003352	989	994#	
T16A	003456	1019#	1033	
T16B	003460	1020#		
T16C	003464	1016	1023#	
T16D	003462	1017	1021#	1036
T17A	016676	1056#	1071	
T17B	016700	1057#		
T17C	003614	1047	1061#	
T17D	003612	1049	1060#	1074
T2A	001676	693#	706	
T2B	001700	694#		
T2C	001702	688	696#	
T20A	016676	1093#	1110	
T20B	016702	1094#		
T20C	003736	1082	1097#	
T21A	016676	1130#	1142	
T21B	016702	1131#		
T21C	004070	1120	1135#	
T22	016674	1163#		
T22A	016676	1164#		
T22AA	016700	1165#	1182	
T22B	016702	1166#		
T22C	004202	1156	1169#	
T23A	016676	1202#		
T23AA	016700	1203#	1220	
T23B	016702	1204#		
T23C	004334	1193	1207#	
T24A	004442	1231#	1244	
T24B	004444	1232#		
T24C	004446	1228	1234#	
T25A	004552	1258#	1271	
T25B	004554	1259#		

T25C	004556	1254	1261#	
T26A	016676	1290#		
T26AA	016700	1291#	1305	
T26B	016702	1292#		
T26C	004676	1278	1295#	
T27A	005026	1326#	1336	
T27B	005030	1327#		
T27C	005032	1320	1329#	
T3A	002022	724#	740	
T3B	002024	725#		
T3C	002026	718	727#	
T30A	005140	1354#	1364	
T30C	005144	1350	1357#	
T31A	005274	1386#	1396	
T31B	005276	1387#		
T31C	005300	1378	1389#	
T32A	005416	1415#	1425	
T32B	005420	1416#		
T32C	005422	1408	1418#	
T33A	005540	1445#	1456	
T33B	005542	1447#		
T33C	005544	1439	1449#	
T34A	005642	1472#	1482	
T34B	005644	1473#		
T34C	005646	1467	1475#	
T35A	005752	1501#	1514	
T35B	005756	1502#		
T35C	005760	1496	1504#	
T36A	006070	1530#	1540	
T36B	006072	1531#		
T36C	006074	1525	1533#	
T37A	017076	1564#		
T37B	017102	1566#		
T37C	006220	1554	1570#	
T4A	002204	764#	777	
T4B	002206	765#		
T4C	002210	758	767#	
T40A	017074	1597#		
T40B	017102	1599#		
T40C	006340	1588	1602#	
T41A	017200	1626#		
T41B	017202	1627#		
T41C	006446	1616	1630#	
T42A	006550	1652#	1664	
T42B	006552	1653#		
T42C	006554	1647	1655#	
T43A	017076	1683#		
T43B	017102	1684#		
T43C	006702	1674	1687#	
T43D	006700	1676	1683	1686#
T44A	017200	1711#		
T44B	017202	1712#		
T44C	007012	1701	1715#	
T45A	017200	1750#		
T45B	017204	1751#		
T45C	007156	1739	1754#	

T46A	017300	1784#	
T46B	017302	1785#	
T46C	007302	1772	1788#
T47A	017100	1828#	
T47C	007454	1814	1830#
T5A	002354	801#	814
T5B	002356	802#	
T5C	002360	796	804#
T50A	007574	1856#	1867
T50B	007600	1857#	
T50C	007604	1849	1860#
T50D	007602	1854	1858#
T51A	007716	1887#	1900
T51B	007722	1888#	
T51C	007724	1881	1890#
T52A	010052	1918#	1935
T52B	010054	1919#	
T52C	010060	1911	1922#
T52D	010056	1913	1920#
T53A	010242	1957#	1977
T53B	010244	1958#	1965
T53C	010250	1950	1961#
T53D	010246	1953	1959#
T54A	010444	1999#	2016
T54B	010450	1992	2002#
T54C	010452	1991	2003#
T55A	010640	2039#	
T55B	010644	2031	2042#
T55C	010646	2030	2043#
T56A	017100	2085#	
T56C	011050	2075	2088#
T57A	017300	2113#	
T57C	011156	2104	2116#
T6A	002466	832#	842
T6B	002472	833#	
T6C	002474	829	835#
T60A	017076	2141#	
T60C	011270	2133	2145#
T61A	017300	2170#	
T61C	011400	2159	2172#
T62A	017100	2198#	
T62C	011510	2187	2200#
T63A	017100	2219#	2224#
T63C	011606	2215	2227#
T64A	016676	2259#	
T64B	016700	2260#	2269
T64C	011734	2251	2262#
T65A	017076	2293#	
T65C	012054	2279	2296#
T66A	016676	2333#	
T66B	016700	2334#	2343
T66C	012212	2322	2336#
T67A	016676	2364#	
T67B	016700	2365#	2376
T67C	012320	2353	2367#
T7A	002556	855#	865

T7B	002562	856#																			
T7C	002564	852	858#																		
T70A	016676	2399#																			
T70B	016700	2400#	2409																		
T70C	012446	2386	2402#																		
T71A	016676	2433#																			
T71B	016700	2434#	2443																		
T71C	012560	2422	2436#																		
T72A	012656	2459#	2468																		
T72C	012662	2453	2461#																		
T73A	012770	2486#	2495																		
T73C	012774	2482	2488#																		
T75A	013144	2519#																			
T75B	016700	2524#																			
T75C	013152	2509	2527#																		
T76A	013320	2557#	2572																		
T76C	013322	2544	2559#																		
T76D	013404	2545	2576#																		
T76EX	013406	2575	2577#																		
UBREAK=	177770	272#	552#																		
UOE =	000001	351#	573																		
UDPAR0=	177660	388#	613#																		
UDPAR1=	177662	389#																			
UDPAR2=	177664	390#																			
UDPAR3=	177666	391#																			
UDPAR4=	177670	392#	615#																		
UDPAR5=	177672	393#																			
UDPAR6=	177674	394#																			
UDPAR7=	177676	395#	2669#	2674																	
UDPDR0=	177620	370#	597#																		
UDPDR1=	177622	371#																			
UDPDR2=	177624	372#																			
UDPDR3=	177626	373#																			
UDPDR4=	177630	374#	598#																		
UDPDR5=	177632	375#	781	784#																	
UDPDR6=	177634	376#																			
UDPDR7=	177636	377#	2668#	2673	2674#	2692	2695#														
UD4 =	100000	491#	988	1007	1321	1343	1618	1619	1640	1851	1871	2813	2828	2878							
		2893	2945	2960																	
UIPAR0=	177640	379#	612#																		
UIPAR1=	177642	380#																			
UIPAR2=	177644	381#																			
UIPAR3=	177646	382#																			
UIPAR4=	177650	383#																			
UIPAR5=	177652	384#	614#																		
UIPAR6=	177654	385#																			
UIPAR7=	177656	386#																			
UIPDR0=	177600	361#	578	596#																	
UIPDR1=	177602	362#																			
UIPDR2=	177604	363#																			
UIPDR3=	177606	364#																			
UIPDR4=	177610	365#																			
UIPDR5=	177612	366#	599#	1750#	1765																
UIPDR6=	177614	367#																			
UIPDR7=	177616	368#																			
UIS =	120000	490#	760	785	788	1441	1623	1637	1704	1708	1725	1732	1747	1750#							

UM	= 140000	1761	1780	1801	1884	2109	2123	2166	2179	2755				
		249#	759	987	1617	1702	1740	1775	1850	1916	1926	1955	1968	1997
UP	= 000000	2007	2036	2050	2105	2158	2549	2569	2672	2689	2752	2810	2875	2942
		320#	588	589	590	591	592	593	594	595	596	597	598	599
UPG	= 000140	2668												
		306#	771	997	1330	1450	1631	1719	1755	1795	1661	2117	2173	2680
UPTR	= 000600	2764	2819	2884	2951									
USP	= %000006	283#	545	1703	1729	1741	2064	2127						
		236#	547*	988*	1006	1703*	1728	1741*	1742*	1750	1851*	1870	2063	2126
V	= 000002	2551*	2553*	2554*										
VSC	= 000000	240#	1792											
		296#	642	670	700	836	907	1065	1104	1136	1176	1971	2010	2053
VS1	= 000002	2263	2337	2370	2403	2437	2560	2850	2917	3012	3104			
VS2	= 000004	297#	1419	2793										
		298#	734	808	935	969	1027	1238	1390	1571	1603	1688	1833	2092
VS3	= 000006	2146	2201	2231	2303	2598	2734	3055						
VS4	= 000010	299#	1861	2951										
VS5	= 000012	300#	997	1330	1631	2819	2884							
VS6	= 000014	301#	771	1450	1719	1795	2117	2173	2764	2979				
VS7	= 000016	302#	1658	2462	2489	2528								
M	= 000100	303#	1265	1755	1894	1929	2621	2653	2680					
Z	= 000004	323#	744	747	781	784								
.	= 016456	241#	1296	1792	2662									
		509#	510#	512#	514#	516#	519#	524#	527#	556#	560	561#	564#	581
		585	637	640	643	646	649	652	668	671	674	677	681	698
		701	704	707	711	729	732	735	738	741	745	749	752	769
		772	775	778	782	786	789	806	809	812	815	818	822	837
		840	843	846	860	863	866	869	884	887	890	893	908	911
		914	917	933	936	939	942	946	964	967	970	973	976	980
		998	1001	1004	1008	1025	1028	1031	1034	1037	1041	1053	1055#	1059#
		1063	1066	1069	1072	1075	1090	1092#	1093	1096#	1099	1102	1105	1108
		1111	1114	1127	1129#	1132#	1137	1140	1143	1146	1161	1162#	1164	1167#
		1171	1174	1177	1180	1183	1186	1200	1201#	1205#	1209	1212	1215	1218
		1221	1236	1239	1242	1245	1248	1263	1266	1269	1272	1288	1289#	1293#
		1297	1300	1303	1306	1310	1313	1331	1334	1337	1341	1344	1359	1362
		1365	1369	1372	1391	1394	1397	1400	1403	1420	1423	1426	1430	1433
		1451	1454	1457	1461	1477	1480	1483	1486	1489	1506	1509	1512	1515
		1518	1535	1538	1541	1544	1547	1562	1563#	1564*	1568#	1572	1575	1578
		1582	1595	1596#	1597*	1600#	1604	1607	1610	1624	1625#	1628#	1632	1635
		1638	1641	1656	1659	1662	1665	1668	1681	1682#	1685#	1689	1692	1695
		1709	1710#	1713#	1717	1720	1723	1726	1730	1733	1748	1749#	1752#	1756
		1759	1762	1766	1781	1782#	1787#	1790	1793	1796	1799	1802	1805	1808
		1825	1826#	1829#	1831	1834	1837	1840	1843	1862	1865	1868	1872	1875
		1892	1895	1898	1901	1905	1924	1927	1930	1933	1936	1939	1944	1963
		1966	1969	1972	1975	1978	1983	2005	2008	2011	2014	2017	2022	2045
		2048	2051	2054	2057	2060	2065	2068	2083	2084#	2086#	2090	2093	2096
		2099	2110	2111#	2114#	2118	2121	2124	2128	2139	2140#	2143#	2147	2150
		2153	2167	2168#	2171#	2174	2177	2180	2195	2196#	2199#	2202	2205	2208
		2222	2223#	2225#	2229	2232	2235	2238	2242	2245	2257	2258#	2261#	2264
		2267	2270	2273	2291	2292#	2295#	2298	2301	2304	2307	2310	2313	2316
		2331	2332#	2335#	2338	2341	2344	2347	2362	2363#	2366#	2368	2371	2374
		2377	2380	2397	2398#	2401#	2404	2407	2410	2413	2416	2431	2432#	2435#
		2438	2441	2444	2447	2463	2466	2469	2472	2476	2490	2493	2496	2499
		2503	2519	2522	2523#	2526#	2529	2532	2535	2554	2561	2564	2567	2570
		2573	2592	2595	2599	2602	2605	2615	2622	2625	2628	2631	2634	2651
		2654	2657	2660	2663	2681	2684	2687	2690	2693	2722	2723#	2728#	2732

2735	2738	2741	2746	2765	2768	2771	2775	2794	2797	2800	2805	2820
2823	2826	2829	2833	2838	2851	2854	2857	2860	2865	2870	2885	2888
2891	2894	2898	2903	2918	2921	2924	2928	2932	2937	2952	2955	2958
2961	2966	2980	2983	2986	2989	2993	2998	3013	3016	3019	3023	3027
3032	3049	3050#	3053#	3056	3059	3062	3065	3069	3074	3079	3098	3099#
3102#	3105	3108	3111	3114	3118	3135						

ADC	2459																	
ADD	533	724	855															
ADDD	2815																	
ADDF	2715	2717	2725	2726	2757													
ASH	1472	2357	2364	2390	2399													
ASHC	1784	1827	2283	2293														
ASR	548																	
BEQ	532	551	637	640	643	646	649	652	668	671	674	677	681	698	701			
	704	707	711	729	732	735	738	741	745	749	752	769	772	775	778			
	782	786	789	806	809	812	815	818	822	837	840	843	846	860	863			
	866	869	884	887	890	893	908	911	914	917	933	936	939	942	946			
	964	967	970	973	976	980	998	1001	1004	1008	1025	1028	1031	1034	1037			
	1041	1063	1066	1069	1072	1075	1099	1102	1105	1108	1111	1114	1137	1140	1143			
	1146	1171	1174	1177	1180	1183	1186	1209	1212	1215	1218	1221	1236	1239	1242			
	1245	1248	1263	1266	1269	1272	1297	1300	1303	1306	1310	1313	1331	1334	1337			
	1341	1344	1359	1362	1365	1369	1372	1391	1394	1397	1400	1403	1420	1423	1426			
	1430	1433	1451	1454	1457	1461	1477	1480	1483	1486	1489	1506	1509	1512	1515			
	1518	1535	1538	1541	1544	1547	1572	1575	1578	1582	1604	1607	1610	1632	1635			
	1638	1641	1656	1659	1662	1665	1668	1689	1692	1695	1717	1720	1723	1726	1730			
	1733	1756	1759	1762	1790	1793	1796	1799	1802	1805	1808	1831	1834	1837	1840			
	1843	1862	1865	1868	1872	1875	1892	1895	1898	1901	1905	1924	1927	1930	1933			
	1936	1939	1944	1963	1966	1969	1972	1975	1978	1983	2005	2008	2011	2014	2017			
	2022	2045	2048	2051	2054	2057	2060	2065	2068	2090	2093	2096	2099	2118	2121			
	2124	2128	2147	2150	2153	2174	2177	2180	2202	2205	2208	2229	2232	2235	2238			
	2242	2245	2264	2267	2270	2273	2298	2301	2304	2307	2310	2313	2316	2338	2341			
	2344	2347	2368	2371	2374	2377	2380	2404	2407	2410	2413	2416	2438	2441	2444			
	2447	2463	2466	2469	2472	2476	2490	2493	2496	2499	2503	2529	2532	2535	2561			
	2564	2567	2570	2573	2592	2595	2599	2602	2605	2622	2625	2628	2631	2634	2651			
	2654	2657	2660	2663	2681	2684	2687	2690	2693	2732	2735	2738	2741	2746	2765			
	2768	2771	2775	2794	2797	2800	2805	2820	2823	2826	2829	2833	2838	2851	2854			
	2857	2860	2865	2870	2885	2888	2891	2894	2898	2903	2918	2921	2924	2928	2932			
	2937	2952	2955	2958	2961	2966	2980	2983	2986	2989	2993	2998	3013	3016	3019			
	3023	3027	3032	3056	3059	3062	3065	3069	3074	3079	3105	3108	3111	3114	3118			
	3131	3137																
BIC	529	747	784															
BICB	764	1354																
BIS	709	2553	2645															
BISB	693	903	1530															
BIT	550	744	781															
BNE	1766	2519																
BPL	3135																	
BR	2575	2701	3120															
CCC	1286	1783	2020															
CFCC	2745	2774	2804	2837	2869	2902	2936	2965	2997	3031	3073	3078						
CLR	539	542	567	572	577	580	584	601	602	607	608	612	613	626	629			
	661	799	853	877	944	990	1050	1085	1086	1124	1154	1155	1195	1258	1279			
	1283	1308	1324	1367	1411	1442	1557	1559	1621	1677	1742	1745	1764	1774	1778			
	1818	1821	1852	1853	1883	1915	1985	2019	2062	2080	2107	2135	2136	2162	2164			
	2190	2192	2219	2254	2281	2285	2324	2355	2388	2426	2428	2456	2474	2483	2501			
	2515	2537	2539	2550	2578	2586	2612	2641	2643	2695	2743	2787	2862	2926	3021			
	3042	3088	3089	3095	3121	3125												
CMP	636	639	642	645	648	651	667	670	673	676	680	697	700	703	706			
	710	728	731	734	737	740	748	751	768	771	774	777	785	788	805			
	808	811	814	821	836	839	842	859	862	865	883	886	889	907	910			
	913	916	932	935	938	941	945	963	966	969	972	975	979	997	1000			
	1003	1007	1024	1027	1030	1033	1036	1040	1062	1065	1068	1071	1074	1098	1101			

	1104	1107	1110	1136	1139	1142	1145	1170	1173	1176	1179	1182	1208	1211	1214
	1217	1220	1235	1238	1241	1244	1247	1262	1265	1268	1271	1296	1299	1302	1305
	1312	1330	1333	1336	1340	1343	1358	1361	1364	1368	1390	1393	1396	1399	1402
	1419	1422	1425	1429	1432	1450	1453	1456	1460	1476	1479	1482	1485	1488	1505
	1508	1511	1514	1517	1534	1537	1540	1543	1546	1571	1574	1577	1581	1603	1606
	1609	1631	1634	1637	1640	1655	1658	1661	1664	1667	1688	1691	1694	1716	1719
	1722	1725	1729	1732	1755	1758	1761	1789	1795	1798	1801	1833	1836	1839	1842
	1861	1864	1867	1871	1891	1894	1897	1900	1904	1923	1926	1929	1932	1935	1943
	1962	1965	1968	1971	1974	1977	1982	2004	2007	2010	2013	2016	2021	2044	2047
	2050	2053	2056	2059	2064	2067	2089	2092	2095	2098	2117	2120	2123	2127	2146
	2149	2152	2173	2176	2179	2201	2204	2207	2228	2231	2234	2237	2241	2244	2263
	2266	2269	2297	2303	2306	2309	2315	2337	2340	2343	2346	2370	2373	2376	2379
	2403	2406	2409	2415	2437	2440	2443	2446	2462	2465	2468	2471	2489	2492	2495
	2498	2528	2531	2534	2560	2563	2566	2569	2572	2594	2598	2601	2604	2621	2624
	2627	2630	2650	2653	2656	2659	2662	2680	2683	2686	2689	2692	2731	2734	2737
	2740	2764	2767	2770	2793	2796	2799	2819	2822	2825	2828	2832	2850	2853	2856
	2859	2864	2884	2887	2890	2893	2897	2917	2920	2923	2927	2931	2951	2954	2957
	2960	2979	2982	2985	2988	2992	3012	3015	3018	3022	3026	3055	3058	3061	3064
	3068	3104	3107	3110	3117	3130									
CMPB	663	1792	1938	2300	2367										
CMPD	2803	2836	2868	2901	2935	2964	2975	2996	3030	3072	3077				
CMPF	2744	2773													
DIV	2169	2425	2433												
DIVD	2880														
DIVF	3094	3100													
EMT	481														
HLT	480	509	520	3101											
INC	630	662	691	722	763	800	831	845	854	878	902	926	956	991	1018
	1051	1087	1113	1125	1157	1196	1230	1257	1284	1325	1353	1371	1385	1414	1444
	1471	1499	1529	1560	1593	1622	1651	1679	1707	1746	1779	1822	1855	1885	1917
	1956	1998	2037	2081	2108	2137	2165	2193	2220	2255	2288	2329	2360	2394	2429
	2457	2484	2516	2552	2556	2587	2613	2644	2671	2720	2756	2788	2814	2846	2879
	2912	2946	2974	3007	3045	3096	3129								
IOT	1918	1957	1999												
JMP	525	534	535	1052	1089	1126	1159	1199	1287	1561	1594	1623	1680	1683	1708
	1747	1780	1824	2109	2138	2166	2194	2221	2256	2290	2330	2361	2396	2430	2702
	2721	3048	3097	3132	3142										
JSR	1711	1856	3138												
LDCFD	2947														
LDD	2785	2789													
LDI	2712	2713	2753	3091											
LDI	2784	2812	2844	2877	2910	2944	2972	3005	3040	3090	3123				
LDI	1056	2217													
MARK	820	978	1006	1039	1231	1339	1428	1459	1580	1728	1870	1903	1942	1981	2063
MFPD	2126	2240													
MFPD	1887	2588													
MFPD	3008	3044	3051												
MFPD	540	541	543	544	545	546	568	569	571	573	578	579	582	583	588
MFPD	589	590	591	592	593	594	595	596	597	598	599	603	604	609	610
MFPD	614	615	625	627	628	632	658	659	660	687	688	689	690	718	719
MFPD	720	721	758	759	760	761	762	795	796	797	798	829	830	832	852
MFPD	876	879	899	900	901	923	924	925	952	953	954	955	986	987	988
MFPD	989	1014	1015	1016	1017	1047	1048	1049	1082	1083	1084	1093	1120	1121	1122
MFPD	1123	1130	1152	1153	1156	1192	1193	1194	1227	1228	1229	1254	1255	1256	1278
MFPD	1280	1281	1282	1290	1320	1321	1322	1323	1350	1351	1352	1378	1379	1380	1381
MFPD	1382	1383	1384	1408	1409	1410	1412	1413	1439	1440	1441	1442	1467	1468	1469

TEST DCKTF-C MEMORY MGMT ABORT TRAPS MACY11 27(732) 14-SEP-76 10:28 PAGE 82
DCKTFC.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

*DCKTFC, DCKTFC, SEQ/SOL/CRF/DS:ERFZ/EN:ABS=DSKM:DCKTFC.P11
RUN-TIME: 12 22 6 SECONDS
RUN-TIME RATIO: 65/42=1.5
CORE USED: 12K (24 PAGES)