

IDENTIFICATION

PRODUCT CODE:	MAINDEC-11-DCKTC-A-D
PRODUCT NAME:	K11-C ACCESS KEYS TEST
DATE CREATED:	15 APRIL 1972
MAINTAINER:	DIAGNOSTIC GROUP
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1.0 ABSTRACT

THIS PROGRAM CHECKS THE OPERATION OF EACH ACCESS KEY FOR EACH OF THE FOUR UNIBUS CYCLES (OR COMBINATION OF CYCLES) WHICH MAY REFERENCE AN ADDRESS THRU SEGMENTATION; THESE CYCLES ARE DATI, DATO (NO DATIP), DATIP-DATO, AND DATIP-DATOB. EACH OF THESE CASES IS TESTED WITH AND WITHOUT MEMORY MANAGEMENT ENABLE SET; THUS EIGHT CASES ARE TESTED FOR EACH KEY. SR0, SR1, SR2, THE CORRESPONDING PDR'S, AND THE PROPER EXECUTION OR PREVENTION OF EXECUTION OF THE INSTRUCTION ARE CHECKED IN EACH CASE.

2.0 REQUIREMENTS

2.1 EQUIPMENT

PDP 11/45 WITH KT11-C OPTION

2.2 STORAGE

THE PROGRAM REQUIRES 5K OF MEMORY, STARTING AT LOCATION 0.

3.0 LOADING PROCEDURE

LOAD PROGRAM INTO MEMORY USING ABS LOADER.

4.0 STARTING PROCEDURE

4.1 NORMAL DIAGNOSTIC OPERATION

LOAD ADDRESS 200;
SET DESIRED SWITCH REGISTER SETTINGS (ALL DOWN FOR WORST CASE);
PRESS START,
THE PROGRAM WILL DISPLAY THE NUMBER OF THE CURRENT SUBTEST IN THE DISPLAY REGISTER, AND WILL RING THE BELL ON COMPLETION OF A PASS.

4.2 SINGLE SUBTEST LOOP (TESTX)

LOAD ADDRESS 210;
PRESS START,
AT THE FIRST HALT, LOAD THE ADDRESS OF THE DESIRED SUBTEST (THE ADDRESS OF THE TESTXX TAG) INTO THE SWITCH REGISTER,
THEN PRESS "CONTINUE".
AT THE SECOND HALT, SET THE OPERATIONAL SWITCH SETTINGS DESIRED (SW11 MUST BE SET TO ZERO), THEN PRESS CONTINUE.

5.0 OPERATING PROCEDURE

5.1 OPERATIONAL SWITCH SETTINGS

SW15=1 OR UP== HALT ON ERROR
SW14=1 OR UP== SCOPE LOOP
SW13=1 OR UP== INHIBIT PRINTOUT
SW11=1 OR UP== INHIBIT ITERATIONS
SW08=1 OR UP== LOAD MICROBREAK REGISTER WITH VALUE IN
SW00-SW07 (AT START OF TEST ONLY).

5.2 SUBROUTINE ABSTRACTS

5.2.1 SCOPE

THIS SUBROUTINE CALL IS PLACED BETWEEN EACH SUBTEST. IT RECORDS THE STARTING ADDRESS OF EACH SUB-TEST AS IT IS BEING ENTERED. IF A SCOPE LOOP IS REQUESTED, IT WILL JUMP TO THE START OF THE SUBTEST THAT THE SCOPE LOOP IS REQUESTED FOR. IF SCOPE LOOP IS NOT REQUESTED, THERE WILL BE 1024 ITERATIONS ON THAT SUBTEST BEFORE THE NEXT SUBTEST IS ENTERED. SWITCH 11 ON A 1 INHIBITS ITERATION OF SUBTESTS.

5.2.2 HLT

THIS EMT CALLS THE SUBROUTINE PRINT, WHICH PRINTS OUT THE LOCATION COUNTER AT THE TIME OF FAILURE AND THE CONTENTS OF THE PROCESSOR STATUS REGISTER. NOTE THAT THE LOCATION COUNTER WILL BE THE ADDRESS OF THE HLT PLUS TWO.

5.2.3 TRAPCATCHER

THIS IS A SERIES OF INSTRUCTIONS STARTING AT LOCATION 0 DESIGNED TO DETECT AND ISOLATE UNEXPECTED TRAPS AND INTERRUPTS TO THE TRAP AND INTERRUPT VECTOR AREA OF MEMORY.

EACH VECTOR ENTRANCE ADDRESS IS LOADED WITH THE ADDRESS OF THE NEXT LOCATION. THE NEXT LOCATION IS LOADED WITH A HALT (000000). THUS AN ILLEGAL TRAP OR INTERRUPT WILL CAUSE A HALT AT THE TRAP LOCATION PLUS TWO.

IF A HALT OCCURS IN THE TRAP OR INTERRUPT AREA, EXAMINE REGISTER SIX. IT WILL CONTAIN THE CURRENT STACK ADDRESS. THE CONTENTS OF THE CURRENT STACK ADDRESS IS THE VALUE OF THE LOCATION COUNTER WHEN THE TRAP OR INTERRUPT OCCURRED.

5.2.4 TESTX (SINGLE SUBTEST LOOP)

THIS ROUTINE ALLOWS A SINGLE SUBTEST TO BE RUN CONTINUOUSLY FOR SCOPE LOOP PURPOSES. WHILE A SCOPE LOOP SWITCH OPTION EXISTS,

DCKTC-A MACY11,614 1-MAY-72 00123 PAGE 3-1
DCKTC

IT REQUIRES THAT YOU ARE WITHIN THE TEST IN WHICH YOU WISH TO
LOOP, IN SOME CASES (SUCH AS WITH INTERMITTENT FAILURES) THAT'S
NOT EASY TO DO, THIS SUBROUTINE ALLOWS YOU TO LOAD THE ADDRESS
OF ANY SUBTEST AT THE HALT AND THEN GO DIRECTLY TO THAT TEST;

5.2.5 EMTSRV (EMT DECODER)

THIS ROUTINE DECODES ALL EMT CALLS, INCLUDING PATCHES AND THE HLT CALL WHICH PASSES CONTROL TO THE PRINT ROUTINE.

5.2.6 CLRALL

THIS ROUTINE CLEARS ALL THE PAR/S AND PDR/S OF THE K11=C, AS WELL AS SR0.

5.2.7 RWALL

THIS ROUTINE MAPS ALL PAGES TO BANK 0 BY CLEARING ALL THE PAR/S. ALL PAGES ARE MADE 4K READ-WRITE BY LOADING ALL THE PDR/S WITH THE VALUE 77406.

5.2.8 SETUP

THIS ROUTINE FIRST CALLS RWALL TO MAP ALL THE PAGES 4K, RW, BANK 0. IT THEN SETS THE KEY FOR KERNEL PAGE 1 TO WHATEVER VALUE WAS STORED ON THE STACK BEFORE THE ROUTINE WAS CALLED. THIS ALLOWS A REFERENCE TO PAGE 1 TO TEST THE DESIRED ACCESS KEY. FINALLY, KERNEL PAGE 7 IS MAPPED TO THE EXTERNAL BANK.

5.3 PROGRAM AND/OR OPERATOR ACTION

5.3.1 SA 200 (NORMAL DIAGNOSTIC OPERATION)

THE PROGRAM EXECUTES 8 TESTS OF EACH KEY, DISPLAYING THE SUBTEST NUMBER IN THE LIGHTS. TESTS 21 THRU 30 ARE CYCLED THRU 3 TIMES, ONCE FOR EACH OF THE KEYS WHICH GIVES A NON-RESIDENT ABORT. AT THE END OF EACH PASS THRU THE DIAGNOSTIC THE BELL IS RUNG.

5.3.2 SA 210 (SINGLE SUBTEST LOOP)

THIS STARTING ADDRESS ALLOWS THE USER TO RUN A SINGLE SUBTEST REPEATEDLY BY GIVING THE ADDRESS OF THE DESIRED SUBTEST AT THE FIRST HALT. IF SW11 IS SET TO A ONE, NORMAL TEST EXECUTION WILL BE RESUMED.

6.0 ERRORS

6.1 ERROR PRINTOUT

PRINTOUTS ARE IN A STANDARD TWO-WORD FORMAT. THE FIRST WORD IS THE OCTAL VALUE OF THE PC+2 OF THE DETECTED ERROR. THE SECOND IS THE CONTENTS OF THE PROCESSOR STATUS REGISTER WHEN THE ERROR WAS DETECTED.

6.2 ERROR RECOVERY

IN GENERAL, TEST FAILURES WILL PRINTOUT AN ERROR MESSAGE AND CONTINUE. IF THE "HALT ON ERROR" SWITCH IS SET, HITTING CONTINUE WILL RECOVER. IF THE PROGRAM HANGS UP IN A LOOP, THE ERROR IS LIKELY TO BE A SIGNAL WHICH WAS NEVER RECEIVED. IF A HALT OCCURS IN THE TRAP AND VECTOR AREA THE PROGRAM MUST BE RESTARTED. IF THE PROGRAM HALTS IN THE MAIN FLOW, CONSULT THE LISTING IF NO MESSAGE IS TYPED OUT.

7.0 RESTRICTIONS

PROGRAM MUST BE LOADED INTO LOWER 9K OF MEMORY.

8.0 MISCELLANEOUS

8.1 EXECUTION TIME

EACH PASS TAKES APPROXIMATELY 1 MINUTE WITH CORE MEMORY.

8.2 DISPLAY REGISTER

THE NUMBER OF THE CURRENT SUBTEST IS DISPLAYED.

9.0 PROGRAM DESCRIPTION

THE PROGRAM RUNS EIGHT SEPARATE TESTS OF EACH ACCESS KEY. DAT1, DAT0 (NO DATIP), DATIP-DAT0, AND DATIP-DAT0B ARE CHECKED FOR EACH KEY, WITH AND WITHOUT MEMORY MANAGEMENT ENABLE SET. THE SUBTEST NUMBER IS DISPLAYED IN THE DISPLAY REGISTER, AND THE BELL IS RUNG AT THE END OF EACH PASS.

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 ITEST OF THE K11-C ACCESS KEYS

IOPERATING INSTRUCTIONS
 I 1: LOAD TEST USING THE ABSOLUTE LOADER
 I 2: LOAD SA 200
 I 3: SET SR TO INITIAL SETTINGS
 I 4: PRESS START

IDYNAMIC SWITCH REGISTER SETTINGS ARE:
 ISW15=1 CAUSES HALT ON ERROR
 ISW14=1 CAUSES SCOPE LOOPING
 ISW13=1 INHIBITS ERROR PRINTOUT
 ISW11=1 INHIBITS ITERATIONS
 ISW08=1 LOAD MICROBREAK REGISTER WITH LOW BYTE OF SR

IDEFINITIONS
 SCOPE=TRAP
 NDP=240
 R0=X0
 R1=X1
 R2=X2
 R3=X3
 R4=X4
 R5=X5
 R6=X6
 R7=X7
 SP=X6
 PC=X7
 SR=177570
 PS=177776
 STATUS=PS
 HLT=104006

ILOAD TRAP CATCHER IN LOCATIONS 0 THRU 377
 IEACH VECTOR ADDRESS IS LOADED WITH THE ADDRESS
 IOF THE NEXT LOCATION, AND THE NEXT LOCATION IS LOADED
 IWITH A HALT INSTRUCTION (000000)

104400
 000240
 000000
 000001
 000002
 000003
 000004
 000005
 000006
 000007
 000006
 000007
 177570
 177776
 177776
 104006

ILOAD VECTOR AREA
 =30
 EMTSRV
 340
 =34
 SCOPEC
 0

000200
 000200 000167 003210
 000210 000167 022146

ILOAD STARTING AREA
 =200
 JMP START
 =210
 JMP TESTX

ILOAD DATA AREA

001000
 002000
 003000
 003002
 003010
 003012
 003014
 003016
 003020
 003022
 003024
 003026
 003030
 003032
 003034
 003036
 003040
 003042
 003044
 003046
 003050
 003052
 003054
 003056
 003060
 003062
 003064
 003066
 003070
 003072
 003074
 003076
 003100
 003102
 003104
 003106
 003110
 003112
 003114
 003116
 003120
 003122
 003124
 003126
 003130
 003132
 003134
 003136
 003140
 003142

=1000
 KSTACK: 0
 =, +776
 SSTACK: 0
 =, +776
 USTACK: 0
 ,WORD 0,0,0,0
 TCSR: 177564
 TDBR: 177566
 TEMP1: 0
 TEMP2: 0
 SR0: 177572
 SR1: 177574
 SR2: 177576
 SR3: 172516
 KTYEC: 250
 KTSTA: 252
 ADRTAB:
 UIPDR0: 177600
 UIPDR1: 177602
 UIPDR2: 177604
 UIPDR3: 177606
 UIPDR4: 177610
 UIPDR5: 177612
 UIPDR6: 177614
 UIPDR7: 177616
 UDPDR0: 177620
 UDPDR1: 177622
 UDPDR2: 177624
 UDPDR3: 177626
 UDPDR4: 177630
 UDPDR5: 177632
 UDPDR6: 177634
 UDPDR7: 177636
 UIPAR0: 177640
 UIPAR1: 177642
 UIPAR2: 177644
 UIPAR3: 177646
 UIPAR4: 177650
 UIPAR5: 177652
 UIPAR6: 177654
 UIPAR7: 177656
 UDPAR0: 177660
 UDPAR1: 177662
 UDPAR2: 177664
 UDPAR3: 177666
 UDPAR4: 177670
 UDPAR5: 177672
 UDPAR6: 177674
 UDPAR7: 177676
 SIPDR0: 172200
 SIPDR1: 172202

I TELETYPE PRINTER CSR
 I TEMPORARY STORAGE
 I K11-C STATUS REGISTER ADDRESSES
 I K11-C INTERRUPT VECTOR
 I USER I-SPACE PAGE DESCRIPTOR REGISTER ADDRESSES
 I USER 0-SPACE PAGE DESCRIPTOR REGISTER ADDRESSES
 I USER I-SPACE PAGE ADDRESS REGISTER ADDRESSES
 I USER 0-SPACE PAGE ADDRESS REGISTER ADDRESSES
 I SUPERVISOR I-SPACE PAGE DESCRIPTOR REGISTER ADDRESSES

003144	172204	SIPDR2	172204	
003146	172206	SIPDR3	172206	
003150	172210	SIPDR4	172210	
003152	172212	SIPDR5	172212	
003154	172214	SIPDR6	172214	
003156	172216	SIPDR7	172216	
003160	172220	SDPAR0	172220	ISUPERVISOR D-SPACE PAGE DESCRIPTOR REGISTER ADDRESSES
003162	172222	SDPAR1	172222	
003164	172224	SDPAR2	172224	
003166	172226	SDPAR3	172226	
003170	172230	SDPAR4	172230	
003172	172232	SDPAR5	172232	
003174	172234	SDPAR6	172234	
003176	172236	SDPAR7	172236	
003200	172240	SIPAR0	172240	ISUPERVISOR I-SPACE PAGE ADDRESS REGISTER ADDRESSES
003202	172242	SIPAR1	172242	
003204	172244	SIPAR2	172244	
003206	172246	SIPAR3	172246	
003210	172250	SIPAR4	172250	
003212	172252	SIPAR5	172252	
003214	172254	SIPAR6	172254	
003216	172256	SIPAR7	172256	
003220	172260	SDPAR0	172260	ISUPERVISOR D-SPACE PAGE ADDRESS REGISTER ADDRESSES
003222	172262	SDPAR1	172262	
003224	172264	SDPAR2	172264	
003226	172266	SDPAR3	172266	
003230	172270	SDPAR4	172270	
003232	172272	SDPAR5	172272	
003234	172274	SDPAR6	172274	
003236	172276	SDPAR7	172276	
003240	172300	KIPDR0	172300	KERNEL I-SPACE PAGE DESCRIPTOR REGISTER ADDRESSES
003242	172302	KIPDR1	172302	
003244	172304	KIPDR2	172304	
003246	172306	KIPDR3	172306	
003250	172310	KIPDR4	172310	
003252	172312	KIPDR5	172312	
003254	172314	KIPDR6	172314	
003256	172316	KIPDR7	172316	
003260	172320	KOPDR0	172320	KERNEL D-SPACE PAGE DESCRIPTOR REGISTER ADDRESSES
003262	172322	KOPDR1	172322	
003264	172324	KOPDR2	172324	
003266	172326	KOPDR3	172326	
003270	172330	KOPDR4	172330	
003272	172332	KOPDR5	172332	
003274	172334	KOPDR6	172334	
003276	172336	KOPDR7	172336	
003300	172340	KIPAR0	172340	KERNEL I-SPACE PAGE ADDRESS REGISTER ADDRESSES
003302	172342	KIPAR1	172342	
003304	172344	KIPAR2	172344	
003306	172346	KIPAR3	172346	
003310	172350	KIPAR4	172350	
003312	172352	KIPAR5	172352	
003314	172354	KIPAR6	172354	
003316	172356	KIPAR7	172356	

003320	172360	KOPAR0	172360	KERNEL D-SPACE PAGE ADDRESS REGISTER ADDRESSES
003322	172362	KOPAR1	172362	
003324	172364	KOPAR2	172364	
003326	172366	KOPAR3	172366	
003330	172370	KOPAR4	172370	
003332	172372	KOPAR5	172372	
003334	172374	KOPAR6	172374	
003336	172376	KOPAR7	172376	
003336	003336	ADRENDR	=E	
003340	177600	PORTAB	177600	TABLE OF ADDRESSES OF 1ST POR OF EACH SET
003342	172200		172200	
003344	172300		172300	
003346	177640	PARTAB	177640	TABLE OF ADDRESSES OF 1ST PAR OF EACH SET
003350	172240		172240	
003352	172340		172340	
003354	003240	STATAB	KIPDR0	KERNEL TABLE OF PDR'S AND PAR'S
003356	000000		0	
003360	003140		SIPDR0	ISUPERVISOR TABLE OF PDR'S AND PAR'S
003362	040000		40000	
003364	003040		UIPDR0	USER TABLE OF PDR'S AND PAR'S
003366	140000	STAEND	140000	
003370	000000	STAPNT	0	
003372	177573	SR0HI	177573	K*ii-c STATUS REGISTER HIGH BYTE ADDRESSES
003374	177575	SR1HI	177575	
003376	177577	SR2HI	177577	
003400	177770	UBRK1	177770	IMICROBREAK REGISTER ADDRESS
003402	000000	NRCNT	0	COUNTER FOR TEST OF THE 3 NR REYS
003404	000000	NRKEYS	0,3,7	VALUES OF THE 3 NON RESIDENT REYS
003412	125252	DEBTAD	125252	LOCATION USED FOR READS AND WRITES TO CHECK EXECUTION OR ABORTING AT CORRECT POINT
ISET UP FOR START OF TESTS				
003414	005037	177776	START	CLR #0PS
003420	012706	001000	MOV	#KSTACK,SP ISETUP KERNEL STACK
003424	012737	040000	177776	MOV #40000,#0PS ISETUP SUPERVISOR STACK POINTER
003432	012706	002000	MOV	#SSTACK,SP
003436	012737	140000	177776	MOV #140000,#0PS ISETUP USER STACK POINTER
003444	012706	003000	MOV	#USTACK,SP
003450	005037	177776	CLR	#0PS
003454	012767	002000	017132	MOV #2000,ICOUNT INITIALIZE ITERATION COUNT
003462	012767	003504	017130	MOV #TEST1-2,RETURN ISETUP SCOPE AND ITERATION LOOP RETURN
003470	005067	177706	CLR	NRCNT INITIALIZE FOR NR TEST
003474	012777	000007	177330	MOV #7,0SR3 IENABLE ALL D-SPACES
ISHOW THAT DAT1 TO A ROOT PAGE (ACP=1) WITHOUT MEMORY MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS				
ISHOW THAT THE K*ii-c STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE POR CORRESPONDING TO THE REFERENCE IS CORRECT				
003502	104400		TEST1	SCOPE
003504	012737	000001	177570	MOV #1,#SR ILOAD TEST NUMBER INTO THE DISPLAY
003512	005037	177776	CLR	#0PS INITIALIZE PROCESSOR STATUS
003516	012706	001000	MOV	#KSTACK,SP INITIALIZE KERNEL STACK POINTER


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003522 005077 177276 CLR 0SR0 INITIALIZE SR0
003526 012746 000001 MOV #1,=(SP) IPUSH RROT KEY ON STACK
003532 004767 016552 JSR X7,SETUP IMAKE KERNEL PAGE 1 RROT, BANK 0
IMAKE KERNEL PAGE 7 RW, EXTERNAL
IMAKE ALL OTHER PAGES RW, BANK 0
IRESTORE STACK
ISETUP ADRPT RETURN IN CASE

003536 005726 TST (SP)+
003540 012777 003700 177260 MOV #RET1,*KTVEC IRET1,*KTSTA
003546 005077 177264 CLR 0KTSTA ISETUP LOCATION TO BE REFERENCED
003552 012767 125252 177632 MOV #125252,DESTAD IDESTAD*20000,R1
003560 012781 023412 MOV #DESTAD*20000,R1 IBE REFERENCED THRU KERNEL PAGE 1
ITURN ON KT11=C
IDATI TO RROT PAGE
IBRANCH IF CORRECT VALUE WAS READ
ION ERROR, TURN OFF KT11=C
IRELOCATION FAILED THRU KERNEL PAGE 1

003564 005277 177234 INC 0SR0
003570 022721 125252 CMP #125252,(R1)+
003574 001404 BEQ 0CMP0K1
003576 005377 177222 DEC 0SR0
003602 104006 HLT BR
003604 000441 BR 0DONE1
003606 017702 177212 CMP0K1 MOV 0SR0,R2
003612 105377 177206 DEC 0SR0
003616 022702 010021 CMP #10021,R2
003622 001401 BEQ 04
003624 104006 HLT

003626 022777 000027 177172 CMP #27,0SR1
003634 001401 BEQ 04
003636 104006 HLT

003640 022777 003640 177162 CMP #,,0SR2
003646 001401 BEQ 04
003650 104006 HLT

003652 022777 077401 177362 CMP #77401,0KIPDR1
003660 001401 BEQ 04
003662 104006 HLT

003664 022777 077601 177370 CMP #77601,0KOPDR1
003672 001401 BEQ 04
003674 104006 HLT

003676 000404 BR 0DONE1
003700 042777 000001 177116 RET1 0IC 0SR0
003706 104006 HLT

003710 016777 177122 177116 DONE1 MOV 0TSTA,*KTVEC
003716 005077 177114 CLR 0KTSTA
003722 005077 177076 CLR 0SR0
003726 005037 177776 CLR 0PS

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ISRW THAT A DATI TO A RROT PAGE (ICF=I) WITH MEMORY MANAGEMENT

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ITRAP ENABLE SET CAUSES A TRAP AT THE END OF THE INSTRUCTION
ISHOW THAT THE KT11=C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE
IPDR'S FOR THE PAGE REFERENCED ARE CORRECT
TEST2: SCOPE

003732 104400 MOV #2,0SR ILOAD TEST NUMBER INTO THE DISPLAY
003734 012737 000002 177570 CLR 0PS IINITIALIZE PROCESSOR STATUS
003742 005037 177776 MOV #KSTACK,SP IINITIALIZE KERNEL STACK POINTER
003746 012706 001000 CLR 0SR0 IINITIALIZE SR0
003752 005077 177046 MOV #1,=(SP) IPUSH RROT KEY ON STACK
003756 012746 000001 JSR X7,SETUP IMAKE KERNEL PAGE 1 RROT, BANK 0
IMAKE KERNEL PAGE 7 RW, EXTERNAL
IMAKE ALL OTHER PAGES RW, BANK 0
IRESTORE STACK POINTER
ISETUP TRAP RETURN

003766 005726 TST (SP)+
003770 012777 004036 177036 MOV #RET2,*KTVEC
003776 005077 177034 CLR 0KTSTA
004002 012767 125252 177402 MOV #125252,DESTAD
004010 005003 CLR R3 IINITIALIZE LOCATION TO BE READ
ICLEAR REGISTER TO SAVE WHAT WAS READ
IFOLLOWS CHECKING TO SEE THAT THE
IINSTRUCTION COMPLETED BEFORE
ITRAPPING

004012 012781 023412 MOV #DESTAD*20000,R1 IRI CONTAINS VIRTUAL ADDRESS OF LOCATION
ITO BE REFERENCED THRU KERNEL PAGE 1
ITURN ON KT11=C, SET MGT TRAP ENABLE
IDATI TO RROT PAGE
IF NO TRAP, TURN OFF KT11=C
IDATI TO RROT PAGE WITH MEMORY
IMANAGEMENT TRAP ENABLE SET DION'T
ICAUSE A TRAP
ISAVE CONTENTS OF SR0
ITURN OFF KT11=C
ICHECK SAVED CONTENTS OF SR0

004016 012777 001001 177000 MOV #1001,0SR0
004024 012103 MOV (R1),R3
004026 105077 176772 CLR 0SR0
004032 104006 HLT BR
004034 000440 BR 0DONE2

004036 017702 176762 RET21 MOV 0SR0,R2
004042 005377 176756 DEC 0SR0
004046 022702 011021 CMP #11021,R2
004052 001401 BEQ 04
004054 104006 HLT

004056 022777 000027 176742 CMP #27,0SR1
004064 001401 BEQ 04
004066 104006 HLT

004070 022777 004070 176732 CMP #,,0SR2
004076 001401 BEQ 04
004100 104006 HLT

004102 022777 077401 177132 CMP #77401,0KIPDR1
004110 001401 BEQ 04
004112 104006 HLT

004114 022777 077601 177140 CMP #77601,0KOPDR1
004122 001401 BEQ 04
004124 104006 HLT

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IKOPDR1 INCORRECT="A" BIT SHOULD
IBE SET SINCE DATA SPACE WAS RROT
IAND WAS READ

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004126 022703 125252      CMP      #125252,R3      ICHECK LOCATION WRITTEN INTO
004132 001401      BEQ      ,+4
004134 104006      HLT
                                     ITRAP INSTRUCTION REFERENCING THE RROT
                                     IPAGE TRAPPED BEFORE COMPLETING
                                     IOR RELOCATION FAILED SINCE THE
                                     IMOVE DID NOT CORRECTLY LOAD R3
                                     ICHANGE KT11-C FAULT RETURN TO
                                     ICAUSE A HALT ON AN UNEXPECTED TRAP

004136 016777 176674 176670 DONE21 MOV      KTSTA,*KTVEC
004144 005077 176666      CLR      *KTSTA
004150 005077 176650      CLR      *SR0
004154 005037 177776      CLR      *#PS

ISHOW THAT A DATO (NO DATIP) TO A RROT PAGE (ACF=1) WITHOUT
IMEMORY MANAGEMENT TRAP ENABLE SET ABORTS WITHOUT COMPLETING THE DATO
ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
ICORRESPONDING TO THE REFERENCE IS CORRECT

004160 104400      TESTS1 SCOPE
004162 012737 000003 177570 MOV      #3,*#SR      ILOAD TEST NUMBER INTO THE DISPLAY
004170 005037 177776      CLR      *#PS      IINITIALIZE PROCESSOR STATUS
004174 012706 001000      MOV      #KSTACK,SP  IINITIALIZE KERNEL STACK POINTER
004200 005077 176620      CLR      *SR0      IINITIALIZE SR0
004204 012746 000001      MOV      #1,*(SP)    IPUSH RROT KEY ON STACK
004210 004767 016074      JSR      X7,SETUP   IMAKE KERNEL PAGE 1 RROT, BANK 0
                                     IMAKE KERNEL PAGE 7 RW, EXTERNAL
                                     IMAKE ALL OTHER PAGES RW, BANK 0
                                     IRESTORE STACK POINTER
004214 005726      TST      (SP)+
004216 012777 004264 176610 MOV      *RET3,*KTVEC  ISETUP ABORT RETURN
004224 005077 176606      CLR      *KTSTA
004230 005067 177156      CLR      DESTAD     IINITIALIZE LOCATION TO BE ADDRESSED
                                     IBY DATO TO RROT PAGE
                                     IR1 CONTAINS VIRTUAL ADDRESS OF LOCATION
004234 012701 023412      MOV      #DESTAD+00000,R1 ITO BE REFERENCED THRU KERNEL PAGE 1
004240 112777 000001 176550 MOV      #1,*SR0      IRETURN ON KT11-C
004246 012721 125252      MOV      #125252,(R1)+ IDATO TO RROT PAGE-SHOULD ABORT
004252 042777 000001 176544 BIC      #1,*SR0      IRETURN OFF KT11-C
004260 104006      HLT      IDATO TO RROT PAGE FAILED TO ABORT
004262 000440      BR
004264 017702 176534      RET3:1 MOV      *SR0,R2     ISAVE CONTENTS OF SR0
004270 005377 176530      DEC      *SR0        IRETURN OFF KT11-C
004274 022702 020023      CMP      #20023,R2   ICHECK SAVED CONTENTS OF SR0
004300 001401      BEQ      ,+4
004302 104006      HLT
                                     ISR0 INCORRECT-SHOULD HAVE LOCKED
                                     ION DATO TO KERNEL DATA SPACE PAGE 1(RROT)
                                     IAND HMGY TRAP SHOULD BE SET
004304 022777 010427 176514      CMP      #10427,*SR1  ICHECK SR1
004312 001401      BEQ      ,+4
004314 104006      HLT
                                     ISR1 INCORRECT-SHOULD HAVE LOCKED
                                     ION THE ABORTED REFERENCE, WHICH
                                     IADTO-INCREMENTED R7, AND THEN R1
004316 022777 004246 176504      CMP      #AD3,*SR2   ICHECK SR2
004324 001401      BEQ      ,+4
004326 104006      HLT
                                     ISR2 INCORRECT-SHOULD HAVE LOCKED
                                     ION THE ABORTED REFERENCE, WITH THE
                                     IVIRTUAL ADDRESS OF THE INSTRUCTION
004330 022777 077401 176704      CMP      #77401,*KIPDR1 ICHECK INSTRUCTION SPACE PDR

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004336 001401      BEQ      ,+4
004340 104006      HLT
                                     IKIPDR1 INCORRECT-SHOULD NOT HAVE
                                     IBEEEN CHANGED SINCE THE RROT REFERENCE
                                     IWAS TO DATA SPACE
004342 022777 077401 176712      CMP      #77401,*KDPDR1 ICHECK DATA SPACE PDR
004350 001401      BEQ      ,+4
004352 104006      HLT
                                     IKDPDR1 INCORRECT-SHOULD NOT
                                     IHAVE BEEN CHANGED SINCE DATO
                                     IDIDNT WRITE AND WAS NOT A READ
004354 005767 177032      TST      DESTAD     IMAKE CERTAIN THAT DESTINATION
004360 001401      BEQ      ,+4      ILOCATION WAS NOT WRITTEN
004362 104006      HLT      IDATO TO RROT PAGE WROTE
                                     INTO THE DESTINATION LOCATION
004364 016777 176446 176442 DONE3:1 MOV      KTSTA,*KTVEC  ICHANGE KT11-C FAULT RETURN
004372 005077 176440      CLR      *KTSTA     ITO CAUSE A HALT ON AN UNEXPECTED TRAP
004376 005077 176422      CLR      *SR0
004402 005037 177776      CLR      *#PS

ISHOW THAT A DATO (NO DATIP) TO A RROT PAGE (ACF=1) WITH
IMEMORY MANAGEMENT TRAP ENABLE SET ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
ICORRESPONDING TO THE REFERENCE IS CORRECT

004406 104400      TEST4:1 SCOPE
004410 012737 000004 177570 MOV      #4,*#SR      ILOAD TEST NUMBER INTO THE DISPLAY
004416 005037 177776      CLR      *#PS      IINITIALIZE PROCESSOR STATUS
004422 012706 001000      MOV      #KSTACK,SP  IINITIALIZE KERNEL STACK POINTER
004426 005077 176372      CLR      *SR0      IINITIALIZE SR0
004432 012746 000001      MOV      #1,*(SP)    IPUSH RROT KEY ON STACK
004436 004767 015646      JSR      X7,SETUP   IMAKE KERNEL PAGE 1 RROT, BANK 0
                                     IMAKE KERNEL PAGE 7 RW, EXTERNAL
                                     IMAKE ALL OTHER PAGES RW, BANK 0
                                     IRESTORE STACK POINTER
004442 005726      TST      (SP)+
004444 012777 004510 176362 MOV      *RET4,*KTVEC  ISETUP ABORT RETURN
004452 005077 176360      CLR      *KTSTA
004456 005067 176730      CLR      DESTAD     IINITIALIZE LOCATION TO BE ADDRESSED
                                     IBY DATO TO RROT PAGE
                                     IR2 CONTAINS ADDRESS OF LOCATION
004462 012702 023412      MOV      #DESTAD+00000,R2 ITO BE REFERENCED THRU KERNEL PAGE 1
004466 012777 001001 176330 MOV      #1001,*SR0   IRETURN ON KT11-C, SET HMGY TRAP ENABLE
004474 012722 125252      MOV      #125252,(R2)+ IDATO TO RROT PAGE-SHOULD ABORT
004500 005377 176320      DEC      *SR0      IRETURN OFF KT11-C
004504 104006      HLT      IDATO TO RROT PAGE FAILED TO ABORT
004506 000440      BR
004510 017701 176310      RET4:1 MOV      *SR0,R1     ISAVE CONTENTS OF SR0
004514 005377 176304      DEC      *SR0        IRETURN OFF KT11-C
004520 022701 021023      CMP      #21023,R1   ICHECK SAVED CONTENTS OF SR0
004524 001401      BEQ      ,+4
004526 104006      HLT
                                     ISR0 INCORRECT-SHOULD HAVE LOCKED
                                     ION DATO TO KERNEL DATA SPACE PAGE 1(RROT)
                                     IAND ACCESS FAULT SHOULD BE SET
004530 022777 011027 176270      CMP      #11027,*SR1  ICHECK SR1
004536 001401      BEQ      ,+4
004540 104006      HLT
                                     ISR1 INCORRECT-SHOULD HAVE LOCKED
                                     ION THE ABORTED REFERENCE, WHICH AUTO-

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004542	022777	004474	176260	CMP	#AD4,*SR2	INCREMENTED R7, AND THEN R2
004550	001401			BEG	,+4	CHECK SR2
004552	104006			HLT		
004554	022777	077401	176460	CMP	#77401,*KIPDR1	ISR2 INCORRECT-SHOULD HAVE LOCKED
004562	001401			BEG	,+4	ON THE ABORTED REFERENCE, WITH THE
004564	104006			HLT		VIRTUAL ADDRESS OF THE INSTRUCTION
						CHECK INSTRUCTION SPACE PDR
004566	022777	077401	176466	CMP	#77401,*KDPDR1	KIPDR1 INCORRECT-SHOULD NOT
004574	001401			BEG	,+4	HAVE BEEN CHANGED SINCE THE RROT
004576	104006			HLT		REFERENCE WAS TO DATA SPACE
						CHECK DATA SPACE PDR
004600	009767	176606		TST	DESTAD	KDPDR1 INCORRECT-SHOULD NOT
004604	001401			BEG	,+4	HAVE BEEN CHANGED SINCE DATA
004606	104006			HLT		WAS NOT WRITTEN
						AND REFERENCE WAS
						TO A READ
						MAKE CERTAIN THAT DESTINATION
						LOCATION WAS NOT WRITTEN
						DATA TO RROT PAGE WROTE
						INTO THE DESTINATION LOCATION
						CHANGE KTI1-C TRAP RETURN
						TO CAUSE A HALT ON AN UNEXPECTED TRAP

ISHOW THAT A DATIP, DATA SEQUENCE TO A RROT PAGE (ACF#1) WITHOUT
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
ISHOW THAT THE KTI1-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
CORRESPONDING TO THE REFERENCE IS CORRECT

004632	104400			TEST51	SCOPE	
004634	012737	000005	177570	MOV	#5,*SR	LOAD6 TEST NUMBER INTO THE DISPLAY
004642	009037	177776		CLR	*PPS	INITIALIZE PROCESSOR STATUS
004646	012700	001000		MOV	*KSTACK,SP	INITIALIZE KERNEL STACK POINTER
004652	009077	176146		CLR	*SR0	INITIALIZE SR0
004656	012746	000001		MOV	#1,*(SP)	PUSH RROT KEY ON STACK
004662	004767	019422		JSR	X7,SETUP	MAKE KERNEL PAGE 1 RROT, BANK 0
						MAKE KERNEL PAGE 7 RW, EXTERNAL
						MAKE ALL OTHER PAGES RW, BANK 0
						RESTORE STACK POINTER
004666	009726			TST	(SP)+	SETUP ABORT RETURN
004670	012777	004734	176136	MOV	*RET5,*KTVEC	
004676	009077	176134		CLR	*KTSTA	
004702	009067	176504		CLR	DESTAD	INITIALIZE LOCATION TO BE ADDRESSED
						BY DATIP, DATA TO RROT PAGE
004706	012703	023414		MOV	#DESTAD+20002,R3	R3 CONTAINS VIRTUAL ADDRESS+2 OF LOCATION
						TO BE REFERENCED THRU KERNEL PAGE 1
004712	052777	000001	176104	BIS	*SR0	TURN ON KTI1-C
004720	009243			INC	-(R3)	ADJUST DATA TO RROT PAGE
004722	042777	000001	176074	BIC	#1,*SR0	TURN OFF KTI1-C
004730	104006			HLT		ADJUST DATA TO RROT PAGE FAILED TO
004732	009441			BR	DONE5	ABORT
004734	017701	176004		MOV	*SR0,R1	SAVE CONTENTS OF SR0
004740	042777	000001	176056	BIC	#1,*SR0	TURN OFF KTI1-C

004746	022701	020023		CMP	#20023,R1	CHECK SAVED CONTENTS OF SR0
004752	001401			BEG	,+4	
004754	104006			HLT		
004756	022777	000363	176042	CMP	#363,*SR1	SR0 INCORRECT-SHOULD HAVE LOCKED
004764	001401			BEG	,+4	ON DATA TO KERNEL DATA PAGE 1(RROT) AND
004766	104006			HLT		ACCESS FAULT SHOULD BE SET
						CHECK SR1
004770	022777	004720	176032	CMP	#AD5,*SR2	ISR2 INCORRECT-SHOULD HAVE LOCKED
004776	001401			BEG	,+4	ON THE ABORTED REFERENCE, WITH THE
005000	104006			HLT		VIRTUAL ADDRESS OF THE INSTRUCTION
						CHECK INSTRUCTION SPACE PDR
005002	022777	077401	176232	CMP	#77401,*KIPDR1	KIPDR1 INCORRECT-SHOULD NOT HAVE
005010	001401			BEG	,+4	BEEN CHANGED SINCE THE RROT
005012	104006			HLT		REFERENCE WAS TO DATA SPACE
						CHECK DATA SPACE PDR
005014	022777	077401	176240	CMP	#77401,*KDPDR1	KDPDR1 INCORRECT-SHOULD NOT HAVE
005022	001401			BEG	,+4	BEEN CHANGED, SINCE DATIP IS ABORTED
005024	104006			HLT		SINCE IT WILL BE FOLLOWED BY A DATO OR DATOB
						MAKE CERTAIN THAT DESTINATION
						LOCATION WAS NOT WRITTEN
						DATA TO RROT PAGE WROTE INTO
						THE DESTINATION LOCATION
						CHANGE PAGE FAULT RETURN
						TO CAUSE A HALT ON AN UNEXPECTED
						TRAP

ISHOW THAT A DATIP, DATA SEQUENCE TO A RROT PAGE (ACF#1) WITH
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
ISHOW THAT THE KTI1-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
CORRESPONDING TO THE REFERENCE IS CORRECT

005060	104400			TEST61	SCOPE	
005062	012737	000006	177570	MOV	#6,*SR	LOAD6 TEST NUMBER INTO THE DISPLAY
005070	009037	177776		CLR	*PPS	INITIALIZE PROCESSOR STATUS
005074	012700	001000		MOV	*KSTACK,SP	INITIALIZE KERNEL STACK POINTER
005100	009077	175720		CLR	*SR0	INITIALIZE SR0
005104	012746	000001		MOV	#1,*(SP)	PUSH RROT KEY ON STACK
005110	004767	019174		JSR	X7,SETUP	MAKE KERNEL PAGE 1 RROT, BANK 0
						MAKE KERNEL PAGE 7 RW, EXTERNAL
						MAKE ALL OTHER PAGES RW, BANK 0
						RESTORE STACK POINTER
005114	009726			TST	(SP)+	SETUP ABORT RETURN
005116	012777	005142	175710	MOV	*RET6,*KTVEC	
005124	009077	175706		CLR	*KTSTA	
005130	009067	176256		CLR	DESTAD	INITIALIZE LOCATION TO BE ADDRESSED
						BY DATIP, DATA TO RROT PAGE
						R3 CONTAINS VIRTUAL ADDRESS+2 OF LOCATION
						TO BE REFERENCED THRU KERNEL PAGE 1

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005140 052777 001001 175656      BIR      #1001,SR0      RETURN ON KTI1-C
005146 005243                      AD6: INC      -(R3)
005150 042777 000001 175646      BIC      #1,SR0      RETURN OFF KTI1-C
005156 104006                      HLT
005160 000441                      BR
005162 017781 175636      RET6: MOV     DONE6
005166 042777 000001 175630      BIC      @SR0,R1  SAVE CONTENTS OF SR0
005174 022701 021023      CMP      #21023,R1  RETURN OFF KTI1-C
005200 001401      BEQ
005202 104006      HLT      #CHECK SAVED CONTENTS OF SR0
                                     .+4
005204 022777 000363 175614      CMP      #363,SR1  SR0 INCORRECT-SHOULD HAVE LOCKED
005212 001401      BEQ      .+4      FOR DATO TO KERNEL DATA PAGE 1(RR0T) AND
005214 104006      HLT      #CHECK SR1
                                     .+4
005216 022777 005146 175604      CMP      #AD6,SR2  SR1 INCORRECT-SHOULD HAVE LOCKED
005224 001401      BEQ      .+4      FOR THE ABORTED REFERENCE, WHICH
005226 104006      HLT      #CHECK SR2
                                     .+4
005230 022777 077401 176004      CMP      #77401,OKIPDR1  SR2 INCORRECT-SHOULD HAVE LOCKED
005236 001401      BEQ      .+4      FOR THE ABORTED REFERENCE, WITH THE
005240 104006      HLT      #CHECK INSTRUCTION SPACE PDR
                                     .+4
005242 022777 077401 176012      CMP      #77401,OKDPDR1  KIPDR1 INCORRECT-SHOULD NOT HAVE
005250 001401      BEQ      .+4      BEEN CHANGED SINCE THE RR0T
005252 104006      HLT      #CHECK DATA SPACE PDR
                                     .+4
005254 005767 176132      TST     DESTAD  KDPDR1 INCORRECT - SHOULD NOT HAVE
005260 001401      BEQ      .+4      BEEN CHANGED, SINCE DATIP IS ABORTED
005262 104006      HLT      #MAKE CERTAIN THAT DESTINATION
                                     .+4
005264 016777 175546 175542  DONE6: MOV     KTSTA,KTVEC  SINCE IT WILL BE FOLLOWED BY I DATO OR DATOB
005272 005077 175540      CLR     @KTSTA  MAKE CERTAIN THAT DESTINATION
005276 005077 175522      CLR     @SR0    LOCATION WAS NOT WRITTEN
005302 005037 177776      CLR     @PPS    #DATO TO RR0T PAGE WROTE INTO
                                     .+4
                                     #THE DESTINATION LOCATION
                                     #CHANGE PAGE FAULT RETURN
                                     #TO CAUSE A HALT ON AN UNEXPECTED
                                     #TRAP

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ISHOW THAT A DATIP,DATOB SEQUENCE TO A RR0T PAGE (ACP=I) WITHOUT
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
ISHOW THAT THE KTI1-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
CORRESPONDING TO THE REFERENCE IS CORRECT

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005306 104400      TEST7: SCOPE
005310 012737 000007 177570      MOV     #7,PPS  #LOAD TEST NUMBER INTO THE DISPLAY
005316 005037 177776      CLR     @PPS   #INITIALIZE PROCESSOR STATUS
005322 012706 001000      MOV     @KSTACK,SP  #INITIALIZE KERNEL STACK POINTER
005326 005077 175472      CLR     @RR0    #INITIALIZE SR0
005332 012746 000001      MOV     #1,-(SP)  #POSH RR0T KEY ON STACK
005336 004767 014746      JSR     X7,SETUP  #MAKE KERNEL PAGE 1 RR0T, BANK 0
                                     #MAKE KERNEL PAGE 7 RW, EXTERNAL

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005342 005726      TST     (SP)+  #MAKE ALL OTHER PAGES RW, BANK 0
005344 012777 005406 175462      MOV     #RET7,KTVEC  #RESTORE STACK POINTER
005352 005077 175460      CLR     @KTSTA  #SETUP ABORT RETURN
005356 005067 176030      CLR     DESTAD  #INITIALIZE LOCATION TO BE ADDRESSED
                                     #BY DATIP,DATOB TO RR0T PAGE
005362 012704 023412      MOV     #DESTAD+20000,R4  #R4 CONTAINS VIRTUAL ADDRESS OF LOCATION
                                     #TO BE REFERENCED THRU KERNEL PAGE 1
005366 052777 000001 175430      BIR      #0001,SR0  RETURN ON KTI1-C
005374 105224      AD7: INCB   (R4)+  #DATIP, DATOB TO RR0T PAGE
005376 005377 175422      DEC     @SR0    #TURN OFF KTI1-C
005402 104006      HLT
005404 000440      BR
005406 017701 175412      RET7: MOV     DONE7
005412 005377 175406      DEC     @SR0,R1  SAVE CONTENTS OF SR0
005416 022701 020023      CMP     #20023,R1  RETURN OFF KTI1-C
005422 001401      BEQ
005424 104006      HLT      #CHECK SAVED CONTENTS OF SR0
                                     .+4
005426 022777 000014 175372      CMP     #14,SR1  SR0 INCORRECT-SHOULD HAVE LOCKED ON
005434 001401      BEQ      .+4      DATOB TO KERNEL DATA PAGE 1 (RR0T)
005436 104006      HLT      #ACCESS FAULT SHOULD BE SET
                                     .+4
005440 022777 005374 175362      CMP     #AD7,SR2  SR1 INCORRECT-SHOULD HAVE LOCKED
005446 001401      BEQ      .+4      FOR THE ABORTED REFERENCE, WHICH AUTO-
005450 104006      HLT      #INCREMENTED R4
                                     .+4
005452 022777 077401 175562      CMP     #77401,OKIPDR1  SR2 INCORRECT-SHOULD HAVE LOCKED
005460 001401      BEQ      .+4      FOR THE ABORTED REFERENCE, WITH THE
005462 104006      HLT      #CHECK INSTRUCTION SPACE PDR
                                     .+4
005464 022777 077401 175570      CMP     #77401,OKDPDR1  KIPDR1 INCORRECT-SHOULD NOT HAVE
005472 001401      BEQ      .+4      BEEN CHANGED
005474 104006      HLT      #CHECK DATA SPACE PDR
                                     .+4
005476 005767 175710      TST     DESTAD  KDPDR1 INCORRECT - SHOULD NOT HAVE
005502 001401      BEQ      .+4      BEEN CHANGED-DATIP IS ABORTED
005504 104006      HLT      #MAKE CERTAIN THAT DESTINATION
                                     .+4
005506 016777 175324 175320  DONE7: MOV     KTSTA,KTVEC  SINCE IT MUST BE FOLLOWED BY I DATO
005514 005077 175316      CLR     @KTSTA  MAKE CERTAIN THAT DESTINATION
005520 005077 175300      CLR     @SR0    LOCATION WAS NOT WRITTEN
005524 005037 177776      CLR     @PPS    #DATOB TO RR0T PAGE WROTE INTO
                                     .+4
                                     #THE DESTINATION LOCATION
                                     #CHANGE KTI1-C FAULT
                                     #RETURN TO CAUSE A HALT ON AN
                                     #UNEXPECTED TRAP

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ISHOW THAT A DATIP,DATOB SEQUENCE TO A RR0T PAGE (ACP=I) WITH
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
ISHOW THAT THE KTI1-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
CORRESPONDING TO THE REFERENCE IS CORRECT

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005530 104400      TEST10: SCOPE
005532 012737 000010 177570      MOV     #10,PPS  #LOAD TEST NUMBER INTO THE DISPLAY

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005540	005037	177776		CLR	#PS	INITIALIZE PROCESSOR STATUS
005544	012706	001000		MOV	#KSTACK,SP	INITIALIZE KERNEL STACK POINTER
005550	005077	179250		CLR	#SR0	INITIALIZE SR0
005554	012746	000001		MOV	#1,-(SP)	IPUSH RRO KEY ON STACK
005560	004767	014524		JSR	X7,SETUP	IMAKE KERNEL PAGE 1 RRO, BANK 0 IMAKE KERNEL PAGE 7 RW, EXTERNAL IMAKE ALL OTHER PAGES RW, BANK 0
005544	005726			TST	{SP}+	IRESTORE STACK POINTER
005546	012777	000630	179240	MOV	#RET10,*KTVEC	ISSETUP ABORT RETURN
005574	005077	179236		CLR	*KTSTA	
005600	005067	179606		CLR	DESTAD	INITIALIZE LOCATION TO BE REFERENCED IF DATIP,DATOB TO RRO PAGE
005604	012704	023412		MOV	#DESTAD+20000,R4	IR4 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
005610	052777	001001	179200	AD10I	BIC #1001,*SR0	ITURN ON KT11=C
005616	105224			INCB	{R4}+	IDATI, DATOB TO RRO PAGE
005620	005377	179200		DEC	*SR0	ITURN OFF KT11=C
005624	104006			HLT		IDATI,DATO TO RRO PAGE FAILED TO ABORT
005626	000440			BR	DONE10	
005630	017701	178170		MOV	*SR0,R1	ISAVE CONTENTS OF SR0
005634	005377	179164		DEC	*SR0	ITURN OFF KT11=C
005640	022701	021023		COMP	#21023,R1	ICHECK SAVED CONTENTS OF SR0
005644	001401			BEQ	,+4	
005646	104006			HLT		ISR0 INCORRECT-SHOULD HAVE LOCKED ON IDATOB TO KERNEL DATA PAGE 1 (RRO) IACCESS FAULT SHOULD BE SET ICHECK SR1
005650	022777	000014	179190	COMP	#14,*SR1	
005656	001401			BEQ	,+4	
005660	104006			HLT		ISR1 INCORRECT-SHOULD HAVE LOCKED FOR THE ABORTED REFERENCE, WHICH AUTO- INCREMENTED R4 ICHECK SR2
005662	022777	000616	179140	COMP	#AD10,*SR2	
005670	001401			BEQ	,+4	
005672	104006			HLT		ISR2 INCORRECT-SHOULD HAVE LOCKED FOR THE ABORTED REFERENCE, WITH THE VIRTUAL ADDRESS OF THE INSTRUCTION ICHECK INSTRUCTION SPACE POR
005674	022777	077401	179340	COMP	#77401,*KIPDR1	
005702	001401			BEQ	,+4	
005704	104006			HLT		IKIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED ICHECK DATA SPACE POR
005706	022777	077401	179340	COMP	#77401,*KOPDR1	
005714	001401			BEQ	,+4	
005716	104006			HLT		IKOPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED-DATI IS ABORTED SINCE IT MUST BE FOLLOWED BY A DATO ISINCE IT MUST BE FOLLOWED BY A DATO ILOCATION WAS NOT WRITTEN IDATOB TO RRO PAGE WROTE INTO THE DESTINATION LOCATION
005720	005767	179466		TST	DESTAD	IMAKE CERTAIN THAT DESTINATION LOCATION WAS NOT WRITTEN
005724	001401			BEQ	,+4	
005726	104006			HLT		IDATOB TO RRO PAGE WROTE INTO THE DESTINATION LOCATION
005730	016777	179102	179070	DONE10I	MOV KTSTA,*KTVEC	ICCHANGE KT11=C FAULT
005736	005077	179074		CLR	*KTSTA	IRETURN TO CAUSE A HALT ON AN UNEXPECTED TRAP
005742	005077	179096		CLR	*SR0	
005746	005037	177776		CLR	*PS	

ISHOW THAT DATI TO A RRO PAGE (ACF#2) WITHOUT MEMORY
 MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
 ISHOW THAT THE KT11=C STATUS REGISTERS CONTINUE TO TRACK, AND THAT
 THE POR CORRESPONDING TO THE REFERENCE IS CORRECT

005792	104400			TEST11	SCOPE	
005794	012737	000011	177570	MOV	#11,*SR	ILOAD TEST NUMBER INTO THE DISPLAY
005762	005037	177776		CLR	*PS	INITIALIZE PROCESSOR STATUS
005766	012706	001000		MOV	#KSTACK,SP	INITIALIZE KERNEL STACK POINTER
005772	005077	179026		CLR	*SR0	INITIALIZE SR0
005776	012746	000002		MOV	#2,-(SP)	IPUSH RRO KEY ON STACK
006002	004767	014302		JSR	X7,SETUP	IMAKE KERNEL PAGE 1 RRO, BANK 0 IMAKE KERNEL PAGE 7 RW, EXTERNAL IMAKE ALL OTHER PAGES RW, BANK 0
006006	005726			TST	{SP}+	IRESTORE STACK POINTER
006010	012777	006150	179016	MOV	#RET11,*KTVEC	ISSETUP ABORT RETURN IN CASE
006016	005077	179014		CLR	*KTSTA	
006022	012767	129292	179362	MOV	#129292,DESTAD	INITIALIZE LOCATION TO BE REFERENCED IR1 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
006030	012701	023412		MOV	#DESTAD+20000,R1	IR1 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
006034	005277	174764		INC	*SR0	ITURN ON KT11=C
006040	022721	129292		COMP	#129292,(R1)+	IDATI TO RRO PAGE
006044	001404			BEQ	OK11	
006046	005377	174792		DEC	*SR0	IFOR ERROR, TURN OFF KT11=C IRELOCATION FAILED THRU KERNEL PAGE 1
006052	104006			HLT		
006054	000441			BR	DONE11	
006056	017702	174742		MOV	*SR0,R2	ISAVE CONTENTS OF SR0
006062	105377	174736		DEC	*SR0	ITURN OFF KT11=C
006066	022702	000021		COMP	#21,R2	ICHECK SAVED CONTENTS OF SR0
006072	001401			BEQ	,+4	
006074	104006			HLT		ISR0 INCORRECT-SHOULD HAVE TRACKED REFERENCE TO DATA SPACE, IPAGE 0, WHICH GOT THE ADDRESS OF SR0 ICHECK SR1
006076	022777	000027	174722	COMP	#27,*SR1	
006104	001401			BEQ	,+4	
006106	104006			HLT		ISR1 INCORRECT-SHOULD KEEP TRACKING EVEN WITH KT11=C OFF ICHECK SR2
006110	022777	006110	174712	COMP	#1,*SR2	
006116	001401			BEQ	,+4	
006120	104006			HLT		ISR2 INCORRECT-SHOULD TRACK EVEN WHEN RT11=C IS OFF ICHECK INSTRUCTION SPACE POR POR ITHE RRO PAGE REFERENCED IKIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED ICHECK DATA SPACE POR CORRESPONDING TO THE RRO REFERENCE IKOPDR1 INCORRECT-SHOULD NOT HAVE CHANGED SINCE PAGE WAS NOT WRITTEN
006122	022777	077402	179112	COMP	#77402,*KIPDR1	
006130	001401			BEQ	,+4	
006132	104006			HLT		IKIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED ICHECK DATA SPACE POR CORRESPONDING TO THE RRO REFERENCE
006134	022777	077402	179120	COMP	#77402,*KOPDR1	
006142	001401			BEQ	,+4	
006144	104006			HLT		IKOPDR1 INCORRECT-SHOULD NOT HAVE CHANGED SINCE PAGE WAS NOT WRITTEN
006146	000404			BR	DONE11	
006150	042777	000001	174646	RET11I	BIC #1,*SR0	ITURN OFF KT11=C IDATI TO RRO PAGE CAUSED A TRAP OR ABORT
006156	104006			HLT		IRESTORE TRAP RETURN TO CAUSE HALT ON AN UNEXPECTED TRAP INITIALIZE SR0
006160	016777	174652	174646	DONE11I	MOV KTSTA,*KTVEC	
006166	005077	174644		CLR	*KTSTA	
006172	005077	174626		CLR	*SR0	

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006176 009037 177776 CLR #PS INITIALIZE PROCESSOR STATUS

ISHOW THAT A DAT1 TO A RRO PAGE (ACF=2) WITH MEMORY MANAGEMENT
ITRAP ENABLE SET DOESN'T TRAP OR ABORT
ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE
IPDR'S FOR THE PAGE REFERENCED ARE CORRECT
TEST12 SCOPE

006202 104000
006204 012737 000012 177570 MOV #12,#SR ILOAD TEST NUMBER INTO THE DISPLAY
006212 005037 177776 CLR #PS INITIALIZE PROCESSOR STATUS
006216 012706 001000 MOV #KSTACK,SP INITIALIZE KERNEL STACK POINTER
006222 005077 174576 CLR #SR0 INITIALIZE SR0
006226 012746 000002 MOV #2,=(SP) IPUSH RRO KEY ON STACK
006232 004767 014052 JSR X7,SETUP IMAKE RERNEL PAGE 1 RRO, BANK 0
IMAKE RERNEL PAGE 2 RW, EXTERNAL
IMAKE ALL OTHER PAGES RW, BANK 0
IRESTORE STACK POINTER
ISETUP TRAP RETURN

006236 005726 TST (SP)+
006240 012777 006402 174566 MOV #RET12,#KTVEC ISETUP TRAP RETURN
006244 005077 174564 CLR #KTSTA
006252 012767 125252 175132 MOV #125252,DESTAD INITIALIZE LOCATION TO BE READ
006260 012701 023412 MOV #DESTAD+20000,R1 IRI CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE
REFERENCED THRU KERNEL PAGE 1

006264 012777 001001 174332 MOV #1001,#SR0 ITURN ON KT11-C, SET HMG+ TRAP ENABLE
006272 022721 125252 CMP #125252,(R1)+ IDATI TO RRO PAGE
006276 001404 BEQ OK12
006300 005377 174520 DEC #SR0 ION ERROR, TURN OFF KT11-C
006304 104006 HLT IRELOCATION FAILED THRU RERNEL PAGE 1
006306 000441 BR
006310 017702 174910 OK12 MOV #SR0,R2 ISAVE CONTENTS OF SR0
006314 005377 174504 DEC #SR0 ITURN OFF KT11-C
006320 022702 001021 CMP #1021,R2 ICHECK SAVED CONTENTS OF SR0
006324 001401 BEQ .+4
006326 104006 HLT ISR0 INCORRECT-SHOULD HAVE TRACKED
ITR REFERENCE TO DATA SPACE, PAGE
IN WHICH GOT THE ADDRES OF SR0
ICHECK SR1

006330 022777 000027 174470 CMP #27,#SR1
006336 001401 BEQ .+4
006340 104006 HLT ISR1 INCORRECT-SHOULD CONTINUE
TRACKING WITH KT11-C OFF
ICHECK SR2

006342 022777 006342 174460 CMP #, #SR2
006350 001401 BEQ .+4
006352 104006 HLT ISR2 INCORRECT-SHOULD STILL BE
TRACKING WITH KT11-C OFF
ICHECK INSTRUCTION SPACE PDR

006354 022777 077402 174660 CMP #77402,#KIPDR1
006362 001401 BEQ .+4
006364 104006 HLT IKIPDR1 INCORRECT-SHOULD NOT HAVE CHANGED
006366 022777 077402 174660 CMP #77402,#KDPDR1 ICHECK DATA SPACE PDR
006374 001401 BEQ .+4
006376 104006 HLT IKDPDR1 INCORRECT-SHOULD NOT HAVE CHANGED
006400 000404 BR
006402 042777 000001 174414 RET121 BIC #1,#SR0 ITURN OFF KT11-C
006410 104006 HLT IDATI TO RRO PAGE CAUSED A TRAP OR ABORT
006412 016777 174420 174414 DONE121 MOV #KTSTA,#KTVEC ICHANGE KT11-C FAULT RETURN TO
006420 005077 174412 CLR #KTSTA ICause a HALT ON AN UNEXPECTED TRAP
006424 005077 174374 CLR #SR0
  
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006430 005037 177776 CLR #PS

ISHOW THAT A DAT0 (NO DAT1P) TO A RRO PAGE (ACF=2) WITHOUT
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS WITHOUT COMPLETING THE DAT0
ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
CORRESPONDING TO THE REFERENCE IS CORRECT
TEST13 SCOPE

006434 104000
006436 012737 000013 177570 MOV #13,#SR ILOAD TEST NUMBER INTO THE DISPLAY
006444 005037 177776 CLR #PS INITIALIZE PROCESSOR STATUS
006450 012706 001000 MOV #KSTACK,SP INITIALIZE KERNEL STACK POINTER
006454 005077 174344 CLR #SR0 INITIALIZE SR0
006460 012746 000002 MOV #2,=(SP) IPUSH RRO KEY ON STACK
006464 004767 013602 JSR X7,SETUP IMAKE RERNEL PAGE 1 RRO, BANK 0
IMAKE RERNEL PAGE 2 RW, EXTERNAL
IMAKE ALL OTHER PAGES RW, BANK 0
IRESTORE STACK
ISETUP ABORT RETURN

006470 005726 TST (SP)+
006472 012777 006402 174334 MOV #RET13,#KTVEC ISETUP ABORT RETURN
006500 005077 174332 CLR #KTSTA
006504 005067 174702 CLR DESTAD INITIALIZE LOCATION TO BE ADDRESSED
BY DAT0 TO RRO PAGE

006510 012701 023412 MOV #DESTAD+20000,R1 IRI CONTAINS VIRTUAL ADDRESS OF LOCATION
TO BE REFERENCED THRU KERNEL PAGE 1

006514 112777 000001 174302 MOV #1,#SR0 ITURN ON KT11-C
006522 012721 125252 AD131 MOV #125252,(R1)+ IDATO TO RRO PAGE-SHOULD ABORT
006526 042777 000001 174270 BIC #1,#SR0 ITURN OFF KT11-C
006534 104006 HLT IDATO TO RRO PAGE FAILED TO ABORT
006536 000440 BR
006540 017702 174260 RET131 MOV #SR0,R2 ISAVE CONTENTS OF SR0
006544 005377 174254 DEC #SR0 ITURN OFF KT11-C
006550 022702 020023 CMP #20023,R2 ICHECK SAVED CONTENTS OF SR0
006554 001401 BEQ .+4
006556 104006 HLT ISR0 INCORRECT-SHOULD HAVE LOCKED
ON DAT0 TO KERNEL DATA PAGE 1(RRO)
AND ACCESS VIOLATION SHOULD BE SET
ICHECK SR1

006560 022777 010427 174240 CMP #10427,#SR1
006566 001401 BEQ .+4
006570 104006 HLT ISR1 INCORRECT-SHOULD HAVE LOCKED
ON THE ABORTED REFERENCE, WHICH
AUTOINCREMENTED R7, AND THEN R1
ICHECK SR2

006572 022777 006522 174230 CMP #AD13,#SR2
006600 001401 BEQ .+4
006602 104006 HLT ISR2 INCORRECT-SHOULD HAVE LOCKED
ON THE ABORTED REFERENCE, WITH THE
VIRTUAL ADDRESS OF THE INSTRUCTION
ICHECK INSTRUCTION SPACE PDR

006604 022777 077402 174430 CMP #77402,#KIPDR1
006612 001401 BEQ .+4
006614 104006 HLT IKIPDR1 INCORRECT-SHOULD NOT HAVE
BEEN CHANGED
ICHECK DATA SPACE PDR

006616 022777 077402 174430 CMP #77402,#KDPDR1
006624 001401 BEQ .+4
006626 104006 HLT IKDPDR1 INCORRECT-SHOULD NOT
HAVE BEEN CHANGED
IMAKE CERTAIN THAT DESTINATION
LOCATION WAS NOT WRITTEN

006630 005767 174556 TST DESTAD
006634 001401 BEQ .+4
  
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006636	104006				HLT				IDATO TO RRO PAGE WROTE INTO THE DESTINATION LOCATION CHANGE KT11-C FAULT RETURN TO CAUSE A HALT ON AN UNEXPECTED TRAP
006640	016777	174172	174166	DONE13	MOV	KTSTA,PKTVEC			
006646	005077	174164			CLR	KTSTA			
006652	005077	174146			CLR	SR0			
006656	005037	177776			CLR	SR0			
ISHOW THAT A DATO (NO DATIP) TO A RRO PAGE (ACF=2) WITH MEMORY MANAGEMENT TRAP ENABLE SET ABORTS ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR ICORRESPONDING TO THE REFERENCE IS CORRECT									
006662	104400				TEST14	SCOPE			
006664	012737	000014	177570		MOV	#14,SR			LOAD TEST NUMBER INTO THE DISPLAY
006672	005037	177776			CLR	SR0			INITIALIZE PROCESSOR STATUS
006676	012706	001000			MOV	KTSTACK,SP			INITIALIZE KERNEL STACK POINTER
006702	005077	174116			CLR	SR0			INITIALIZE SR0
006706	012746	000002			MOV	#2,SR			PUSH RRO KEY ON STACK
006712	004767	013372			JSR	X7,SETUP			MAKE KERNEL PAGE 1 RRO, BANK 0 MAKE KERNEL PAGE 7 RW, EXTERNAL MAKE ALL OTHER PAGES RW, BANK 0 RESTORE STACK
006716	005726				TST	(SP)+			SETUP ABORT RETURN
006720	012777	006764	174106		MOV	RET14,KTVEC			
006726	005077	174104			CLR	KTSTA			
006732	005067	174454			CLR	DESTAD			INITIALIZE LOCATION TO BE ADDRESSED BY DATO TO RRO PAGE
006736	012702	023412			MOV	DESTAD+20000,R2			R2 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
006742	012777	001001	174054		MOV	#1001,SR0			TORN ON KT11-C, SET MGMT TRAP ENABLE
006750	012722	125252		AD14	MOV	#125252,(R2)+			DATO TO RRO PAGE-SHOULD ABORT
006754	105377	174044			DECB	SR0			TORN OFF KT11-C
006760	104006				HLT				DATO TO RRO PAGE FAILED TO ABORT
006762	000440				BR	DONE14			
006764	017701	174034		REF14	MOV	SR0,R1			SAVE CONTENTS OF SR0
006770	005377	174030			DEC	SR0			TORN OFF KT11-C
006774	022701	021023			CMR	#21023,R1			CHECK SAVED CONTENTS OF SR0
006780	001401				BEQ	,+4			
006782	104006				HLT				SR0 INCORRECT-SHOULD HAVE LOCKED FOR DATO TO KERNEL DATA PAGE 1(RRO) AND ACCESS FAULT SHOULD BE SET
007004	022777	011027	174014		CMR	#11027,SR1			
007012	001401				BEQ	,+4			
007014	104006				HLT				SR1 INCORRECT-SHOULD HAVE LOCKED FOR THE ABORTED REFERENCE, WHICH AUTO- INCREMENTED R7, AND THEN R2
007016	022777	006700	174004		CMR	#AD14,SR2			
007024	001401				BEQ	,+4			
007026	104006				HLT				SR2 INCORRECT-SHOULD HAVE LOCKED FOR THE ABORTED REFERENCE, WITH THE VIRTUAL ADDRESS OF THE INSTRUCTION
007030	022777	077402	174204		CMR	#77402,SKIPDR1			CHECK INSTRUCTION SPACE PDR
007036	001401				BEQ	,+4			
007040	104006				HLT				SKIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED
007042	022777	077402	174212		CMR	#77402,SKDPDR1			CHECK DATA SPACE PDR

007050	001401				BEQ	,+4			
007052	104006				HLT				SKIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED
007054	005767	174332			TST	DESTAD			MAKE CERTAIN THAT DESTINATION LOCATION HAS NOT WRITTEN
007060	001401				BEQ	,+4			
007062	104006				HLT				DATO TO RRO PAGE WROTE INTO THE DESTINATION LOCATION CHANGE KT11-C FAULT RETURN TO CAUSE A HALT ON AN UNEXPECTED TRAP
007064	016777	173746	173742	DONE14	MOV	KTSTA,PKTVEC			
007072	005077	173740			CLR	KTSTA			
007076	005077	173722			CLR	SR0			
007102	005037	177776			CLR	SR0			
ISHOW THAT A DATIP, DATO SEQUENCE TO A RRO PAGE (ACF=2) WITHOUT MEMORY MANAGEMENT TRAP ENABLE SET ABORTS ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR ICORRESPONDING TO THE REFERENCE IS CORRECT									
007106	104400				TEST15	SCOPE			
007110	012737	000015	177570		MOV	#15,SR			LOAD TEST NUMBER INTO THE DISPLAY
007116	005037	177776			CLR	SR0			INITIALIZE PROCESSOR STATUS
007122	012706	001000			MOV	KTSTACK,SP			INITIALIZE KERNEL STACK POINTER
007126	005077	173672			CLR	SR0			INITIALIZE SR0
007132	012746	000002			MOV	#2,SR			PUSH RRO KEY ON STACK
007136	004767	013146			JSR	X7,SETUP			MAKE KERNEL PAGE 1 RRO,BANK 0 MAKE KERNEL PAGE 7 RW, EXTERNAL MAKE ALL OTHER PAGES RW, BANK 0 RESTORE STACK POINTER
007142	005726				TST	(SP)+			SETUP ABORT RETURN
007144	012777	007210	173662		MOV	RET15,KTVEC			
007152	005077	173640			CLR	KTSTA			
007156	005067	174230			CLR	DESTAD			INITIALIZE LOCATION TO BE ADDRESSED BY DATIP,DATO TO RRO PAGE
007162	012703	023414			MOV	DESTAD+20000,R3			R3 CONTAINS ADDRESS+2 OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
007166	052777	000001	173630		BIS	#1,SR0			TORN ON KT11-C
007174	005243			AD15	INC	-(R3)			DATIP, DATO TO RRO PAGE = SHOULD ABORT
007176	042777	000001	173620		BIC	#1,SR0			TORN OFF KT11-C
007204	104006				HLT				DATIP, DATO TO RRO PAGE FAILED TO ABORT
007206	000441				BR	DONE15			
007210	017701	173610		REF15	MOV	SR0,R1			SAVE CONTENTS OF SR0
007214	042777	000001	173602		BIC	#1,SR0			TORN OFF KT11-C
007222	022701	020023			CMR	#20023,R1			CHECK SAVED CONTENTS OF SR0
007226	001401				BEQ	,+4			
007230	104006				HLT				SR0 INCORRECT-SHOULD HAVE LOCKED FOR DATIP, DATO TO KERNEL DATA PAGE 1(RRO) ACCESS FAULT SHOULD BE SET
007232	022777	000363	173566		CMR	#363,SR1			
007240	001401				BEQ	,+4			
007242	104006				HLT				SR1 INCORRECT-SHOULD HAVE LOCKED FOR THE ABORTED REFERENCE, WHICH AUTODECREMENTED R3
007244	022777	007174	173556		CMR	#AD15,SR2			
007252	001401				BEQ	,+4			
007254	104006				HLT				SR2 INCORRECT-SHOULD HAVE LOCKED FOR THE ABORTED REFERENCE, CONTAINING THE

007256	022777	077402	173756	CMP	#77402,0K1PDR1	IVIRTUAL ADDRESS OF THE INSTRUCTION
007264	001401			BEQ	,+4	ICHECK INSTRUCTION SPACE PDR
007266	104006			HLT		IKIPDR1 INCORRECT=SHOULD NOT HAVE
						IBEEN CHANGED
007270	022777	077402	173764	CMP	#77402,0K0PDR1	ICHECK DATA SPACE PDR
007276	001401			BEQ	,+4	
007300	104006			HLT		IK0PDR1 INCORRECT = SHOULD NOT HAVE
						IBEEN CHANGED, SINCE THE INSTRUCTION WAS
						ABORTED BEFORE THE WRITE OCCURRED
007302	005767	174104		TST	DESTAD	IMAKE CERTAIN THAT DESTINATION
007306	001401			BEQ	,+4	LOCATION WAS NOT WRITTEN
007310	104006			HLT		IDATO TO RRO PAGE WROTE INTO
						ITHE DESTINATION LOCATION
007312	016777	173520	173514	DONE15	MOV KTSTA,0KTVEC	ICRANGE PAGE FAULT RETURN
007320	005077	173512		CLR	0KTSTA	ITD CAUSE A HALT ON AN UNEXPECTED
007324	005077	173474		CLR	0SR0	ITRAP
007330	005037	177776		CLR	0#PS	

ISHOW THAT A DATIP, DATO SEQUENCE TO A RRO PAGE (ACF=2) WITH
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
ISHOW THAT THE KT11=C STATUS REGISTERS LOCK UP, AND THAT THE PDR
ICORRESPONDING TO THE REFERENCE IS CORRECT

007334	104400			TEST16	SCOPE	
007336	012737	000016	177570	MOV	#16,0#R	ILOAD TEST NUMBER INTO THE DISPLAY
007344	005037	177776		CLR	0#PS	IINITIALIZE PROCESSOR STATUS
007350	012706	001000		MOV	#KSTACK,SP	IINITIALIZE KERNEL STACK POINTER
007354	005077	173444		CLR	0SR0	IINITIALIZE SR0
007360	012746	000002		MOV	#2,=(SP)	IPUSH RRO KEY ON STACK
007364	004767	012720		JSR	X7,SETUP	IMAKE KERNEL PAGE 1 RRO, BANK 0
						IMAKE KERNEL PAGE 7 RW, EXTERNAL
						IMAKE ALL OTHER PAGES RW, BANK 0
						IRESTORE STACK POINTER
007370	005726			TST	(SP)+	ISETUP ABORT RETURN
007372	012777	007436	173434	MOV	#RET16,0KTVEC	
007400	005077	173432		CLR	0KTSTA	
007404	005067	174002		CLR	DESTAD	IINITIALIZE LOCATION TO BE ADDRESSED
						IBY DATIP, DATO TO RRO PAGE
007410	012703	023414		MOV	#DESTAD+20002,R3	IR3 CONTAINS ADDRESS+2 OF LOCATION
						ITO BE REFERENCED THRU KERNEL PAGE 1
007414	052777	001001	173402	BIS	#1001,0SR0	ITURN ON KT11=C
007422	005243			INC	-(R3)	IDATIP, DATO TO RRO PAGE = SHOULD ABORT
007424	042777	000001	173372	BIC	#1,0SR0	ITURN OFF KT11=C
007432	104006			HLT		IDATIP, DATO TO RRO PAGE FAILED TO
007434	000441			BR	DONE16	ABORT
007436	017701	173362		MOV	0SR0,R1	ISAVE CONTENTS OF SR0
007442	042777	000001	173354	BIC	#1,0SR0	ITURN OFF KT11=C
007450	022701	021023		CMP	#21023,R1	ICHECK SAVED CONTENTS OF SR0
007454	001401			BEQ	,+4	
007456	104006			HLT		ISR0 INCORRECT=SHOULD HAVE LOCKED
						FOR DATIP, DATO TO KERNEL DATA PAGE 1(RRO)
						IAccess FAULT SHOULD BE SET
007460	022777	000363	173340	CMP	#363,0SR1	ICHECK SR1
007466	001401			BEQ	,+4	
007470	104006			HLT		ISR1 INCORRECT=SHOULD HAVE LOCKED

007472	022777	007422	173330	CMP	#AD16,0SR2	IFON THE ABORTED REFERENCE, WHICH
007500	001401			BEQ	,+4	IAUTODECREMENTED R3
007502	104006			HLT		ICHECK SR2
						ISR2 INCORRECT=SHOULD HAVE LOCKED
						FOR THE ABORTED REFERENCE, CONTAINING THE
007504	022777	077402	173530	CMP	#77402,0K1PDR1	IVIRTUAL ADDRESS OF THE INSTRUCTION
007512	001401			BEQ	,+4	ICHECK INSTRUCTION SPACE PDR
007514	104006			HLT		IKIPDR1 INCORRECT=SHOULD NOT HAVE
						IBEEN CHANGED
007516	022777	077402	173536	CMP	#77402,0K0PDR1	ICHECK DATA SPACE PDR
007524	001401			BEQ	,+4	
007526	104006			HLT		IK0PDR1 INCORRECT = SHOULD NOT HAVE
						IBEEN CHANGED, SINCE THE INSTRUCTION WAS
						ABORTED BEFORE THE WRITE OCCURRED
007530	005767	173656		TST	DESTAD	IMAKE CERTAIN THAT DESTINATION
007534	001401			BEQ	,+4	LOCATION WAS NOT WRITTEN
007536	104006			HLT		IDATO TO RRO PAGE WROTE INTO
						ITHE DESTINATION LOCATION
007540	016777	173272	173266	DONE16	MOV KTSTA,0KTVEC	ICRANGE PAGE FAULT RETURN
007546	005077	173264		CLR	0KTSTA	ITD CAUSE A HALT ON AN UNEXPECTED
007552	005077	173246		CLR	0SR0	ITRAP
007556	005037	177776		CLR	0#PS	

ISHOW THAT A DATIP, DATOB SEQUENCE TO A RRO PAGE (ACF=2) WITHOUT
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
ISHOW THAT THE KT11=C STATUS REGISTERS LOCK UP, AND THAT THE PDR
ICORRESPONDING TO THE REFERENCE IS CORRECT

007562	104400			TEST17	SCOPE	
007564	012737	000017	177570	MOV	#17,0#R	ILOAD TEST NUMBER INTO THE DISPLAY
007572	005037	177776		CLR	0#PS	IINITIALIZE PROCESSOR STATUS
007576	012706	001000		MOV	#KSTACK,SP	IINITIALIZE KERNEL STACK POINTER
007602	005077	173216		CLR	0SR0	IINITIALIZE SR0
007606	012746	000002		MOV	#2,=(SP)	IPUSH RRO KEY ON STACK
007612	004767	012472		JSR	X7,SETUP	IMAKE KERNEL PAGE 1 RRO, BANK 0
						IMAKE KERNEL PAGE 7 RW, EXTERNAL
						IMAKE ALL OTHER PAGES RW, BANK 0
						IRESTORE STACK POINTER
007616	005726			TST	(SP)+	ISETUP ABORT RETURN
007620	012777	007662	173206	MOV	#RET17,0KTVEC	
007626	005077	173204		CLR	0KTSTA	
007632	005067	173554		CLR	DESTAD	IINITIALIZE LOCATION TO BE ADDRESSED
						IBY DATIP, DATOB TO RRO PAGE
007636	012704	023412		MOV	#DESTAD+20000,R4	IR4 CONTAINS ADDRESS OF LOCATION
						ITO BE REFERENCED THRU KERNEL PAGE 1
007642	052777	000001	173154	BIS	#1,0SR0	ITURN ON KT11=C
007650	105224			INCB	(R4)+	IDATIP, DATOB TO RRO PAGE = SHOULD ABORT
007652	005377	173146		DEC	0SR0	ITURN OFF KT11=C
007656	104006			HLT		IDATIP, DATO TO RRO PAGE FAILED
007660	000440			BR	DONE17	ITD ABORT
007662	017701	173136		MOV	0SR0,R1	ISAVE CONTENTS OF SR0
007666	005377	173132		DEC	0SR0	ITURN OFF KT11=C
007672	022701	020023		CMP	#20023,R1	ICHECK SAVED CONTENTS OF SR0


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007676 001401 BEQ .+4
007700 104006 HLT

007702 022777 000014 173110 CMP #14,*SR1
007710 001401 BEQ .+4
007712 104006 HLT

007714 022777 007650 173100 CMP #AD17,*SR2
007722 001401 BEQ .+4
007724 104006 HLT

007726 022777 077402 173300 CMP #77402,*KIPDR1
007734 001401 BEQ .+4
007736 104006 HLT

007740 022777 077402 173314 CMP #77402,*KOPDR1
007746 001401 BEQ .+4
007750 104006 HLT

007752 005767 173434 TST DESTAD
007756 001401 BEQ .+4
007760 104006 HLT

007762 016777 173050 173044 DONE17 MOV KTSTA,*KTVEC
007770 005077 173042 CLR *KTSTA
007774 005077 173024 CLR *SR0
010000 005037 177776 CLR *PPS

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SHOW THAT A DATIP,DATOB SEQUENCE TO A RRO PAGE (ACF=2) WITH
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
SHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
CORRESPONDING TO THE REFERENCE IS CORRECT

```

010004 104400 TEST20 SCOPE
010006 012737 000020 177570 MOV #20,*SR
010014 005037 177776 CLR *PPS
010020 012706 001000 MOV *KSTACK,SP
010024 005077 172774 CLR *SR0
010030 012746 000002 MOV #2,=(SP)
010034 004767 012250 JSR X7,SETUP

010040 005726 TST (SP)+
010042 012777 010104 172764 MOV #RET20,*KTVEC
010050 005077 172762 CLR *KTSTA
010054 005067 173332 CLR DESTAD

010060 012704 023412 MOV #DESTAD+20000,R4

010064 052777 001001 172732 BIS #1001,*SR0
010072 105224 AD20 INCB (R4)+

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010074 005377 172724 DEC *SR0
010100 104006 HLT
010102 000440 BR DONE20
010104 017701 172714 RET20 MOV *SR0,R1
010110 005377 172710 DEC *SR0
010114 022701 021023 CMP #21023,R1
010120 001401 BEQ .+4
010122 104006 HLT

010124 022777 000014 172674 CMP #14,*SR1
010132 001401 BEQ .+4
010134 104006 HLT

010136 022777 010072 172664 CMP #AD20,*SR2
010144 001401 BEQ .+4
010146 104006 HLT

010150 022777 077402 173064 CMP #77402,*KIPDR1
010156 001401 BEQ .+4
010160 104006 HLT

010162 022777 077402 173072 CMP #77402,*KOPDR1
010170 001401 BEQ .+4
010172 104006 HLT

010174 005767 173212 TST DESTAD
010200 001401 BEQ .+4
010202 104006 HLT

010204 016777 172626 172622 DONE20 MOV KTSTA,*KTVEC
010212 005077 172620 CLR *KTSTA
010216 005077 172602 CLR *SR0
010222 005037 177776 CLR *PPS

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THE FOLLOWING TESTS (21-30) ARE RUN FOR EACH OF THE NON-RESIDENT
KEYS - A PASS IS MADE FOR KEY 0, THEN A PASS IS MADE FOR KEY 3,
AND FINALLY A PASS IS MADE FOR KEY 7
THE CURRENT KEY IS STORED ON THE STACK

SHOW THAT DATI TO A NR PAGE WITHOUT MEMORY
MANAGEMENT TRAP ENABLE SET ABORTS WITHOUT COMPLETING
SHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT
THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

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010226 104400 TEST21 SCOPE
010230 005037 001000 CLR *KSTACK

010234 012737 000021 177570 MOV #21,*SR
010242 005037 177776 CLR *PPS
010246 012706 001000 MOV *KSTACK,SP

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010202	005077	172546	CLR	0SR0	INITIALISE SR0
010206	004767	012026	JSR	X7,SETUP	MAKE KERNEL PAGE I NR, BANK 0
					MAKE KERNEL PAGE 7 RW, EXTERNAL
					MAKE ALL OTHER PAGES RW, BANK 0
					SETUP ABORT RETURN
010242	012777	010326	MOV	#RET21,*KTVEC	INITIALISE DESTINATION LOCATION
010270	005077	172542	CLR	*KTSTA	INITIALISE SOURCE LOCATION
010274	005003		CLR	R3	R1 CONTAINS VIRTUAL ADDRESS OF LOCATION
010276	012767	125292	MOV	#125252,DESTAD	ITD BE REFERENCED THRU KERNEL PAGE 1
010304	012701	023412	MOV	#DESTAD+20000,R1	ITURN ON KT11-C
010310	005277	172510	INC	0SR0	IDATI TO NR PAGE - SHOULD ABORT
010314	012103		AD211	(R1)+,R3	FOR ERROR, TURN OFF KT11-C
010316	005377	172502	DEC	0SR0	IND ABORT ON DATI TO A NONRESIDENT PAGE
010322	104006		HLT		
010324	000445		BR	DONE21	
010326	017702	172472	MOV	0SR0,R2	ISAVE CONTENTS OF SR0
010332	105377	172466	DEC	0SR0	ITURN OFF KT11-C
010336	022702	100023	CMP	#100023,R2	ICHECK SAVED CONTENTS OF SR0
010342	001401		BEQ	,+4	
010344	104006		HLT		ISR0 INCORRECT=SHOULD HAVE
					LOCKED ON REFERENCE TO DATA SPACE,
					KERNEL PAGE 1 WHICH HAS NON-RESIDENT
					ICHECK SR1
010346	022777	000021	CMP	#21,*SR1	
010354	001401		BEQ	,+4	
010356	104006		HLT		ISR1 INCORRECT=SHOULD HAVE
					LOCKED UP AFTER NR
					ACCESS AUTO INCREMENTED
					REGISTER 1 BY TWO
					ICHECK SR2
010360	022777	010314	CMP	#AD21,*SR2	
010366	001401	172442	BEQ	,+4	
010370	104006		HLT		ISR2 INCORRECT=SHOULD HAVE LOCKED ON
					NR REFERENCE
010372	017705	172644	MOV	*KIPDR1,R5	MOVE CONTENTS OF KIPDR1 TO R5
010376	042705	000007	BIC	#7,R5	ITD MASK OFF ACCESS KEY
010402	022705	077400	CMP	#77400,R5	ICHECK INSTRUCTION SPACE FOR
010406	001401		BEQ	,+4	ITHE NR PAGE REFERENCED (BITS 0-2 MASKED OUT)
010410	104006		HLT		IKIPDR1 INCORRECT=SHOULD NOT
					HAVE BEEN CHANGED
010412	017704	172644	MOV	*KOPDR1,R4	MOVE CONTENTS OF KOPDR1 TO R5
010416	042704	000007	BIC	#7,R4	ITD MASK OFF ACCESS KEY
010422	022704	077400	CMP	#77400,R4	ICHECK DATA SPACE FOR CORRESPONDING
010426	001401		BEQ	,+4	ITD THE ROOT REFERENCE
010430	104006		HLT		IKOPDR1 INCORRECT= SHOULD NOT
					HAVE BEEN CHANGED
010432	005703		TST	R3	ICHECK DESTINATION LOCATION TO SEE
010434	001401		BEQ	,+4	IF INSTRUCTION ALTERED IT BEFORE ABORTING
010436	104006		HLT		IF INSTRUCTION COMPLETED BEFORE ABORT OCCURRED
010440	016777	172372	MOV	*KTSTA,*KTVEC	RESTORE TRAP RETURN TO CAUSE HALT
010446	005077	172364	CLR	*KTSTA	ON AN UNEXPECTED TRAP
010452	005077	172346	CLR	0SR0	INITIALISE SR0
010456	005037	177776	CLR	*#PS	INITIALISE PROCESSOR STATUS

ISHOW THAT A DATI TO A NR PAGE WITH MEMORY MANAGEMENT
ITRAP ENABLE SET ABORTS WITHOUT COMPLETING

					ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE
					IPDR/S FOR THE PAGE REFERENCED ARE CORRECT
010462	104400		TEST221	SCOPE	
010464	012737	000022	MOV	#22,*#SR	LOAD TEST NUMBER INTO THE DISPLAY
010472	005037	177776	CLR	*#PS	INITIALISE PROCESSOR STATUS
010476	012706	001000	MOV	*KSTACK,SP	INITIALISE KERNEL STACK POINTER
010502	005077	172316	CLR	0SR0	INITIALISE SR0
010506	004767	011576	JSR	X7,SETUP	MAKE KERNEL PAGE I NR, BANK 0
					MAKE KERNEL PAGE 7 RW, EXTERNAL
					MAKE ALL OTHER PAGES RW, BANK 0
					SETUP ABORT RETURN
010512	012777	010560	MOV	#RET22,*KTVEC	INITIALISE LOCATION TO BE READ
010520	005077	172312	CLR	*KTSTA	ICLEAR REGISTER TO SAVE WHAT WAS READ
010524	012767	125292	MOV	#125252,DESTAD	ITRAPS CHECKING TO SEE THAT THE
010532	005003		CLR	R3	INSTRUCTION DIDN'T COMPLETE
010534	012701	023412	MOV	#DESTAD+20000,R1	R1 CONTAINS VIRTUAL ADDRESS OF LOCATION
010540	012777	001001	MOV	#1001,*SR0	ITD BE REFERENCED THRU KERNEL PAGE 1
010546	012103		AD221	(R1)+,R3	ITURN ON KT11-C, SET HMC7 TRAP ENABLE
010550	105077	172250	CLRB	0SR0	IDATI TO NR PAGE - SHOULD ABORT
010554	104006		HLT		IF NO ABORT, TURN OFF KT11-C
010556	000445		BR	DONE22	IDATI TO NR PAGE WITH MEMORY
					MANAGEMENT TRAP ENABLE SET DIDN'T
					CAUSE AN ABORT
010560	017702	172240	MOV	0SR0,R2	ISAVE CONTENTS OF SR0
010564	005377	172234	DEC	0SR0	ITURN OFF KT11-C
010570	022702	101023	CMP	#101023,R2	ICHECK SAVED CONTENTS OF SR0
010574	001401		BEQ	,+4	
010576	104006		HLT		ISR0 INCORRECT=SHOULD HAVE LOCKED ON NR
					REFERENCE TO DATA SPACE, KERNEL PAGE 1
					ICHECK SR1
010600	022777	000021	CMP	#21,*SR1	
010606	001401		BEQ	,+4	
010610	104006		HLT		ISR1 INCORRECT=SHOULD HAVE LOCKED ON THE
					NR REFERENCE WHICH AUTO INCREMENTED R1 BY ONE
					ICHECK SR2
010612	022777	010546	CMP	#AD22,*SR2	
010620	001401	172210	BEQ	,+4	
010622	104006		HLT		ISR2 INCORRECT=SHOULD HAVE LOCKED
					ON THE NR REFERENCE
010624	017704	172412	MOV	*KIPDR1,R4	MOVE CONTENTS OF KIPDR1 TO R4
010630	042704	000007	BIC	#7,R4	ITD MASK OFF THE ACCESS KEY
010634	022704	077400	CMP	#77400,R4	ICHECK INSTRUCTION SPACE FOR
010640	001401		BEQ	,+4	(BITS 0-2 MASKED OUT)
010642	104006		HLT		IKIPDR1 INCORRECT=SHOULD NOT
					HAVE BEEN CHANGED
010644	017705	172412	MOV	*KOPDR1,R5	MOVE CONTENTS OF KOPDR1 TO R5
010650	042705	000007	BIC	#7,R5	ITD MASK OFF THE ACCESS KEY
010654	022705	077400	CMP	#77400,R5	ICHECK DATA SPACE FOR
010660	001401		BEQ	,+4	(BITS 0-2 MASKED OUT)
010662	104006		HLT		IKOPDR1 INCORRECT= SHOULD NOT
					HAVE BEEN CHANGED
010664	005703		TST	R3	IMAKE SURE INSTRUCTION DIDN'T COMPLETE
010666	001401		BEQ	,+4	
010670	104006		HLT		ITHE INSTRUCTION REFERENCING THE NR
					PAGE DIDN'T ABORT BEFORE COMPLETING

010672	016777	172140	172134	DONE22	MOV	KTSTA,*KTVEC	ICHANGE KT11-C FAULT RETURN TO
010700	009077	172132			CLR	*KTSTA	ICAUSE A HALT ON AN UNEXPECTED TRAP
010704	009077	172114			CLR	*SR0	
010710	009037	177776			CLR	*#PS	

ISHOW THAT A DATO (NO DATIP) TO A NR PAGE WITHOUT
 MEMORY MANAGEMENT TRAP ENABLE SET ABORTS WITHOUT COMPLETING THE DATO
 ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
 CORRESPONDING TO THE REFERENCE IS CORRECT

010714	104400				TEST23	SCOPE	
010716	012737	000023	177570		MOV	#23,*#SR	ILDA0 TEST NUMBER INTO THE DISPLAY
010724	009037	177776			CLR	*#PS	INITIALIZE PROCESSOR STATUS
010730	012700	001000			MOV	*KSTACK,SP	INITIALIZE KERNEL STACK POINTER
010734	009077	172064			CLR	*SR0	INITIALIZE SR0
010740	004767	011344			JSR	X7,SETUP	MAKE KERNEL PAGE I NR, BANK 0 MAKE KERNEL PAGE ? RW, EXTERNAL MAKE ALL OTHER PAGES RW, BANK 0 SETUP ABORT RETURN
010744	012777	011012	172062		MOV	*RET23,*KTVEC	
010752	009077	172060			CLR	*KTSTA	
010756	009067	172430			CLR	DESTAD	INITIALIZE LOCATION TO BE ADDRESSED BY DATO TO NR PAGE
010762	012701	023412			MOV	*DESTAD+20000,R1	R1 CONTAINS ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
010766	112777	000001	172030		MOVB	#1,*SR0	TURN ON KT11-C
010774	012721	129252		AD23	MOV	#129252,(R1)+	DATO TO NR PAGE-SHOULD ABORT
011000	042777	000001	172010		BIC	#1,*SR0	TURN OFF KT11-C
011006	104000				HLT		DATO TO NR PAGE FAILED TO ABORT
011010	000446				BR		
011012	017702	172006		RET23	MOV	DONE23	GIVE CONTENTS OF SR0
011016	009377	172002			DEC	*SR0	TURN OFF KT11-C
011022	022702	100023			CMP	#100023,R2	CHECK SAVED CONTENTS OF SR0
011026	001401				BEQ	,+4	
011030	104000				HLT		SR0 INCORRECT-SHOULD HAVE LOCKED ON DATO TO KERNEL DATA PAGE 1(NR) NR FAULT SHOULD BE SET
011032	022777	010427	171766		CMP	#10427,*SR1	
011040	001401				BEQ	,+4	
011042	104000				HLT		SR1 INCORRECT-SHOULD HAVE LOCKED ON THE ABORTED REFERENCE, WHICH AUTOINCREMENTED R7 AND THEN R1 CHECK SR2
011044	022777	010774	171750		CMP	#AD23,*SR2	
011052	001401				BEQ	,+4	
011054	104000				HLT		SR2 INCORRECT-SHOULD HAVE LOCKED ON THE ABORTED REFERENCE, CONTAINING THE VIRTUAL ADDRESS OF THE INSTRUCTION
011056	017703	172160			MOV	*KIPDR1,R3	MOVE CONTENTS OF KIPDR1 TO R3
011062	042703	000007			BIC	#7,R3	TO MASK OFF THE ACCESS KEY
011066	022703	077400			CMP	#77400,R3	CHECK INSTRUCTION SPACE PDR
011072	001401				BEQ	,+4	(BITS 0-2 MASKED OUT)
011074	104000				HLT		KIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED
011076	017704	172160			MOV	*KOPDR1,R4	MOVE CONTENTS OF KOPDR1 TO R4
011082	042704	000007			BIC	#7,R4	TO MASK OFF THE ACCESS KEY
011086	022704	077400			CMP	#77400,R4	CHECK DATA SPACE PDR

011112	001401				BEQ	,+4	(BITS 0-2 MASKED OUT)
011114	104000				HLT		KOPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED
011116	009767	172270			TST	DESTAD	MAKE CERTAIN THAT DESTINATION LOCATION WAS NOT WRITTEN
011122	001401				BEQ	,+4	DATO TO NR PAGE WROTE
011124	104000				HLT		TO THE DESTINATION LOCATION
011126	016777	171704	171700	DONE23	MOV	KTSTA,*KTVEC	ICHANGE KT11-C FAULT RETURN
011134	009077	171676			CLR	*KTSTA	TO CAUSE A HALT ON AN UNEXPECTED TRAP
011140	009077	171660			CLR	*SR0	
011144	009037	177776			CLR	*#PS	

ISHOW THAT A DATO (NO DATIP) TO A NR PAGE WITH
 MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
 ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
 CORRESPONDING TO THE REFERENCE IS CORRECT

011150	104400				TEST24	SCOPE	
011152	012737	000024	177570		MOV	#24,*#SR	ILDA0 TEST NUMBER INTO THE DISPLAY
011160	009037	177776			CLR	*#PS	INITIALIZE PROCESSOR STATUS
011164	012700	001000			MOV	*KSTACK,SP	INITIALIZE KERNEL STACK POINTER
011170	009077	171630			CLR	*SR0	INITIALIZE SR0
011174	004767	011110			JSR	X7,SETUP	MAKE KERNEL PAGE I NR, BANK 0 MAKE KERNEL PAGE ? RW, EXTERNAL MAKE ALL OTHER PAGES RW, BANK 0 SETUP ABORT RETURN
011200	012777	011244	171626		MOV	*RET24,*KTVEC	
011206	009077	171624			CLR	*KTSTA	
011212	009067	172174			CLR	DESTAD	INITIALIZE LOCATION TO BE ADDRESSED BY DATO TO NR PAGE
011216	012702	023412			MOV	*DESTAD+20000,R2	R2 CONTAINS ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
011222	012777	001001	171574		MOV	#1001,*SR0	TURN ON KT11-C, HMTG TRAP ENABLE
011230	012722	129252		AD24	MOV	#129252,(R2)+	DATO TO NR PAGE-SHOULD ABORT
011234	109377	171564			DEC	*SR0	TURN OFF KT11-C
011240	104000				HLT		DATO TO NR PAGE FAILED TO ABORT
011242	000446				BR		
011244	017701	171554		RET24	MOV	DONE24	GIVE CONTENTS OF SR0
011250	009377	171550			DEC	*SR0	TURN OFF KT11-C
011254	022701	101023			CMP	#101023,R1	CHECK SAVED CONTENTS OF SR0
011260	001401				BEQ	,+4	
011262	104000				HLT		SR0 INCORRECT-SHOULD HAVE LOCKED ON DATO TO KERNEL DATA PAGE 1(NR) AND NR FAULT SHOULD BE SET
011264	022777	011027	171534		CMP	#11027,*SR1	
011272	001401				BEQ	,+4	
011274	104000				HLT		SR1 INCORRECT-SHOULD HAVE LOCKED ON THE ABORTED REFERENCE, WHICH AUTO- INCREMENTED R7 AND THEN R2 CHECK SR2
011276	022777	011230	171524		CMP	#AD24,*SR2	
011304	001401				BEQ	,+4	
011306	104000				HLT		SR2 INCORRECT-SHOULD HAVE LOCKED ON THE ABORTED REFERENCE, CONTAINING THE VIRTUAL ADDRESS OF THE INSTRUCTION
011310	017703	171726			MOV	*KIPDR1,R3	MOVE CONTENTS OF I-SPACE PDR TO R3
011314	042703	000007			BIC	#7,R3	TO MASK OFF THE ACCESS KEY

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011320 022703 077400      CMP    #77400,R3      ICHECK INSTRUCTION SPACE PDR
011324 001401             BEQ    ,+4           WITH BITS 0-2 MASKED OFF
011326 104006             HLT                               KIPDR1 INCORRECT-SHOULD NOT
                                       HAVE BEEN CHANGED
011330 017704 171726      MOV    #KOPDR1,R4    MOVE CONTENTS OF 0-SPACE PDR TO R4
011334 042704 000007      BIC    #7,R4         TO MASK OFF ACCESS KEY
011340 022704 077400      CMP    #77400,R4    ICHECK DATA SPACE PDR
011344 001401             BEQ    ,+4           WITH BITS 0-2 MASKED OFF
011346 104006             HLT                               KOPDR1 INCORRECT-SHOULD NOT
                                       HAVE BEEN CHANGED
011350 005767 172036      TST    DESTAD        MAKE CERTAIN THAT DESTINATION
011354 001401             BEQ    ,+4           LOCATION WAS NOT WRITTEN
011356 104006             HLT                               IDATA TO NR PAGE WROTE
                                       INTO THE DESTINATION LOCATION
011360 016777 171452 171446 DONE241 MOV    KTSTA,#KTVEC    CHANGE KT11-C FAULT RETURN
011366 005077 171444      CLR    #KTSTA        TO CAUSE A HALT ON AN UNEXPECTED TRAP
011372 005077 171426      CLR    #SR0
011376 005037 177776      CLR    #PS

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ISHOW THAT A DATIP, DATA SEQUENCE TO A NR PAGE WITHOUT
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
CORRESPONDING TO THE REFERENCE IS CORRECT

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011402 104400      TEST251 SCOPE
011404 012737 000025 177570      MOV    #25,#SR      ILOAD TEST NUMBER INTO THE DISPLAY
011412 005037 177776      CLR    #PS          INITIALIZE PROCESSOR STATUS
011416 012706 001000      MOV    #KSTACK,SP   INITIALIZE KERNEL STACK POINTER
011422 005077 171376      CLR    #SR0         INITIALIZE SR0
011426 004767 010056      JSR    #7,SETUP     MAKE KERNEL PAGE 1 NR, BANK 0
                                       MAKE KERNEL PAGE 7 RW, EXTERNAL
                                       MAKE ALL OTHER PAGES RW, BANK 0
                                       ISETUP ABORT RETURN
011432 012777 011476 171374      MOV    #RET25,#KTVEC
011440 005077 171372      CLR    #KTSTA
011444 005067 171742      CLR    DESTAD       INITIALIZE LOCATION TO BE ADDRESSED
                                       BY DATIP, DATA TO NR PAGE
011450 012703 023414      MOV    #DESTAD+20002,R3
                                       JRS CONTAINS ADDRESS+2 OF LOCATION
                                       TO BE REFERENCED THRU KERNEL PAGE 1
011454 052777 000001 171342      BIS    #1,#SR0     ITURN ON KT11-C
011462 005243             INC    -(R3)        IDATIP, DATA TO NR PAGE-SHOULD ABORT
011464 042777 000001 171332      BIC    #1,#SR0     ITURN OFF KT11-C
011472 104006             HLT                               IDATIP, DATA TO NR PAGE FAILED TO
011474 000447             BR                               IABORT
011476 017701 171322      RET251 MOV    #SR0,R1    ISAVE CONTENTS OF SR0
011502 042777 000001 171314      BIC    #1,#SR0     ITURN OFF KT11-C
011510 022701 100023      CMP    #100023,R1  ICHECK SAVED CONTENTS OF SR0
011514 001401             BEQ    ,+4
011516 104006             HLT                               ISR0 INCORRECT-SHOULD HAVE LOCKED
                                       ON DATA TO KERNEL DATA PAGE 1(NR)
                                       (NR FAULT SHOULD BE SET
                                       ICHECK SR1
011520 022777 000363 171300      CMP    #363,#SR1
011526 001401             BEQ    ,+4
011530 104006             HLT                               ISR1 INCORRECT-SHOULD HAVE LOCKED
                                       ON THE ABORTED REFERENCE, WHICH

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011532 022777 011462 171270      CMP    #AD25,#SR2
011540 001401             BEQ    ,+4           ICHECK SR2
011542 104006             HLT                               ISR2 INCORRECT-SHOULD HAVE LOCKED
                                       ON THE ABORTED REFERENCE, CONTAINING THE
                                       VIRTUAL ADDRESS OF THE INSTRUCTION
011544 017704 171472      MOV    #KIPDR1,R4    MOVE CONTENTS OF 1-SPACE PDR TO R4
011550 042704 000007      BIC    #7,R4         TO MASK OFF THE ACCESS KEY
011554 022704 077400      CMP    #77400,R4    ICHECK INSTRUCTION SPACE PDR
011560 001401             BEQ    ,+4           WITH BITS 0-2 MASKED OFF
011562 104006             HLT                               KIPDR1 INCORRECT-SHOULD NOT HAVE
                                       BEEN CHANGED
011564 017705 171472      MOV    #KOPDR1,R5    MOVE CONTENTS OF 0-SPACE PDR TO R5
011570 042705 000007      BIC    #7,R5         TO MASK OFF THE ACCESS KEY
011574 022705 077400      CMP    #77400,R5    ICHECK DATA SPACE PDR
011600 001401             BEQ    ,+4           WITH BITS 0-2 MASKED OFF
011602 104006             HLT                               KOPDR1 INCORRECT-SHOULD NOT HAVE
                                       BEEN CHANGED
011604 005767 171602      TST    DESTAD        MAKE CERTAIN THAT DESTINATION
011610 001401             BEQ    ,+4           LOCATION WAS NOT WRITTEN
011612 104006             HLT                               IDATA TO NR PAGE WROTE INTO
                                       THE DESTINATION LOCATION
011614 016777 171216 171212 DONE251 MOV    KTSTA,#KTVEC    CHANGE PAGE FAULT RETURN
011622 005077 171210      CLR    #KTSTA        TO CAUSE A HALT ON AN UNEXPECTED
011626 005077 171172      CLR    #SR0         ITRAP
011632 005037 177776      CLR    #PS

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ISHOW THAT A DATIP, DATA SEQUENCE TO A NR PAGE WITH
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
CORRESPONDING TO THE REFERENCE IS CORRECT

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011636 104400      TEST261 SCOPE
011640 012737 000026 177570      MOV    #26,#SR      ILOAD TEST NUMBER INTO THE DISPLAY
011646 005037 177776      CLR    #PS          INITIALIZE PROCESSOR STATUS
011652 012706 001000      MOV    #KSTACK,SP   INITIALIZE KERNEL STACK POINTER
011656 005077 171142      CLR    #SR0         INITIALIZE SR0
011662 004767 010422      JSR    #7,SETUP     MAKE KERNEL PAGE 1 NR, BANK 0
                                       MAKE KERNEL PAGE 7 RW, EXTERNAL
                                       MAKE ALL OTHER PAGES RW, BANK 0
                                       ISETUP ABORT RETURN
011666 012777 011732 171140      MOV    #RET26,#KTVEC
011674 005077 171136      CLR    #KTSTA
011700 005067 171306      CLR    DESTAD       INITIALIZE LOCATION TO BE ADDRESSED
                                       BY DATIP, DATA TO NR PAGE
011704 012703 023414      MOV    #DESTAD+20002,R3
                                       JRS CONTAINS ADDRESS+2 OF LOCATION
                                       TO BE REFERENCED THRU KERNEL PAGE 1
011710 052777 001001 171106      BIS    #1001,#SR0  ITURN ON KT11-C
011716 005243             INC    -(R3)        IDATIP, DATA TO NR PAGE-SHOULD ABORT
011720 042777 000001 171076      BIC    #1,#SR0     ITURN OFF KT11-C
011726 104006             HLT                               IDATIP, DATA TO NR PAGE FAILED TO
011730 000447             BR                               IABORT
011732 017701 171066      RET261 MOV    #SR0,R1    ISAVE CONTENTS OF SR0
011736 042777 000001 171060      BIC    #1,#SR0     ITURN OFF KT11-C
011744 022701 101023      CMP    #101023,R1  ICHECK SAVED CONTENTS OF SR0
011750 001401             BEQ    ,+4

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011752	104006			HLT		ISR0 INCORRECT-SHOULD HAVE LOCKED FOR DATA TO KERNEL DATA PAGE 1(NR) INR FAULT SHOULD BE SET ICHECK SR1
011754	022777	000363	171044	CMF	#363,0SR1	
011762	001401			BEQ	,+4	
011764	104006			HLT		ISR1 INCORRECT-SHOULD HAVE LOCKED FOR THE ABORTED REFERENCE, WHICH AUTODECREMENTED R3 BY TWO ICHECK SR2
011766	022777	011716	171034	CMF	#AD26,0SR2	
011774	001401			BEQ	,+4	
011776	104006			HLT		ISR2 INCORRECT-SHOULD HAVE LOCKED FOR THE ABORTED REFERENCE, CONTAINING THE VIRTUAL ADDRESS OF THE INSTRUCTION MOVE CONTENTS OF I-SPACE PDR TO R4 IT0 MASK OFF THE ACCESS KEY ICHECK INSTRUCTION SPACE PDR WITH BITS 0-2 MASKED OFF IKIPDR1 INCORRECT-SHOULD NOT HAVE IBEEN CHANGED
012000	017704	171236		MOV	0KIPDR1,R4	
012004	042704	000007		BIC	#7,R4	
012010	022704	077400		CMF	#77400,R4	
012014	001401			BEQ	,+4	
012016	104006			HLT		IKIPDR1 INCORRECT-SHOULD NOT HAVE IBEEN CHANGED
012020	017705	171236		MOV	0KDPDR1,R5	
012024	042705	000007		BIC	#7,R5	
012030	022705	077400		CMF	#77400,R5	
012034	001401			BEQ	,+4	
012036	104006			HLT		IKDPDR1 INCORRECT-SHOULD NOT HAVE IBEEN CHANGED
012040	005767	171346		TST	DESTAD	
012044	001401			BEQ	,+4	
012046	104006			HLT		MAKE CERTAIN THAT DESTINATION LOCATION HAS NOT WRITTEN IDTO TO NR PAGE WROTE INTO ITRE DESTINATION LOCATION ICRANGE PAGE FAULT RETURN IT0 CAUSE A HALT ON AN UNEXPECTED ITRAP
012050	016777	170762	170756	DONE26	MOV	KTSTA,0KTVEC
012056	005077	170754		CLR	0KTSTA	
012062	005077	170756		CLR	0SR0	
012066	005037	177776		CLR	0#PS	

ISHOW THAT A DATIP,DATOB SEQUENCE TO A NR PAGE WITHOUT
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
ICORRESPONDING TO THE REFERENCE IS CORRECT

012072	104400			TEST27	SCOPE	
012074	012737	000027	177570	MOV	#27,0#SR	LOAD TEST NUMBER INTO THE DISPLAY
012102	005037	177776		CLR	0#PS	INITIALIZE PROCESSOR STATUS
012106	012706	001000		MOV	0KSTACK,SP	INITIALIZE KERNEL STACK POINTER
012112	005077	170706		CLR	0SR0	INITIALIZE SR0
012116	004767	010166		JSR	X7,SETUP	MAKE KERNEL PAGE 1 NR, BANK 0 MAKE KERNEL PAGE 7 RW, EXTERNAL MAKE ALL OTHER PAGES RW, BANK 0
012122	012777	012164	170704	MOV	0RET27,0KTVEC	SETUP ABORT RETURN
012130	005077	170702		CLR	0KTSTA	
012134	005067	171292		CLR	DESTAD	INITIALIZE LOCATION TO BE ADDRESSED BY DATIP,DATOB TO NR PAGE
012140	012704	023412		MOV	0DESTAD+20000,R4	R4 CONTAINS ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
012144	052777	000001	170652	BIS	#1,0SR0	ITURN ON KT11-C

012152	105224			AD27	INCB	{R4}+	IDATIP, DATOB TO NR PAGE-SHOULD ABORT
012154	005377	170644		DEC	0SR0		ITURN OFF KT11-C
012160	104006			HLT			IDATIP,DATOB TO NR PAGE FAILED
012162	000446			BR	DONE27		IT0 ABORT
012164	017701	170634		MOV	0SR0,R1		ISAVE CONTENTS OF SR0
012170	005377	170630		DEC	0SR0		ITURN OFF KT11-C
012174	022701	100023		CMF	#100023,R1		ICHECK SAVED CONTENTS OF SR0
012200	001401			BEQ	,+4		
012202	104006			HLT			ISR0 INCORRECT-SHOULD HAVE LOCKED ON IDATIP, DATOB TO KERNEL DATA PAGE 1 (NR) INR FAULT SHOULD BE SET ICHECK SR1
012204	022777	000014	170614	CMF	#14,0SR1		
012212	001401			BEQ	,+4		
012214	104006			HLT			ISR1 INCORRECT-SHOULD HAVE LOCKED ON THE ABORTED REFERENCE, WHICH AUTO- INCREMENTED R4 BY ONE ICHECK SR2
012216	022777	012152	170604	CMF	#AD27,0SR2		
012224	001401			BEQ	,+4		
012226	104006			HLT			ISR2 INCORRECT SHOULD HAVE LOCKED ON THE ABORTED REFERENCE, CONTAINING THE VIRTUAL ADDRESS OF THE INSTRUCTION MOVE CONTENTS OF I-SPACE PDR I TO R2 IT0 MASK OFF THE ACCESS KEY ICHECK INSTRUCTION SPACE PDR WITH BITS 0-2 MASKED OFF IKIPDR1 INCORRECT-SHOULD NOT HAVE IBEEN CHANGED
012230	017702	171006		MOV	0KIPDR1,R2		
012234	042702	000007		BIC	#7,R2		
012240	022702	077400		CMF	#77400,R2		
012244	001401			BEQ	,+4		
012246	104006			HLT			IKIPDR1 INCORRECT-SHOULD NOT HAVE IBEEN CHANGED
012250	017703	171006		MOV	0KDPDR1,R3		
012254	042703	000007		BIC	#7,R3		
012260	022703	077400		CMF	#77400,R3		
012264	001401			BEQ	,+4		
012266	104006			HLT			IKDPDR1 INCORRECT-SHOULD NOT IBEEN CHANGED
012270	005767	171116		TST	DESTAD		
012274	001401			BEQ	,+4		
012276	104006			HLT			MAKE CERTAIN THAT DESTINATION LOCATION HAS NOT WRITTEN IDTOS TO NR PAGE WROTE INTO ITRE DESTINATION LOCATION ICRANGE KT11-C FAULT ITRETURN TO CAUSE A HALT ON AN IUNEXPECTED TRAP
012300	016777	170532	170526	DONE27	MOV	KTSTA,0KTVEC	
012306	005077	170524		CLR	0KTSTA		
012312	005077	170506		CLR	0SR0		
012316	005037	177776		CLR	0#PS		

ISHOW THAT A DATIP,DATOB SEQUENCE TO A NR PAGE WITH
MEMORY MANAGEMENT TRAP ENABLE SET ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS LOCK UP, AND THAT THE PDR
ICORRESPONDING TO THE REFERENCE IS CORRECT

012322	104400			TEST30	SCOPE	
012324	012737	000030	177570	MOV	#30,0#SR	LOAD TEST NUMBER INTO THE DISPLAY
012332	005037	177776		CLR	0#PS	INITIALIZE PROCESSOR STATUS
012336	012706	001000		MOV	0KSTACK,SP	INITIALIZE KERNEL STACK POINTER
012342	005077	170456		CLR	0SR0	INITIALIZE SR0
012346	004767	007736		JSR	X7,SETUP	MAKE KERNEL PAGE 1 NR, BANK 0 MAKE KERNEL PAGE 7 RW, EXTERNAL MAKE ALL OTHER PAGES RW, BANK 0

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012392 012777 012414 170454 MOV #RETS0,*KTVEC ;SETUP ABORT RETURN
012360 009077 170452 CLR #KTSTA
012364 009067 171022 CLR DESTAD ;INITIALIZE LOCATION TO BE ADDRESSED
;BY DATIP,DATOB TO NR PAGE
;R4 CONTAINS ADDRESS OF LOCATION
;TO BE REFERENCED THRU KERNEL PAGE 1
012370 012704 023412 MOV #DESTAD+20000,R4 ;TURN ON KT11-C
;DATIP,DATOB TO NR PAGE-SHOULD ABORT
;TURN OFF KT11-C
;DATIP,DATOB TO NR PAGE FAILED
;TO ABORT
;SAVE CONTENTS OF SR0
;TURN OFF KT11-C
;CHECK SAVED CONTENTS OF SR0
012374 052777 001001 170422 AD30i BIS #1001,SR0
012402 109224 INCB (R4)+
012404 009377 170414 DEC #SR0
012410 104006 HLT
012412 000446 BR
012414 019701 170404 RET30i MOV #SR0,R1
012420 009377 170400 DEC #SR0
012430 022701 101023 CMP #101023,R1
012432 104006 BEQ ,+4
;SR0 INCORRECT-SHOULD HAVE LOCKED ON
;DATIP,DATOB TO KERNEL DATA PAGE 1 (NR)
;NR FAULT SHOULD BE SET
;CHECK SR1
012434 022777 000014 170364 CMP #14,SR1
012442 001401 BEQ ,+4
;SR1 INCORRECT-SHOULD HAVE LOCKED
;FOR THE ABORTED REFERENCE, WHICH AUTO-
;INCREMENTED R4 BY ONE
;CHECK SR2
012444 022777 012402 170364 CMP #AD30,SR2
012454 001401 BEQ ,+4
;SR2 INCORRECT SHOULD HAVE LOCKED
;FOR THE ABORTED REFERENCE, CONTAINING THE
;VIRTUAL ADDRESS OF THE INSTRUCTION
;MOVE CONTENTS OF I-SPACE PDR I TO R2
;TO MASK OFF THE ACCESS KEY
;CHECK INSTRUCTION SPACE PDR
;WITH BITS 0-2 MASKED OFF
;KIPDR1 INCORRECT-SHOULD NOT HAVE
;BEEN CHANGED
;MOVE CONTENTS OF 0-SPACE PDR TO R3
;TO MASK OFF THE ACCESS KEY
;CHECK DATA SPACE PDR
;WITH BITS 0-2 MASKED OFF
;KDPDR1 INCORRECT-SHOULD NOT
;HAVE BEEN CHANGED
;MAKE CERTAIN THAT DESTINATION
;LOCATION WAS NOT WRITTEN
;DATOB TO NR PAGE WROTE INTO
;THE DESTINATION LOCATION
;CHANGE KT11-C FAULT
;RETURN TO CAUSE A HALT ON AN
;UNEXPECTED TRAP
012460 017702 170556 MOV #KIPDR1,R2
012464 042702 000007 BIC #7,R2
012470 022702 077400 CMP #77400,R2
012474 001401 BEQ ,+4
012476 104006 HLT
012500 017703 170556 MOV #KDPDR1,R3
012504 042703 000007 BIC #7,R3
012510 022703 077400 CMP #77400,R3
012514 001401 BEQ ,+4
012516 104006 HLT
012520 009767 170666 TST DESTAD
012524 001401 BEQ ,+4
012526 104006 HLT
012530 016777 170302 170270 DONE30i MOV #KTSTA,*KTVEC
012536 009077 170274 CLR #KTSTA
012542 009077 170256 CLR #SR0
012546 009037 177776 CLR #SPS
012552 104400 SCOPE
012554 009267 170622 INC #NRCNT
012560 022767 000003 170614 CMP #3,NRCNT
012566 001413 NXTST
012570 016701 170606 MOV #NRCNT,R1
;COUNT HOW MANY NR KEYS HAVE BEEN TESTED
;IF ALL 3 HAVE BEEN TESTED, BRANCH
;OTHERWISE, CALCULATE OFFSET TO GET NEXT KEY

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012574 006301 ASL R1
012576 016137 003404 001000 MOV #NRKEYS(R1),*KSTACK ;PUT NEXT NR KEY ON STACK
012604 012767 010234 010006 MOV #TEST21+6,RETURN ;PUT NEW SCOPE LOOP ADDRESS IN RETURN
012612 000167 175416 JNP TEST21+6 ;JUMP TO EXECUTE TESTS WITH NEXT NR KEY
012616 009067 170260 NXTSTi CLR #NRCNT
012622 012767 012632 007770 MOV #TEST31+2,RETURN
;SHOW THAT DATI TO A RW PAGE (ACF=6) WITHOUT MEMORY
;MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
;SHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT
;THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT
012630 104400 TEST31i SCOPE
012632 012737 000031 177570 MOV #31,#SR
012640 009037 177776 CLR #SPS
012644 012706 001000 MOV #KSTACK,SP
012650 009077 170150 CLR #SR0
012654 012746 000006 MOV #6,=(SP)
012660 004767 007424 JSR #7,SETUP
;LOAD TEST NUMBER INTO THE DISPLAY
;INITIALIZE PROCESSOR STATUS
;INITIALIZE KERNEL STACK POINTER
;INITIALIZE SR0
;POSH RW KEY ON STACK
;MAKE KERNEL PAGE I RW, BANK 0
;MAKE KERNEL PAGE ? RW, EXTERNAL
;MAKE ALL OTHER PAGES RW, BANK 0
;RESTORE STACK POINTER
;SETUP ABORT RETURN IN CASE
012664 009726 TST (SP)+
012666 012777 013026 170140 MOV #RETS1,*KTVEC
012674 009077 170136 CLR #KTSTA
012700 012767 125252 170504 MOV #125252,DESTAD
012706 012701 023412 MOV #DESTAD+20000,R1
;INITIALIZE LOCATION TO BE READ
;R1 CONTAINS VIRTUAL ADDRESS OF
;LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
;TURN ON KT11-C
;DATI TO RW PAGE-SHOULDN'T TRAP OR ABORT
012712 009277 170106 INC #SR0
012716 022721 125252 CMP #125252,(R1)+
012722 001404 BEQ OK31
012724 009377 170074 DEC #SR0
012730 104006 HLT
012732 000441 BR
012734 017702 170064 OK31i MOV #SR0,R2
012740 109377 170060 DECB #SR0
012744 022702 000021 CMP #21,R2
012750 001401 BEQ ,+4
;SR0 INCORRECT-SHOULD HAVE
;TRACKED REFERENCE TO DATA SPACE,
;PAGE 0, WHICH GOT THE ADDRESS
;OF SR0 TO TURN OFF KT11-C
;CHECK SR1
012754 022777 000027 170044 CMP #27,SR1
012762 001401 BEQ ,+4
;SR1 INCORRECT-SHOULD KEEP
;TRACKING EVEN WITH KT11-C OFF
;CHECK SR2
012766 022777 012766 170034 CMP #,SR2
012774 001401 BEQ ,+4
;SR2 INCORRECT-SHOULD TRACK EVEN
;WHEN KT11-C IS OFF
;CHECK INSTRUCTION SPACE PDR FOR
;THE RW PAGE REFERENCED
;KIPDR1 INCORRECT-SHOULD NOT
;HAVE BEEN CHANGED
;CHECK DATA SPACE PDR CORRESPONDING
;TO THE RW REFERENCE
013000 022777 077406 170234 CMP #77406,*KIPDR1
013006 001401 BEQ ,+4
013010 104006 HLT
013012 022777 077406 170242 CMP #77406,*KDPDR1
013020 001401 BEQ ,+4

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013022	104006			HLT			IKBPDR1 INCORRECT - SHOULD NOT HAVE BEEN CHANGED
013024	000404			BR	DONE31		
013026	042777	000001	167770	BIC	#1,SR0		ITURN OFF KTI1-C
013034	104006			HLT			IDATI TO RW PAGE CAUSED IA TRAP OR ABORT
013036	016777	167774	167770	DONE31	MOV	KTSTA,KTVEC	IRESTORE TRAP RETURN TO CAUSE HALT
013044	009077	167766			CLR	KTSTA	FOR AN UNEXPECTED TRAP
013050	009077	167750			CLR	SR0	INITIALIZE SR0
013054	009037	177776			CLR	SR0	INITIALIZE PROCESSOR STATUS

ISHOW THAT A DATI TO A RW PAGE (ACF=6) WITH MEMORY
IMANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
ISHOW THAT THE KTI1-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT
ITHE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

013060	104400			TEST32	SCOPE		
013062	012737	000032	177570	MOV	#32,SR		ILoad TEST NUMBER INTO THE DISPLAY
013070	009037	177776		CLR	SR0		INITIALIZE PROCESSOR STATUS
013074	012700	001000		MOV	#KSTACK,SP		INITIALIZE KERNEL STACK POINTER
013100	009077	167720		CLR	SR0		INITIALIZE SR0
013104	012746	000006		MOV	#0,(SP)		IPUSH RW KEY ON STACK
013110	004767	007174		JSR	X7,SETUP		IMAKE KERNEL PAGE 1 RW, BANK 0 IMAKE KERNEL PAGE 7 RW, EXTERNAL IMAKE ALL OTHER PAGES RW, BANK 0
013114	005726			TST	(SP)+		IRESTORE STACK POINTER
013116	012777	013260	167710	MOV	#RET32,KTVEC		ISETUP ABORT RETURN IN CASE
013124	009077	167706		CLR	KTSTA		
013130	012767	125292	170254	MOV	#125292,DESTAD		INITIALIZE LOCATION TO BE READ
013136	012701	023412		MOV	#DESTAD+20000,R1		R1 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
013142	052777	001001	167634	BIS	#1001,SR0		ITURN ON KTI1-C, SET MGMT TRAP ENABLE
013150	022721	125292		CHP	#125292,(R1)+		IDATI TO RW PAGE-SHOULDN'T TRAP OR ABORT
013154	001404			BEC	OK32		
013156	009377	167642		DEC	SR0		IFON ERROR, TURN OFF KTI1-C
013162	104006			HLT			IRELOCATION FAILED THRU KERNEL PAGE 1
013164	000441			BR	DONE32		
013166	017702	167632		MOV	SR0,R2		ISAVE CONTENTS OF SR0
013172	105377	167626		DECB	SR0		ITURN OFF KTI1-C
013176	022702	001021		CHP	#1021,R2		ICHECK SAVED CONTENTS OF SR0
013202	001401			BEC	,+4		
013204	104006			HLT			ISR0 INCORRECT-SHOULD HAVE TRACKED REFERENCE TO KERNEL DATA SPACE, PAGE 0, WHICH GOT THE ADDRESS OF SR0 AND MGMT TRAP ENABLE SHOULD BE SET ICHECK SR1
013206	022777	000027	167612	CHP	#27,SR1		
013214	001401			BEC	,+4		
013216	104006			HLT			ISR1 INCORRECT-SHOULD KEEP TRACKING EVEN WITH KTI1-C
013220	022777	013220	167602	CHP	#1,SR2		ICHECK SR2
013226	001401			BEC	,+4		
013230	104006			HLT			ISR2 INCORRECT-SHOULD TRACK EVEN WHEN KTI1-C IS OFF
013232	022777	077406	170002	CHP	#77406,IKIPDR1		ICHECK INSTRUCTION SPACE PDR FOR ITHE RW PAGE REFERENCED
013240	001401			BEC	,+4		

013242	104006			HLT			IKIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED
013244	022777	077406	170010	CHP	#77406,IKIPDR1		ICHECK DATA SPACE PDR CORRESPONDING TO THE RW REFERENCE
013252	001401			BEC	,+4		
013254	104006			HLT			IKBPDR1 INCORRECT - SHOULD NOT HAVE BEEN CHANGED
013256	000404			BR	DONE32		
013260	042777	000001	167536	BIC	#1,SR0		ITURN OFF KTI1-C
013266	104006			HLT			IDATI TO RW PAGE CAUSED IA TRAP OR ABORT
013270	016777	167542	167536	DONE32	MOV	KTSTA,KTVEC	IRESTORE TRAP RETURN TO CAUSE HALT
013276	009077	167534			CLR	KTSTA	FOR AN UNEXPECTED TRAP
013302	009077	167516			CLR	SR0	INITIALIZE SR0
013306	009037	177776			CLR	SR0	INITIALIZE PROCESSOR STATUS

ISHOW THAT A DATI (NO DATIP) TO A RW PAGE (ACF=6) WITHOUT MEMORY
IMANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
ISHOW THAT THE KTI1-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT
ITHE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

013312	104400			TEST33	SCOPE		
013314	012737	000033	177570	MOV	#33,SR		ILoad TEST NUMBER INTO THE DISPLAY
013322	009037	177776		CLR	SR0		INITIALIZE PROCESSOR STATUS
013326	012700	001000		MOV	#KSTACK,SP		INITIALIZE KERNEL STACK POINTER
013332	009077	167466		CLR	SR0		INITIALIZE SR0
013336	012746	000006		MOV	#0,(SP)		IPUSH RW KEY ON THE STACK
013342	004767	006742		JSR	X7,SETUP		IMAKE KERNEL PAGE 1 RW, BANK 0 IMAKE KERNEL PAGE 7 RW, EXTERNAL IMAKE ALL OTHER PAGES RW, BANK 0
013346	009726			TST	(SP)+		IRESTORE STACK POINTER
013350	012777	013506	167456	MOV	#RET33,KTVEC		ISETUP ABORT RETURN IN CASE
013356	009077	167454		CLR	KTSTA		
013362	009067	170024		CLR	DESTAD		
013366	012701	023412		MOV	#DESTAD+20000,R1		INITIALIZE LOCATION TO BE REFERENCED R1 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
013372	005277	167426		INC	SR0		ITURN ON KTI1-C
013376	012721	125292		MOV	#125292,(R1)+		IDATI TO RW PAGE-SHOULDN'T TRAP OR ABORT
013402	017702	167416		MOV	SR0,R2		ISAVE CONTENTS OF SR0
013406	105377	167412		DECB	SR0		ITURN OFF KTI1-C
013412	022702	000021		CHP	#21,R2		ICHECK SAVED CONTENTS OF SR0
013416	001401			BEC	,+4		
013420	104006			HLT			ISR0 INCORRECT-SHOULD HAVE TRACKED REFERENCE TO DATA SPACE, PAGE 0, WHICH GOT THE ADDRESS OF SR0 TO TURN OFF KTI1-C ICHECK SR1
013422	022777	000027	167376	CHP	#27,SR1		
013430	001401			BEC	,+4		
013432	104006			HLT			ISR1 INCORRECT-SHOULD KEEP TRACKING EVEN WITH KTI1-C OFF
013434	022777	013434	167366	CHP	#1,SR2		ICHECK SR2
013442	001401			BEC	,+4		
013444	104006			HLT			ISR2 INCORRECT-SHOULD TRACK EVEN WHEN KTI1-C IS OFF
013446	022777	077406	167566	CHP	#77406,IKIPDR1		ICHECK INSTRUCTION SPACE PDR FOR ITHE RW PAGE REFERENCED
013454	001401			BEC	,+4		

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013496 104000          HLT
013460 022777 077506 167574  CMP #77506,*KDPDR1
013466 001401          BEQ ,+4
013470 104000          HLT
013472 022767 129292 167712  CMP #129292,DESTAD
013500 001401          BEQ ,+4
013502 104000          HLT
013504 000404          BR DONE33
013506 042777 000001 167310 RET33I BIC #1,*SR0
013514 104000          HLT
013516 016777 167314 167310 DONE33I MOV KTSTA,*KTVEC
013524 005077 167306          CLR *KTSTA
013530 005077 167270          CLR *SR0
013534 005037 177776          CLR *PPS

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ISHOW THAT A DAT0 (NO DATIP) TO A RW PAGE (ACP#6) WITH MEMORY
MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT
THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

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013540 104400          TEST34I SCOPE
013542 012737 000034 177570 MOV #34,*SR
013550 005037 177776          CLR *PPS
013554 012706 001000          MOV #KSTACK,SP
013560 005077 167240          CLR *SR0
013564 012746 000000          MOV #0,*(SP)
013570 004767 004014          JSR X7,SETUP
013574 009726          TST (SP)+
013576 012777 013736 167250 MOV #RET34,*KTVEC
013604 005077 167226          CLR *KTSTA
013610 005067 167576          CLR DESTAD
013614 012701 023412          MOV #DESTAD+20000,R1
013620 012777 001001 167170 MOV #1001,*SR0
013626 012721 129292          MOV #129292,(R1)+
013632 017702 167166          MOV *SR0,R2
013636 109377 167162          DECB *SR0
013642 022702 001021          CMP #1021,R2
013646 001401          BEQ ,+4
013650 104000          HLT
013652 022777 000027 167146  CMP #27,*SR1
013660 001401          BEQ ,+4
013662 104000          HLT
013664 022777 013664 167136  CMP #,*SR2
013672 001401          BEQ ,+4

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013674 104000          HLT
013676 022777 077406 167336  CMP #77406,*KIPDR1
013704 001401          BEQ ,+4
013706 104000          HLT
013710 022777 077506 167344  CMP #77506,*KDPDR1
013716 001401          BEQ ,+4
013720 104000          HLT
013722 022767 129292 167462  CMP #129292,DESTAD
013730 001401          BEQ ,+4
013732 104000          HLT
013734 000404          BR DONE34
013736 042777 000001 167060 RET34I BIC #1,*SR0
013744 104000          HLT
013746 016777 167064 167060 DONE34I MOV KTSTA,*KTVEC
013754 005077 167056          CLR *KTSTA
013760 005077 167040          CLR *SR0
013764 005037 177776          CLR *PPS

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ISHOW THAT A DATIP, DAT0 SEQUENCE TO A RW PAGE (ACP#6) WITHOUT MEMORY
MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT
THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

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013770 104400          TEST35I SCOPE
013772 012737 000035 177570 MOV #35,*SR
014000 005037 177776          CLR *PPS
014004 012706 001000          MOV #KSTACK,SP
014010 005077 167010          CLR *SR0
014014 012746 000000          MOV #0,*(SP)
014020 004767 006264          JSR X7,SETUP
014024 005726          TST (SP)+
014026 012777 014162 167000 MOV #RET35,*KTVEC
014034 005077 166776          CLR *KTSTA
014040 005067 167346          CLR DESTAD
014044 012704 023414          MOV #DESTAD+20002,R4
014050 005277 166750          INC *SR0
014054 005244          INC -(R4)
014056 017702 166742          MOV *SR0,R2
014062 109377 166736          CLR *SR0
014066 022702 000021          CMP #21,R2
014072 001401          BEQ ,+4
014074 104000          HLT
014076 022777 000027 166722  CMP #27,*SR1
014104 001401          BEQ ,+4

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014106	104006			HLT		ISR1 INCORRECT-SHOULD KEEP TRACKING EVEN WITH KT11-C OFF
014110	022777	014110	166712	CMP	#1,SR2	ICHECK SR2
014116	001401			BEQ	,+4	
014120	104006			HLT		ISR2 INCORRECT-SHOULD TRACK EVEN WHEN RT11-C IS OFF
014122	022777	077406	167112	CMP	#77406,*KIPDR1	ICHECK INSTRUCTION SPACE PDR FOR PDR
014130	001401			BEQ	,+4	IFRE RW PAGE REFERENCED
014132	104006			HLT		KIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED
014134	022777	077506	167120	CMP	#77506,*KOPDR1	ICHECK DATA SPACE PDR CORRESPONDING TO THE RW REFERENCE
014142	001401			BEQ	,+4	
014144	104006			HLT		KOPDR1 INCORRECT - "W" BIT SHOULD HAVE BEEN SET
014146	022767	000001	167236	CMP	#1,DESTAD	MAKE CERTAIN THAT THE INSTRUCTION WAS EXECUTED
014134	001401			BEQ	,+4	
014136	104006			HLT		DATAIP, DATA TO RW PAGE DIDN'T EXECUTE CORRECTLY
014160	000404			BR	DONE35	
014162	042777	000001	166634	BIC	#1,SR0	TURN OFF KT11-C
014170	104006			HLT		DATAIP, DATA TO RW PAGE CAUSED IA TRAP OR ABORT
014172	016777	166640	166634	MOV	KTSTA,*KTVEC	RESTORE TRAP RETURN TO CAUSE WALT
014200	005077	166632		CLR	*KTSTA	FOR AN UNEXPECTED TRAP
014204	005077	166634		CLR	*SR0	INITIALIZE SR0
014210	005037	177776		CLR	*MPS	INITIALIZE PROCESSOR STATUS

ISHOW THAT DATIP, DATA SEQUENCE TO A RW PAGE (ACF=6) WITH MEMORY MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

014214	104400			TESTS6	SCOPE	
014216	012737	000036	177570	MOV	#36,*SR	LOAD TEST NUMBER INTO THE DISPLAY
014224	005037	177776		CLR	*MPS	INITIALIZE PROCESSOR STATUS
014230	012706	001000		MOV	*KSTACK,SP	INITIALIZE KERNEL STACK POINTER
014234	005077	166564		CLR	*SR0	INITIALIZE SR0
014240	012746	000006		MOV	#6,*(SP)	IPUSH RW KEY ON THE STACK
014244	004767	000006		JSR	X7,SETUP	MAKE KERNEL PAGE 1 RW, BANK 0
						MAKE KERNEL PAGE 7 RW, EXTERNAL
						MAKE ALL OTHER PAGES RW, BANK 0
						RESTORE STACK POINTER
						SETUP ABORT RETURN IN CASE
014250	005726			TST	(SP)+	
014252	012777	014412	166594	MOV	#RET36,*KTVEC	INITIALIZE LOCATION TO BE REFERENCED
014260	005077	166592		CLR	*KTSTA	IRS CONTAINS VIRTUAL ADDRESS+2 OF
014264	005067	167122		CLR	DESTAD	LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
014270	012705	023414		MOV	#DESTAD+20002,R5	TURN ON KT11-C, MGMT TRAP ENABLE SET
014274	012777	001001	166522	MOV	#1001,*SR0	DATAIP, DATA TO RW PAGE-SHOULDN'T TRAP OR ABORT
014302	005245			INC	-(R5)	SAVE CONTENTS OF SR0
014304	017702	166514		MOV	*SR0,R2	TURN OFF KT11-C
014310	042777	000001	166506	BIC	#1,*SR0	ICHECK SAVED CONTENTS OF SR0
014316	022702	001021		CMP	#1021,R2	
014322	001401			BEQ	,+4	
014324	104006			HLT		SR0 INCORRECT-SHOULD HAVE TRACKED REFERENCE TO DATA SPACE.

014326	022777	000027	166472	CMP	#27,*SR1	IPAGE 0, WHICH GOT THE ADDRESS OF SR0, AND MGMT TRAP ENABLE SHOULD BE SET
014334	001401			BEQ	,+4	ICHECK SR1
014336	104006			HLT		ISR1 INCORRECT-SHOULD KEEP TRACKING EVEN WITH KT11-C OFF
014340	022777	014340	166462	CMP	#1,*SR2	ICHECK SR2
014346	001401			BEQ	,+4	
014350	104006			HLT		ISR2 INCORRECT-SHOULD TRACK EVEN WHEN RT11-C IS OFF
014352	022777	077406	166662	CMP	#77406,*KIPDR1	ICHECK INSTRUCTION SPACE PDR FOR PDR
014360	001401			BEQ	,+4	IFRE RW PAGE REFERENCED
014362	104006			HLT		KIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED
014364	022777	077506	166670	CMP	#77506,*KOPDR1	ICHECK DATA SPACE PDR CORRESPONDING TO THE RW REFERENCE
014372	001401			BEQ	,+4	
014374	104006			HLT		KOPDR1 INCORRECT - "W" BIT SHOULD HAVE BEEN SET
014376	022767	000001	167006	CMP	#1,DESTAD	MAKE CERTAIN THAT THE INSTRUCTION WAS EXECUTED
014404	001401			BEQ	,+4	
014406	104006			HLT		DATAIP, DATA TO RW PAGE DIDN'T EXECUTE CORRECTLY
014410	000404			BR	DONE36	
014412	042777	000001	166404	BIC	#1,*SR0	TURN OFF KT11-C
014420	104006			HLT		DATAIP, DATA TO RW PAGE CAUSED IA TRAP OR ABORT
014422	016777	166410	166404	MOV	KTSTA,*KTVEC	RESTORE TRAP RETURN TO CAUSE WALT
014430	005077	166402		CLR	*KTSTA	FOR AN UNEXPECTED TRAP
014434	005077	166364		CLR	*SR0	INITIALIZE SR0
014440	005037	177776		CLR	*MPS	INITIALIZE PROCESSOR STATUS

ISHOW THAT A DATIP, DATA SEQUENCE TO A RW PAGE (ACF=6) WITHOUT MEMORY MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

014444	104400			TESTS7	SCOPE	
014446	012737	000037	177570	MOV	#37,*SR	LOAD TEST NUMBER INTO THE DISPLAY
014454	005037	177776		CLR	*MPS	INITIALIZE PROCESSOR STATUS
014460	012706	001000		MOV	*KSTACK,SP	INITIALIZE KERNEL STACK POINTER
014464	005077	166334		CLR	*SR0	INITIALIZE SR0
014470	012746	000006		MOV	#6,*(SP)	IPUSH RW KEY ON THE STACK
014474	004767	000006		JSR	X7,SETUP	MAKE KERNEL PAGE 1 RW, BANK 0
						MAKE KERNEL PAGE 7 RW, EXTERNAL
						MAKE ALL OTHER PAGES RW, BANK 0
						RESTORE STACK POINTER
						SETUP ABORT RETURN IN CASE
014500	005726			TST	(SP)+	
014502	012777	014636	166324	MOV	#RET37,*KTVEC	INITIALIZE LOCATION TO BE REFERENCED
014510	005077	166322		CLR	*KTSTA	IRS CONTAINS VIRTUAL ADDRESS+1 OF
014514	005067	166672		CLR	DESTAD	LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
014520	012703	023413		MOV	#DESTAD+20001,R3	TURN ON KT11-C
014524	005277	166274		INC	*SR0	DATAIP, DATA TO RW PAGE-SHOULDN'T TRAP OR ABORT
014530	105343			DECB	-(R3)	SAVE CONTENTS OF SR0
014532	017702	166266		MOV	*SR0,R2	TURN OFF KT11-C
014536	105377	166262		DECB	*SR0	

014542	022702	000021		CHP	#21,R2	ICHECK SAVED CONTENTS OF SR0
014546	001401			BEG	,+4	
014550	104006			HLT		ISRB INCORRECT-SHOULD HAVE TRACKED REFERENCE TO DATA SPACE, PAGE 0, WHICH GOT THE ADDRESS OF SR0 TO TURN OFF KTI1-C
014552	022777	000027	164246	CHP	#27,SR1	ICHECK SR1
014560	001401			BEG	,+4	
014562	104006			HLT		ISR1 INCORRECT-SHOULD KEEP TRACKING EVEN WITH KTI1-C OFF
014564	022777	014564	166236	CHP	#1,SR2	ICHECK SR2
014572	001401			BEG	,+4	
014574	104006			HLT		ISR2 INCORRECT-SHOULD TRACK EVEN WHEN KTI1-C IS OFF
014576	022777	077406	166436	CHP	#77406,OKIPDR1	ICHECK INSTRUCTION SPACE PDR FOR THE RW PAGE REFERENCED
014604	001401			BEG	,+4	
014606	104006			HLT		IKIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED
014610	022777	077506	166444	CHP	#77506,OKOPDR1	ICHECK DATA SPACE PDR CORRESPONDING TO THE RW REFERENCE
014616	001401			BEG	,+4	
014620	104006			HLT		IKOPDR1 INCORRECT - "W" BIT SHOULD HAVE BEEN SET
014622	022767	000377	166562	CHP	#377,DESTAD	MAKE CERTAIN THAT THE INSTRUCTION WAS EXECUTED
014630	001401			BEG	,+4	
014632	104006			HLT		IOATIP, DATOB TO RW PAGE DIDN'T EXECUTE CORRECTLY
014634	000404			BR	DONE37	
014636	042777	000001	166160	RET37	#1,SR0	TURN OFF KTI1-C
014644	104006			HLT		IOATIP, DATOB TO RW PAGE CAUSED A TRAP OR ABORT
014646	016777	166164	166160	DONE37	MOV	RESTORE TRAP RETURN TO CAUSE HALT
014654	005077	166196		CLR	KTSTA	FOR AN UNEXPECTED TRAP
014660	005077	166140		CLR	SR0	INITIALIZE SR0
014664	005037	177776		CLR	PPS	INITIALIZE PROCESSOR STATUS

ISHOW THAT A DATIP, DATOB SEQUENCE TO A RW PAGE (ACF=6) WITH MEMORY MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
ISHOW THAT THE KTI1-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

014670	104400			TEST40	SCOPE	
014672	012737	000040	177570	MOV	#40,SR	LOAD TEST NUMBER INTO THE DISPLAY
014700	005037	177776		CLR	PPS	INITIALIZE PROCESSOR STATUS
014704	012706	001000		MOV	#KSTACK,SP	INITIALIZE KERNEL STACK POINTER
014710	005077	166110		CLR	SR0	INITIALIZE SR0
014714	012746	000006		MOV	#6,=(SP)	PUSH RW KEY ON THE STACK
014720	004767	005364		JSR	X7,SETUP	MAKE KERNEL PAGE 1 RW, BANK 0
						MAKE KERNEL PAGE 7 RW, EXTERNAL
						MAKE ALL OTHER PAGES RW, BANK 0
014724	005726			TST	(SP)+	RESTORE STACK POINTER
014726	012777	015064	166100	MOV	#RET40,KTVEC	SETUP ABORT RETURN IN CASE
014734	005077	166076		CLR	KTSTA	
014740	005067	166446		CLR	DESTAD	INITIALIZE LOCATION TO BE REFERENCED
014744	012700	023413		MOV	#DESTAD+20001,R0	R0 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRO KERNEL PAGE 1

014750	012777	001001	166046	MOV	#1001,SR0	TURN ON KTI1-C, SET HMGY TRAP ENABLE
014756	105310			DECB	SR0	IOATIP, DATOB TO RW PAGE-SHOULDN'T TRAP OR ABORT
014760	017902	166040		MOV	SR0,R2	SAVE CONTENTS OF SR0
014764	105377	166034		DECB	SR0	TURN OFF KTI1-C
014770	022702	001021		CHP	#1021,R2	ICHECK SAVED CONTENTS OF SR0
014774	001401			BEG	,+4	
014776	104006			HLT		ISRB INCORRECT-SHOULD HAVE TRACKED REFERENCE TO DATA SPACE, PAGE 0, WHICH GOT THE ADDRESS OF SR0, AND HMGY TRAP ENABLE SHOULD BE SET
015000	022777	000027	164020	CHP	#27,SR1	ICHECK SR1
015006	001401			BEG	,+4	
015010	104006			HLT		ISR1 INCORRECT-SHOULD KEEP TRACKING EVEN WITH KTI1-C OFF
015012	022777	015012	164010	CHP	#1,SR2	ICHECK SR2
015020	001401			BEG	,+4	
015022	104006			HLT		ISR2 INCORRECT-SHOULD TRACK EVEN WHEN KTI1-C IS OFF
015024	022777	077406	164210	CHP	#77406,OKIPDR1	ICHECK INSTRUCTION SPACE PDR FOR THE RW PAGE REFERENCED
015032	001401			BEG	,+4	
015034	104006			HLT		IKIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED
015036	022777	077506	164216	CHP	#77506,OKOPDR1	ICHECK DATA SPACE PDR CORRESPONDING TO THE RW REFERENCE
015044	001401			BEG	,+4	
015046	104006			HLT		IKOPDR1 INCORRECT - "W" BIT SHOULD HAVE BEEN SET
015050	022767	177400	166334	CHP	#177400,DESTAD	MAKE CERTAIN THAT THE INSTRUCTION WAS EXECUTED
015056	001401			BEG	,+4	
015060	104006			HLT		IOATIP, DATOB TO RW PAGE FAILED TO EXECUTE CORRECTLY
015062	000404			BR	DONE40	
015064	042777	000001	165732	RET40	#1,SR0	TURN OFF KTI1-C
015072	104006			HLT		IOATIP, DATOB TO RW PAGE CAUSED A TRAP OR ABORT
015074	016777	165736	165732	DONE40	MOV	RESTORE TRAP RETURN TO CAUSE HALT
015102	005077	165730		CLR	KTSTA	FOR AN UNEXPECTED TRAP
015106	005077	165712		CLR	SR0	INITIALIZE SR0
015112	005037	177776		CLR	PPS	INITIALIZE PROCESSOR STATUS

ISHOW THAT DATI TO A RRWT PAGE (ACF=4) WITHOUT MEMORY MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
ISHOW THAT THE KTI1-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

015116	104400			TEST41	SCOPE	
015120	012737	000041	177570	MOV	#41,SR	LOAD TEST NUMBER INTO THE DISPLAY
015126	005037	177776		CLR	PPS	INITIALIZE PROCESSOR STATUS
015132	012706	001000		MOV	#KSTACK,SP	INITIALIZE KERNEL STACK POINTER
015136	005077	165662		CLR	SR0	INITIALIZE SR0
015142	012746	000004		MOV	#4,=(SP)	PUSH RRWT KEY ON STACK
015146	004767	005136		JSR	X7,SETUP	MAKE KERNEL PAGE 1 RRWT, BANK 0
						MAKE KERNEL PAGE 7 RW, EXTERNAL
						MAKE ALL OTHER PAGES RW, BANK 0
015152	005726			TST	(SP)+	RESTORE STACK POINTER
015154	012777	015314	165652	MOV	#RET41,KTVEC	SETUP ABORT RETURN IN CASE
015162	005077	165650		CLR	KTSTA	

015166	012767	129252	166216	MOV	#125252,DESTAD	INITIALIZE LOCATION TO BE READ
015174	012701	023412		MOV	#DESTAD+20000,R1	R1 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
015200	005277	165620		INC	#SR0	TURN ON KT11-C
015204	022721	129252		CHP	#125252,(R1)+	POINT TO RRWT PAGE=SHOULDN'T TRAP SINCE TRAP ENABLE ISN'T SET
015210	001404			BEQ	OK41	
015212	005377	165606		DEC	#SR0	ION ERROR, TURN OFF KT11-C
015216	104006			HLT		RELOCATION FAILED THRU KERNEL PAGE 1
015220	000441			BR	DONE41	
015222	017702	165576	OK41	MOV	#SR0,R2	SAVE CONTENTS OF SR0
015226	105377	165572		DEC	#SR0	TURN OFF KT11-C
015232	022702	010021		CHP	#10021,R2	CHECK SAVED CONTENTS OF SR0
015236	001401			BEQ	,+4	
015240	104006			HLT		SR0 INCORRECT=SHOULD HAVE TRACKED REFERENCE TO DATA SPACE, PAGE 0, WHICH GOT THE ADDRESS OF SR0, AND MGMT TRAP SHOULD BE SET
015242	022777	000027	165556	CHP	#27,#SR1	CHECK SR1
015250	001401			BEQ	,+4	
015252	104006			HLT		SR1 INCORRECT=SHOULD KEEP TRACKING EVEN WITH KT11-C OFF
015254	022777	015294	165546	CHP	#1,#SR2	CHECK SR2
015262	001401			BEQ	,+4	
015264	104006			HLT		SR2 INCORRECT=SHOULD TRACK EVEN WHEN KT11-C IS OFF
015266	022777	077404	165746	CHP	#77404,#KIPDR1	CHECK INSTRUCTION SPACE PDR FOR THE RRWT PAGE REFERENCED
015274	001401			BEQ	,+4	
015276	104006			HLT		KIPDR1 INCORRECT=SHOULD NOT HAVE BEEN CHANGED SINCE THE RRWT REFERENCE WAS TO DATA SPACE
015300	022777	077604	165754	CHP	#77604,#KDPDR1	CHECK DATA SPACE FOR CORRESPONDING TO THE RRWT REFERENCE
015306	001401			BEQ	,+4	
015310	104006			HLT		KDPDR1 INCORRECT="A" BIT SHOULD BE SET SINCE DATA SPACE WAS READ AND WAS RRWT
015312	000404			BR	DONE41	
015314	042777	000001	165502	RET41	#1,#SR0	TURN OFF KT11-C
015322	104006			HLT		POINT TO RRWT PAGE CAUSED A TRAP OR ABORT ALTHOUGH MEMORY MANAGEMENT TRAP ENABLE WAS NOT SET
015324	016777	165506	165502	DONE41	MOV	KTSTA,#KTVEC
015332	005077	165500		CLR	#KTSTA	RESTORE TRAP RETURN TO CAUSE AALT FOR AN UNEXPECTED TRAP
015336	005077	165442		CLR	#SR0	INITIALIZE SR0
015342	005037	177776		CLR	#MPS	INITIALIZE PROCESSOR STATUS

ISHOW THAT A DATA TO A RRWT PAGE (ICP=4) WITH MEMORY MANAGEMENT TRAP ENABLE SET CAUSES A TRAP AT THE END OF THE INSTRUCTION
ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR'S FOR THE PAGE REFERENCED ARE CORRECT

015346	104400			TEST42	SCOPE	
015350	012737	000042	177570	MOV	#42,#SR	LOAD TEST NUMBER INTO THE DISPLAY
015356	005037	177776		CLR	#MPS	INITIALIZE PROCESSOR STATUS
015362	012706	001000		MOV	#KSTACK,SP	INITIALIZE KERNEL STACK POINTER
015366	005077	165432		CLR	#SR0	INITIALIZE SR0
015372	012746	000004		MOV	#4,(SP)	PUSH RRWT KEY ON STACK
015376	004767	004706		JSR	#7,SETUP	MAKE KERNEL PAGE 1 RRWT, BANK 0
015402	009726			TST	(SP)+	MAKE KERNEL PAGE 7 RW, EXTERNAL
015404	012777	013452	165422	MOV	#RET42,#KTVEC	MAKE ALL OTHER PAGES RW, BANK 0
015412	005077	165420		CLR	#KTSTA	RESTORE STACK POINTER
015416	012767	129252	165766	MOV	#125252,DESTAD	SETUP TRAP RETURN
015424	005003			CLR	R3	INITIALIZE LOCATION TO BE READ
015426	012701	023412		MOV	#DESTAD+20000,R1	R1 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
015432	012777	001001	165364	MOV	#1001,#SR0	TURN ON KT11-C, SET MGMT TRAP ENABLE
015440	012103			MOV	(R1)+,R3	POINT TO RRWT PAGE=SHOULD TRAP
015442	105077	165356		CLR	#SR0	IF NO TRAP, TURN OFF KT11-C
015446	104006			HLT		POINT TO RRWT PAGE WITH MEMORY MANAGEMENT TRAP ENABLE SET DIDN'T
015450	000440			BR	DONE42	CAUSE A TRAP
015452	017702	165346	REF42	MOV	#SR0,R2	SAVE CONTENTS OF SR0
015456	005377	165342		DEC	#SR0	TURN OFF KT11-C
015462	022702	011021		CHP	#11021,R2	CHECK SAVED CONTENTS OF SR0
015466	001401			BEQ	,+4	
015470	104006			HLT		SR0 INCORRECT=SHOULD HAVE TRACKED THE REFERENCE TO DATA SPACE, PAGE 0, WHICH GOT THE ADDRESS OF SR0, AND MGMT TRAP SHOULD BE SET
015472	022777	000027	165326	CHP	#27,#SR1	CHECK SR1
015500	001401			BEQ	,+4	
015502	104006			HLT		SR1 INCORRECT=SHOULD CONTINUE TRACKING WITH KT11-C OFF
015504	022777	015504	165316	CHP	#1,#SR2	CHECK SR2
015512	001401			BEQ	,+4	
015514	104006			HLT		SR2 INCORRECT=SHOULD STILL BE TRACKING EVEN WITH KT11-C OFF
015516	022777	077404	165516	CHP	#77404,#KIPDR1	CHECK INSTRUCTION SPACE PDR
015524	001401			BEQ	,+4	
015526	104006			HLT		KIPDR1 INCORRECT=SHOULD NOT HAVE BEEN CHANGED SINCE THE RRWT REFERENCE WAS TO DATA SPACE
015530	022777	077604	165524	CHP	#77604,#KDPDR1	CHECK DATA SPACE PDR
015536	001401			BEQ	,+4	
015540	104006			HLT		KDPDR1 INCORRECT="A" BIT SHOULD BE SET SINCE DATA SPACE WAS RRWT AND WAS READ
015542	022703	129252		CHP	#125252,R3	CHECK LOCATION WRITTEN INTO
015544	001401			BEQ	,+4	
015550	104006			HLT		THE INSTRUCTION REFERENCING THE RRWT PAGE TRAPPED BEFORE COMPLETING OR RELOCATION FAILED SINCE THE MOVE DID NOT CORRECTLY LOAD R3
015552	016777	165260	165254	DONE42	MOV	KTSTA,#KTVEC

CHANGE KT11-C FAULT RETURN TO

015560	005077	165252		CLR	0KTSTA		ICLUSE A HALT ON AN UNEXPECTED TRAP
015564	005077	165234		CLR	0SR0		
015570	005037	177776		CLR	0#PS		

ISHOW THAT A DATO (NO DATIF) TO A RRWT PAGE (ACF=4) WITHOUT MEMORY MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR ICORRESPONDING TO THE REFERENCE IS CORRECT

015574	104400			TEST431	SCOPE		
015576	012737	000043	177570	MOV	#43,0#SR		LOAD TEST NUMBER INTO THE DISPLAY
015604	005037	177776		CLR	0#PS		INITIALIZE PROCESSOR STATUS
015610	012706	001000		MOV	#KSTACK,SP		INITIALIZE KERNEL STACK POINTER
015614	005077	169204		CLR	0SR0		INITIALIZE SR0
015620	012746	000004		MOV	#4,-(SP)		IPUSH RRWT KEY ON STACK
015624	004767	004460		JSR	X7,SETUP		MAKE KERNEL PAGE I RRWT, BANK 0 MAKE KERNEL PAGE ? RW, EXTERNAL MAKE ALL OTHER PAGES RW, BANK 0 SETUP ABORT RETURN IN CASE

015630	012777	015770	165176	MOV	#RET43,0KTVEC		
015636	005077	169174		CLR	0KTSTA		
015642	005067	169544		CLR	DESTAD		INITIALIZE LOCATION TO BE ADDRESSED BY DATO TO RRWT PAGE

015646	012701	023412		MOV	#DESTAD+20000,R1		R1 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
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015652	112777	000001	165144	MOV0	#1,0SR0		TURN ON KT11-C
015660	012721	129252		MOV	#129252,(R1)+		DATO TO RRWT PAGE=SHOULDN'T TRAP OR ABORT
015664	017702	169134		MOV	0SR0,R2		SAVE CONTENTS OF SR0
015670	005377	169130		DEC	0SR0		TURN OFF KT11-C
015674	022702	010021		CMP	#10021,R2		CHECK SAVED CONTENTS OF SR0
015700	001401			BEQ	,+4		
015702	104006			HLT			SR0 INCORRECT=SHOULD HAVE TRACKED THE REFERENCE TO DATA SPACE, PAGE 0, WHICH GOT THE ADDRESS OF SR0, AND HMG TAP SHOULD BE SET

015704	022777	000027	165114	CMP	#27,0SR1		CHECK SR1
015712	001401			BEQ	,+4		
015714	104006			HLT			SR1 INCORRECT=SHOULD KEEP TRACKING EVEN WITH KT11-C OFF

015716	022777	015716	165104	CMP	#1,0SR2		CHECK SR2
015724	001401			BEQ	,+4		
015726	104006			HLT			SR2 INCORRECT=SHOULD KEEP TRACKING CHECK INSTRUCTION SPACE PDR

015730	022777	077404	165304	CMP	#77404,0KIPDR1		CHECK INSTRUCTION SPACE PDR
015736	001401			BEQ	,+4		
015740	104006			HLT			KIPDR1 INCORRECT=SHOULD NOT HAVE BEEN CHANGED SINCE THE RRWT REFERENCE WAS TO DATA SPACE

015742	022777	077704	165312	CMP	#77704,0KDPDR1		CHECK DATA SPACE PDR
015750	001401			BEQ	,+4		
015752	104006			HLT			KDPDR1 INCORRECT= "A" BIT SHOULD BE SET SINCE PAGE WAS ACCESSED, AND "W" BIT SHOULD BE SET SINCE IT WAS WRITTEN INTO LOCATION WAS WRITTEN INTO DATO TO RRWT PAGE DIDN'T WRITE INTO THE DESTINATION LOCATION

015754	026727	165432	129252	CMP	DESTAD,#129252		
015762	001401			BEQ	,+4		
015764	104006			HLT			

015766	000404			BR	DONE43		
015770	042777	000001	165026	RET431	BIC	#1,0SR0	TURN OFF KT11-C
015776	104006			HLT			DATO TO RRWT PAGE TRAPPED WITHOUT HMG TAP ENABLED
016000	016777	165032	165026	DONE431	MOV	KTSTA,0KTVEC	CHANGE KT11-C FAULT RETURN
016006	005077	165024		CLR	0KTSTA		TO CAUSE A HALT ON AN UNEXPECTED TRAP
016012	005077	165006		CLR	0SR0		
016016	005037	177776		CLR	0#PS		

ISHOW THAT A DATO (NO DATIF) TO A RRWT PAGE (ACF=4) WITH MEMORY MANAGEMENT TRAP ENABLE SET TRAPS AFTER THE INSTRUCTION IS COMPLETED
ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR ICORRESPONDING TO THE REFERENCE IS CORRECT

016022	104400			TEST441	SCOPE		
016024	012737	000044	177570	MOV	#44,0#SR		LOAD TEST NUMBER INTO THE DISPLAY
016032	005037	177776		CLR	0#PS		INITIALIZE PROCESSOR STATUS
016036	012706	001000		MOV	#KSTACK,SP		INITIALIZE KERNEL STACK POINTER
016042	005077	164756		CLR	0SR0		INITIALIZE SR0
016046	012746	000004		MOV	#4,-(SP)		IPUSH RRWT KEY ON STACK
016052	004767	004232		JSR	X7,SETUP		MAKE KERNEL PAGE I RRWT, BANK 0 MAKE KERNEL PAGE ? RW, EXTERNAL MAKE ALL OTHER PAGES RW, BANK 0 RESTORE STACK POINTER SETUP TRAP RETURN

016056	005726			TST	(SP)+		
016060	012777	016124	164746	MOV	#RET44,0KTVEC		
016066	005077	164744		CLR	0KTSTA		
016072	005067	169314		CLR	DESTAD		INITIALIZE LOCATION TO BE ADDRESSED BY DATO TO RRWT PAGE

016076	012702	023412		MOV	#DESTAD+20000,R2		R2 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
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016102	012777	001001	164714	MOV	#1001,0SR0		TURN ON KT11-C, SET HMG TAP ENABLE
016110	012722	129252		MOV	#129252,(R2)+		DATO TO RRWT PAGE=SHOULD TRAP
016114	105377	164704		DECB	0SR0		TURN OFF KT11-C
016120	104006			HLT			DATO TO RRWT PAGE FAILED TO TRAP
016122	000441			BR	DONE44		WITH MEMORY MANAGEMENT TRAP ENABLE SET
016124	017701	164674		MOV	0SR0,R1		SAVE CONTENTS OF SR0
016130	005377	164670		DEC	0SR0		TURN OFF KT11-C
016134	022701	011021		CMP	#11021,R1		CHECK SAVED CONTENTS OF SR0
016140	001401			BEQ	,+4		
016142	104006			HLT			SR0 INCORRECT=SHOULD HAVE TRACKED THE REFERENCE TO DATA SPACE, PAGE 0, WHICH GOT THE ADDRESS OF SR0, AND HMG TAP SHOULD BE SET

016144	022777	000027	164654	CMP	#27,0SR1		CHECK SR1
016152	001401			BEQ	,+4		
016154	104006			HLT			SR1 INCORRECT=SHOULD KEEP TRACKING EVEN WITH KT11-C OFF

016156	022777	016156	164644	CMP	#1,0SR2		CHECK SR2
016164	001401			BEQ	,+4		
016166	104006			HLT			SR2 INCORRECT=SHOULD KEEP TRACKING CHECK INSTRUCTION SPACE PDR

016170	022777	077404	165044	CMP	#77404,0KIPDR1		CHECK INSTRUCTION SPACE PDR
016176	001401			BEQ	,+4		
016180	104006			HLT			KIPDR1 INCORRECT=SHOULD NOT HAVE BEEN CHANGED SINCE THE RRWT REFERENCE WAS TO DATA SPACE

016202	022777	077704	165052	CMP	#77704,0KDPDR1		CHECK DATA SPACE PDR
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016210	001401			BEG	,+4		
016212	104006			HLT			;KOPDR1 INCORRECT="A" AND "M" BITS SHOULD BE SET SINCE PAGE WAS ACCESSED AND WRITTEN INTO
016214	026727	160172	125292	CMP	DESTAD,#120252		MAKE CERTAIN THAT DESTINATION LOCATION WAS WRITTEN
016222	001401			BEG	,+4		DATA TO RRWT PAGE DIDN'T WRITE INTO THE DESTINATION LOCATION
016224	104006			HLT			CHANGE KT11-C FAULT RETURN TO CAUSE A HALT ON AN UNEXPECTED TRAP
016226	016777	164604	164600	MOV	KTSTA,*KTVEC	DONE44	
016234	005077	164576		CLR	*KTSTA		
016240	005077	164560		CLR	*SR0		
016244	005037	177776		CLR	*#PS		

ISHOW THAT A DATIP, DATA SEQUENCE TO A RRWT PAGE (ACF#4) WITHOUT MEMORY MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
 ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

016290	104400			TEST45	SCOPE		
016292	012737	000045	177570	MOV	#45,*#SR		LOAD TEST NUMBER INTO THE DISPLAY
016260	005037	177776		CLR	*#PS		INITIALIZE PROCESSOR STATUS
016264	012706	001000		MOV	*KSTACK,SP		INITIALIZE KERNEL STACK POINTER
016270	005077	164530		CLR	*SR0		INITIALIZE SR0
016274	012746	000004		MOV	#4,-(SP)		PUSH RRWT KEY ON STACK
016300	004767	004004		JSR	X7,SETUP		MAKE KERNEL PAGE 1 RRWT, BANK 0
							MAKE KERNEL PAGE 7 RW, EXTERNAL
							MAKE ALL OTHER PAGES RW, BANK 0
							RESTORE STACK POINTER
							SETUP ABORT RETURN IN CASE
016304	005726			TST	(SP)+		
016306	012777	016444	164520	MOV	*RET45,*KTVEC		
016314	005077	164516		CLR	*KTSTA		
016320	012767	129292	169064	MOV	#125292,DESTAD		INITIALIZE LOCATION TO BE REFERENCED
016326	012701	023414		MOV	*DESTAD+20002,R1		R1 CONTAINS VIRTUAL ADDRESS +2 OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
016332	005277	164466		INC	*SR0		TURN ON KT11-C
016336	062741	052526		ADD	*52526,-(R1)		DATA TO RRWT PAGE=SHOULD'N'T TRAP SINCE TRAP ENABLE ISN'T SET
016342	017702	164456		MOV	*SR0,R2		SAVE CONTENTS OF SR0
016346	105377	164452		DECB	*SR0		TURN OFF KT11-C
016392	022702	010021		CMP	#10021,R2		CHECK SAVED CONTENTS OF SR0
016396	001401			BEG	,+4		
016360	104006			HLT			SR0 INCORRECT=SHOULD HAVE TRACKED REFERENCE TO DATA SPACE, PAGE 0, WHICH GOT THE ADDRESS OF SR0, AND MGMT TRAP SHOULD BE SET
016362	022777	000027	164436	CMP	#27,*SR1		CHECK SR1
016370	001401			BEG	,+4		
016372	104006			HLT			SR1 INCORRECT=SHOULD KEEP TRACKING EVEN WITH KT11-C OFF
016374	022777	016374	164426	CMP	#1,*SR2		CHECK SR2
016402	001401			BEG	,+4		
016404	104006			HLT			SR2 INCORRECT=SHOULD TRACK EVEN WHEN KT11-C IS OFF
016406	022777	077404	164626	CMP	#77404,*KIPDR1		CHECK INSTRUCTION SPACE FOR FOR THE RRWT PAGE REFERENCED
016414	001401			BEG	,+4		
016416	104006			HLT			KIPDR1 INCORRECT=SHOULD NOT

016420	022777	077704	164634	CMP	#77704,*KOPDR1		HAVE BEEN CHANGED SINCE THE RRWT REFERENCE WAS TO DATA SPACE
016426	001401			BEG	,+4		CHECK DATA SPACE FOR CORRESPONDING TO THE RRWT REFERENCE
016430	104006			HLT			KOPDR1 INCORRECT="A" AND "M" BITS SHOULD BE SET SINCE PAGE WAS ACCESSED AND WRITTEN INTO
016432	005767	164754		TST	DESTAD		CHECK TO SEE THAT INSTRUCTION COMPLETED
016436	001401			BEG	,+4		
016440	104006			HLT			DATA TO RRWT PAGE FAILED TO COMPLETE
016442	000404			BR	DONE45		
016444	042777	000001	164392	OR	#1,*SR0		TURN OFF KT11-C
016492	104006			HLT			DATA TO RRWT PAGE CAUSED A TRAP OR ABORT ALTHOUGH MEMORY MANAGEMENT TRAP ENABLE WAS NOT SET
016494	016777	164356	164392	MOV	KTSTA,*KTVEC	DONE45	RESTORE TRAP RETURN TO CAUSE HALT ON AN UNEXPECTED TRAP
016462	005077	164350		CLR	*KTSTA		INITIALIZE SR0
016466	005077	164332		CLR	*SR0		INITIALIZE SR0
016472	005037	177776		CLR	*#PS		INITIALIZE PROCESSOR STATUS

ISHOW THAT A DATIP, DATA SEQUENCE TO A RRWT PAGE (ACF#4) WITH MEMORY MANAGEMENT TRAP ENABLE SET CAUSES A TRAP AT THE END OF THE INSTRUCTION
 ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR'S FOR THE PAGE REFERENCED ARE CORRECT

016476	104400			TEST46	SCOPE		
016500	012737	000046	177570	MOV	#46,*#SR		LOAD TEST NUMBER INTO THE DISPLAY
016506	005037	177776		CLR	*#PS		INITIALIZE PROCESSOR STATUS
016512	012706	001000		MOV	*KSTACK,SP		INITIALIZE KERNEL STACK POINTER
016516	005077	164302		CLR	*SR0		INITIALIZE SR0
016522	012746	000004		MOV	#4,-(SP)		PUSH RRWT KEY ON STACK
016526	004767	003596		JSR	X7,SETUP		MAKE KERNEL PAGE 1 RRWT, BANK 0
							MAKE KERNEL PAGE 7 RW, EXTERNAL
							MAKE ALL OTHER PAGES RW, BANK 0
							RESTORE STACK POINTER
							SETUP TRAP RETURN
016532	005726			TST	(SP)+		
016534	012777	016604	164272	MOV	*RET46,*KTVEC		
016542	005077	164270		CLR	*KTSTA		
016546	012767	129292	164636	MOV	#125252,DESTAD		INITIALIZE LOCATION TO BE READ
016594	005003			CLR	R3		CLEAR REGISTER TO SAVE WHAT WAS READ
							FOLLOWS CHECKING TO SEE THAT THE INSTRUCTION COMPLETED BEFORE TRAPPING
016596	012704	023412		MOV	*DESTAD+20000,R4		R4 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
016562	012777	001001	164234	MOV	#1001,*SR0		TURN ON KT11-C, SET MGMT TRAP ENABLE
016570	062724	052526		ADD	*52526,(R4)+		DATA TO RRWT PAGE=SHOULD TRAP SINCE TRAP ENABLE IS SET
016574	105077	164224		CLRB	*SR0		IF NO TRAP, TURN OFF KT11-C
016600	104006			HLT			DATA TO RRWT PAGE WITH MEMORY MANAGEMENT TRAP ENABLE SET DIDN'T CAUSE A TRAP
016602	000444			BR	DONE46		SAVE CONTENTS OF SR0
016604	017702	164214		MOV	*SR0,R2	RET46	TURN OFF KT11-C
016610	005377	164210		DEC	*SR0		TURN OFF KT11-C
016614	022702	011021		CMP	#11021,R2		CHECK SAVED CONTENTS OF SR0

DCKTC

016620	001401			BEQ	,+4		
016622	104006			HLT			ISR0 INCORRECT-SHOULD HAVE TRACKED THE REFERENCE TO DATA SPACE, PAGE 0, WHICH GOT THE ADDRESS OF SR0, AND MMGT TRAP SHOULD BE SET ICHECK SR1
016624	022777	000027	164174	CHP	#27,SR1		
016632	001401			BEQ	,+4		
016634	104006			HLT			ISR1 INCORRECT-SHOULD CONTINUE TRACKING WITH KTI1-C OFF ICHECK SR2
016636	022777	016636	164164	CHP	#,SR2		
016644	001401			BEQ	,+4		
016646	104006			HLT			ISR2 INCORRECT-SHOULD STILL BE TRACKING EVEN WITH KTI1-C OFF ICHECK INSTRUCTION SPACE PDR
016650	022777	077404	164364	CHP	#77404,0KIPDR1		
016656	001401			BEQ	,+4		
016660	104006			HLT			KIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED SINCE THE RRWT REFERENCE WAS TO DATA SPACE ICHECK DATA SPACE PDR
016662	022777	077704	164372	CHP	#77704,0KOPDR1		
016670	001401			BEQ	,+4		
016672	104006			HLT			KOPDR1 INCORRECT-"A" AND "M" BITS SHOULD BE SET SINCE DATA SPACE WAS RRWT AND WAS READ AND WRITTEN ICHECK LOCATION WRITTEN INTO
016674	009767	164512		TST	DESTAD		
016700	001401			BEQ	,+4		
016702	104006			HLT			THE INSTRUCTION REFERENCING THE RRWT PAGE TRAPPED BEFORE COMPLETING ICHECK TO SEE THAT R4 AUTOINCREMENTED
016704	022704	023414		CHP	#DESTAD+20002,R4		
016710	001401			BEQ	,+4		
016712	104006			HLT			AUTOINCREMENT OF R4 ON TRAPPED INSTRUCTION DIDN'T OCCUR
016714	016777	164116	164112	MOV	KTSTA,0KTVEC		
016722	009077	164110		CLR	0KTSTA		
016726	009077	164072		CLR	0SR0		
016732	009037	177776		CLR	0MPS		

ISHOW THAT DATIP, DATOB SEQUENCE TO A RRWT PAGE (ACF=4) WITHOUT MEMORY MANAGEMENT TRAP ENABLE SET NEITHER TRIPS NOR ABORTS
 ISHOW THAT THE KTI1-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

016736	104400			TEST47	SCOPE		
016740	012737	000047	177570	MOV	#47,0#SR		LOAD TEST NUMBER INTO THE DISPLAY
016746	009037	177776		CLR	0MPS		INITIALIZE PROCESSOR STATUS
016752	012706	001000		MOV	#KSTACK,SP		INITIALIZE KERNEL STACK POINTER
016756	009077	164042		CLR	0SR0		INITIALIZE SR0
016762	012746	000004		MOV	#4,-(SP)		PUSH RRWT KEY ON STACK
016766	004767	003316		JSR	X7,SETUP		MAKE KERNEL PAGE 1 RRWT, BANK 0 MAKE KERNEL PAGE 7 RW, EXTERNAL MAKE ALL OTHER PAGES RW, BANK 0 RESTORE STACK POINTER
016772	009726			TST	(SP)+		
016774	012777	017130	164032	MOV	#RET47,0KTVEC		SETUP ABORT RETURN IN CASE
017002	009077	164030		CLR	0KTSTA		
017006	009067	164400		CLR	DESTAD		INITIALIZE LOCATION TO BE REFERENCED
017012	012701	023413		MOV	#DESTAD+20001,R1		R1 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1

DCKTC

017016	009277	164002		INC	0SR0		TURN ON KTI1-C
017022	109221			INCB	(R1)+		DATIP, DATOB TO RRWT PAGE SHOULDN'T TRAP
017024	017702	163774		MOV	0SR0,R2		TRAP ENABLE ISN'T SET
017030	109377	163770		DEC	0SR0		GIVE CONTENTS OF SR0
017034	022702	010021		CHP	#10021,R2		TURN OFF KTI1-C
017040	001401			BEQ	,+4		ICHECK SAVED CONTENTS OF SR0
017042	104006			HLT			
017044	022777	000027	163754	CHP	#27,SR1		
017052	001401			BEQ	,+4		
017054	104006			HLT			ISR1 INCORRECT-SHOULD KEEP TRACKING EVEN WITH KTI1-C OFF ICHECK SR2
017056	022777	017056	163744	CHP	#,SR2		
017064	001401			BEQ	,+4		
017066	104006			HLT			ISR2 INCORRECT-SHOULD TRACK EVEN WHEN KTI1-C IS OFF ICHECK INSTRUCTION SPACE PDR FOR THE RRWT PAGE REFERENCED
017070	022777	077404	164144	CHP	#77404,0KIPDR1		
017076	001401			BEQ	,+4		
017100	104006			HLT			KIPDR1 INCORRECT-SHOULD NOT HAVE BEEN CHANGED SINCE THE RRWT REFERENCE WAS TO DATA SPACE ICHECK DATA SPACE PDR CORRESPONDING TO THE RRWT REFERENCE
017102	022777	077704	164152	CHP	#77704,0KOPDR1		
017110	001401			BEQ	,+4		
017112	104006			HLT			KOPDR1 INCORRECT-"A" AND "M" BITS SHOULD BE SET SINCE DATA SPACE WAS WRITTEN INTO AND WAS RRWT ICHECK TO SEE THAT INSTRUCTION WAS CORRECTLY EXECUTED
017114	022767	000400	164270	CHP	#400,DESTAD		
017122	001401			BEQ	,+4		
017124	104006			HLT			DATIP, DATOB TO RRWT PAGE LEFT WRONG VALUE IN DESTINATION ADDRESS
017126	000404			BR	DONE47		
017130	042777	000001	163666	BIC	#1,0SR0		TURN OFF KTI1-C
017136	104006			HLT			DATIP, DATOB TO RRWT PAGE CAUSED A TRAP OR ABORT ALTHOUGH MEMORY MANAGEMENT TRAP ENABLE WAS NOT SET
017140	016777	163672	163666	MOV	KTSTA,0KTVEC		RESTORE TRAP RETURN TO CAUSE REAL
017146	009077	163664		CLR	0KTSTA		FOR AN UNEXPECTED TRAP
017152	009077	163646		CLR	0SR0		INITIALIZE SR0
017156	009037	177776		CLR	0MPS		INITIALIZE PROCESSOR STATUS

ISHOW THAT A DATIP, DATOB SEQUENCE TO A RRWT PAGE (ACF=4) WITH MEMORY MANAGEMENT TRAP ENABLE SET CAUSES A TRAP AT THE END OF THE INSTRUCTION
 ISHOW THAT THE KTI1-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR'S FOR THE PAGE REFERENCED ARE CORRECT

017162	104400			TEST50	SCOPE		
017164	012737	000050	177570	MOV	#50,0#SR		LOAD TEST NUMBER INTO THE DISPLAY
017172	009037	177776		CLR	0MPS		INITIALIZE PROCESSOR STATUS
017176	012706	001000		MOV	#KSTACK,SP		INITIALIZE KERNEL STACK POINTER
017202	009077	163616		CLR	0SR0		INITIALIZE SR0
017206	012746	000004		MOV	#4,-(SP)		PUSH RRWT KEY ON STACK
017212	004767	003072		JSR	X7,SETUP		MAKE KERNEL PAGE 1 RRWT, BANK 0

017216	005726			TST	(SP)+	MAKE KERNEL PAGE 7 RW, EXTERNAL
017220	012777	017264	163606	MOV	#RET50,#KTVEC	MAKE ALL OTHER PAGES RW, BANK 0
017226	005077	163604		CLR	#KTSTA	RESTORE STACK POINTER
017232	012767	129292	164192	MOV	#129252,DESTAD	SETUP TRAP RETURN
017240	012702	023413		MOV	#DESTAD+20001,R2	INITIALIZE LOCATION TO BE ACCESSED
017244	012777	001001	163592	MOV	#1001,#SR0	R2 CONTAINS VIRTUAL ADDRESS OF
017292	109222			INCB	(R2)+	LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
017294	109077	163544		CLRB	#SR0	TURN ON KTI1-C, SET HMGY TRAP ENABLE
017240	104006			HLT		DATI, DAT0 TO RRWT PAGE=SHOULD TRAP
017262	000449			BR	DONE50	IF NO TRAP, TURN OFF KTI1-C
017264	017703	163534		MOV	#SR0,R3	DATI, DAT0 TO RRWT PAGE WITH MEMORY
017270	005377	163530		DEC	#SR0	MANAGEMENT TRAP ENABLE SET DIDN'T
017274	022703	011021		CHP	#11021,R3	CAUSE A TRAP
017300	001401			BEQ	,+4	SAVE CONTENTS OF SR0
017302	104006			HLT		TURN OFF KTI1-C
017304	022777	000027	163514	CHP	#27,#SR1	CHECK SAVED CONTENTS OF SR0
017312	001401			BEQ	,+4	SR0 INCORRECT=SHOULD HAVE TRACKED
017314	104006			HLT		THE REFERENCE TO DATA SPACE, PAGE
017316	022777	017316	163504	CHP	#1,#SR2	0, WHICH GOT THE ADDRESS OF SR0,
017324	001401			BEQ	,+4	AND HMGY TRAP SHOULD BE SET
017326	104006			HLT		CHECK SR1
017330	022777	077404	163704	CHP	#77404,#KIPDR1	SR1 INCORRECT=SHOULD CONTINUE
017336	001401			BEQ	,+4	TRACKING WITH KTI1-C OFF
017340	104006			HLT		CHECK SR2
017342	022777	077704	163712	CHP	#77704,#KDPDR1	SR2 INCORRECT=SHOULD STILL BE
017350	001401			BEQ	,+4	TRACKING EVEN WITH KTI1-C OFF
017352	104006			HLT		CHECK INSTRUCTION SPACE PDR
017354	022767	129692	164030	CHP	#129652,DESTAD	KIPDR1 INCORRECT=SHOULD NOT
017362	001401			BEQ	,+4	HAVE BEEN CHANGED SINCE THE RRWT
017364	104006			HLT		REFERENCE WAS TO DATA SPACE
017366	022702	023414		CHP	#DESTAD+20002,R2	CHECK DATA SPACE PDR
017372	001401			BEQ	,+4	KDPDR1 INCORRECT="A" AND "W" BITS SHOULD
017374	104006			HLT		BE SET SINCE DATA SPACE WAS RRWT
017376	016777	163434	163430	MOV	KTSTA,#KTVEC	AND WAS WRITTEN
017404	005077	163426		CLR	#KTSTA	CHECK LOCATION WRITTEN INTO
017410	005077	163410		CLR	#SR0	THE INSTRUCTION REFERENCING THE RRWT
017414	005037	177776		CLR	#SR0	PAGE TRAPPED BEFORE COMPLETING

SHOW THAT DAT1 TO A RRWT PAGE (ADF#5) WITHOUT MEMORY
 MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
 SHOW THAT THE KTI1-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT
 THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

017420	104400			TEST51	SCOPE	
017422	012737	000051	177970	MOV	#51,#SR	LOAD TEST NUMBER INTO THE DISPLAY
017430	009037	177776		CLR	#RPS	INITIALIZE PROCESSOR STATUS
017434	012706	001000		MOV	#KSTACK,SP	INITIALIZE KERNEL STACK POINTER
017440	005077	163606		CLR	#SR0	INITIALIZE SR0
017444	012746	000005		MOV	#9,(SP)	PUSH RRWT KEY ON STACK
017450	004767	002634		JSR	X7,SETUP	MAKE KERNEL PAGE 1 RRWT, BANK 0
017454	005726			TST	(SP)+	MAKE KERNEL PAGE 7 RW, EXTERNAL
017456	012777	017616	163390	MOV	#RET51,#KTVEC	MAKE ALL OTHER PAGES RW, BANK 0
017464	005077	163346		CLR	#KTSTA	RESTORE STACK POINTER
017470	012767	129292	163714	MOV	#129252,DESTAD	SETUP TRAP RETURN IN CASE
017476	012701	023412		MOV	#DESTAD+20000,R1	INITIALIZE LOCATION TO BE REFERENCED
017502	005277	163316		INC	#SR0	R1 CONTAINS ADDRESS OF LOCATION TO
017506	022721	129292		CHP	#129252,(R1)+	BE REFERENCED THRU KERNEL PAGE 1
017512	001404			BEQ	OK51	TURN ON KTI1-C
017514	005377	163304		DEC	#SR0	DATI TO RRWT PAGE=SHOULDNT TRAP OR ABORT
017520	104006			HLT		IF NO TRAP, TURN OFF KTI1-C
017522	000441			BR	DONE51	RELOCATION FAILED THRU KERNEL PAGE 1
017524	017702	163274		MOV	#SR0,R2	SAVE CONTENTS OF SR0
017530	105377	163270		DEC	#SR0	TURN OFF KTI1-C
017534	022702	000021		CHP	#21,R2	CHECK SAVED CONTENTS OF SR0
017540	001401			BEQ	,+4	SR0 INCORRECT=SHOULD HAVE
017542	104006			HLT		TRACKED REFERENCE TO DATA SPACE,
017544	022777	000027	163294	CHP	#27,#SR1	PAGE 0, WHICH GOT THE ADDRESS
017552	001401			BEQ	,+4	OF SR0
017554	104006			HLT		CHECK SR1
017556	022777	017556	163244	CHP	#1,#SR2	SR1 INCORRECT=SHOULD KEEP
017564	001401			BEQ	,+4	TRACKING EVEN WITH KTI1-C OFF
017566	104006			HLT		CHECK SR2
017570	022777	077405	163444	CHP	#77405,#KIPDR1	SR2 INCORRECT=SHOULD TRACK EVEN
017576	001401			BEQ	,+4	WHEN KTI1-C IS OFF
017600	104006			HLT		CHECK INSTRUCTION SPACE PDR FOR
017602	022777	077405	163452	CHP	#77405,#KDPDR1	THE RRWT PAGE REFERENCED
017610	001401			BEQ	,+4	KIPDR1 INCORRECT=SHOULD NOT
017612	104006			HLT		HAVE BEEN CHANGED
017614	000404			BR	DONE51	CHECK DATA SPACE PDR CORRESPONDING
017616	042777	000001	163200	MOV	#1,#SR0	TO THE RRWT REFERENCE
017624	104006			HLT		KDPDR1 INCORRECT - SHOULD NOT

IA TRAP OR ABORT

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017626 016777 165204 163200 DONE51 MOV KTSTA,*KTVEC ;RESTORE TRAP RETURN TO CAUSE HALT
017634 005077 163176 CLR *KTSTA ;ON AN UNEXPECTED TRAP
017640 005077 163160 CLR *SR0 ;INITIALIZE SR0
017644 005037 177776 CLR *PPS ;INITIALIZE PROCESSOR STATUS
    
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ISHOW THAT A DAT1 TO A RRWTH PAGE (ACF=5) WITH MEMORY MANAGEMENT
 TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
 ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE
 IPDR'S FOR THE PAGE REFERENCED ARE CORRECT

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017650 104400 TEST92i SCOPE
017652 012737 000052 177570 MOV #52,*PSR ;LOAD TEST NUMBER INTO THE DISPLAY
017660 005037 177774 CLR *PPS ;INITIALIZE PROCESSOR STATUS
017664 012706 001000 MOV *KSTACK,SP ;INITIALIZE KERNEL STACK POINTER
017670 005077 163130 CLR *SR0 ;INITIALIZE SR0
017674 012746 000006 MOV #6,-(SP) ;PUSH RW KEY ON STACK
017700 004767 002404 JSR %7,SETUP ;MAKE KERNEL PAGE 7 RW, EXTERNAL
;MAKE ALL OTHER PAGES RW, BANK 0
;RESTORE STACK POINTER
017704 005726 TST (SP)+ ;#200,*KOPAR1
017706 012777 000200 MOV #200,*KOPAR1 ;MAP KERNEL PAGE 1
017714 012777 000200 MOV #200,*KIPAR1 ;TO BANK 1
017722 012777 077405 163354 MOV #77405,*KOPDR2 ;ORANGE MAP TO MAKE PAGE 2 RRWTH
017730 012777 077405 163306 MOV #77405,*KIPDR2
017736 012777 020072 163070 MOV #RET52,*KTVEC ;SETUP TRAP RETURN IN CASE
017744 005077 163066 CLR *KTSTA
017750 012767 125252 163454 MOV #125252,DESTAD ;INITIALIZE LOCATION TO BE READ
;DESTAD+40000,R1 ;R1 CONTAINS VIRTUAL ADDRESS OF
;LOCATION TO BE REFERENCED THRU KERNEL PAGE 2
017762 012777 001001 163034 MOV #1001,*SR0 ;TURN ON KT11-C, SET MGMT TRAP ENABLE
017770 022721 125252 CHP #125252,(R1)+ ;DATA TO RRWTH PAGE-SHOULDN'T TRAP OR ABORT
017774 001401 BEQ .+4
017776 104006 HLT ;RELOCATION FAILED THRU KERNEL PAGE 2
020000 017702 163020 MOV *SR0,R2 ;SAVE CONTENTS OF SR0
020004 005377 163014 DEC *SR0 ;TURN OFF KT11-C
020010 022702 001021 CHP #1021,R2 ;CHECK SAVED CONTENTS OF SR0
020014 001401 BEQ .+4
020016 104006 HLT ;SR0 INCORRECT-SHOULD HAVE TRACKED
;THE REFERENCE TO DATA SPACE, PAGE
;0, WHICH GOT THE ADDRESS OF SR0
;CHECK SR1
020020 022777 000027 163000 CHP #27,*SR1
020026 001401 BEQ .+4
020030 104006 HLT ;SR1 INCORRECT-SHOULD CONTINUE
;TRACKING WITH KT11-C OFF
;CHECK SR2
020032 022777 020032 162770 CHP #1,*SR2
020040 001401 BEQ .+4
020042 104006 HLT ;SR2 INCORRECT-SHOULD STILL BE
;TRACKING EVEN WITH KT11-C OFF
;CHECK INSTRUCTION SPACE PDR
020044 022777 077405 163172 CHP #77405,*KIPDR2
020052 001401 BEQ .+4
020054 104006 HLT ;KIPDR2 INCORRECT-SHOULD NOT
;HAVE BEEN CHANGED
020056 022777 077405 163200 CHP #77405,*KOPDR2
020064 001401 BEQ .+4
020066 104006 HLT ;KOPDR2 INCORRECT-SHOULD NOT
;HAVE BEEN CHANGED
    
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020070 000404 BR DONE52
020072 042777 000001 162724 RET92i BIC #1,*SR0 ;TURN OFF KT11-C
020100 104006 HLT ;DATA TO RRWTH PAGE TRAPPED OR ABORTED
020102 016777 162730 162724 DONE52i MOV KTSTA,*KTVEC ;ORANGE KT11-C FAULT RETURN TO
020110 005077 162722 CLR *KTSTA ;CAUSE A HALT ON AN UNEXPECTED TRAP
020114 005077 162704 CLR *SR0
020120 005037 177776 CLR *PPS
    
```

ISHOW THAT A DAT0 (NO DAT[P]) TO A RRWTH PAGE (ACF=5) WITHOUT
 MEMORY MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
 ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR
 CORRESPONDING TO THE REFERENCE IS CORRECT

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020124 104400 TEST93i SCOPE
020126 012737 000053 177570 MOV #53,*PSR ;LOAD TEST NUMBER INTO THE DISPLAY
020134 005037 177774 CLR *PPS ;INITIALIZE PROCESSOR STATUS
020140 012706 001000 MOV *KSTACK,SP ;INITIALIZE KERNEL STACK POINTER
020144 005077 162654 CLR *SR0 ;INITIALIZE SR0
020150 012746 000006 MOV #6,-(SP) ;PUSH RW KEY ON STACK
020154 004767 002130 JSR %7,SETUP ;MAKE KERNEL PAGE 7 RW, EXTERNAL
;MAKE ALL OTHER PAGES RW, BANK 0
;RESTORE STACK POINTER
020160 005726 TST (SP)+ ;#200,*KOPAR1
020162 012777 000200 MOV #200,*KOPAR1 ;MAP KERNEL PAGE 2 RRWTH
020170 012777 000200 MOV #200,*KIPAR1
020176 012777 077405 163060 MOV #77405,*KOPDR2
020204 012777 077405 163032 MOV #77405,*KIPDR2
020212 012777 020052 162614 MOV #RET53,*KTVEC ;SETUP ABORT RETURN IN CASE
020220 005077 162612 CLR *KTSTA
020224 005067 163162 CLR DESTAD ;INITIALIZE LOCATION TO BE ADDRESSED
;DESTAD+40000,R1 ;R1 CONTAINS VIRTUAL ADDRESS OF LOCATION
;TO BE REFERENCED THRU KERNEL PAGE 2
020234 112777 000001 162562 MOV #1,*SR0 ;TURN ON KT11-C
020242 012721 125252 MOV #125252,(R1)+ ;DATA TO RRWTH PAGE-SHOULDN'T TRAP
;SINCE TRAP ENABLE ISN'T SET
020246 017702 162552 MOV *SR0,R2 ;SAVE CONTENTS OF SR0
020252 005377 162546 DEC *SR0 ;TURN OFF KT11-C
020256 022702 010021 CHP #1021,R2 ;CHECK SAVED CONTENTS OF SR0
020262 001401 BEQ .+4
020264 104006 HLT ;SR0 INCORRECT-SHOULD HAVE TRACKED
;THE REFERENCE TO DATA SPACE, PAGE 0,
;WHICH GOT THE ADDRESS OF SR0, AND MGMT
;TRAP SHOULD BE SET
;CHECK SR1
020266 022777 000027 162532 CHP #27,*SR1
020274 001401 BEQ .+4
020276 104006 HLT ;SR1 INCORRECT-SHOULD KEEP TRACKING
;EVEN WITH KT11-C OFF
;CHECK SR2
020300 022777 020300 162522 CHP #1,*SR2
020306 001401 BEQ .+4
020310 104006 HLT ;SR2 INCORRECT-SHOULD KEEP TRACKING
020312 022777 077405 162724 CHP #77405,*KIPDR2
020320 001401 BEQ .+4
020322 104006 HLT ;KIPDR2 INCORRECT-SHOULD NOT HAVE
;BEEN CHANGED SINCE THE RRWTH REFERENCE
    
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020324	022777	077705	162732	CMP	#77705,*KDPDR2	INIS TO DATA SPACE
020332	001401			BEQ	,+4	ICHECK DATA SPACE PDR
020334	104006			HLT		
020336	026727	163050	125292	CMP	DESTAD,#125292	IKDPDR2 INCORRECT="A" BIT SHOULD BE SET SINCE PAGE
020344	001401			BEQ	,+4	INIS ACCESSED, AND "W" BIT SHOULD
020346	104006			HLT		BE SET SINCE IT WAS WRITTEN INTO
020350	000404			BR	DONE53	IMAKE CERTAIN THAT DESTINATION
020352	042777	000001	162444	BIC	#1,*SR0	LOCATION WAS WRITTEN
020360	104006			HLT		INTO TO RRWTH PAGE DIDN'T WRITE
020362	016777	162450	162444	DONE53	KTSTA,*KTVEC	INTO THE DESTINATION LOCATION
020370	005077	162442		CLR	*KTSTA	ITURN OFF KT11=C
020374	005077	162424		CLR	*SR0	INTO TO RRWTH PAGE TRAPPED WITHOUT MMGT TRAP ENABLED
020400	005037	177776		CLR	*PPS	ICRANGE KT11=C FAULT RETURN

ISHOW THAT A DATO (NO DATIP) TO A RRWTH PAGE (ACF=5) WITH
MEMORY MANAGEMENT TRAP ENABLE SET TRAPS AFTER THE INSTRUCTION IS COMPLETED
ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE PDR
ICORRESPONDING TO THE REFERENCE IS CORRECT

020404	104400			TEST54	SCOPE	
020406	012737	000054	177570	MOV	#54,*SR	ILOAD TEST NUMBER INTO THE DISPLAY
020414	005037	177776		CLR	*PPS	INITIALIZE PROCESSOR STATUS
020420	012706	001000		MOV	*KSTACK,SP	INITIALIZE KERNEL STACK POINTER
020424	005077	162374		CLR	*SR0	INITIALIZE SR0
020430	012746	000006		MOV	#0,-(SP)	IPUSH RW KEY ON STACK
020434	004767	001050		JSR	X7,SETUP	IMAKE KERNEL PAGE 7 RW, EXTERNAL
020440	005726			TST	(SP)+	IMAKE ALL OTHER PAGES RW, BANK 0
020442	012777	000200	162652	MOV	#200,*KDPAR1	IRESTORE STACK POINTER
020450	012777	000200	162624	MOV	#200,*KIPAR1	INOW CHANGE MAP TO ALLOW RUNNING CODE
020456	012777	077405	162600	MOV	#77405,*KDPDR2	ABOVE PHYSICAL ADDRESS 0000
020464	012777	077405	162592	MOV	#77405,*KIPDR2	IMAP KERNEL PAGE 1 TO BANK 1
020472	012777	020536	162334	MOV	*RET54,*KTVEC	
020500	005077	162332		CLR	*KTSTA	ISSETUP TRAP RETURN
020504	005067	162702		CLR	DESTAD	INITIALIZE LOCATION TO BE ADDRESSED
020510	012702	043412		MOV	#DESTAD+40000,R2	BY DATO TO RRWTH PAGE
020514	012777	001001	162302	MOV	#1001,*SR0	IR2 CONTAINS VIRTUAL ADDRESS OF LOCATION
020522	012722	125292		MOV	#125292,(R2)+	ITO BE REFERENCED THRU KERNEL PAGE 2
020526	105377	162272		DECB	*SR0	ITURN ON KT11=C, SET MMGT TRAP ENABLE
020532	104006			HLT		INTO TO RRWTH PAGE-SHOULD TRAP
020534	000441			BR	DONE54	ISINCE TRAP ENABLE IS SET
020536	017701	162262		MOV	*SR0,R1	ITURN OFF KT11=C
020542	005377	162256		DEC	*SR0	INTO TO RRWTH PAGE FAILED TO TRAP
020546	022701	011021		BEQ	#11021,R1	ISAVE CONTENTS OF SR0
020552	001401			BEQ	,+4	ITURN OFF KT11=C
020554	104006			HLT		ICHECK SAVED CONTENTS OF SR0

ISR0 INCORRECT=SHOULD HAVE TRACKED THE

020556	022777	000027	162242	CMP	#27,*SR1	IREFERENCE TO DATA SPACE, PAGE 0,
020564	001401			BEQ	,+4	WHICH GOT THE ADDRESS OF SR0, AND MMGT TRAP
020566	104006			HLT		ISHOULD BE SET
020570	022777	020570	162232	CMP	#1,*SR2	ICHECK SR1
020576	001401			BEQ	,+4	ISR1 INCORRECT=SHOULD
020600	104006			HLT		KEEP TRACKING EVEN WITH KT11=C OFF
020602	022777	077405	162434	CMP	#77405,*KIPDR2	ICHECK SR2
020610	001401			BEQ	,+4	ISR2 INCORRECT=SHOULD KEEP TRACKING
020612	104006			HLT		ICHECK INSTRUCTION SPACE PDR
020614	022777	077705	162442	CMP	#77705,*KDPDR2	IKIPDR2 INCORRECT=SHOULD NOT
020622	001401			BEQ	,+4	HAVE BEEN CHANGED SINCE THE RRWTH
020624	104006			HLT		REFERENCE WAS TO DATA SPACE
020626	026727	162560	125292	CMP	DESTAD,#125292	ICHECK DATA SPACE PDR
020634	001401			BEQ	,+4	IKDPDR2 INCORRECT="A" AND "W" BITS
020636	104006			HLT		SHOULD BE SET SINCE PAGE WAS WRITTEN INTO
020640	016777	162172	162166	DONE54	KTSTA,*KTVEC	IMAKE CERTAIN THAT DESTINATION
020646	005077	162164		MOV	*KTSTA	LOCATION WAS WRITTEN
020652	005077	162146		CLR	*SR0	INTO TO RRWTH PAGE DIDN'T WRITE
020656	005037	177776		CLR	*PPS	INTO THE DESTINATION LOCATION

ISHOW THAT A DATIP, DATO SEQUENCE TO A RRWTH PAGE (ACF=5) WITHOUT MEMORY
MANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT
ITHE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

020662	104400			TEST55	SCOPE	
020664	012737	000055	177570	MOV	#55,*SR	ILOAD TEST NUMBER INTO THE DISPLAY
020672	005037	177776		CLR	*PPS	INITIALIZE PROCESSOR STATUS
020676	012706	001000		MOV	*KSTACK,SP	INITIALIZE KERNEL STACK POINTER
020702	005077	162116		CLR	*SR0	INITIALIZE SR0
020706	012746	000006		MOV	#0,-(SP)	IPUSH RW KEY ON STACK
020712	004767	001372		JSR	X7,SETUP	IMAKE KERNEL PAGE 7 RW, EXTERNAL
020716	005726			TST	(SP)+	IMAKE ALL OTHER PAGES RW, BANK 0
020720	012777	000200	162374	MOV	#200,*KDPAR1	IRESTORE STACK POINTER
020726	012777	000200	162346	MOV	#200,*KIPAR1	INOW CHANGE MAP TO ALLOW RUNNING CODE
020734	012777	077405	162322	MOV	#77405,*KDPDR2	IN BANK 1
020742	012777	077405	162274	MOV	#77405,*KIPDR2	IMAP KERNEL PAGE 1 TO BANK 1
020750	012777	021106	162056	MOV	*RET55,*KTVEC	IMAKE KERNEL PAGE 2 RRWTH
020756	005077	162054		CLR	*KTSTA	ISSETUP ABORT RETURN IN CASE
020762	012767	125292	162422	MOV	#125292,DESTAD	INITIALIZE LOCATION TO BE REFERENCED
020770	012701	043414		MOV	#DESTAD+40000,R1	IR1 CONTAINS VIRTUAL ADDRESS +2 OF
020774	005277	162024		INC	*SR0	LOCATION TO BE REFERENCED THRU KERNEL PAGE 2
021000	062741	052526		ADD	#52526,-(R1)	ITURN ON KT11=C

ISHOW THAT A DATIP, DATO TO RRWTH PAGE-SHOULDN'T TRAP

021004	017702	162054		MOV	#SR0,R2	ISINCE TRAP ENABLE ISN'T SET
021010	005377	162010		DEC	#SR0	ISAVE CONTENTS OF SR0
021014	022702	010021		CMP	#10021,R2	ITURN OFF KT11=C
021020	001401			BEQ	,+4	ICHECK SAVED CONTENTS OF SR0
021022	104006			HLT		ISR0 INCORRECT-SHOULD HAVE
						TRACKED REFERENCE TO DATA SPACE,
						PAGE 0, WHICH GOT THE ADDRESS
						OF SR0, AND MMGT TRAP SHOULD BE SET
						ICHECK SR1
021024	022777	000027	161774	CMP	#27,*SR1	ISR1 INCORRECT-SHOULD KEEP
021032	001401			BEQ	,+4	TRACKING EVEN WITH KT11=C OFF
021034	104006			HLT		ICHECK SR2
021036	022777	021036	161764	CMP	#1,*SR2	ISR2 INCORRECT-SHOULD TRACK EVEN
021044	001401			BEQ	,+4	WHEN KT11=C IS OFF
021046	104006			HLT		ICHECK INSTRUCTION SPACE PDR FOR
						THE RRWTH PAGE REFERENCED
						IKIPDR0 INCORRECT-SHOULD NOT
						HAVE BEEN CHANGED SINCE THE
						RRWTH REFERENCE WAS TO DATA SPACE
						ICHECK DATA SPACE PDR CORRESPONDING
						TO THE RRWTH REFERENCE
						IKOPDR2 INCORRECT-"A" AND "M" BITS SHOULD
						BE SET SINCE PAGE WAS WRITTEN INTO
						ICHECK TO SEE THAT INSTRUCTION COMPLETED
						JOATIP; DATA TO RRWTH PAGE FAILED TO COMPLETE
021050	022777	077405	162166	CMP	#77405,*KIPDR2	
021056	001401			BEQ	,+4	
021060	104006			HLT		
021062	022777	077705	162174	CMP	#77705,*KOPDR2	
021070	001401			BEQ	,+4	
021072	104006			HLT		
021074	005767	162312		TST	DESTAD	
021100	001401			BEQ	,+4	
021102	104006			HLT		
021104	000404			BR	DONE55	
021106	042777	000001	161710	RET551	#1,*SR0	ITURN OFF KT11=C
021114	104006			HLT		JOATIP; DATA TO RRWTH PAGE CAUSED
						A TRAP OR ABORT ALTHOUGH MEMORY
						MANAGEMENT TRAP ENABLE WAS NOT SET
						RESTORE TRAP RETURN TO CAUSE HALT
						FOR AN UNEXPECTED TRAP
						INITIALIZE SR0
						INITIALIZE PROCESSOR STATUS

ISHOW THAT A DATIP; DATA SEQUENCE TO A RRWTH PAGE (ACF#5) WITH MEMORY MANAGEMENT
 TRAP ENABLE SET CAUSES A TRAP AT THE END OF THE INSTRUCTION
 ISHOW THAT THE KT11=C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE
 IPDR'S FOR THE PAGE REFERENCED ARE CORRECT

021140	104400			TEST561	SCOPE	
021142	012737	000056	177570	MOV	#56,*SR	ILOAD TEST NUMBER INTO THE DISPLAY
021150	005037	177776		CLR	#PS	INITIALIZE PROCESSOR STATUS
021154	012706	001000		MOV	#KSTACK,SP	INITIALIZE KERNEL STACK POINTER
021160	005077	161640		CLR	#SR0	INITIALIZE SR0
021164	012746	000006		MOV	#6,=(SP)	IPOSH RH KEY ON STACK
021170	004767	001114		JSR	X7,SETUP	MAKE KERNEL PAGE 7 RW, EXTERNAL
						MAKE ALL OTHER PAGES RW, BANK 0
						RESTORE STACK POINTER
021174	005726			TST	(SP)+	IALTER MAP TO ALLOW EXECUTING CODE IN BANK 1

021176	012777	000200	162116	MOV	#200,*KOPAR1	IHAP KERNEL PAGE 1 TO BANK 1
021204	012777	000200	162070	MOV	#200,*KIPAR1	
021212	012777	077405	162044	MOV	#77405,*KOPDR2	IMAKE KERNEL PAGE 2 RRWTH
021220	012777	077405	162016	MOV	#77405,*KIPDR2	
021226	012777	021274	161600	MOV	#RET56,*KTVEC	ISETUP TRAP RETURN
021234	005077	161576		CLR	#KTSTA	
021240	012767	129252	162144	MOV	#129252,DESTAD	INITIALIZE LOCATION TO BE READ
021246	012704	043412		MOV	#DESTAD+40000,R4	R4 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE
						REFERENCED THRU KERNEL PAGE 2
						ITURN ON KT11=C, SET MMGT TRAP ENABLE
						JOATIP; DATA TO RRWTH PAGE-SHOULD TRAP
						SINCE TRAP ENABLE IS SET
						IF NO TRAP, TURN OFF KT11=C
						JOATIP; DATA TO RRWTH PAGE WITH MEMORY
						MANAGEMENT TRAP ENABLE SET DIDN'T
						CAUSE A TRAP
						ISAVE CONTENTS OF SR0
						ITURN OFF KT11=C
						ICHECK SAVED CONTENTS OF SR0
						ISR0 INCORRECT-SHOULD HAVE TRACKED
						THE REFERENCE TO DATA SPACE, PAGE
						0, WHICH GOT THE ADDRESS OF SR0,
						AND MMGT TRAP SHOULD BE SET
						ICHECK SR1
021314	022777	000027	161504	CMP	#27,*SR1	ISR1 INCORRECT-SHOULD CONTINUE
021322	001401			BEQ	,+4	TRACKING WITH KT11=C OFF
021324	104006			HLT		ICHECK SR2
021326	022777	021326	161474	CMP	#1,*SR2	ISR2 INCORRECT-SHOULD STILL BE
021334	001401			BEQ	,+4	TRACKING EVEN WITH KT11=C OFF
021336	104006			HLT		ICHECK INSTRUCTION SPACE PDR
021340	022777	077405	161676	CMP	#77405,*KIPDR2	
021346	001401			BEQ	,+4	
021350	104006			HLT		IKIPDR2 INCORRECT-SHOULD NOT
						HAVE BEEN CHANGED SINCE THE RRWTH
						REFERENCE WAS TO DATA SPACE
						ICHECK DATA SPACE PDR
021352	022777	077705	161704	CMP	#77705,*KOPDR2	
021360	001401			BEQ	,+4	
021362	104006			HLT		IKOPDR2 INCORRECT-"A" AND "M" BITS SHOULD
						BE SET SINCE DATA SPACE WAS RRWTH
						AND WAS WRITTEN
						ICHECK LOCATION WRITTEN INTO
021364	005767	162022		TST	DESTAD	
021370	001401			BEQ	,+4	
021372	104006			HLT		ITHE INSTRUCTION REFERENCING THE RRWTH
						PAGE TRAPPED BEFORE COMPLETING
						ICHECK TO SEE THAT R4 AUTOINCREMENTED
021374	022704	043414		CMP	#DESTAD+40002,R4	
021400	001401			BEQ	,+4	
021402	104006			HLT		IAUTOINCREMENT OF R4 ON TRAPPED INSTRUCTION DIDN'T OCCUR
021404	016777	161426	161422	DONE561	KTSTA,*KTVEC	ICCHANGE KT11=C FAULT RETURN TO
021412	005077	161420		CLR	#KTSTA	CAUSE A HALT ON AN UNEXPECTED TRAP
021416	005077	161402		CLR	#SR0	
021422	005037	177776		CLR	#PS	

ISHOW THAT DATIP, DATOB SEQUENCE TO A RRWTH PAGE (ACF=9) WITHOOUT MEMORY
IMANAGEMENT TRAP ENABLE SET NEITHER TRAPS NOR ABORTS
ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT
ITHE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

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021426 104400
021430 012737 000057 177570
021436 005037 177776
021442 012706 001000
021446 005077 161352
021452 012746 000006
021456 004767 000626

021462 005726

021464 012777 000200 161630
021472 012777 000200 161602
021500 012777 077405 161530
021506 012777 077405 161530
021514 012777 021650 161312
021522 005077 161310
021526 005067 161660
021532 012701 043413

021536 005277 161262
021542 105221

021544 017702 161254
021550 105377 161250
021554 022702 010021
021560 001401
021562 104006

021564 022777 000027 161234
021572 001401
021574 104006

021576 022777 021576 161224
021604 001401
021606 104006

021610 022777 077405 161426
021616 001401
021620 104006

021622 022777 077705 161434
021630 001401
021632 104006

021634 022767 000400 161550
021642 001401

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021644 104006
021646 000404
021650 042777 000001 161146 RET57;
021656 104006

021660 016777 161132 161146 DONE57;
021666 005077 161144
021672 005077 161126
021676 005037 177776

ISHOW THAT A DATIP, DATOB SEQUENCE TO A RRWTH PAGE (ACF=9) WITH MEMORY MANAGEMENT  

ITRAP ENABLE SET CAUSES A TRAP AT THE END OF THE INSTRUCTION  

ISHOW THAT THE KT11-C STATUS REGISTERS CONTINUE TO TRACK, AND THAT THE  

IPDR'S FOR THE PAGE REFERENCED ARE CORRECT

021702 104400
021704 012737 000060 177570
021712 005037 177776
021716 012706 001000
021722 005077 161076
021726 012746 000006
021732 004767 000352

021736 005726

021740 012777 000200 161354
021746 012777 000200 161326
021754 012777 077405 161302
021762 012777 077405 161294
021770 012777 022034 161036
021776 005077 161034
022002 012767 125292 161402
022010 012702 043413

022014 012777 001001 161002
022022 105222

022024 105077 160774
022030 104006
022032 000445

022034 017703 160764 RET60;
022040 005377 160760
022044 022703 011021
022050 001401
022052 104006

022054 022777 000027 160744
022062 001401
022064 104006

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022066 022777 022066 160734      CHP      #,SR2      ICHECK SR2
022074 001401                      BEQ      ,*4
022076 104006                      HLT
                                     ISR2 INCORRECT-SHOULD STILL BE
                                     TRACKING EVEN WITH K11-C OFF
022100 022777 077405 161136      CHP      #77405,*KIPDR2  ICHECK INSTRUCTION SPACE PDR
022106 001401                      BEQ      ,*4
022110 104006                      HLT
                                     IKIPDR2 INCORRECT-SHOULD NOT
                                     HAVE BEEN CHANGED SINCE THE RRMW
                                     REFERENCE WAS TO DATA SPACE
022112 022777 077705 161144      CHP      #77705,*KDPDR2  ICHECK DATA SPACE PDR
022120 001401                      BEQ      ,*4
022122 104006                      HLT
                                     IKDPDR2 INCORRECT-"A" AND "W" BITS SHOULD
                                     BE SET SINCE DATA SPACE WAS RRMW
                                     AND WAS WRITTEN
022124 022767 125652 161260      CHP      #125652,DESTAD ICHECK LOCATION WRITTEN INTO
022132 001401                      BEQ      ,*4
022134 104006                      HLT
                                     ITHE INSTRUCTION REFERENCING THE RRMW
                                     PAGE TRAPPED BEFORE COMPLETING
022136 022702 043414      CHP      #DESTAD+40002,R2
022142 001401                      BEQ      ,*4
022144 104006                      HLT
                                     ITHE AUTOINCREMENT IN THE INSTRUCTION
                                     REFERENCING THE RRMW PAGE
                                     FAILED TO COMPLETE
022146 016777 160664 160660      MOV      #KTSTA,*KTVEC ICCHANGE K11-C FAULT RETURN TO
022154 005077 160656                      CLR      *KTSTA      ICause a halt on an unexpected trap
022160 005077 160640                      CLR      *SR0
022164 005037 177776                      CLR      *SPS
022170 104400                      SCOPE
022172 004767 001076                      JSR      X7,BELL
022176 013701 000042      MOV      #42,R1      IMONITOR HOOK
022202 001405                      BEQ      END
022204 000005                      RESET
022206 004711                      LOGIC: JSR      X7,*R1
022210 000240                      NOP
022212 000240                      NOP
022214 000240                      NOP
022216 000167 161172      END:     JMP      START
                                     ISUBROUTINE TO CLEAR ALL K11-C REGISTERS (EXCEPT SR1,SR2,SR3)
022222 005077 160576      CLRALL: CLR      *SR0
022226 005000                      CLR      R0
022230 012701 000140      MOV      #0,*R1      ICOUNT OF REGISTERS TO BE CLEARED
022234 005070 003040      CLRRLP: CLR      *ADRTAB(R0) ICLEAR REGISTERS THRU ADDRESS TABLE
022240 005720                      TST     (R0)+
022242 077104                      SOB     R1,CLRRLP  IINCR POINTNER
022244 000207                      RTS     X7          ILOOP WILL DONE
                                     ISUBROUTINE TO MAKE ALL PAGES RW, BANK 0, 4K, UP
022246 005077 160552      RWALL: CLR      *SR0
022252 012701 003040      MOV      #ADRTAB,R1

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022256 012700 000020      RWL1:  MOV      #20,R0
022262 005071 000040      RWL2:  CLR      *40(R1)
022266 012731 077406      MOV      #77406,*R1)+
022272 077005                      SOB     R0,RWL2
022274 062701 000040      ADD     #40,R1
022300 020127 003336      CMP     R1,*ADREND
022304 003764                      BLE     RWL1
022306 000207                      RTS     X7
                                     ISUBROUTINE TO SET ALL PAGES RW EXCEPT KERNEL PAGE 1
                                     IKERNEL PAGE 1 IS SET TO DESIRED KEY
                                     IKEY IS PASSED VIA THE STACK
                                     IALL PAGES ARE MAPPED TO BANK 0 EXCEPT KERNEL PAGE 7, WHICH IS MAPPED TO
                                     THE EXTERNAL BANK
022310 004767 177732      SETUP: JSR      X7,RWALL  IINITIALLY MAP ALL PAGES RW, BANK 0
022314 012777 077400 160720      MOV      #77400,*KIPDR1  IMAKE KERNEL PAGE ONE 4K, UP
022322 012777 077400 160732      MOV      #77400,*KDPDR1
022330 056677 000002 160704      BIS     2(SP),*KIPDR1  ISET TO DESIRED KEY
022336 056677 000002 160716      BIS     2(SP),*KDPDR1
022344 012777 007000 160744      MOV      #7000,*KIPDR7  IMAP KERNEL PAGE 7 EXTERNAL
022352 012777 007000 160756      MOV      #7000,*KDPDR7
022360 000207                      RTS     X7
                                     IROUTINE TO LOOP THRU A SINGLE INSTRUCTION TEST
                                     ILOAD THE STARTING ADDRESS OF THE TEST
                                     IYOU WISH TO RUN (THE ADDRESS OF THE TESTXX
                                     ITAG) AT THE 1ST HALT, SET SWITCH REGISTER
                                     IOPTIONS AT THE 2ND HALT;
                                     INOTE THAT SW11 MUST BE DOWN AFTER THE 2ND HALT
022362 005037 177776      TESTX: CLR      *SPS
022366 012706 001000      MOV      *KSTACK,SP
022372 012737 040000 177776      MOV      #40000,*SP      ISETUP SUPERVISOR STACK POINTER
022400 012706 002000      MOV      *SSTACK,SP
022404 012737 140000 177776      MOV      #140000,*SP      ISETUP USER STACK POINTER
022412 012706 003000      MOV      *USTACK,SP
022416 005037 177776      CLR     *SPS
022422 000000      HALT
022424 016767 155140 000036      MOV      SR,RETRNX      IWAIT FOR STARTING ADDRESS
022432 062767 000002 000030      ADD     #2,RETRNX      ILOAD STARTING ADDRESS IN RETRNX
022440 000000      HALT      IADD 2 TO POINT TO INSTRUCTION AFTER
022442 005067 000150      CLR     SCOPEF      ISET SR OPTIONS
022446 012767 022460 000144      MOV      *XLOOP,RETURN  IKEEP COUNT AT ZERO
022454 000177 000010      JMP     *RETRNX      ILOAD SCOPE LOOP RETURN POINTER
022460 005067 000132      XLOOP: CLR      SCOPEF  IJUMP TO TEST
022464 000177 000000      JMP     *RETRNX      IKEEP COUNT AT ZERO
022470 000000      RETRNX: 0          IJUMP TO TEST
                                     ISCOPE AND/OR ITERATION LOOP FOR EACH TEST 4000 TIMES
022472 032737 040000 177570      SCOPEF: BIT      #40000,*SR      ITEST SR FOR SCOPE
022500 001015                      BNE     SCOPEB      IYES,SCOPE
022502 032737 004000 177570      BIT     #40000,*SR      INO-TEST FOR ITERATION
022510 001025                      BNE     SCOPEF      IINHIBIT ITERATION
022512 026767 000100 000074      CMP     SCOPEF,ICOUNT  ICOMPARE CURRENT COUNT TO MAX NUMBER
022520 100021                      BPL     SCOPEG      IEXIT-DONE

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022522 009267 000070      INC      SCOPEF      IINCREMENT COUNT
022526 012737 000340 177776      MOV      #340,#RPS IPREVENT TRAPPING WHILE MOVING STACK
022534 022606      CMP      (6)+,%6 IREPOSITION STACK
022536 012637 177776      MOV      (6)+,#RPS IRESTORE PREVIOUS PROCESSOR STATUS
022542 032737 000400 177570      BIT      #400,#SR  ITEST FOR LOAD MICROBREAK REGISTER
022550 001403      BEQ      .+10
022552 113777 177570 160620      MOVB    #08R,#UBRK ILOAD MICROBREAK REGISTER IF SW08 IS SET
022560 000177 000034      JMP      @RETURN IREPEAT TEST
022564 009067 000026      SCOPEF CLR SCOPEF ICLEAR COUNT
022570 011667 000024      MOV      @%6,RETURN ISAVE SCOPE RETURN POINTER
022574 032737 000400 177570      BIT      #400,#SR  ITEST FOR LOAD MICROBREAK REGISTER
022602 001403      BEQ      .+10
022604 113777 177570 160566      MOVB    #08R,#UBRK ILOAD MICROBREAK REGISTER IF SW08 IS SET
022612 000002      RTI
022614 004000      ICOUNT 4000 IITERATION COUNT
022616 000000      SCOPEF 0 ICBUNT LOCATION FOR ITERATION LOOP
022620 000000      RETURN 0 IADDRESS OF LAST TEST

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ENTERED WITH SYSTEM TRAP CALL (HLT)
IPRINT OUT THE ERROR PC+2 AND STATUS REGISTER
022622 012767 000340 155146 PRINTI MOV #340,P8 ISET PRIORITY TO 7
022630 036727 154734 020000      BIT      SR,#20000 ITEST FOR INHIBIT PRINT OUT
022636 001401      BEQ      .+4 IBRANCH TO PRINT
022640 000432      OR      CK IINHIBIT, CHECK FOR HALT
022642 012667 000100      MOV      (6)+,SAVPC IPC OF FAILING ROUTINE
022646 012667 000076      MOV      (6)+,SAVPSR IPSR OF ERROR CONDITION
022652 024646      CMP      -(6),-(6) IRESTORE STACK
022654 012767 000200 155114      MOV      #200,P5 IOUTPUT CARRIAGE RETURN AND LINE FEED
022662 004767 000424      JSR      X7,CRLF ILOAD WITH FAILING PC+2
022666 016767 000094 000322      MOV      SAVPC,PTEMP1 IPRINT FAILING PC+2
022674 004767 000104      JSR      X7,PROCT IWAIT FOR TTY READY
022700 105777 160106      TSTB    @TCR
022704 100375      BPL      .+4
022706 012777 000240 160100      MOV      #240,@TDBR IOUTPUT A SPACE
022714 016767 000030 000274      MOV      SAVPSR,PTEMP1 ILOAD PROCESSOR STATUS
022722 004767 000056      JSR      X7,PROCT IPRINT PROCESSOR STATUS
022726 005767 154636      CKI     SR ICHECK SR FOR HALT SWITCH
022732 100001      BPL      .+4 IBRANCH IF NOT SET
022734 000000      HALT IHALT ON ERROR UP
022736 000002      RTI IRETURN TO MAIN LINE
022740 000000      SAVR2 0
022742 000000      SAVR3 0
022744 000000      SAVR4 0
022746 000000      SAVPC 0
022750 000000      SAVPSR 0

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ISUBROUTINE TO PRINT OUT OCTAL NUMBER
IPRSHRT DELETES LEADING ZEROS
IPROCT PRINTS OUT 6 OCTAL DIGITS
022792 012767 000001 000232 PRSHRTI MOV #1,PRFLG ISET FLAG TO INDICATE SHORT PRINTOUT
022760 005767 000232      TST      PTEMP1 ICHECK FOR ZERO
022764 001211      BNE      PROCT+4 IBRANCH IF NOT ZERO
022766 105777 160020      TSTB    @TCR IWAIT FOR TTY READY

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022772 100375      BPL      .+4
022774 012777 000260 160012      MOV      #260,@TDBR IOUTPUT A SINGLE ZERO
023002 000207      RTS      X7 IRETURN
023004 005067 000202      PROCTI CLR PRFLG ICLEAR FLAG TO INDICATE FULL PRINTOUT
023010 005067 000206      CLR      PTEMP3 ICLEAR R4 FOR COUNTING CHARACTERS OUTPUT
023014 005067 000174      CLR      PRFLG IINITIALIZE CARRY FLAG FOR ROTATES
023020 012767 000260 000172      MOV      #260,PTEMP2 ISETUP R3
023026 005767 000164      TST      PTEMP1 ICHECK BIT 19 OF NUMBER
023032 100002      BPL      .+6 IBRANCH IF ZERO
023034 005267 000160      INC      PTEMP2 IINCREMENT R3 IF ONE
023040 006167 000152      ROL      PTEMP1 IROTATE LEFT MOST OCTAL TO RIGHT END
023044 006167 000146      ROL      PTEMP1
023050 005567 000140      P:CKI  ADC PRFLG ISTORE CARRY
023054 003767 000132      TST      PRFLG ICHECK FOR SHORT PRINTOUT
023060 001404      BEQ      P:WAIT IBRANCH IF NOT SET
023062 026727 000132 000260      CMP      PTEMP2,#260 ICHECK FOR ZERO IF SET
023070 001410      BEQ      P:CONT IIF SET, GO TO NEXT CHARACTER
023072 105777 157714      P:WAITI TSTB @TCR IWAIT FOR TTY READY
023076 100375      BPL      .+4
023100 016777 000114 157706      MOV      PTEMP2,@TDBR IOUTPUT NEXT CHARACTER
023106 005067 000100      CLR      CLP IPRINT REST OF NUMBER AFTER A NON=ZERO DIGIT
023112 005267 000104      P:CONTI INC PTEMP3 ICBUNT
023116 026727 000100 000006      CMP      PTEMP3,#6 ICHECK FOR DONE
023124 001001      BNE      P:CNT1 IBRANCH IF NOT DONE
023126 000207      RTS      X7
023130 000241      P:CNT1I CLC ICLEAR CARRY
023132 003767 000096      TST      PRFLG ICHECK FOR PREVIOUS CARRY
023136 001403      BEQ      .+10 IBRANCH IF PREVIOUSLY ZERO
023140 005067 000090      CLR      PRFLG IINITIALIZE FLAG
023144 000261      SEC      ISET CARRY
023146 006167 000044      ROL      PTEMP1 IROTATE NEXT CHARACTER INTO RIGHT END OF REGISTER
023152 006167 000040      ROL      PTEMP1
023156 006167 000034      ROL      PTEMP1
023162 005567 000026      P:CKI  ADC PRFLG ISTORE CARRY
023166 016767 000024 000024      MOV      PTEMP1,PTEMP2 ILOAD DATA INTO R3
023174 042767 177770 000016      BIC      #17770,PTEMP2 ICLEAR ALL BUT LOWEST OCTAL DIGIT
023202 052767 000260 000010      BIR      #260,PTEMP2 ISET TO ASCII EQUIVALENT
023210 000721      BR      P:CK ILOOP
023212 000000      PRFLG 0
023214 000000      PRFLG 0
023216 000000      PTEMP1 0
023220 000000      PTEMP2 0
023222 000000      PTEMP3 0

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IEMT HANDLER
IFIRST 3 CALLS LEFT OPEN IN TABLE FOR EASY PATCHES
023224 011667 000032      EMPSRVI MOV #SP,EPC IGET CALL
023230 162767 000020 000024      SUB      #2,EPC
023236 017767 000020 000016      MOV      #EPC,EPC
023244 105067 000013      CLRB   EPC+1 ISIVE OFFSET ONLY
023250 042767 023264 000004      ADD      @EMTAB,EPC IPOINT TO TABLE OF ADDRESSES
023256 017707 000000      MOV      @EPC,PC IJUMP TO DESIRED ROUTINE
023262 000000      EPC 0
000000      PATCH1=0 ISUBSTITUTE 104000 WHERE 1ST PATCH IS NEEDED

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DCKTC

000000			PATCH2#0		1104000 FOR 2ND PATCH
000000			PATCH3#0		1104004 FOR 3RD PATCH
023264	000000		EMFAB1	PATCH1	1104 ADDRESS OF 1ST PATCH HERE
023266	000000			PATCH2	1104 ADDRESS OF 2ND PATCH HERE
023270	000000			PATCH3	1104 ADDRESS OF 3RD PATCH HERE
023272	022622			PRINT	

023274	105777	157512		JBELL ON PASS COMPLETE	
023300	100375		BELL1	TSTB	*TCBR
023302	012777	000207		BPL	=4
023310	000207	137504		MOV	#207,*TDBR
				RTS	X7

023312	105777	157474		SUBROUTINE TO OUTPUT CARRIAGE RETURN AND LINEFEED	
023316	100375		CRLF1	TSTB	*TCBR
023320	012777	000215		BPL	=4
023326	105777	157460		MOV	#215,*TDBR
023332	100375			TSTB	*TCBR
023334	012777	000212		BPL	=4
023342	000207	157452		MOV	#212,*TDBR
	000001			RTS	X7
				END	

DCKTC

SYMBOL TABLE

ADREND = 003330	ADRTAB 003040	AD10 005616	AD13 006922
AD14 006750	AD15 007174	AD16 007422	AD17 007650
AD20 010072	AD21 010314	AD22 010546	AD23 010774
AD24 011230	AD25 011462	AD26 011716	AD27 012152
AD3 004246	AD30 012400	AD4 004474	AD5 004720
AD6 005146	AD7 005374	BELL 023274	CK 022726
CLRALL 022222	CLRLP 022234	CHPOK1 003606	CRLF 023312
DESTAD 003412	DONE1 003710	DONE10 005730	DONE11 006160
DONE12 006412	DONE13 006640	DONE14 007064	DONE15 007312
DONE16 007540	DONE17 007762	DONE2 004136	DONE20 010204
DONE21 010440	DONE22 010672	DONE23 011120	DONE24 011360
DONE25 011614	DONE26 012050	DONE27 012300	DONE3 004364
DONE30 012530	DONE31 013036	DONE32 013270	DONE33 013516
DONE34 013746	DONE35 014172	DONE36 014422	DONE37 014646
DONE4 004610	DONE40 015074	DONE41 015324	DONE42 015552
DONE43 016000	DONE44 016226	DONE45 016454	DONE46 016714
DONE47 017140	DONE5 005036	DONE50 017376	DONE51 017626
DONE52 020102	DONE53 020362	DONE54 020640	DONE55 021116
DONE56 021404	DONE57 021660	DONE6 005264	DONE60 022146
DONE7 005506	EMTAB 023264	ENTSRV 023224	END 022216
EPC 023262	HLT = 104006	ICOUNT 022614	KDFARB 003320
KDFAR1 003322	KDFAR2 003324	KDFAR3 003326	KDFAR4 003330
KDFAR5 003332	KDFAR6 003334	KDFAR7 003336	KDFORB 003260
KDFDR1 003262	KDFDR2 003264	KDFDR3 003266	KDFDR4 003270
KDFDR5 003272	KDFDR6 003274	KDFDR7 003276	KIPARB 003300
KIPAR1 003302	KIPAR2 003304	KIPAR3 003306	KIPAR4 003310
KIPAR5 003312	KIPAR6 003314	KIPAR7 003316	KIPDRB 003240
KIPDR1 003242	KIPDR2 003244	KIPDR3 003246	KIPDR4 003250
KIPDR5 003252	KIPDR6 003254	KIPDR7 003256	KSTACK 001000
KTSTA 003036	KTVEC 003034	LOGIC 022206	NOF = 000240
NRONT 003402	NRKEYS 003404	NXTST 012616	OKI1 006056
OKI2 006310	OK31 012734	OK32 013166	OK41 015222
OK51 017524	PARTAB 003346	PATCH1 = 000000	PATCH2 = 000000
PATCH3 = 000000	PC = 0000007	PDRTAB 003340	PRFLC 023214
PRINT 022622	PROCT 023004	PRFLG 023212	PRSHRT 022752
PS = 177776	PTEMP1 023216	PTEMP2 023220	PTEMP3 023222
P,CK 023054	P,CONT1 023130	P,CONT 023112	P,WAIT 023072
RETRNX 022470	RETURN 022620	RET1 003700	RET10 005630
RET11 006150	RET12 006402	RET13 006540	RET14 006764
RET15 007210	RET16 007436	RET17 007662	RET2 004036
RET20 010104	RET21 010326	RET22 010560	RET23 011012
RET24 011244	RET25 011476	RET26 011732	RET27 012164
RET3 004264	RET30 012414	RET31 013026	RET32 013260
RET33 013506	RET34 013736	RET35 014162	RET36 014412
RET37 014636	RET4 004510	RET40 015064	RET41 015314
RET42 015452	RET43 015770	RET44 016124	RET45 016444
RET46 016604	RET47 017130	RET5 004734	RET50 017264
RET51 017616	RET52 020072	RET53 020352	RET54 020536
RET55 021106	RET56 021274	RET57 021650	RET6 005162
RET60 022034	RET7 005406	RWALL 022246	RWL1 022256
RML2 022262	R0 = 0000000	R1 = 0000001	R2 = 0000002
R3 = 0000003	R4 = 0000004	R5 = 0000005	R6 = 0000006
R7 = 0000007	SAVPC 022746	SAVPSR 022750	SAVR2 022740
SAVR3 022742	SAVR4 022744	SCOPE = 104400	SCOPEB 022534

SCOPEC	022472	SCOPEF	022416	SCOPEG	022564	SDFARB	003220
SDPAR1	003222	SDPAR2	003224	SDPAR3	003226	SDPAR4	003230
SDPAR5	003232	SDPAR6	003234	SDPAR7	003236	SDPDR0	003160
SDPDR1	003162	SDPDR2	003164	SDPDR3	003166	SDPDR4	003170
SDPDR5	003172	SDPDR6	003174	SDPDR7	003176	SETUP	022310
SIPAR0	003200	SIPAR1	003202	SIPAR2	003204	SIPAR3	003206
SIPAR4	003210	SIPAR5	003212	SIPAR6	003214	SIPAR7	003216
SIPDR0	003140	SIPDR1	003142	SIPDR2	003144	SIPDR3	003146
SIPDR4	003150	SIPDR5	003152	SIPDR6	003154	SIPDR7	003156
SP	*X000000	SR	177970	SR0	003024	SR0H	003072
SRI	003026	SRIH	003374	SR2	003030	SR2H	003076
SR3	003032	SSTACK	002000	STAEND	003360	STIPNT	003370
START	003414	STATAB	003354	STATUS	177770	TCBR	003012
T0BR	003014	TEMPX	003016	TEMP1	003020	TEMP2	003022
TESTN	000000	TESTX	022362	TEST1	003002	TEST10	005930
TEST11	005792	TEST12	006202	TEST13	006434	TEST14	006662
TEST15	007106	TEST16	007334	TEST17	007962	TEST2	003732
TEST20	010004	TEST21	010226	TEST22	010462	TEST23	010714
TEST24	011150	TEST25	011402	TEST26	011636	TEST27	012072
TEST3	004160	TEST30	012322	TEST31	012630	TEST32	013060
TEST33	013312	TEST34	013940	TEST35	013770	TEST36	014214
TEST37	014444	TEST4	004406	TEST40	014670	TEST41	015110
TEST42	015344	TEST43	015974	TEST44	016022	TEST45	016250
TEST46	016476	TEST47	016738	TEST5	004632	TEST50	017162
TEST51	017420	TEST52	017650	TEST53	020124	TEST54	020404
TEST55	020662	TEST56	021140	TEST57	021426	TEST6	005060
TEST60	021702	TEST7	005306	UBRK	003400	UDPAR0	003120
UDPAR1	003122	UDPAR2	003124	UDPAR3	003126	UDPAR4	003130
UDPAR5	003132	UDPAR6	003134	UDPAR7	003136	UDPDR0	003060
UDPDR1	003062	UDPDR2	003064	UDPDR3	003066	UDPDR4	003070
UDPDR5	003072	UDPDR6	003074	UDPDR7	003076	UIPAR0	003100
UIPAR1	003102	UIPAR2	003104	UIPAR3	003106	UIPAR4	003110
UIPAR5	003112	UIPAR6	003114	UIPAR7	003116	UIPDR0	003040
UIPDR1	003042	UIPDR2	003044	UIPDR3	003046	UIPDR4	003050
UIPDR5	003052	UIPDR6	003054	UIPDR7	003056	USTACK	003000
XLOOP	022460		= 023344				

ERRORS DETECTED: 0

*DCKTC,DCKTC=DCKTC
 RUN-TIME: 23 36 0 SECONDS
 CORE USED: 7K