

KT11-D

KT11-D ACCESS KEYS TEST
MD-11-DBKTB-A

EP-DBKTB-A-DL-A

OCT 1976

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digital

FICHE 1 OF 1

Made In U.S.A.

Frame 1	Frame 2	Frame 3
Frame 4	Frame 5	Frame 6
Frame 7	Frame 8	Frame 9
Frame 10	Frame 11	Frame 12
Frame 13	Frame 14	Frame 15
Frame 16	Frame 17	Frame 18
Frame 19	Frame 20	Frame 21
Frame 22	Frame 23	Frame 24

11

B01

KEYV8 MACY11 27(732) 09-SEP-76 14:29 PAGE 1
DBKTB.P11

.REN *

IDENTIFICATION

PRODUCT CODE:	MAINDEC-11-DBKTB-A
PRODUCT NAME:	KT11-D ACCESS KEYS TEST
DATE CREATED:	SEPTEMBER 1, 1972
MAINTAINER:	DIAGNOSTIC GROUP
AUTHOR:	ROBERT WHITTON

1.0 ABSTRACT

THIS PROGRAM CHECKS THE OPERATION OF EACH ACCESS KEY FOR EACH OF THE FOUR UNITS'S CYCLES (OR COMBINATION OF CYCLES) WHICH MAY REFERENCE AN ALIAS TO A SEGMENTATION. THESE CYCLES ARE DATA, DATA (NO D-TIP), L-TIP-L TO L-D, D-TIP-DATA. EACH OF THESE CASES IS TESTED WITH AND WITHOUT THE PRIMARY AND SECONDARY ENVELOPE SET. THE EIGHT CASES ARE TESTED FOR EACH KEY. S-0, S-1, S-2, THE CORRESPONDING PUR'S, AND THE PROPER EXECUTION OR PREVENTION OF EXECUTION OF THE INSTRUCTION ARE CHECKED IN EACH CASE.

2.0 REQUIREMENTS

2.1 EQUIPMENT

PDP 11/40 WITH KT11-D 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 DES. 0 SWITCH REGISTER SETTINGS (ALL DOWN FOR WORST CASE).
PRESS START.
THE PROGRAM 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
 SW10=1 OR UP-- HALT AT END OF CURRENT TEST
 NEXT TEST NUMBER IN DATA LIGHTS

5.2 SUBROUTINE ABSTRACTS

5.2.1 SCOPE

THIS SUBROUTINE CALL IS PLACED BETWEEN EACH SUBTEST. IT RECORDS THE STOPPING POINT OF EACH SUBTEST 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, THE NEXT ITERATIONS ON THAT SUBTEST WILL BE REQUESTED. SWITCH 11 ON A 1 INHIBITS ITERATION OF SUBTESTS.

5.2.2 HLT

THIS ENT CALLS THE SUBROUTINE PRINT, WHICH PRINTS OUT THE LOCATION COUNTER AT THE TIME OF FAILURE AND THE CONTENTS OF THE FAILURE 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 A TRAP OR INTERRUPT AND DIRECT THEM TO THE TRAP AND INTERRUPT VECTOR AREA OF MEMORY.

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, IT REQUIRES THAT YOU REMAIN 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 ENTSRV (ENT DECODER)

THIS ROUTINE DECODES ALL ENT 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 POR'S OF THE KT11-0, AS WELL AS SRO.

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 POR'S WITH THE VALUE 77406.

5.2.8 SETUP

THIS ROUTINE FIRST CALLS P=11 TO MAP ALL THE PAGES 4K RW BANK 0. IT THEN SETS THE KEY FOR PAGE 1 TO WHATEVER VALUE WAS STORED ON THE STACK BEFORE THE ROUTINE IS CYCLED. THIS ALLOWS A FROM PAGE 1 TO PAGE 1 TO TEST THE J ACCESS KEY. FINALLY, KEYWORD 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 SEVERAL TESTS OF EACH KEY. TESTS 5 THROUGH 10 ARE CYCLED THROUGH 3 TIMES, ONCE FOR EACH OF THE KEYS WHICH GIVES A NON-RESIDENT ABORT. AT THE END OF EACH PASS THROUGH THE DIAGNOSTIC THE BELL IS RUNG.

5.3.2 SA 210 (SINGLE SUBTEST LOOP)

THIS STARTING ADDRESS ALLOWS THE USER TO PIN A SINGLE SUBTEST IMMEDIATELY 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 ERROR IS A LOOP, THE ERROR IS
WILL RECOVER. IF THE ERROR IS A LOOP, THE ERROR IS
LILTY TO A SYSTEM FAILURE. IF A H T
OCCURS IN THE MAIN FLOW, CONSULT THE LISTING IF NO
MESSAGE IS TYPED OUT.

7.0 RESTRICTIONS

PROGRAM MUST BE LOADED INTO LOWER 5K OF MEMORY.

8.0 MISCELLANEOUS

8.1 EXECUTION TIME

EACH PASS TAKES APPROXIMATELY 1 MINUTE WITH CORE MEMORY.

9.0 PROGRAM DESCRIPTION

THE PROGRAM RUNS SEVERAL SEPARATE TESTS OF EACH ACCESS KEY.
DATIP-1 (NO DATIP), DATIP-DWTO, AND DATIP-CATCH
ARE CHECKED FOR EACH KEY, WITH AND WITHOUT MEMORY MANAGEMENT
ENABLE SET. THE BELL IS RUNG AT THE END OF EACH PASS.

*

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;TEST OF THE K11-D ACCESS KEYS

;OPERATING INSTRUCTIONS
1. LOAD TEST USING THE ABSOLUTE LOADER
2. LOAD SA 200
3. SET SA TO INITIAL SETTINGS
4. PRESS START

;DYNAMIC SWITCH REGISTER SETTINGS ARE:
SW15=1 CAUSES HALT ON ERROR
SW14=1 CAUSES SCOPE LOCKING
SW13=1 INHIBITS ERROR PRINTOUT
SW11=1 INHIBITS ITERATIONS
SW10=1 HALT AT END OF CURRENT TEST WITH NEXT TEST NUMBER
IN DATA LIGHTS. PRESS CONTINUE TO ADVANCE TO NEXT TEST.

;DEFINITIONS
SCOPE=TRAP
NOP=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

;LOAD TRAP CATCHER IN LOCATIONS 0 THRU 377
;EACH VECTOR ADDRESS IS LOADED WITH THE ADDRESS
;OF THE NEXT LOCATION, AND THE NEXT LOCATION IS LOADED
;WITH A HALT INSTRUCTION (000000)

;LOAD VECTOR AREA
. =30
EMTSRV
340
. =34
SCOPEC
0

;LOAD STARTING AREA
. =200
JMP START
. =210
JMP TESTX

;LOAD DATA AREA
. =1000

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

000030 000030
000030 000326
000032 000340
000034 000334
000034 000332
000036 000000

000200 000200
000200 000167 001744
000210 000210
000210 000167 005320

001000

001000	000000
002000	000000
003000	000000
004000	000000
005000	000000
006000	000000
007000	000000
008000	000000
009000	000000
010000	000000
011000	000000
012000	000000
013000	000000
014000	000000
015000	000000
016000	000000
017000	000000
018000	000000
019000	000000
020000	000000
021000	000000
022000	000000
023000	000000
024000	000000
025000	000000
026000	000000
027000	000000
028000	000000
029000	000000
030000	000000
031000	000000
032000	000000
033000	000000
034000	000000
035000	000000
036000	000000
037000	000000
038000	000000
039000	000000
040000	000000
041000	000000
042000	000000
043000	000000
044000	000000
045000	000000
046000	000000
047000	000000
048000	000000
049000	000000
050000	000000
051000	000000
052000	000000
053000	000000
054000	000000
055000	000000
056000	000000
057000	000000
058000	000000
059000	000000
060000	000000
061000	000000
062000	000000
063000	000000
064000	000000
065000	000000
066000	000000
067000	000000
068000	000000
069000	000000
070000	000000
071000	000000
072000	000000
073000	000000
074000	000000
075000	000000
076000	000000
077000	000000
078000	000000
079000	000000
080000	000000
081000	000000
082000	000000
083000	000000
084000	000000
085000	000000
086000	000000
087000	000000
088000	000000
089000	000000
090000	000000
091000	000000
092000	000000
093000	000000
094000	000000
095000	000000
096000	000000
097000	000000
098000	000000
099000	000000
100000	000000

```

KSTACK: 0
      = .+776
USTACK: 0
000000 000000 .WORD 0,0,0,0

TCSR: 177554
TCRR: 177556
TSR0: 177572
TSR1: 177574
TSR2: 177576
TSR3: 177578
KTVEC: 858
KTSTA: 858
UPDR0: 177600
UPDR1: 177604
UPDR2: 177608
UPDR3: 177612
UPDR4: 177616
UPDR5: 177620
UPDR6: 177624
UPDR7: 177628
UPDR8: 177632
UPDR9: 177636
UPDR10: 177640
UPDR11: 177644
UPDR12: 177648
UPDR13: 177652
UPDR14: 177656
UPDR15: 177660
UPDR16: 177664
UPDR17: 177668
UPDR18: 177672
UPDR19: 177676
UPDR20: 177680
UPDR21: 177684
UPDR22: 177688
UPDR23: 177692
UPDR24: 177696
UPDR25: 177700
UPDR26: 177704
UPDR27: 177708
UPDR28: 177712
UPDR29: 177716
UPDR30: 177720
UPDR31: 177724
UPDR32: 177728
UPDR33: 177732
UPDR34: 177736
UPDR35: 177740
UPDR36: 177744
UPDR37: 177748
UPDR38: 177752
UPDR39: 177756
UPDR40: 177760
UPDR41: 177764
UPDR42: 177768
UPDR43: 177772
UPDR44: 177776
UPDR45: 177780
UPDR46: 177784
UPDR47: 177788
UPDR48: 177792
UPDR49: 177796
UPDR50: 177800
UPDR51: 177804
UPDR52: 177808
UPDR53: 177812
UPDR54: 177816
UPDR55: 177820
UPDR56: 177824
UPDR57: 177828
UPDR58: 177832
UPDR59: 177836
UPDR60: 177840
UPDR61: 177844
UPDR62: 177848
UPDR63: 177852
UPDR64: 177856
UPDR65: 177860
UPDR66: 177864
UPDR67: 177868
UPDR68: 177872
UPDR69: 177876
UPDR70: 177880
UPDR71: 177884
UPDR72: 177888
UPDR73: 177892
UPDR74: 177896
UPDR75: 177900
UPDR76: 177904
UPDR77: 177908
UPDR78: 177912
UPDR79: 177916
UPDR80: 177920
UPDR81: 177924
UPDR82: 177928
UPDR83: 177932
UPDR84: 177936
UPDR85: 177940
UPDR86: 177944
UPDR87: 177948
UPDR88: 177952
UPDR89: 177956
UPDR90: 177960
UPDR91: 177964
UPDR92: 177968
UPDR93: 177972
UPDR94: 177976
UPDR95: 177980
UPDR96: 177984
UPDR97: 177988
UPDR98: 177992
UPDR99: 177996

KPCR0: 172300
KPCR1: 172304
KPCR2: 172308
KPCR3: 172312
KPCR4: 172316
KPCR5: 172320
KPCR6: 172324
KPCR7: 172328
KPCR8: 172332
KPCR9: 172336
KPCR10: 172340
KPCR11: 172344
KPCR12: 172348
KPCR13: 172352
KPCR14: 172356
KPCR15: 172360
KPCR16: 172364
KPCR17: 172368
KPCR18: 172372
KPCR19: 172376
KPCR20: 172380
KPCR21: 172384
KPCR22: 172388
KPCR23: 172392
KPCR24: 172396
KPCR25: 172400
KPCR26: 172404
KPCR27: 172408
KPCR28: 172412
KPCR29: 172416
KPCR30: 172420
KPCR31: 172424
KPCR32: 172428
KPCR33: 172432
KPCR34: 172436
KPCR35: 172440
KPCR36: 172444
KPCR37: 172448
KPCR38: 172452
KPCR39: 172456
KPCR40: 172460
KPCR41: 172464
KPCR42: 172468
KPCR43: 172472
KPCR44: 172476
KPCR45: 172480
KPCR46: 172484
KPCR47: 172488
KPCR48: 172492
KPCR49: 172496
KPCR50: 172500
KPCR51: 172504
KPCR52: 172508
KPCR53: 172512
KPCR54: 172516
KPCR55: 172520
KPCR56: 172524
KPCR57: 172528
KPCR58: 172532
KPCR59: 172536
KPCR60: 172540
KPCR61: 172544
KPCR62: 172548
KPCR63: 172552

000004

TITLE: 0
SR0H: 177573
SR1H: 177575
SR2H: 177577
NRCNT: 0
NRKEYS: 0,4
DESTAD: 125252

```

```

;TELETYPE PRINTER CSR
;KT11-D STATUS REGISTER ADDRESSES

;KT11-D INTERRUPT VECTOR

;USER PAGE DESCRIPTOR REGISTER ADDRESSES

;USER PAGE ADDRESS REGISTER ADDRESSES

;KERNEL PAGE DESCRIPTOR REGISTER ADDRESSES

;KERNEL PAGE ADDRESS REGISTER ADDRESSES

;TITLE PRINTED FLAG
;KT11-D STATUS REGISTER HIGH BYTE ADDRESSES

;COUNTER FOR TEST OF THE 3 NR KEYS
;VALUES OF THE 3 M.N.F IDENT KEYS
;LOCATION USED FOR READS AND WRITES TO CHECK
;EXECUTION OR ABORTING AT CORRECT POINT

```


002150	005037	177776		:SET UP FOR START OF TESTS	
002151	012706	001000		START: CLR 2,S	
002152	012737	147776	177776	MOV 2,STACK,SP	:SETUP KERNEL STACK
002153	012706	000000		MOV 2,PS	:SETUP USER STACK POINTER
002172	012706	177776		MOV 2,MAX,SP	
002173	012706	177776		CLR 2	
002174	012706	177776		MOV 2,ICOUNT	:INITIALIZE ITERATION COUNT
002204	012767	002100	003520	MOV 2,1+2,RETURN	:SETUP SEQUENCE ITERATION LOOP RETURN
002205	012767	000000	003516	CLR 2	:INITIALIZE FOR NR TEST
002206	012767	177722		MOV 2,TESTCT	:SETUP TEST SEQUENCE
002207	012767	000001	004366	CLR 2	:TITLE PRINTED
002208	012767	177700		TST 2	:YES, SKIP
002209	012767	177700		BNE 2,TESTCT	:PRINT TITLE
002210	001013	004156		JR 2	
002211	004767	004204		JR 2	
002212	004767	004204		JR 2	
002213	005376	004144		HLIT	
002214	004767	004144		JSR	PC,CRLF
002215	005267	177654		INC	FTITLE
002216	000401			BR	.+4

: SHOW THAT DATI TO A RPO PAGE (ACF=2) NEITHER TRAPS NOR ABORTS
: SHOW THAT THE KT11-0 STATUS REGISTERS CONTINUE TO TRACK, AND THAT
: THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

002256 104400
002260 012706 001000
002264 005077 177356
002270 004767 004232
002274 000001
002276 104006
002300 012746 000002
002304 004767 003174

TEST1: SCOPE
MOV #KSTACK, SP
CLR #SRO
JSR PC, ORDER
I
HLT
MOV #2, -(SP)
JSR #7, SETUP

: INITIALIZE KERNEL STACK POINTER
: INITIALIZE SRO
: CHECK TEST SEQUENCE
: TEST NUMBER
: TEST EXECUTED OUT OF SEQUENCE
: PUSH RPO KEY ON STACK
: MAKE KERNEL PAGE 1 RPO, BANK 0
: MAKE KERNEL PAGE 7 RM, EXTERNAL
: MAKE ALL OTHER PAGES RM, BANK 0
: RESTORE STACK
: SETUP ABORT RETURN IN CASE

002310 005726
002312 012777 002426 177504
002314 005077 177356
002316 012767 125252
002322 012701 022146 177614

TST (SP)+
MOV #NET1, #KTVEC
CLR #KTSTA
MOV #125252, DESTAD
MOV #DESTAD+20000, R1

: SETUP LOCATION TO BE REFERENCED
: R1 CONTAINS VIRTUAL ADDRESS OF LOCATION TO
: BE REFERENCED THRU KERNEL PAGE 1
: TURN ON KT11-0
: DATI TO RPO PAGE
: BRANCH IF CONTROL VALUE HAS READ
: ON ERROR, TURN OFF KT11-0
: RELOCATION FAILED THRU KERNEL PAGE 1

002336 005277 177454
002342 002721 125252
002346 001404
002350 005377 177442
002354 104006
002356 000427
002360 017702 177432
002364 105377 177426
002370 022702 000017
002374 001401
002376 104006

INC #SRO
CMP #125252, (R1)+
BEQ #CPOK1
DEC #SRO
HLT
BR
MOV #0, R2
DECB #R2
CMP #17, R2
BEQ #+4
HLT

: SAVE CONTENTS OF SRO
: TURN OFF KT11-0
: CHECK SAVED CONTENTS OF SRO
: SRO INCREMENT-SHOULD HAVE
: TRACKED TO PAGE 0
: CHECK THAT THE ADDRESS OF SRO
: CHECK S2

002400 022777 002400 177414
002406 001401
002410 104006

CMP #0, #SRO2
BEQ #+4
HLT

: S2 INCREMENT-SHOULD TRACK EVEN
: WHEN KT11-0 IS OFF
: CHECK FOR
: THAT IS REFERENCED
: KERNEL INCREMENT-SHOULD NOT
: HAVE BEEN CLEARED

002412 022777 077402 177452
002420 001401
002422 104006

CMP #77402, #KPDRI
BEQ #+4
HLT

002424 000404
002426 042777 000001 177362
002434 104006

BR
BIC #1, #SRO
HLT

: TURN OFF KT11-0
: DATI TO RPO PAGE CAUSED
: A TRAP OR
: POST-TEST RETURN TO CAUSE HALT
: ON AN UNEXPECTED TRAP
: INITIALIZE SRO
: INITIALIZE PROCESSOR STATUS

002436 016777 177364 177360
002444 005077 177356
002450 005077 177342
002454 005037 177776

DONE1: MOV #KTSTA, #KTVEC
CLR #KTSTA
CLR #SRO
CLR #MPS

: SHOW THAT A DATI (NO DATIP) TO A RPO PAGE (ACF=2) ABORTS
: SHOW THAT THE KT11-0 STATUS REGISTERS LOCK UP, AND THAT THE PDR
: CORRESPONDING TO THE REFERENCE IS CORRECT

002460 104400
002462 012706 001000
002466 005077 177324

TEST2: SCOPE
MOV #KSTACK, SP
CLR #SRO

: INITIALIZE KERNEL STACK POINTER
: INITIALIZE SRO

K01

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002472	004767	004030		JSR	PC,ORDER	:CHECK TEST SEQUENCE
002476	000002			2		:TEST NUMBER
002500	104006			HLT		:TEST EXECUTED OUT OF SEQUENCE
002504	012746	000002		MOV	R2,-(SP)	:PUSH R10 KEY ON STACK
002506	004767	002772		JSR	X7,SETUP	:MAKE KERNEL PAGE 1 RRO, BANK 0
						:MAKE KERNEL PAGE 7 RM, EXTERNAL
						:MAKE ALL OTHER PAGES RM, BANK 0
						:R STORE STACK POINTER
						:SETUP ABORT RETURN
002512	005726			TST	(SP)+	
002514	012777	002560	177302	MOV	R1,KTSTA,KTVEC	
002518	001077	177300		CLR	KTSTA	
002526	005067	177414		CLR	DESTAD	:INITIALIZE LOCATION TO BE ADDRESSED
						:BY DATO TO RRO PAGE
002532	012702	022146		MOV	R2,DESTAD+20000,R2	:R2 CONTAINS ADDRESS OF LOCATION
						:TO BE REFERENCED THRU KERNEL PAGE 1
002536	012777	000001	177252	MOV	R1,2000	:TURN ON KT11-0
002544	012722	125252		MOV	R1,20002,(R2)+	:DATO TO RRO PAGE-SHOULD ABORT
002550	005377	177242		DEC	R1	:TURN OFF KT11-0
002554	104006			HLT		:DATO TO RRO PAGE FAILED TO ABORT
002558	001006			BR	DONE4	
002560	017701	177232		MOV	R1,R1	:SAVE CONTENTS OF SR0
002564	005377	177226		DEC	R1	:TURN OFF KT11-0
002570	002701	020003		CHP	R1,0003,R1	:CHECK SAVED CONTENTS OF SR0
002574	001401			BEQ	.+4	
002576	104006			HLT		:SR0 INCORRECT-SHOULD HAVE LOCKED
						:ON DATO TO KERNEL PAGE 1(RRO)
						:AND ACCESS FAULT SHOULD BE SET
						:CHECK S=2
002600	022777	002544	177214	CHP	R04,SR2	
002606	001401			BEQ	.+4	
002610	104006			HLT		:SR2 INCORRECT-SHOULD HAVE LOCKED
						:ON THE RRO REFERENCE, WITH THE
						:VIRTUAL ADDRESS OF THE INSTRUCTION
						:CHECK INSTRUCTION SPACE FOR
002612	022777	077402	177252	CHP	R7402,KPOR1	
002620	001401			BEQ	.+4	
002622	104006			HLT		:KPOR1 INCORRECT-SHOULD NOT
						:HAVE BEEN CHANGED SINCE THE
						:DATO DONT WRITE
						:MAKE CERTAIN THAT DESTINATION
						:LOCATION HAS NOT WRITTEN
						:DATO TO RRO PAGE WRITE
						:INTO THE DESTINATION LOCATION
						:CHANGE KT11-0 TRAP RETURN
						:TO CAUSE A HALT ON AN UNEXPECTED TRAP
002624	005767	177316		TST	DESTAD	
002630	001401			BEQ	.+4	
002632	104006			HLT		
002634	016777	177166	177162	MOV	KTSTA,KTVEC	
002642	001077	177160		CLR	KTSTA	
002646	001077	177144		CLR	R1	
002652	005037	177776		CLR	R1	
						:SHOW THAT A DATIP, DATO CONTINUE TO A RRO PAGE (ACF=2) ABORTS
						:SHOW THAT THE KT11-0 STATUS REGISTERS LOCK UP, AND THAT THE FOR
						:CORRESPONDING TO THE REFERENCE IS CORRECT
002656	104400			TEST3:	SCORE	
002660	012706	001000		MOV	R1,STACK,SP	:INITIALIZE KERNEL STACK POINTER
002664	001077	177126		CLR	R1	:INITIALIZE S=0
002670	004767	003632		JSR	PC,ORDER	:CHECK TEST SEQUENCE
002674	000003			3		:TEST NUMBER
002676	104006			HLT		:TEST EXECUTED OUT OF SEQUENCE
002700	012746	000002		MOV	R2,-(SP)	:PUSH R10 KEY ON STACK
002704	004767	002574		JSR	X7,SETUP	:MAKE KERNEL PAGE 1 RROT,BANK 0

```

002710 005726
002712 012777 002756 177104
002715 012777 177102
002724 002767 177216
002730 012703 022150
002734 002777 000001 177054
002742 002743
002744 002777 000001 177044
002747 002776
002750 002777 177034
002751 002777 002701 177026
002770 002701 022003
002774 001401
002776 104006

```

```

TST (SP)+
MOV RET5, &KTVEC
CLR &KTSTA
CLR DESTAD
MOV @DESTAD+20002, R3
BIS #1, &SR0
INC -(R3)
BIC #1, &SR0
HLT
BR
MOV @SR0, R1
BIC #1, &SR0
CMP #20003, R1
BEQ .+4
HLT

```

ADS:
RETS:

```

: MAKE KERNEL PAGE 7 RW, EXTERNAL
: MAKE ALL OTHER PAGES RW, BANK 0
: SETUP STACK POINTER
: SETUP ABORT RETURN
: INITIALIZE LOCATION TO BE ADDRESSED
: BY DATIP, DATO TO RRO PAGE
: (R3) CONTAINS VIRTUAL ADDRESS+2 OF LOCATION
: TO BE REACHED THRU KERNEL PAGE 1
: TURN ON KT11-0
: DATIP, DATO TO RRO PAGE
: TURN OFF KT11-0
: DATIP, DATO TO RRO PAGE FAILED TO
: ABORT
: CHECK CONTENTS OF SR0
: TURN OFF KT11-0
: CHECK SAVED CONTENTS OF SR0
: SR0 INCORRECT-SHOULD HAVE LOCKED
: ON DATO TO KERNEL PAGE 1(RR0) AND
: ACCESS FAULT SHOULD BE SET
: CHECK SR2
: SR2 INCORRECT-SHOULD HAVE LOCKED
: ON THE ABORTED REFERENCE, WITH THE
: VIRTUAL ADDRESS OF THE INSTRUCTION
: CHECK PDR
: KPDR1 INCORRECT - SHOULD NOT HAVE
: BEEN CHANGED, SINCE DATIP IS ABORTED
: SINCE IT WILL BE FOLLOWED BY A DATO OR DATOB
: MAKE CERTAIN THAT DESTINATION
: LOCATION WAS NOT WRITTEN
: DATO TO RRO PAGE WROTE INTO
: THE DESTINATION LOCATION
: CHANGE PAGE FAULT RETURN
: TO CHASE A HALT ON AN UNEXPECTED
: TRAP

```

```

003000 022777 002742 177014
003006 001401
003010 104006
003012 022777 077402 177052
003020 001401
003022 104006
003024 005767 177116
003030 001401
003032 104006
003034 016777 176766 176762
003042 005077 176760
003046 005077 176744
003052 005037 177776

```

```

CMP #ADS, &SR2
BEQ .+4
HLT
CMP #77402, &KPDR1
BEQ .+4
HLT
TST DESTAD
BEQ .+4
HLT
MOV @KTSTA, &KTVEC
CLR &KTSTA
CLR &SR0
CLR &MPS

```

: SHOW THAT A DATIP, DATO9 STATEMENT TO A RRO PAGE (ACF=2) WORD ABORTS
: SHOW THAT THE KT11-0 STATUS REGISTERS LOCK UP, AND THAT THE PDR
: CORRESPONDING TO THE REFERENCE IS CORRECT

```

003056 104400
003060 012706 001000
003064 005077 176726
003070 004767 003432
003074 000004
003076 104006
003100 012746 000002
003104 004767 002374

```

```

TEST4: SCOPE
MOV @&STACK, SP
CLR @&RO
JSR PC, ORDER
4
HLT
MOV #2, -(SP)
JSR X7, SETUP

```

```

: INITIALIZE KERNEL STACK POINTER
: INITIALIZE S J
: CHECK TEST SEQUENCE
: TEST NUMBER
: TEST EXECUTED OUT OF SEQUENCE
: P H ) KEY ON STACK
: MAKE KERNEL PAGE 1 RW, BANK 0
: MAKE KERNEL PAGE 7 RW, EXTERNAL
: MAKE ALL OTHER PAGES RW, BANK 0
: SETUP STACK POINTER
: SETUP ABORT RETURN

```

```

003110 005726
003112 012777 003154 176704
003120 005077 176702

```

```

TST (SP)+
MOV @RET6, &KTVEC
CLR &KTSTA

```


MO1

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DBKTBA.P11

003124	005067	177016		CLR	DESTAD	INITIALIZE LOCATION TO BE ADDRESSED BY DATIP DAT08 TO R#0 PAGE
003130	012704	022146		MOV	#DESTAD+2000	4 R#4 CONTAINS VIRTUAL ADDRESS OF LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
003134	052777	000001	176654	BIS	#1,SR0 ;TURN ON	KT11-0
003142	10 224			AD6: INCB	(R4)+	DATIP, DAT08 TO R#0 PAGE
003144	00 377	176646		DEC	SR0	TURN OFF KT11-0
003150	10+006			HLT		DATIP, DAT0 TO R#0 PAGE FAILED TO ABORT
0031 2	000426			BR	DONE6	
003154	017701	176636		RET6: MOV	SR0,R1	SAVE CONTENTS OF SR0
003160	005377	176632		DEC	SR0	TURN OFF KT11-0
003164	022701	020003		CMP	#20003,R1	CHECK SAVED CONTENTS OF SR0
003170	001401			BEQ	.+4	
003172	104006			HLT		SR0 INCORRECT-SHOULD HAVE LOCKED ON DAT08 TO KERNEL PAGE 1 (R#0) ACCESS FAULT SHOULD BE SET
003174	022777	003142	176620	CMP	#AD6,SR2	CHECK SR2
003202	001401			BEQ	.+4	
003204	104006			HLT		SR2 INCORRECT-SHOULD HAVE LOCKED ON THE AD6 REFERRED REFERENCE, WITH THE VIRTUAL ADDRESS OF THE INSTRUCTION
003206	022777	077402	176656	CMP	#77402,PKPDR1	CHECK PDR
003214	001401			BEQ	.+4	
003216	104006			HLT		PKPDR1 INCORRECT - SHOULD NOT HAVE BEEN CHANGED-DATIP IS ABORTED SINCE IT MUST BE FOLLOWED BY A DAT0 MAKE CERTAIN THAT DESTINATION LOCATION WAS NOT WRITTEN DAT08 TO R#0 PAGE WROTE INTO THE DESTINATION LOCATION
003220	005767	176722		TST	DESTAD	
0 24	001401			BEQ	.+4	
003226	104006			HLT		DAT08 TO R#0 PAGE WROTE INTO THE DESTINATION LOCATION
003230	016777	176572	176566	DONE6: MOV	KTSTA,PKTVEC	CHANGE KT11-0 FAULT
0 36	00 077	176564		CLR	PKTSTA	RETURN TO CAUSE A HALT ON AN UNEXPECTED TRAP
003242	00 077	176550		CLR	SR0	
003246	005037	177776		CLR	PKPS	

THE FOLLOWING TESTS (5-10) ARE RUN FOR BOTH OF THE NON-RESIDENT
KEYS - A PASS IS MADE FOR KEY 0, THEN A PASS IS MADE FOR KEY 4,
THE CURRENT KEY IS STORED ON THE STACK
SHOW THAT DAT0 TO A NR PAGE ABORTS WITHOUT COMPLETING
SHOW THAT THE KT11-0 STATUS REGISTER'S LOCK UP, AND THAT
THE PDR CORRESPONDING TO THE REFERENCE IS CORRECT

003252	104400			TEST5: SCOME		
003254	012706	001000		MOV	#KSTACK,SP	INITIALIZE KERNEL STACK POINTER
003260	005077	176532		CLR	SR0	INITIALIZE SR0
003264	004767	003236		JSR	PC,ORDER	CHECK TEST SEQUENCE
003270	00 005			5		TEST NUMBER
003272	104006			HLT		TEST EXECUTED OUT OF SEQUENCE
003274	005037	001000		CLR	#KSTACK	PUT 0 ON STACK AS FIRST NR KEY TO BE TESTED THIS INSTRUCTION IS SKIPPED WHEN TESTING THE OTHER WHICH IS SETUP AFTER TEST30
003280	012706	001000		RERUNA: MOV	#KSTACK,SP	
003284	00 077	176506		CLR	SR0	
003310	004767	002170		JSR	%7,SETUP	MAKE KERNEL PAGE 1 NR, EXTERNAL MAKE KERNEL PAGE 7 RW, EXTERNAL MAKE ALL OTHER PAGES RW, BANK 0
003314	012777	003360	176502	MOV	#RET21,PKTVEC	SETUP ABORT RETURN

NO1

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DBKTB.A.P11

003322	005077	176500			CLR	#KTSTA	
003325	005003				CLR	R3	: INITIALIZE DESTINATION LOCATION
003330	012767	125252	176610		MOV	#125252,DESTAD	: INITIALIZE SOURCE LOCATION
003336	012701	022146			MOV	#DESTAD+20000,R1	: R1 CONTAINS VIRTUAL ADDRESS OF LOCATION : TO BE REFERENCED THRU KERNEL PAGE 1
003342	005277	176450			INC	#SR0	: TURN ON KT11-0
003346	012103			AD21:	MOV	(R1)+,R3	: DAT0 TO NR PAGE - SHOULD ABORT
003350	005377	176442			DEC	#SR0	: ON ERROR, TURN OFF KT11-0
003354	104006				HLT		: NO ABORT ON DAT1 TO A NON-RESIDENT PAGE
003356	000430				BR	DONE21	
003360	017702	176432		RET21:	MOV	#0,R2	: SAVE CONTENTS OF SR0
003364	105377	176426			DECB	#SR0	: TURN OFF KT11-0
003370	022702	100003			CMP	#100003,R2	: CHECK SAVED CONTENTS OF SR0
003374	001401				BEQ	.+4	
003376	104006				HLT		: SR0 INCORRECT-SHOULD HAVE : LOCKED ON REFERENCE TO : KERNEL PAGE 1 WHICH WAS NON-RESIDENT
003400	022777	003346	176414		CMP	#AD21,#SR2	: CHECK SR2
003403	001401				BEQ	.+4	
003410	104006				HLT		: SR2 INCORRECT-SHOULD HAVE LOCKED ON : NR REFERENCE
003412	017705	176454			MOV	#KPOR1,R5	: MOVE CONTENTS OF KPOR1 TO R5
003416	000000	000007			BIC	#7,R5	: TO MASK OFF ACCESS KEY
003420	000000	077400			CLP	#77400,R5	: CHECK POR FOR
003430	001401				BEQ	.+4	: THE NR PAGE REFERENCED (BITS 0-2 MASKED OUT) : KPOR1 INSTRUCTION SHOULD NOT : HAVE BEEN EXECUTED
003432	005703				TST	R3	: CHECK DESTINATION LOCATION TO SEE : IF INSTRUCTION ALTERED IT BEFORE ABORTING
003434	001401				BEQ	.+4	: INSTRUCTION COMPLETED BEFORE ABORT OCCURRED
003436	104006				HLT		: REGISTER TRAP INTUEN TO CAUSE HALT
003440	015777	176362	17635E	DONE21:	MOV	KTSTA,#KTVEC	
003446	000077	176354			CLR	#KTSTA	: ON AN UNEXPECTED TRAP
003452	000077	176340			CLR	#SR0	: INITIALIZE SR0
003456	005037	177776			CLR	#MPS	: INITIALIZE PROCESSOR STATUS
: SHOW THAT A DAT0 (NO DATIP) TO A NR PAGE : ABORTS WITHOUT COMPLETING THE DAT0 : SHOW THAT THE KT11-0 STATUS REGISTERS LOCK UP, AND THAT THE POR : CORRESPONDING TO THE REFERENCE IS CORRECT							
003462	104400			TEST6:	SCOPE		
003464	012706	001000			MOV	#KSTACK,SP	: INITIALIZE KERNEL STACK POINTER
003470	005077	176322			CLR	#SR0	: INITIALIZE SR0
003474	004767	003026			JSR	PC,ORDER	: CHECK TRAP SEQUENCE
003500	000006				6		: TEST FOR TRAP
003502	104006				HLT		: TEST EXECUTED OUT OF SEQUENCE
003504	004767	001774			JSR	#7,SETUP	: MAKE KERNEL PAGE 1 NR, BANK 0 : MAKE KERNEL PAGE 7 RW, EXTERNAL : MAKE ALL OTHER PAGES RW, BANK 0
003510	012777	003556	176306		MOV	#RET23,#KTVEC	: SETUP ABORT RETURN
003516	005077	176304			CLR	#KTSTA	
003522	005067	176420			CLR	DESTAD	: INITIALIZE LOCATION TO BE ADDRESSED : BY DAT0 TO NR PAGE
003526	012701	022146			MOV	#DESTAD+20000,R1	: R1 CONTAINS ADDRESS OF LOCATION : TO BE REFERENCED THRU KERNEL PAGE 1
003532	112777	000001	176256		MOVB	#1,2000	: TURN ON KT11-0
003540	012721	125252		AD23:	MOV	#125252,(R1)+	: DAT0 TO NR PAGE-SHOULD ABORT

003574	042777	000001	176244	BIC	01,2SR0	:TURN OFF KT11-0
				BR	DONE23	:DATO TO NR PAGE FAILED TO ABORT
				MOV	01,2SR0	:SAVE CONTENTS OF SR0
				DEC	0100003,R2	:TURN OFF KT11-0
				CMP	.+4	:CHECK SAVED CONTENTS OF SR0
				BEQ		
				HLT		:SR0 INCORRECT-SHOULD HAVE LOCKED
						:ON DATO TO KERNEL PAGE 1(NR)
						:NR FAULT SHOULD BE SET
003576	022777	01,2SR0	176216	CMP	0A023,2SR2	:CHECK SR2
003578	001401			BEQ	.+4	
003579	104006			HLT		:SR2 INCORRECT-SHOULD HAVE LOCKED
						:ON THE ADDRESS CONTAINING THE
						:VIRTUAL ADDRESS OF THE INSTRUCTION
						:MOVE CONTENTS OF KPOR1 TO R3
						:TO CHECK THE ACCESS KEY
						:CHECK FOR
						:IF IS 0-2 (MOVED OUT)
						:KPOR1 INSTRUCTION-SHOULD NOT HAVE
						:A CERTAIN THAT DESTINATION
						:LOCATION HAS NOT WRITTEN
						:DATO TO NR PAGE 1 (JTE
						:INTO THE DESTINATION LOCATION
						:CHANGE KT11-0 FAULT RETURN
						:TO CAUSE A HALT ON AN UNEXPECTED TRAP
003580	005767	176312		TST	DESTAD	
003581	001401			BEQ	.+4	
003582	104006			HLT		
003583	016777	176162	176156	DONE23: MOV	KTSTA,2KTVEC	
003584	005077	176154		CLR	2KTSTA	
003585	005077	176140		CLR	2KTSTA	
003586	005037	177776		CLR	2KTSTA	
						:SHOW THAT A DATIP, DATO SEQUENCE TO A NR PAGE WORD ABORTS
						:SHOW THAT THE KT11-0 STATE REGISTERS LOCK UP, AND THAT THE POR
						:CORRESPONDING TO THE REFERENCE IS CORRECT
003662	104400			TEST7: SCOPE		
003664	012706	001000		MOV	2KTSTA,SP	:INITIALIZE KERNEL STACK POINTER
003666	005077	176122		CLR	2KTSTA	:INITIALIZE
003668	004767	002626		JSR	PC,ORDER	:CHECK
003670	000007			7		:SEQUENCE
003672	104006			HLT		:TERMINATED OUT OF SEQUENCE
003674	004767	001574		JSR	X7,SETUP	:SETUP
						:ALL
						:SETUP
003710	012777	003754	176106	MOV	0RET25,2KTVEC	
003712	005077	176104		CLR	2KTSTA	
003714	005067	176220		CLR	DESTAD	:INITIALIZE LOCATION TO BE ADDRESSED
						:BY DATIP, DATO TO
003726	012703	022150		MOV	0DESTAD+20002,R3	:CONTAINS ADDRESS+2 OF LOCATION
						:TO BE
003732	052777	000001	176056	BIS	01,2SR0	:TURN ON KT11-0
003734	005243			INC	-(R3)	:DATIP, DATO TO NR PAGE-SHOULD ABORT
003736	042777	000001	176046	BIC	01,2SR0	:TURN OFF KT11-0
003738	104006			BR		:DATIP, DATO TO NR PAGE FAILED TO
003740	000432			BR		:ABORT
003742	017701	176036		MOV	DONE25	:SAVE CONTENTS OF SR0
003744	042777	000001	176030	BIC	01,2SR0	:TURN OFF KT11-0
003746	022701	100003		CMP	0100003,R1	:CHECK SAVED CONTENTS OF SR0

003772	001401				BEG	.+4			
003774	104006				HLT				:SR0 INCORRECT-SHOULD HAVE LOCKED
									:ON DATO TO KERNEL PAGE 1(NR)
									:NR FAULT SHOULD BE SET
003776	022777	003740	176016		CMP	8A025,2SR2			:CHECK SR2
004004	001401				BEG	.+4			
004006	104006				HLT				:SR2 INCORRECT-SHOULD HAVE LOCKED
									:ON THE ALLOCATED REFERENCE, CONTAINING THE
									:VIRTUAL ADDRESS OF THE INSTRUCTION
004010	017704	176056			MOV	2KPOR1,R4			:MOVE CONTENTS OF POR TO R4
004014	002704	00207			BIC	87,R4			:TO MASK OFF THE ACCESS KEY
004018	002704	077400			CMP	877400,R4			:CHECK POR
004022	001401				BEG	.+4			:WITH BITS 0-2 MASKED OFF
004026	104006				HLT				:KPOR1 INCORRECT-SHOULD NOT HAVE
									:BEEN CHANGED
004030	005767	176112			TST	DESTAD			:MAKE CERTAIN THAT DESTINATION
004034	001401				BEG	.+4			:LOCATION WAS NOT WRITTEN
004036	104006				HLT				:DATO TO NR PAGE WROTE INTO
									:THE DESTINATION LOCATION
004040	016777	175762	175756	DONE25:	MOV	KTSTA,2KTVEC			:CHANGE PAGE FAULT RETURN
004044	002077	175754			CLR	2KTSTA			:TO CAUSE A HALT ON AN UNEXPECTED
004048	002077	175740			CLR	2SR0			:TRAP
004052	005037	177776			CLR	2SR2			
						2SR5			
									:SHOW THAT A DATIP DATO8 SEQUENCE TO A NR PAGE WORD ABORTS
									:SHOW THAT THE KT11-0 STATUS REGISTERS LOCK UP, AND THAT THE POR
									:CORRESPONDING TO THE REFERENCE IS CORRECT
									TEST10: SCOPE
004062	104000				MOV	8KSTACK,SP			:INITIALIZE KERNEL STACK POINTER
004064	012706	001000			CLR	2SR0			:INITIALIZE SR0
004070	005077	175722			JSR	PC,ORDER			:CHECK TEST SEQUENCE
004074	004767	002426			JSR				:TEST NUMBER
004100	000010				IO				:TEST EXECUTED OUT OF SEQUENCE
004102	104006				HLT				:MAKE KERNEL PAGE 1 NR, LINK 0
004104	004767	001374			JSR	X7,SETUP			:MAKE KERNEL PAGE 7 R4, EXTERNAL
									:MAKE ALL OTHER PAGES R4, LINK 0
									:SETUP ABORT RETURN
004110	012777	004152	175706		MOV	8RET27,2KTVEC			
004116	002077	175704			CLR	2KTSTA			
004122	005067	176020			CLR	DESTAD			:INITIALIZE LOCATION TO BE ADDRESSED
									:BY DATIP DATO8 TO NR P
004126	012704	022146			MOV	8DESTAD+20000,R4			:R4 CONTAINS ADDRESS OF LOCATION
									:TO BE REFERENCED THRU KERNEL PAGE 1
004132	002777	000001	175656		BIS	81,2SR0			:TURN 1 ON KT11-0
004140	002724			AD27:	INCB	(R4)+			:DATIP DATO8 TO NR PAGE-SHOULD ABORT
004142	002077	175650			DEC	2SR0			:TURN 4 OFF KT11-0
004146	104006				HLT				:DATIP DATO TO NR PAGE FAILED
004150	000431				BR	DONE27			:TO ABORT
004152	017701	175640		RET27:	MOV	8SR0,R1			:SAVE CONTENTS OF SR0
004156	005377	175634			DEC	8SR0			:TURN 4 OFF KT11-0
004162	002701	100003			CMP	8100003,R1			:CHECK SAVED CONTENTS OF SR0
004166	001401				BEG	.+4			
004170	104006				HLT				:SR0 INCORRECT-SHOULD HAVE LOCKED ON
									:DATIP DATO8 TO KERNEL DATA PAGE 1 (NR)
									:NR FAULT SHOULD BE SET
									:CHECK SR2
004172	022777	004140	175622		CMP	8A027,2SR2			
004200	001401				BEG	.+4			
004202	104006				HLT				:SR2 INCORRECT SHOULD HAVE LOCKED

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004446	000427			BR	DONE31		
004450	017702	175342	OK31:	MOV	2SR0,R2		:SAVE CONTENTS OF SR0
004454	105377	175336		DECB	2SR0		:TURN OFF KTI1-0
004460	017702	000017		CMP	817,R2		:CHECK SAVED CONTENTS OF SR0
004464	001401			BEG	.+4		
004466	104006			HLT			:SR0 INCORRECT-SHOULD HAVE
							:CHECKED A VALUE TO
							:PAGE 0, WHICH GOT THE ADDRESS
							:OF SR0 TO TURN OFF KTI1-0
							:CHECK SR2
004470	022777	004470	175324	CMP	8,2SR2		
004476	001401			BEG	.+4		
004500	104006			HLT			:SR0 INCORRECT-SHOULD TRACK EVEN
							:IF KTI1-0 IS OFF
							:CHECK FOR
							:TRAP WHICH IS REFERENCED
							:K R1 INCORRECT-SHOULD NOT
							:HAVE BEEN CHANGED
004502	022777	077406	175362	CMP	877406,2KPDRI		
004510	001401			BEG	.+4		
004512	104006			HLT			
004514	000404			BR	DONE31		
004516	042777	000001	175272	RET31:	81,2SR0		:TURN OFF KTI1-0
004524	104006			HLT			:DATI TO PM PAGE CAUSED
							:ABORT OR
							:TEST IF RETURN TO CAUSE HALT
							:CIRCUIT TRAP
							:INITIALIZE
							:INITIALIZE PROCESSOR STATUS
004526	016777	175274	175270	DONE31:	KTSTA,2KTVEC		
004534	017077	175266		CLR	2KTSTA		
004540	017077	175266		CLR	2KTSTA		
004544	017037	177776		CLR	2KTSTA		

:SHOW THAT A DATO (NO DATIP) TO A RM PAGE (ACF=6)
 :NEITHER TRAP NOR ABORT IS
 :SHOW THAT THE KTI1-0 STATUS REGISTERS CONTINUE TO TRACK, AND THAT
 :THE PDN OF RESPONDING TO THE REFERENCE IS CORRECT

004550	104000			TEST12:	SCALE		
004552	012706	001000		MOV	2KSTACK,SP		:INITIALIZE KERNEL STACK POINTER
004556	017077	175234		CLR	2SR0		:INITIALIZE SR0
004560	017667	001740		JSR	PC,ORDER		:CHECK FOR SEQUENCE
004566	000012			HLT			:TEST FOR
004570	104006			HLT			:TEST EXECUTED OUT OF SEQUENCE
004572	012746	000006		MOV	86,-(SP)		:PUSH KEY ON THE STACK
004576	004767	000702		JSR	X7,SETUP		:MAKE KERNEL PAGE 1 RM, BANK 0
							:MAKE KERNEL PAGE 7 RM, EXTERNAL
							:MAKE ALL OTHER PAGES RM, BANK 0
							:RESTORE STACK POINTER
							:SETUP ABORT RETURN IN CASE
004602	005726			TST	(SP)+		
004604	012777	004716	175212	MOV	2RET31,2KTVEC		:INITIALIZE LOCATION TO BE REFERENCED
004612	015077	175210		CLR	2KTSTA		:R1 CONTAINS VIRTUAL ADDRESS OF
004616	005067	175324		CLR	DESTAD		:LOCATION TO BE REFERENCED THRU KERNEL PAGE 1
004622	012701	022146		MOV	8DESTAD+20000,R1		:TURN ON KTI1-0
							:DATO TO RM PAGE-SHOULDN'T TRAP OR ABORT
							:SAVE CONTENTS OF SR0
							:TURN OFF KTI1-0
							:CHECK SAVED CONTENTS OF SR0
004626	005277	175164		INC	2SR0		
004632	012721	125252		MOV	8125252,(R1)+		:SR0 INCORRECT-SHOULD HAVE
004636	017702	175154		MOV	2SR0,R2		:CHECKED A VALUE TO
004642	105377	175150		DECB	2SR0		:PAGE 0, WHICH GOT THE
004646	022702	000017		CMP	817,R2		:OF SR0 TO TURN OFF KTI1-0
004652	001401			BEG	.+4		
004654	104006			HLT			

H02

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DskToA.P11

005320	104006			HLT					:DATIP, DATOR TO RW PAGE CALLED
005322	015777	174500	174474	DONE37: MOV	KTSTA	2KTVEC			:A T P OR C RT
005324	000077	174472		CLR	2KTSTA				:RESTORE TO RETURN TO CAUSE HALT
005326	000077	174476		CLR	230				:ON AN UNEXPECTED TRAP
005328	000037	177776		CLR	2#PS				:INITIALIZE J
									:INITIALIZE PROCESSOR STATUS
005344	104400			SCOPE					
005346	004767	001024		JSR	x7, BELL				
005352	013701	000042		MOV	2#42, R1				;MONITOR HOOK
005354	001405			BFO	END				
005356	000005			R	ET				
005358	004711		LOGIC:	JL	x7, 2R1				
005360	000240			NOP					
005362	000240			NOP					
005364	000240			NOP					
005366	000240			NOP					
005368	000167	174552	END:	JMP	START				


```

005632 032737 040000 177570 ;SCOPE AND/OR ITERATION LOOP FOR EACH TEST 4000 TIMES
005634 001015 SCOPE: BIT 84000,24SR ;TEST SR FOR SCOPE
005636 032737 004000 177570 BIT 8400,24SR ;YES SCOPE
005638 001016 BNE 8400,24SR ;NO-TEST FOR ITERATION
005640 000060 000044 CIP 8400,ICOUNT ;INITIAL ITERATION
005642 100012 BPL 8400,ICOUNT ;COMPARE CURRENT COUNT TO MAX NUMBER
005644 005267 000040 SCOPE: INC 8400 ;EXIT-DONE
005646 012737 000340 177776 SCOPE: MOV 840,24PS ;INCREMENT COUNT
005648 012667 177776 SCOPE: MOV (6)+,24 ;PREVENT TRAPPING WHILE MOVING STACK
005650 000177 000028 SCOPE: MOV (6)+,24PS ;REPOSITION STACK
005652 000014 000014 RETURN ;RESTORE PREVIOUS PROCESSOR STATUS
005654 005267 000024 SCOPE: CLR 8400 ;REPORT TEST
005656 011667 000006 TEST: ;CLEAN COUNT
005658 000002 RTI ;STEP TEST COUNTER
005660 004000 ICOUNT: 4000 ;SAVE SCOPE RETURN POINTER
005662 000000 SCOPE: 0 ;RETURN INLINE-NEXT TEST
005664 000000 RETURN: 0 ;ITERATION COUNT
005666 ;COUNT LOCATION FOR ITERATION LOOP
005670 ;ADDRESS OF LAST TEST

```

```

005732 012767 000340 172036 ;ENTERED WITH SYSTEM TRAP CALL (HLT)
005740 036727 171624 020000 ;PRINT OUT THE ERROR PC+2 AND STATUS REGISTER
005746 001401 PRINT: MOV 8340,PS ;SET PRIORITY TO 7
005750 000432 BIT SR,820000 ;TEST FOR INHIBIT PRINT OUT
005752 012667 000072 CK .+4 ;CHECK FOR HALT
005754 012667 000070 MOV (6)+,SAVPC ;POLY-FATHING ROUTINE
005756 000000 MOV (6)+,SAVPSR ;END OF ERROR CONDITION
005758 000000 CIP -(6),-(6) ;RESTORE STACK
005760 012767 000200 172004 MOV 8340,PS ;OUTPUT CARRIAGE RETURN AND LINE FEED
005762 004767 000416 JSR X7,HALF ;LOAD WITH FAILING PC+2
005764 016767 000314 MOV 8340,PTEMP1
005766 004767 000436 JSR PC,TYPE
005768 015426 JSR PC,PPCHRT
005770 004767 000036 JSR PC,TYPE
005772 004767 000424 JSR PC,TYPE
005774 005426 JSR PC,TYPE
005776 016767 000022 000266 MOV SAVPC,PTEMP1 ;LOAD PROCESSOR STATUS
005778 004767 000050 JSR X7,PRDCT ;PRINT PROCESSOR STATUS
005780 005767 171526 CK: TST SR ;CHECK SR FOR HALT SWITCH
005782 100001 BPL .+4 ;CHECK IF NOT SET
005784 000000 HALT ;HALT ON ERROR UP
005786 000002 RTI ;RETURN TO MAIN LINE
005788 000000 SAVPC: 0
005790 000000 SAVPSR: 0

```

```

ROUTINE TO PRINT OUT OCTAL NUMBER
PRINT DELETES LEADING ZEROS
PROCT PRINTS OUT 6 OCTAL DIGITS
006054 012767 000001 000232 PRSHRT: MOV      @1,P,PRFLG      ;SET FLAG TO INDICATE SHORT PRINTOUT
006056 005767 000232          TST      @1              ;CHECK FOR ZERO
006058 001011          BNE     @1              ;BRANCH IF NOT ZERO
006070 012777 000260 173716 NOV     @0,@DDBR      ;OUTPUT A SINGLE ZERO
006072 105777 173710          TSTB     @1              ;WAIT FOR TTY READY
006074 100375          BPL     @1              ;RETURN
006076 000202          CLR     @1              ;CLEAR FLAG TO INDICATE FULL PRINTOUT
006078 000202          CLR     @4              ;CLEAR R4 FOR COUNTING CHARACTERS OUTPUT
006080 000174          CLR     @1              ;INITIALIZE CARRY FLAG FOR ROTATES
006082 000260 000172          MOV     @1,PTEMP2     ;SETUP R3
006084 000164          TST     @1              ;CHECK BIT 15 OF NUMBER
006086 000166          BPL     @1              ;BRANCH IF ZERO
006088 000150          INC     @1              ;INCREMENT R3 IF ONE
006090 000146          ROL     @1              ;ROTATE LEFT MOST OCTAL TO RIGHT END
006092 000146          ROL     @1              ;
006094 000146          ROL     @1              ;
006096 000146          ROL     @1              ;
006098 000146          ROL     @1              ;
006100 000132          RDC     @1              ;STORE CARRY
006102 000132          TST     @1              ;CHECK FOR FULL SHORT PRINTOUT
006104 000132          BEQ     @1              ;BRANCH IF NOT SET
006106 000132 000260          CMP     @1,@260        ;CHECK FOR ZERO IF SET
006108 000132 000260          BEQ     @1              ;IF SET, GO TO NEXT CHARACTER
006110 000122 173612 P.WAIT: NOV     @1,@DDBR      ;OUTPUT NEXT CHARACTER
006112 000122 173604          TSTB     @1              ;WAIT FOR TTY READY
006114 000122 173604          BPL     @1              ;
006116 000100          CLR     @1              ;PRINT REST OF NUMBER AFTER A NON-ZERO DIGIT
006118 000104          INC     @1              ;COUNT
006120 000100 000006          CMP     @1,@06        ;CHECK FOR DONE
006122 000100          BNE     @1              ;BRANCH IF NOT DONE
006124 000056          RTS     @1              ;
006126 000056          CLC     @1              ;CLEAR CARRY
006128 000056          TST     @1              ;CHECK FOR PREVIOUS CARRY
006130 000056          BEQ     @1              ;BRANCH IF PREVIOUSLY ZERO
006132 000050          CLR     @1              ;INITIALIZE FLAG
006134 000050          SEC     @1              ;SET CARRY
006136 000050          ROL     @1              ;ROTATE NEXT CHARACTER INTO RIGHT END OF REGISTER
006138 000050          ROL     @1              ;
006140 000050          ROL     @1              ;
006142 000050          ROL     @1              ;
006144 000050          ROL     @1              ;
006146 000050          RDC     @1              ;STORE CARRY
006148 000024          MOV     @1,PTEMP2     ;LOAD DATA INTO R3
006150 000016          BIC     @177770,PTEMP2 ;CLEAR ALL BUT LEFT MOST OCTAL DIGIT
006152 000010          BIS     @260,PTEMP2    ;SET TO ASCII EQUIVALENT
006154          BR      @1              ;LOOP
006324          PRSHRT: 0
006326          PRFLG: 0
006328          PTEMP1: 0
006330          PTEMP2: 0
006332          PTEMP3: 0

```

```

CONTAINS VALUE TO BE OUTPUT
SCRATCH
USED TO COUNT CHARACTERS OUTPUT

```

```

:ENT HANDLER
:FIRST 3 CALLS LEFT OPEN IN TABLE FOR EASY PATCHES
ENTSRV:  MOV    @SP,EPC      ;GET CALL
        SUB    #3,EPC
        MOV    @PC,EPC
        CLRB   EPC+1        ;SAVE OFFSET ONLY
        ADD    @ENTAB,EPC   ;POINT TO TABLE OF ADDRESSES
        MOV    @EPC,PC      ;JUMP TO DESIRED ROUTINE

EPC:     0
        PATCH1=0          ;SUBSTITUTE 10400 WHERE 1ST PATCH IS NEEDED
        PATCH2=10
        PATCH3=10
        PATCH1=10        ;10 2 FOR 1ST PATCH
        PATCH2=10        ;10 4 FOR 2ND PATCH
ENTAB:   PATCH1          ;LOW ADDRESS OF 1ST PATCH HERE
        PATCH2          ;LOW ADDRESS OF 2ND PATCH HERE
        PATCH3          ;LOW ADDRESS OF 3RD PATCH HERE
        PRINT

: BELL ON PASS COMPLETE
BELL:   MOV    #207,@TLBR
        TSTB  @TCSR
        BPL   .-4
        RTS   x7

: SUBROUTINE TO OUTPUT CARRIAGE RETURN AND LINEFEED
CALF:   MOV    #215,@TLDR   ;OUTPUT CARRIAGE RETURN
        TSTB  @TCSR       ;WAIT FOR TTY READY
        BPL   .-4
        MOV    #212,@TDR   ;OUTPUT LINEFEED
        TSTB  @TCSR       ;WAIT FOR TTY READY
        BPL   .-4
        RTS   x7         ;RETURN
    
```

```

006326 011667 000032
006332 162767 000012 000024
006340 017767 000020 000016
006346 105067 000013
006352 062767 000056 000004
006360 017707 000000
006364 000000
000000
000000
000000
006366 000000
006370 000000
006372 000000
006374 005732
    
```

```

006376 012777 000207 173410
006404 105777 173402
006410 100375
006412 000207
    
```

```

006414 012777 000215 173372
006422 105777 173364
006426 100375
006430 012777 000212 173356
006436 105777 173350
006442 100375
006444 000207
    
```


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D.KTBA.P11 CROSS REFERENCE TABLE -- MACRO NAMES

TESTNO 329# 352 401 452 503 557 611 661 710 775 826 876 926

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DEKTB.A.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

TST	340	32	411	440	462	491	513	542	599	649	699	748	785	836	886
TSTB	1091	1109	1155	1161	1164	1179									
.R.S															
.A.CII		989	990												
.E.O															
.EVEN															
.LIST		257	329	352	401	452	503	557	611	661	710	775	826	876	926
.MACR	329														
.NLIST		257	329	352	401	452	503	557	611	661	710	775	826	876	926
.R.1															
.R.PT	257														
.TITLE															
.WORD	277														

ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

#DEKTB.A,DEKTB.A.SEQ/SOL/CRF/DS:ERFZ/EN:ABS=DSK1:DEKTB.A.P11
R-TIME: 47.1 S CONDS
R-TIME RATIO: 52/14=3.5
CORE USED: 7K (13 PAGES)

