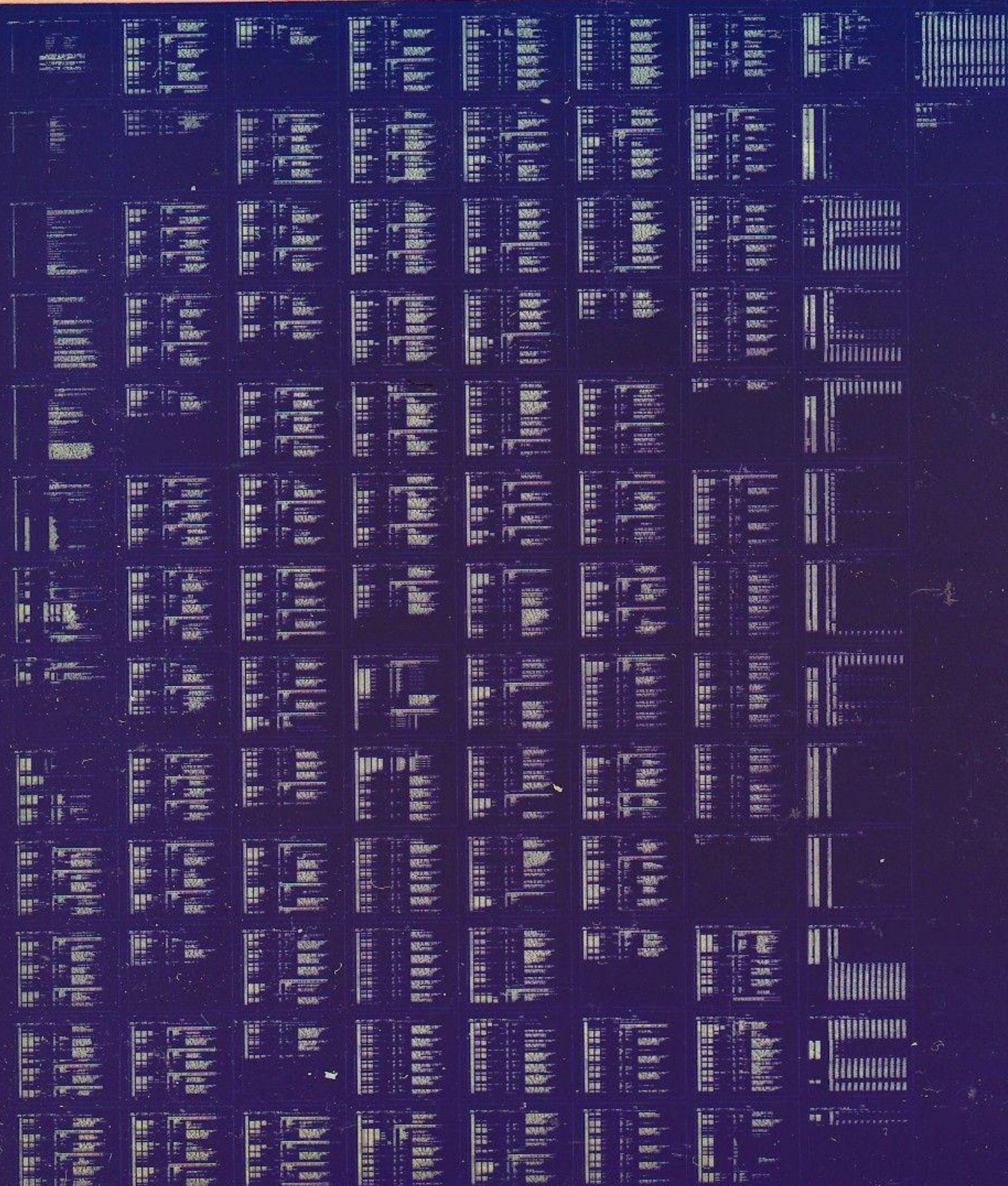


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PDP11/6X TRAPS TESTS
MD-11-DQKDB-A

EP-DQKDB-A-DL-A
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IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DQKDB-A-D
PRODUCT NAME: 11/6X TRAPS TEST
PROGRAM DATE: MARCH 1977
MAINTAINER: DIAGNOSTIC GROUP
AUTHOR: BRUCE BURGESS

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1. ABSTRACT

THIS IS A TEST OF ALL OPERATIONS AND INSTRUCTIONS THAT CAUSE TRAPS. ALSO TESTED ARE TRAP OVERFLOW CCNDITIONS, ODDITIES OF REGISTER 6, INTERRUPTS AND THE RESET INSTRUCTIONS. ALL THE RESERVED INSTRUCTION CODES ARE TESTED OUT.

2. REQUIREMENTS

2.1 EQUIPMENT

PDP-11/6X STANDARD COMPUTER

2.2 STORAGE

2.2.1 PROGRAM STORAGE - THE ROUTINE USES MEMORY FROM 0000 TO 22000.

2.3 PRE-REQUISITE PROGRAMS

ALL APPLICABLE BASIC CPU PROGRAMS SHOULD BE RUN, TO VERIFY CORRECT OPERATION OF THE BASIC INSTRUCTIONS.

2.4 EXECUTION TIME

FIRST PASS (NO ITERATIONS), QUICK VERIFY=15 SECONDS

3. LOADING PROCEDURE

3.1 METHOD

PROCEDURE FOR NORMAL ABSOLUTE TAPES SHOULD BE FOLLOWED.

4. STARTING PROCEDURE

4.1 STARTING ADDRESS

THE PROGRAM STARTS AT 200.

4.2 PROGRAM AND/OR OPERATOR ACTION

LOAD PROGRAM INTO MEMORY.
SET SWITCH REGISTER TO STARTING ADDRESS.
LOAD ADDRESS.
PRESS START.

THE PROGRAM WILL IDENTIFY ITSELF AND TEST EXECUTION WILL BEGIN. IT WILL PRINT AN "END OF PASS" MESSAGE AT THE END OF EACH PASS. DURING THE FIRST PASS THERE ARE NO ITERATIONS. SUBSEQUENT PASSES HAVE 15 ITERATIONS.

IF AN ERROR IS DETECTED, THERE WILL BE A HALT.

WHEN A HALT OCCURS AND IT IS NECESSARY TO SCOPE ON IT, INSERT A "JMPJRO" INSTRUCTION IN THE "LOOP" LOCATION FOLLOWING THE HALT. THE "JMP" INSTRUCTION SHOULD BRANCH YOU TO THE PREVIOUS SCOPE LOCATION.

5. OPERATION PROCEDURE

5.1 OPERATIONAL SWITCHES

NO SWITCHES ARE USED

5.2 FUNCTION ABSTRACTS

5.2.1 BEGIN SA 200

5.2.2 HLT

INDICATES THE UNIQUE ADDRESS THAT TAGS THE FAILING SUBTEST. THE INCORRECT DATA AT THE TIME OF THE FAILURE MAY OR MAY NOT BE DISPLAYED IN REGISTER ZERO, WHICH IS THE DATA REGISTER ON A HALT.

5.2.3 SCOPE

IS A "MOV R7,R0" INSTRUCTION THAT IS PLACED BETWEEN EACH SUBTEST IN THE INSTRUCTION SECTION. IT ESTABLISHES A POINT TO WHICH THE TEST WILL LOOP BACK TO, IN CASE A SCOPE LOOP IS ENTERED.

5.2.4 LOOP

IS A "NOP" INSTRUCTION PLACED AFTER EACH "HLT". IF A SCOPE LOOP IS DESIRED REPLACE THE "LOOP" BY A "JMP JRO" INSTRUCTION (110) AND PRESS CONTINUE. COMMENTS IN THE LISTINGS ADJACENT TO "LOOP" EXPLAIN HOW TO USE THE SCOPE LOOP. THE TEST WILL LOOP BACK TO THE PREVIOUS SCOPE INSTRUCTION.

5.2.5 TRAPCATCHER

THIS IS A SERIES OF INSTRUCTIONS DESIGNED TO DETECT AND ISOLATE UNEXPECTED TRAPS AND INTERRUPTS, THAT OCCUR IN THE TRAP AND INTERRUPT VECTOR AREA OF MEMORY.

THE PRINCIPAL OF THIS ROUTINE IS: THE VECTOR ENTRANCE ADDRESS POINTS TO THE NEXT SEQUENTIAL WORD WHICH WILL CONTAIN A HALT (000000) (THIS LOCATION IS ALSO THE STATUS WORD FOR THAT VECTOR ENTRANCE. BUT THIS WILL HAVE NO EFFECT ON IT, ALSO BEING THE NEXT INSTRUCTION).

IF A HALT OCCURS IN THE TRAP OR INTERRUPT VECTOR AREA, REGISTER SIX SHOULD BE EXAMINED TO DETERMINE ITS CONTENTS, THEN USE REGISTER SIX CONTENTS AS AN ADDRESS TO DETERMINE THE LOCATION THE PROGRAM WAS AT, WHEN THE INTERRUPT OR

TRAP OCCURRED. (MEMORY AS SPECIFIED BY R6 CONTAINS THE PC OF THE INSTRUCTION FOLLOWING THE INSTRUCTION WHERE THE TRAP OCCURRED).

THE CONTENTS OF LOCATION "STESTN" CONTAINS THE TEST NUMBER THAT WAS BEING EXECUTED AT THE TIME OF TRAP.

6. ERRORS

6.1 ALL ERRORS WILL CAUSE A HALT.

6.2 ERROR RECOVERY

ON TRAP ERRORS - RESTART AT STARTING ADDRESS
DEPRESS CONTINUE TO CONTINUE TEST

IF THE MACHINE GETS "HUNG" OR FAILS IN A FATAL UNPREDICTABLE MANNER, THE USER CAN FIND OUT THE TEST WHICH WAS BEING EXECUTED AT THE TIME OF FAILURE. THE CONTENTS OF LOCATION "STESTN" CONTAINS THE TEST NUMBER THAT WAS BEING EXECUTED AT THE TIME OF FAILURE.

USEFUL INFORMATION CAN ALSO BE GAINED BY EXAMINING THE "PC" AT WHICH THE PROGRAM HALTED AND CROSS-REFERENCING THAT "PC" IN THE PROGRAM LISTINGS.

7. RESTRICTIONS

7.1 STARTING RESTRICTION

THE PROGRAM MUST BE STARTED AT 200.

7.2 OPERATIONAL RESTRICTION

NONE

8. PROGRAM DESCRIPTION

THIS PROGRAM CHECKS THAT ON ALL TRAP OPERATIONS REGISTER 6 IS DECREMENTED THE CORRECT AMOUNT, THAT THE CORRECT PC IS SAVED ON THE STACK, THAT THE OLD CONDITION CODES AND PRIORITY ARE PLACED ON THE STACK AND THAT THE NEW STATUS AND CONDITION CODES ARE CORRECT. BOTH THE "TRAP" AND "ENT" TRAP INSTRUCTIONS ARE TESTED TO SEE THAT ALL COMBINATIONS WILL TRAP. CHECKED ALSO IS THAT ALL RESTRICTED INSTRUCTIONS WILL TRAP. VERIFICATION OF THE "RTI" INSTRUCTION (00003) WHICH IS USED FOR SOFTWARE DEBUG ROUTINES: ODT, DOT, IS DONE. ALSO, THE TRACE BIT IS CHECKED TO SEE IF IT CAUSES A TRAP. STACK OVERFLOW IS CHECKED FOR ALL TRAP INSTRUCTIONS. YELLOW AND RED ZONE VIOLATIONS ARE CHECKED. THE RTI AND RTT INSTRUCTIONS ARE CHECKED FOR CORRECT STACK

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OPERATIONS.

9. ACT/APT COMPATABILITY

THE PROGRAM IS COMPATIBLE WITH ACT AND APT. UNDER APT,
BEFORE HALTING ON ERROR, THE PROGRAM PASSES THE TEST
NUMBER AND ERROR NUMBER TO LOCATIONS "STESTN" AND "SFATAL"
RESPECTIVELY.

%
;PDP-11/60 TRAP INSTRUCTION TEST AND ODD ON UNIQUE R6 OPERATIONS
;REVISED: SEPTEMBER 1976, JIM KAPADIA
.LIST ME ;LIST MACRO EXPANSIONS

.NLIST MC,MD,CND

.ENABL ABS,AMA

;OR MACRO CALLS AND DEFINITIONS
;ABSOLUTE BINARY OUTPUT

000000

TAB=%0

000001

LAST=%1

000001

\$ENO=1

000001

\$SN=1

000002

FIRST=%2

010700

SCOPE=010700

;MOV REGISTER 7 TO REGISTER ZERO TO TAG LAST TEST

000000

HLT=HALT

000003

TRT=3

000003

BPT=3

000004

ITRAPS=4

000004

ERRVEC=4

;RESERVED INST AND ILLEGAL ADDRESSES

000014

TBITVEC=14

000030

EMTVEC=30

000014

TRTVEC=14

000014

BPTVEC=14

000020

IOTVEC=20

000034

TRAPVEC=34

177564

TTCSR=177564

177560

TRCSR=177560

177564

TPS=177564

177566

TPB=177566

000240

BELL=240

000240

LOOP=NOP

000240

NOP=240

177776

STATUS=177776

000007

RESINST=000007

;A RESERVED INSTRUCTION
;RESERVED INSTRUCTION TRAP VECTOR

000010

RESVEC=10

004700

ILLA=004700

000100

ILLB=100

H01

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294      177776      CC=177776
295      000006      R6=%6
296      000005      R5=%5
297
298      076600      MED=076600      ;MAINT. EXAM & DEPOSIT
299
300
301
302      000200      .=200
303 000200 000137 001102 JMP BEGIN
304      000300      .=300
305      .SBTTL ACT11 HOOKS
306
307      ;*****
308 ;HOOKS REQUIRED BY ACT11
309      000300      $SVPC=.      ;SAVE PC
310      000046      .=46
311 000046 021520 $ENDAD      ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .SEOP
312      000052      .=52
313 000052 000000 .WORD 0      ;;2)SET LOC.52 TO ZERO
314      000300      .=$SVPC      ;; RESTORE PC
315      .SBTTL APT MAILBOX-ETABLE
316
317      ;*****
318 .EVEN
319 000300 $MAIL:      ;APT MAILBOX
320 000300 $MSGTY: .WORD AMSGTY ;MESSAGE TYPE CODE
321 000302 $FATAL: .WORD AFATAL ;FATAL ERROR NUMBER
322 000304 $TESTN: .WORD ATESTN ;TEST NUMBER
323 000306 $PASS: .WORD APASS ;PASS COUNT
324 000310 $DEVCT: .WORD ADEVCT ;DEVICE COUNT
325 000312 $UNIT: .WORD AUNIT ;I/O UNIT NUMBER
326 000314 $MSGAD: .WORD AMSGAD ;MESSAGE ADDRESS
327 000316 $MSGLG: .WORD AMSGLG ;MESSAGE LENGTH
328 000320 $ETABLE:      ;APT ENVIRONMENT TABLE
329 000320 000 $ENV: .BYTE AENV ;ENVIRONMENT BYTE
330 000321 000 $ENVN: .BYTE AENVN ;ENVIRONMENT MODE BITS
331 000322 000000 $SWREG: .WORD ASWREG ;APT SWITCH REGISTER
332 000324 000000 $USWR: .WORD AUSWR ;USER SWITCHES
333 000326 000000 $CPUOP: .WORD ACPUOP ;CPU TYPE, OPTIONS
334      ;*
335      ;*      BITS 15-11=CPU TYPE
336      ;*      11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
337      ;*      11/70=06,PDQ=07,Q=10
338      ;*      BIT 10=REAL TIME CLOCK
339      ;*      BIT 9=FLOATING POINT PROCESSOR
340      ;*      BIT 8=MEMORY MANAGEMENT
340 000330 $ETEND:
341      .MEXIT
342      .SBTTL APT PARAMETER BLOCK
343
344      ;*****
345 ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
346      ;*****
347      000330      $X=.      ;SAVE CURRENT LOCATION
348      000024      .=24      ;SET POWER FAIL TO POINT TO START OF PROGRAM
349 000024 000200 200      ;FOR APT START UP

```

```

350      000044      =44      ;;POINT TO APT INDIRECT ADDRESS PNTR.
351 000044 000330 $APTHDR ;;POINT TO APT HEADER BLOCK
352      000330      =.SX      ;;RESET LOCATION COUNTER
353      *****
354 ;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
355 ;INTERFACE SPEC.
356
357 000330 $APTHD:
358 000330 000000 $HIBTS: .WORD 0      ;;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
359 000332 000300 $MBADR: .WORD $MAIL      ;;ADDRESS OF APT MAILBOX (BITS 0-15)
360 000334 000002 $TSTM: .WORD 2      ;;RUN TIM OF LONGEST TEST
361 000336 000702 $PASTM: .WORD 2      ;;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
362 000340 000000 $UNITM: .WORD 0      ;;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
363 000342 000014      .WORD $ETEND-$MAIL/2 ;;LENGTH MAILBOX-ETABLE(WORDS)
364
365      000304      $TSTM=$TESTM
366      000302      $ERROR=$FATAL
367
368

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369          001000          . = 1000
370
371
372 001000 000000          K1: 0
373 001002 000000          K2: 0
374 001004 000000          K3: 0
375 001006 000000          K4: 0
376 001010 000000          K5: 0
377 001012 000000          K6: 0
378 001014 052525          K7: 52525
379 001016 052400          K10: 52400
380 001020 000000          K11: 0
381 001022 000000          K12: 0
382
383 001024 000000          NAMFLG: 0
384
385
386 001026 005015 040515 047111 MSGNAM: .ASCIZ <15><12>.MAINDEC-11-DQKDB-A PDP 11/6X TRAPS TEST.
387 001034 042504 026503 030461
388 001042 042055 045521 041104
389 001050 040755 020040 042120
390 001056 020120 030461 033057
391 001064 020130 051124 050101
392 001072 020123 042524 052123
393 001100          000
394
395          001102          . EVEN
396
397 001102 012737 177777 021546 BEGIN: MOV      #-1, 2#PASSPT      ; CLEAR THE ITERATION COUNTER
398
399
400
401 001110 005037 000300          BEGIN1: CLR      $MSGTY
402 001114 012737 021570 000024      MOV      $PWRDWN, 24      ; SET UP THE POWER DOWN VECTOR
403 001122 012737 000340 000026      MOV      $340, 26      ; SET UP POWER DOWN PRIORITY
404 001130 005037 000304          CLR      $TSTNM
405 001134 005037 000302          CLR      $ERROR
406 001140 012702 000300          MOV      $MSGTY, R2
407 001144 012703 000302          MOV      $FATAL, R3
408 001150 012706 021774          MOV      $BUFF, %6      ; SET UP STACK POINTER
409
410          ; PRINT MAINDEC NUMBER AND NAME ONLY THE FIRST TIME
411
412 001154 005737 001024          TST      NAMFLG      ; NAME PRINTED NCE?
413 001160 001021          BNE      BGN3      ; IF YES DONT PRINT AGAIN
414 001162 005237 001024          INC      NAMFLG      ; SET FLAG
415 001166 132737 000040 000321      BITB     $40, $ENVN      ; WILL APT ALLOW PRINTING?
416 001174 001013          BNE      BGN3      ; NO
417 001176 012700 001026          MOV      $MSGNAM, R0
418 001202 105737 177564          BGN2:  TSTB     2#TPS      ; TTY READY?
419 001206 100375          BPL      BGN2
420 001210 112037 177566          MOVB     (R0)+, 2#TPB      ; PRINT CHARACTER
421 001214 001372          BNE      BGN2      ; PRINT NEXT ONE IF NOT DONE
422
423 001216 105737 177564          BGN2A: TSTB     2#TPS      ; WAIT FOR DONE
424 001222 100375          BPL      BGN2A

```

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425 001224      BGN3:
426
427 001224 010700      SCOPE
428      ;*****
429      ;*TEST 1 TEST THAT A TRAP OCCURS ON A RESERVED INSTRUCTION (76000)
430      ;*****
431 001226 005237 000304      TST1: INC 2*TESTN
432 001232 012706 021774      MOV  #BUFF,%6      ;STACK POINTER SETUP
433 001236 012737 001264 000010      MOV  #RETA,RESVEC      ;LOAD RESERVED INST. TRAP VECTOR
434 001244 005037 000012      CLR  RESVEC+2      ;AND STATUS
435 001250 000007      RESINST      ;RESERVED INSTRUCTION (SHOULD TRAP)
436
437 001252 005212      INC  (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
438 001254 012713 000001      MOV  #1,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
439 001260 000000      HLT      ;ERROR! RESERVED INSTRUCTION FAILED TO TRAP
440 001262 000240      LOOP      ;REPLACE THIS INSTRUCTION BY A
441      ;"JMP 2R0" (000110) TO GET A
442      ;SCOPE LOOP AND HIT CONTINUE
443 001264 010700      RETA: SCOPE
444
445      ;*****
446      ;*TEST 2 TEST DECREMENT OF STACK POINTER ON A RESERVED INSTRUCTION TRAP
447      ;*****
448 001266 005237 000304      TST2: INC 2*TESTN
449 001272 012706 021774      MOV  #BUFF,%6      ;STACK POINTER SETUP
450 001276 012737 001306 000010      MOV  #RETB,RESVEC      ;RETURN POINTER
451 001304 000007      RESINST      ;DO A RESERVED INSTRUCTION
452 001306 020627 021770      RETB: CMP  %6,#BUFF-4      ;TEST DECREMENT OF %6
453 001312 001405      BEQ  1$
454
455 001314 005212      INC  (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
456 001316 012713 000002      MOV  #2,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
457 001322 000000      HLT      ;STACK POINTER (R6) WAS NOT PUSHED
458      ;DOWN BY TWO WORDS WHEN A RESERVED
459      ;INSTRUCTION TRAPPED
460 001324 000240      LOOP      ;REPLACE THIS INSTRUCTION BY A
461      ;"JMP 2R0" (000110) TO GET A
462      ;SCOPE LOOP AND HIT CONTINUE
463 001326 010700      1$: SCOPE
464
465      ;*****
466      ;*TEST 3 TEST THAT PROPER P.C. IS SAVED ON A RESERVED INSTRUCTION TRAP
467      ;*****
468 001330 005237 000304      TST3: INC 2*TESTN
469 001334 012706 021774      MOV  #BUFF,%6      ;STACK POINTER SETUP
470 001340 012737 001350 000010      MOV  #RETC,RESVEC
471 001346 000007      INSTC: RESINST      ;TRAP ON THIS INSTRUCTION
472 001350 022737 001350 021770      RETC: CMP  #,BUFF-4      ;CHECK FOR INCREMENTED P.C.
473 001356 001405      BEQ  1$
474
475 001360 005212      INC  (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
476 001362 012713 000003      MOV  #3,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
477 001366 000000      HLT      ;WRONG "OLD" PC WAS SAVED ON THE STACK
478      ;WHEN A RESERVED INSTR. TRAPPED
479 001370 000240      LOOP      ;REPLACE THIS INSTRUCTION BY A
480      ;"JMP 2R0" (000110) TO GET A

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T3 TEST THAT PROPER P.C. IS SAVED ON A RESERVED INSTRUCTION TRAP

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481                                     ;SCOPE LOOP AND HIT CONTINUE
482 001372 010700 15: SCOPE
483                                     ;*****
484                                     ;*TEST 4 TEST THAT "OLD" CC AND PRIORITY ARE SAVED ON A RESERVED INSTR. TRAP
485                                     ;*****
486 001374 005237 000304 TST4: INC 0#STESTN
487 001400 012706 021774 MOV 0#BUFF,%6 ;SET UP
488 001404 012737 001420 000010 MOV 0#RETD,RESVEC
489 001412 005037 177776 CLR CC ;CLEAR CC AND PRIORITY
490 001416 000007 RESINST ;TRAP ON RESERVED INSTRUCTION
491 001420 013700 021772 RETD: MOV BUFF-2,%0 ;GET SAVED STATUS & TEST FOR ALL 0'S
492 001424 001405 BEQ 15 ;BRANCH IF 0
493
494 001426 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
495 001430 012713 000004 MOV 04,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
496 001434 000000 HLT ;WRONG "OLD" PSW SAVED ON STACK
497 ;WHEN A RESERVED INSTR. TRAPPED
498 ;EXPECT OLD PSW=0
499 001436 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
500 ;"JMP 2RD" (000110) TO GET A
501 ;SCOPE LOOP AND HIT CONTINUE
502 001440 010700 15: SCOPE
503
504 001442 012706 021774 MOV 0#BUFF,%6 ;INITIALIZE THE STACK POINTER
505 001446 012737 001464 000010 MOV 0#RETE,RESVEC
506 001454 012737 000357 177776 MOV 0#357,CC
507 001462 000007 RESINST ;PRE SET THE STATUS WORD
508 001464 013700 021772 RETE: MOV BUFF-2,%0 ;RESERVED INSTRUCTION TRAP
509 001470 022700 000357 CMP 0#357,%0 ;GET SAVED STATUS
510 001474 001405 BEQ 15 ;SAVED STATUS CORRECT?
511 ;BRANCH IF CORRECT
512 001476 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
513 001500 012713 000005 MOV 05,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
514 001504 000000 HLT ;WRONG "OLD" PSW SAVED ON STACK
515 ;WHEN A RESERVED INSTR. TRAPPED
516 ;EXPECT OLD PSW=357
517 001506 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
518 ;"JMP 2RD" (000110) TO GET A
519 ;SCOPE LOOP AND HIT CONTINUE
520 001510 010700 15: SCOPE
521
522 ;*****
523 ;*TEST 5 TEST THAT "NEW" STATUS IS CORRECT ON A RESERVED INSTRUCTION TRAP
524 ;*****
525 001512 005237 000304 TST5: INC 0#STESTN
526 001516 012706 021774 MOV 0#BUFF,%6 ;INITIALIZE THE STACK POINTER
527 001522 012737 001544 000010 MOV 0#RETF,RESVEC ;SET UP VECTOR
528 001530 005037 000012 177776 CLR RESVEC+2 ;CLEAR 'NEW' STATUS
529 001534 012737 000357 MOV 0#357,CC ;PRE SET THE STATUS WORD
530 001542 000007 RESINST ;DO A RESERVED INSTRUCTION
531 001544 013700 177776 RETF: MOV CC,%0 ;GET & TEST THE 'NEW' STATUS WORD
532 001550 001405 BEQ 15 ;BRANCH IF ALL 0'S
533
534 001552 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
535 001554 012713 000006 MOV 06,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
536 001560 000000 HLT ;"NEW" PSW WAS INCORRECT WHEN A

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 DOKDBA.P11 17-FEB-77 08:26 TS TEST THAT "NEW" STATUS IS CORRECT ON A RESERVED INSTRUCTION TRAP

```

537                                     ; RESERVED INSTR. TRAPPED
538                                     ; EXPECT NEW PSW=0
539 001562 000240                      LOOP                                     ; REPLACE THIS INSTRUCTION BY A
540                                     ; "JMP 3RD" (000110) TO GET A
541                                     ; SCOPE LOOP AND HIT CONTINUE
542 001564 005037 177776              1S:  CLR  CC
543 001570 010700                      SCOPE
544
545 001572 012706 021774              MOV  #BUFF,%6                      ; SET UP THE STACK POINTER
546 001576 012737 001620 000010      MOV  #RETG,RESVEC
547 001604 012737 000357 000012      MOV  #357,RESVEC+2                ; LOAD THE NEW STATUS WORD
548 001612 005037 177776              CLR  CC                          ; PRE SET THE STATUS WORD
549 001616 000037                      RESINST                         ; DO A RESERVED INSTRUCTION
550 001620 013700 177776              RETG: MOV  CC,%0                  ; GET THE 'NEW' STATUS WORD
551 001624 022700 000357              CMP  #357,%0                     ; WAS 'NEW' STATUS CORRECTLY LOADED
552 001630 001405                      BEQ  1S                          ; BRANCH IF CORRECT
553
554 001632 005212                      INC  (R2)                        ; SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
555 001634 012713 000007              MOV  #7,(R3) ; MOVE TO MAIL BOX ($FATAL) THE ERROR
556 001640 000000                      HLT
557                                     ; "NEW" PSW WAS INCORRECT WHEN A
558                                     ; RESERVED INSTRUCTION TRAPPED
559 001642 000240                      LOOP                                     ; EXPECT NEW PSW=357
560                                     ; REPLACE THIS INSTRUCTION BY A
561                                     ; "JMP 3RD" (000110) TO GET A
562                                     ; SCOPE LOOP AND HIT CONTINUE
563 001644 012737 000012 000010      1S:  MOV  #RESVEC+2,RESVEC          ; RESTORE RESERVED INSTRUCTION
564 001652 005037 000012              CLR  RESVEC+2                    ; TO HALT AT RESVEC+2
565 001656 010700                      SCOPE
566
567                                     ; *****
568                                     ; *TEST 6 TEST THAT A TRAP OCCURES FOR A "TRAP" INSTRUCTION
569                                     ; *****
570 001660 005237 000304              TST6: INC  @#STESTN
571 001664 012706 021774              MOV  #BUFF,%6                      ; STACK POINTER SETUP
572 001670 012737 001716 000034      MOV  #RETA1,TRAPVEC                ; LOAD TRAP VECTOR
573 001676 005037 000036              CLR  TRAPVEC+2
574 001702 104400                      TRAP                             ; DO A TRAP INSTRUCTION
575
576 001704 005212                      INC  (R2)                        ; SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
577 001706 012713 000010              MOV  #10,(R3)                     ; MOVE TO MAIL BOX ($FATAL) THE ERROR
578 001712 000000                      HLT
579 001714 000240                      LOOP
580                                     ; "TRAP" INSTRUCTION DID NOT TRAP
581                                     ; REPLACE THIS INSTRUCTION BY A
582 001716 010700                      RETA1: SCOPE                       ; "JMP 3RD" (000110) TO GET A
583                                     ; SCOPE LOOP AND HIT CONTINUE
584
585                                     ; *****
586                                     ; *TEST 7 TEST DECREMENT OF STACK POINTER ON A "TRAP" INSTRUCTION
587                                     ; *****
588 001720 005237 000304              TST7: INC  @#STESTN
589 001724 012706 021774              MOV  #BUFF,%6                      ; STACK POINTER SETUP
590 001730 012737 001740 000034      MOV  #RETB1,TRAPVEC                ; RETURN POINTER
591 001736 104400                      TRAP                             ; DO A TRAP INSTRUCTION
592 001740 020627 021770              RETB1: CMP  %6,#BUFF-4             ; TEST DECREMENT OF %6
593 001744 001405                      BEQ  1S

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T7 TEST DECREMENT OF STACK POINTER ON A "TRAP" INSTRUCTION

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593
594 001746 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
595 001750 012713 000011  MOV      #11,(R3)        ;MOVE TO MAIL BOX ($FATAL) THE ERROR
596 001754 000000          HLT                     ;STACK POINTER (R6) DID NOT DECREMENT
597                                     ;TWO WORDS WHEN "TRAP" TRAPPED
598 001756 000240          LOOP                    ;REPLACE THIS INSTRUCTION BY A
599                                     ;"JMP 2R0" (000110) TO GET A
600                                     ;SCOPE LOOP AND HIT CONTINUE
601 001760 010700          1$:  SCOPE
602
603          ;*****
604          ;*TEST 10 TEST THAT PROPER P.C. IS SAVED ON A "TRAP" INSTRUCTION
605          ;*****
606 001762 005237 000304    TST10: INC      @TESTN
607 001766 012706 021774    MOV      #BUFF,%6          ;STACK POINTER SETUP
608 001772 012737 002002 000034  MOV      #RETC1,TRAPVEC ;RETURN FROM TRAP POINTER
609 002000 104400          TRAP                    ;TRAP ON THIS INSTRUCTION
610 002002 022737 002002 021770  RETC1: CMP      #.,BUFF-4 ;CHECK INCREMENTED P.C.
611 002010 001405          BEQ      1$
612
613 002012 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
614 002014 012713 000012  MOV      #12,(R3)        ;MOVE TO MAIL BOX ($FATAL) THE ERROR
615 002020 000000          HLT                     ;WRONG "OLD" PC SAVED ON THE STACK
616                                     ;WHEN "TRAP" TRAPPED
617 002022 000240          LOOP                    ;REPLACE THIS INSTRUCTION BY A
618                                     ;"JMP 2R0" (000110) TO GET A
619                                     ;SCOPE LOOP AND HIT CONTINUE
620 002024 010700          1$:  SCOPE
621
622          ;*****
623          ;*TEST 11 TEST THAT "OLD" CC & PRIORITY ARE PLACED ON STACK, ON A "TRAP" TRAP
624          ;*****
625 002026 005237 000304    TST11: INC      @TESTN
626 002032 012706 021774    MOV      #BUFF,%6          ;SET UP
627 002036 012737 002052 000034  MOV      #RETD1,TRAPVEC ;SET UP
628 002044 005037 177776    CLR      CC              ;CLEAR CC AND PRIORITY
629 002050 104400          TRAP                    ;DO A TRAP INSTRUCTION
630 002052 013700 021772    RETD1: MOV      BUFF-2,%0    ;GET & TEST THE SAVED STATUS
631 002056 001405          BEQ      1$              ;BRANCH IF ALL 0'S
632
633 002060 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
634 002062 012713 000013  MOV      #13,(R3)        ;MOVE TO MAIL BOX ($FATAL) THE ERROR
635 002066 000000          HLT                     ;WRONG "OLD" PSW SAVED ON THE STACK
636                                     ;WHEN "TRAP" TRAPPED, EXPECT "0"
637 002070 000240          LOOP                    ;REPLACE THIS INSTRUCTION BY A
638                                     ;"JMP 2R0" (000110) TO GET A
639                                     ;SCOPE LOOP AND HIT CONTINUE
640 002072 010700          1$:  SCOPE
641
642 002074 012706 021774    MOV      #BUFF,%6          ;INITIALIZE THE STACK POINTER
643 002100 012737 002116 000034  MOV      #RETE1,TRAPVEC ;SET UP
644 002106 012737 000357 177776  MOV      #357,CC      ;PRE SET THE STATUS WORD
645 002114 104400          TRAP                    ;DO A TRAP INSTRUCTION
646 002116 013700 021772    RETE1: MOV      BUFF-2,%0    ;GET THE SAVED STATUS WORD
647 002122 022700 000357    CMP      #357,%0        ;WAS CORRECT STATUS SAVED ON THE STACK
648 002126 001405          BEQ      1$              ;BRANCH IF CORRECT

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T11 TEST THAT "OLD" CC & PRIORITY ARE PLACED ON STACK, ON A "TRAP" TRAP

649	002130	005212			INC	(R2)		; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
650	002132	012713	000014		MOV	#14, (R3)		; MOVE TO MAIL BOX (\$FATAL) THE ERROR
651	002136	000000			HLT			; WRONG "OLD" PSW SAVED ON THE STACK
652								; WHEN "TRAP" TRAPPED, EXPECT "357"
653	002140	000240			LOOP			; REPLACE THIS INSTRUCTION BY A
654								; "JMP 3RD" (000110) TO GET A
655								; SCOPE LOOP AND HIT CONTINUE
656	002142	010700			IS:	SCOPE		
657								
658								; *****
659								; *TEST 12 TEST THAT "NEW" STATUS IS CORRECT ON A "TRAP" TRAP
660								; *****
661	002144	005237	000304		TST12:	INC	#TESTN	
662	002150	012706	021774			MOV	#BUFF, %6	
663	002154	012737	002176	000034		MOV	#RETG1, TRAPVEC	
664	002162	005037	000036			CLR	TRAPVEC+2	
665	002166	012737	000357	177776		MOV	#357, CC	; CLEAR FUTURE PRIORITY AND CC
666	002174	104400				TRAP		; PRE SET THE STATUS WORD
667	002176	013700	177776		RETG1:	MOV	CC, %0	; GET THE 'NEW' STATUS WORD
668	002202	001405				BEQ	IS	; BRANCH IF ALL 0'S
669								
670	002204	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
671	002206	012713	000015			MOV	#15, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
672	002212	000000				HLT		; ERROR! INCORRECT 'NEW' PSW LOADED
673	002214	000240				LOOP		; REPLACE THIS INSTRUCTION BY A
674								; "JMP 3RD" (000110) TO GET A
675								; SCOPE LOOP AND HIT CONTINUE
676	002216	005037	177776		IS:	CLR	CC	; WHEN "TRAP" TRAPPED, EXPECT 0
677	002222	010700				SCOPE		
678								
679	002224	012706	021774			MOV	#BUFF, %6	
680	002230	012737	002252	000034		MOV	#RETG1, TRAPVEC	
681	002236	012737	000357	000036		MOV	#357, TRAPVEC+2	; LOAD 'NEW' STATUS WORD
682	002244	005037	177776			CLR	CC	; PRE SET THE STATUS WORD
683	002250	104400				TRAP		; DO A TRAP INSTRUCTION
684	002252	013700	177776		RETG1:	MOV	CC, %0	; GET THE 'NEW' STATUS
685	002256	022700	000357			CMP	#357, %0	; IS IT CORRECT?
686	002262	001405				BEQ	IS	; BRANCH IF CORRECT
687								
688	002264	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
689	002266	012713	000016			MOV	#16, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
690	002272	000000				HLT		; INCORRECT "NEW" PSW LOADED WHEN
691								; "TRAP" TRAPPED, EXPECT 357
692	002274	000240				LOOP		; REPLACE THIS INSTRUCTION BY A
693								; "JMP 3RD" (000110) TO GET A
694								; SCOPE LOOP AND HIT CONTINUE
695	002276	005037	177776		IS:	CLR	CC	
696	002302	010700				SCOPE		
697								
698								; *****
699								; *TEST 13 TEST THAT ALL COMBINATION OF "TRAP" WILL CAUSE A TRAP
700								; *****
701	002304	005237	000304		TST13:	INC	#TESTN	
702	002310	012737	104400	002330		MOV	#TRAP, R81	; INITIALIZE BASE TRAP INSTRUCTION
703	002316	012737	002344	000034		MOV	#RA1, 34	; RETURN FROM TRAP TO RA1
704	002324	012706	021774		RC1:	MOV	#BUFF, %6	; SET UP STACK POINTER

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T13 TEST THAT ALL COMBINATION OF "TRAP" WILL CAUSE A TRAP

705	002330	104400			RB1:	TRAP		;TRAP INST WILL BE MODIFIED TO TRAP+377
706								
707	002332	005212				INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
708	002334	012713	000017			MOV	#17, (R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
709	002340	000000				HLT		; "TRAP" INSTRUCTION HELD IN "RB1"
710								;FAILED TO TRAP
711	002342	000240				LOOP		;REPLACE THIS INSTRUCTION BY A
712								; "JMP 2RO" (00C110) TO GET A
713								;SCOPE LOOP AND HIT CONTINUE
714	002344	005237	002330		RA1:	INC	RB1	;INCREMENT TRAP INSTRUCTION
715	002350	022737	104777	002330		CMP	#104777, RB1	;TRAP+377 TO UPPER LIMIT
716	002356	103362				BHIS	RC1	;HAVE WE TESTED ALL
717								;YES
718								
719	002360	012737	000036	000034		MOV	#36, TRAPVEC	;RESTORE TRAP VECTOR TO
720	002366	005037	000036			CLR	TRAPVEC+2	;HALT AT 36
721	002372	010700				SCOPE		

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T14 TEST THAT A TRAP OCCURES ON AN "IOT" INSTRUCTION

```

722 ;*****
723 ;*TEST 14 TEST THAT A TRAP OCCURES ON AN "IOT" INSTRUCTION
724 ;*****
725 002374 005237 000304 TST14: INC 2*STESTN
726 002400 012706 021774 MOV 8*BUFF,%6 ;STACK POINTER SETUP
727 002404 012737 002432 000020 MOV 8*RETA2,IOTVEC ;RETURN LOCATION
728 002412 005037 000022 CLR IOTVEC+2
729 002416 000004 IOT
730
731 002420 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
732 002422 012713 000020 MOV 20,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
733 002426 000000 HLT ;"IOT" INSTRUCTION FAILED TO TRAP
734 002430 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
735 ;"JMP 2RD" (000110) TO GET A
736 ;SCOPE LOOP AND HIT CONTINUE
737 002432 010700 RETA2: SCOPE
738
739 ;*****
740 ;*TEST 15 TEST DECREMENT OF STACK POINTER ON AN "IOT" TRAP
741 ;*****
742 002434 005237 000304 TST15: INC 2*STESTN
743 002440 012706 021774 MOV 8*BUFF,%6 ;STACK POINTER SETUP
744 002444 012737 002454 000020 MOV 8*RETB2,IOTVEC ;RETURN POINTER
745 002452 000004 IOT
746 002454 020627 021770 RETB2: CMP %6,8*BUFF-4 ;TEST DECREMENT OF %6
747 002460 001405 BEQ 1$
748
749 002462 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
750 002464 012713 000021 MOV 21,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
751 002470 000000 HLT ;STACK POINTER DID NOT DECREMENT BY
752 ;TWO WORDS ON AN "IOT" TRAP
753 002472 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
754 ;"JMP 2RD" (000110) TO GET A
755 ;SCOPE LOOP AND HIT CONTINUE
756 002474 010700 1$: SCOPE
757
758 ;*****
759 ;*TEST 16 TEST THAT PROPER P.C. IS SAVED ON AN "IOT" TRAP
760 ;*****
761 002476 005237 000304 TST16: INC 2*STESTN
762 002502 012706 021774 MOV 8*BUFF,%6 ;STACK POINTER SETUP
763 002506 012737 002516 000020 MOV 8*RETC2,IOTVEC ;RETURN FROM TRAP: POINTER
764 002514 000004 IOT ;TRAP ON THIS INSTRUCTION
765 002516 022737 002516 021770 RETC2: CMP 8,8*BUFF-4 ;CHECK FOR INCREMENTED P.C.
766 002524 001405 BEQ 1$
767
768 002526 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
769 002530 012713 000022 MOV 22,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
770 002534 000000 HLT ;WRONG "OLD" PC WAS SAVED ON
771 ;STACK WHEN "IOT" TRAPPED
772 002536 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
773 ;"JMP 2RD" (000110) TO GET A
774 ;SCOPE LOOP AND HIT CONTINUE
775 002540 010700 1$: SCOPE
776
777 ;*****

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T17 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK, ON AN "IOT" TRAP

```

778 ;*TEST 17 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK, ON AN "IOT" TRAP
779 ;*****
780 002542 005237 000304 TST17: INC 2*STESTN
781 002546 012706 021774 MOV #BUFF,%6 ;SET UP
782 002552 012737 002566 000020 MOV #RET2,IOTVEC ;SET UP
783 002560 005037 177776 CLR CC ;CLEAR CC AND PRIORITY
784 002564 000004 IOT TRAP
785 002566 013700 021772 RETD2: MOV BUFF-2,%0 ;GET & TEST SAVED STATUS
786 002572 001405 BEQ IS
787
788 002574 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
789 002576 012713 000023 MOV #23,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
790 002602 000000 HLT ;WRONG "OLD" PSW SAVED ON STACK
791 ;WHEN "IOT" TRAPPED, EXPECT 0
792 002604 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
793 ;"JMP 2R0" (000110) TO GET A
794 ;SCOPE LOOP AND HIT CONTINUE
795 002606 010700 IS: SCOPE
796
797 002610 012706 021774 MOV #BUFF,%6 ;SET UP
798 002614 012737 002632 000020 MOV #RETE2,IOTVEC ;SET UP
799 002622 012737 000357 177776 MOV #357,CC ;PRE SET STATUS
800 002630 000004 IOT
801 002632 013700 021772 RETE2: MOV BUFF-2,%0 ;GET SAVED STATUS
802 002636 022700 000357 CMP #357,%0 ;SAVED STATUS CORRECT?
803 002642 001404 BEQ IS ;BRANCH IF CORRECT
804
805 002644 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
806 002646 012713 000024 MOV #24,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
807 002652 000000 HLT ;WRONG "OLD" PSW SAVED ON STACK
808 ;WHEN "IOT" TRAPPED, EXPECT 357
809 002654 000240 IS: LOOP ;REPLACE THIS INSTRUCTION BY A
810 ;"JMP 2R0" (000110) TO GET A
811 ;SCOPE LOOP AND HIT CONTINUE
812 002656 010700 SCOPE
813
814 ;*****
815 ;*TEST 20 TEST THAT "NEW" STATUS IS CORRECT ON AN "IOT" TRAP
816 ;*****
817 002660 005237 000304 TST20: INC 2*STESTN
818 002664 012706 021774 MOV #BUFF,%6
819 002670 012737 002712 000020 MOV #RETF2,IOTVEC
820 002676 005037 000022 CLR IOTVEC+2 ;CLEAR FUTURE PRIORITY AND CC
821 002702 012737 030357 177776 MOV #30357,CC ;PRE SET STATUS
822 002710 000004 IOT
823 002712 013700 177776 RETF2: MOV CC,%0 ;GET & TEST 'NEW' STATUS
824 002716 001405 BEQ IS ;BRANCH IF CORRECT
825
826 002720 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
827 002722 012713 000025 MOV #25,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
828 002726 000000 HLT ;WRONG "NEW" PSW LOADED WHEN
829 ;"IOT" TRAPPED, EXPECT 0
830 002730 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
831 ;"JMP 2R0" (000110) TO GET A
832 ;SCOPE LOOP AND HIT CONTINUE
833 002732 005037 177776 IS: CLR CC

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T20 TEST THAT "NEW" STATUS IS CORRECT ON AN "IOT" TRAP

834	002736	010700			SCOPE	
835						
836	002740	012706	021774		MOV	#BUFF,%6
837	002744	012737	002766	000020	MOV	#RETG2,IOTVEC
838	002752	012737	000357	000022	MOV	#357,IOTVEC+2
839	002760	005037	177776		CLR	CC
840	002764	000004			IOT	
841	002766	013700	177776		RETG2: MOV	CC,%0
842	002772	022700	000357		CMP	#357,%0
843	002776	001405			BEQ	1\$
844						
845	003000	005212			INC	(R2)
846	003002	012713	000026		MOV	#26,(R3)
847	003006	000000			HLT	
848						
849	003010	000240			LOOP	
850						
851						
852	003012				1\$:	
853						
854	003012	012737	000022	000020	MOV	#22,IOTVEC
855	003020	005037	000022		CLR	IOTVEC+2
856	003024	010700			SCOPE	

;LOAD 'NEW' STATUS
;PRE SET STATUS
;GET THE 'NEW' STATUS
;IS 'NEW' STATUS CORRECT
;BRANCH IF CORRECT
;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
;MOVE TO MAIL BOX (\$FATAL) THE ERROR
;WRONG "NEW" PSW LOADED WHEN
;"IOT" TRAPPED, EXPECT 357
;REPLACE THIS INSTRUCTION BY A
;"JMP 2RD" (000110) TO GET A
;SCOPE LOOP AND HIT CONTINUE
;RESTORE IOT TRAP VECTOR
;TO HALT AT 22

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T21 TEST THAT A TRAP OCCURS ON AN "ENT" INSTRUCTION

```

857      ;*****
858      ;*TEST 21 TEST THAT A TRAP OCCURS ON AN "ENT" INSTRUCTION
859      ;*****
860      003026 005237 000304      TST21: INC      2*STESTN
861      003032 012706 021774      MOV      #BUFF,%6      ;STACK POINTER SETUP
862      003036 012737 003064      MOV      #RETA3,ENTVEC      ;RETURN LOCATION
863      003044 005037 000032      CLR      ENTVEC+2
864      003050 104000
865
866      003052 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
867      003054 012713 000027      MOV      #27,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
868      003060 000000      HLT
869      003062 000240      LOOP      ;"ENT" FAILED TO TRAP
870      ;REPLACE THIS INSTRUCTION BY A
871      ;"JMP 2R0" (000110) TO GET A
872      003064 010700      RETA3: SCOPE      ;SCOPE LOOP AND HIT CONTINUE
873
874      ;*****
875      ;*TEST 22 TEST DECREMENT OF STACK POINTER ON A "ENT" TRAP
876      ;*****
877      003066 005237 000304      TST22: INC      2*STESTN
878      003072 012706 021774      MOV      #BUFF,%6      ;STACK POINTER SETUP
879      003076 012737 003106      MOV      #RETB3,ENTVEC      ;RETURN POINTER
880      003104 104000      EMT
881      003106 020627 021770      RETB3: CMP      %6,#BUFF-4      ;TEST DECREMENT OF %6
882      003112 001405      BEQ      1$
883
884      003114 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
885      003116 012713 000030      MOV      #30,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
886      003122 000000      HLT      ;STACK POINTER DID NOT DECREMENT BY
887      ;TWO WORDS ON "ENT" TRAP
888      003124 000240      LOOP      ;REPLACE THIS INSTRUCTION BY A
889      ;"JMP 2R0" (000110) TO GET A
890      ;SCOPE LOOP AND HIT CONTINUE
891      003126 010700      1$: SCOPE
892
893      ;*****
894      ;*TEST 23 TEST THAT PROPER P.C IS SAVED ON A "ENT" TRAP
895      ;*****
896      003130 005237 000304      TST23: INC      2*STESTN
897      003134 012706 021774      MOV      #BUFF,%6      ;STACK POINTER SETUP
898      003140 012737 003150      MOV      #RETC3,ENTVEC      ;RETURN FROM TRAP POINTER
899      003146 104000      EMT      ;TRAP ON THIS INSTRUCTION
900      003150 022737 003150      RETC3: CMP      #.,BUFF-4      ;CHECK FOR INCREMENTED P.C.
901      003156 001405      BEQ      1$
902
903      003160 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
904      003162 012713 000031      MOV      #31,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
905      003166 000000      HLT      ;WRONG "OLD" PC SAVED ON STACK
906      ;ON "ENT" TRAP
907      003170 000240      LOOP      ;REPLACE THIS INSTRUCTION BY A
908      ;"JMP 2R0" (000110) TO GET A
909      ;SCOPE LOOP AND HIT CONTINUE
910      003172 010700      1$: SCOPE
911
912      ;*****

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T24 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK ON A "EMT" TRAP

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913 ;*TEST 24 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK ON A "EMT" TRAP
914 ;*****
915 003174 005237 000304 TST24: INC @TESTN
916 003200 012706 021774 MOV #BUFF,%6 ;SET UP
917 003204 012737 003220 000030 MOV #RETD3,EMTVEC ;SET UP
918 005212 005037 177776 CLR CC ;CLEAR CC AND PRIORITY
919 003216 104000 EMT TRAP
920 003220 013700 021772 RETD3: MOV BUFF-2,%0 ;GET THE SAVED STATUS,
921 003224 001405 BEQ IS ;BRANCH IF SAVED STATUS IS CORRECT
922
923 003226 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
924 003230 012713 000032 MOV #32,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
925 003234 000000 HLT ;WRONG "OLD" PSW SAVED ON
926 ;STACK ON "EMT" TRAP, EXPECT 0
927 003236 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
928 ;"JMP @R0" (000110) TO GET A
929 ;SCOPE LOOP AND HIT CONTINUE
930 003240 010700 IS: SCOPE
931
932 003242 012706 021774 MOV #BUFF,%6 ;SET UP
933 003246 012737 003264 000030 MOV #RETE3,EMTVEC ;SET UP
934 003254 012737 000357 177776 MOV #357,CC ;PRE SET STATUS
935 003262 104000 EMT
936 003264 013700 021772 RETE3: MOV BUFF-2,%0 ;GET THE SAVED STATUS
937 003270 022700 000357 CMP #357,%0 ;SAVED STATUS CORRECT?
938 003274 001405 BEQ IS ;BRANCH IF CORRECT
939
940 003276 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
941 003300 012713 000033 MOV #33,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
942 003304 000000 HLT ;WRONG "OLD" PSW SAVED ON STACK
943 ;ON "EMT" TRAP, EXPECT 357
944 003306 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
945 ;"JMP @R0" (000110) TO GET A
946 ;SCOPE LOOP AND HIT CONTINUE
947 003310 010700 IS: SCOPE
948
949 ;*****
950 ;*TEST 25 TEST THAT "NEW" STATUS IS CORRECT ON A "EMT" TRAP
951 ;*****
952 003312 005237 000304 TST25: INC @TESTN
953 003316 012706 021774 MOV #BUFF,%6
954 003322 012737 003344 000030 MOV #RETF3,EMTVEC
955 003330 005037 000032 CLR EMTVEC+2 ;CLEAR FUTURE PRIORITY AND CC
956 003334 012737 000357 177776 MOV #357,CC ;PRE SET THE STATUS WORD
957 003342 104000 EMT
958 003344 013700 177776 RETF3: MOV CC,%0 ;GET THE 'NEW' STATUS
959 003350 001405 BEQ IS ;BRANCH IF 'NEW' STATUS IS CORRECT
960
961 003352 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
962 003354 012713 000034 MOV #34,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
963 003360 000000 HLT ;WRONG "NEW" PSW LOADED ON
964 ;"EMT" TRAP, EXPECT 0
965 003362 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
966 ;"JMP @R0" (000110) TO GET A
967 ;SCOPE LOOP AND HIT CONTINUE
968 003364 010700 IS: SCOPE

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969
970 003366 012706 021774      MOV      #BUFF,%6
971 003372 012737 003414 000030  MOV      #RETG3,EMTVEC
972 003400 012737 000357 000032  MOV      #357,EMTVEC+2
973 003406 005037 177776      CLR      CC
974 003412 104000      EMT
975 003414 013700 177776      RETG3: MOV      CC,%0
976 003420 022700 000357      CMP      #357,%0
977 003424 001405      BEQ      1$
978
979 003426 005212      INC      (R2)
980 003430 012713 000035      MOV      #35,(R3)
981 003434 000000      HLT
982
983 003436 000240      LOOP
984
985
986 003440 010700      1$:  SCOPE
987
988
989
990
991 003442 005237 000304      TST26: INC      #TESTN
992 003446 012737 104000 003466  MOV      #EMT,RB
993 003454 012737 003502 000030  MOV      #RA,30
994 003462 012706 021774      RC:  MOV      #BUFF,%6
995 003466 104000      RB:  EMT
996
997 003470 005212      INC      (R2)
998 003472 012713 000036      MOV      #36,(R3)
999 003476 000000      HLT
1000
1001 003500 000240      LOOP
1002
1003
1004 003502 005237 003466      RA:  INC      RB
1005 003506 022737 104377 003466  CMP      #104377,RB
1006 003514 103362      BHS      RC
1007
1008 003516 012737 000032 000030  MOV      #32,EMTVEC
1009 003524 005037 000032      CLR      EMTVEC+2
1010 003530 010700      SCOPE

```

;LOAD 'NEW' STATUS
 ;PRE SET THE STATUS
 ;GET THE 'NEW' STATUS
 ;IS IT CORRECT
 ;BRANCH IF CORRECT
 ;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
 ;MOVE TO MAIL BOX (\$FATAL) THE ERROR
 ;WRONG "NEW" PSW LOADED ON
 ;"EMT" TRAP, EXPECT 0
 ;REPLACE THIS INSTRUCTION BY A
 ;"JMP 3RD" (000110) TO GET A
 ;SCOPE LOOP AND HIT CONTINUE
 ;*****
 ;*TEST 26 TEST THAT ALL COMBINATION OF EMT WILL CAUSE A TRAP
 ;*****
 ;INITIALIZE BASE EMT INSTRUCTION
 ;RETURN FROM TRAP TO RA
 ;SET UP STACK POINTER
 ;TRAP INST, WILL BE MODIFIED TO EMT+377
 ;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
 ;MOVE TO MAIL BOX (\$FATAL) THE ERROR
 ;"EMT" INSTR. CONTAINED IN "RB" ABOVE,
 ;FAILED TO TRAP
 ;REPLACE THIS INSTRUCTION BY A
 ;"JMP 3RD" (000110) TO GET A
 ;SCOPE LOOP AND HIT CONTINUE
 ;INCREMENT TRAP INSTRUCTION
 ;EMT+377 TO EMT'
 ;HAVE WE TESTED ALL
 ;YES
 ;RESTORE EMT TRAP TO HALT
 ;AT 32

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T26 TEST THAT ALL COMBINATION OF EMT WILL CAUSE A TRAP

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1011
1012
1013
1014
1015 003532 005237 000304
1016 003536 012706 021774
1017 003542 012737 003570 000014
1018 003550 005037 000016
1019 003554 000003
1020
1021 003556 005212
1022 003560 012713 000037
1023 003564 000000
1024 003566 000240
1025
1026
1027 003570 010700
1028
1029
1030
1031
1032 003572 005237 000304
1033 003576 012706 021774
1034 003602 012737 003612 000014
1035 003610 000003
1036 003612 020627 021770
1037 003616 001405
1038
1039 003620 005212
1040 003622 012713 000040
1041 003626 000000
1042
1043 003630 000240
1044
1045
1046 003632 010700
1047
1048
1049
1050
1051 003634 005237 000304
1052 003640 012706 021774
1053 003644 012737 003654 000014
1054 003652 000003
1055 003654 022737 003654 021770
1056 003662 001405
1057
1058 003664 005212
1059 003666 012713 000041
1060 003672 000000
1061
1062 003674 000240
1063
1064
1065 003676 010700
1066

;*****
;TEST 27 TEST THAT A TRAP OCCURS ON A "BPT" (TRACE TRAP)
;*****
TST27: INC 2*STESTN
MOV 8*BUFF,%6 ;STACK POINTER SETUP
MOV 8*RETA4,BPTVEC ;RETURN LOCATION
CLR BPTVEC+2
BPT ;TRACE TRAP

INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
MOV 8*37,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
HLT
LOOP ;REPLACE THIS INSTRUCTION BY A
; "JMP 2RD" (000110) TO GET A
; SCOPE LOOP AND HIT CONTINUE
; "BPT" FAILED TO TRAP

RETA4: SCOPE

;*****
;TEST 30 TEST DECREMENT OF STACK POINTER ON A "BPT" TRAP
;*****
TST30: INC 2*STESTN
MOV 8*BUFF,%6 ;STACK POINTER SETUP
MOV 8*RETB4,BPTVEC ;RETURN POINTER
BPT ;RESERVED INSTRUCTION
RETB4: CMP %6,8*BUFF-4 ;TEST DECREMENT OF %6
BEQ 1$

INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
MOV 8*40,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
HLT ;STACK POINTER DID NOT DECREMENT BY 2
;WORDS ON "BPT" TRAP
LOOP ;REPLACE THIS INSTRUCTION BY A
; "JMP 2RD" (000110) TO GET A
; SCOPE LOOP AND HIT CONTINUE

1$: SCOPE

;*****
;TEST 31 TEST THAT PROPER P.C. IS SAVED ON A "BPT" TRAP
;*****
TST31: INC 2*STESTN
MOV 8*BUFF,%6 ;STACK POINTER SETUP
MOV 8*RETC4,BPTVEC ;RETURN FROM TRAP POINTER
BPT ;TRAP ON THIS INSTRUCTION
RETC4: CMP 8*,8*BUFF-4 ;CHECK FOR INCREMENTED P.C.
BEQ 1$

INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
MOV 8*41,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
HLT ;WRONG "OLD" PC SAVED ON STACK
;ON "BPT" TRAP
LOOP ;REPLACE THIS INSTRUCTION BY A
; "JMP 2RD" (000110) TO GET A
; SCOPE LOOP AND HIT CONTINUE

1$: SCOPE

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T32 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK ON A "BPT" TRAP

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1067 ;*****
1068 ;*TEST 32 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK ON A "BPT" TRAP
1069 ;*****
1070 003700 005237 000304 TST32: INC 2*STESTN
1071 003704 012706 021774 MOV #BUFF,%6 ;SET UP
1072 003710 012737 003724 000014 MOV #RETD4,BPTVEC ;LOAD VECTOR
1073 003716 005037 177776 CLR CC ;CLEAR CC AND PRIORITY
1074 003722 000003 BPT
1075 003724 013700 021772 RETD4: MOV BUFF-2,%0 ;GET SAVED STATUS OFF STACK
1076 003730 001405 BEQ 15 ;BRANCH IF ALL 0'S
1077
1078 003732 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1079 003734 012713 000042 MOV #42,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1080 003740 000000 HLT ;WRONG "OLD" PSW SAVED ON STACK
1081 ;ON "BPT" TRAP, EXPECT 0
1082 003742 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1083 ;"JMP 2R0" (000110) TO GET A
1084 ;SCOPE LOOP AND HIT CONTINUE
1085 003744 010700 15: SCOPE
1086
1087 003746 012706 021774 MOV #BUFF,%6 ;SET UP
1088 003752 012737 003770 000014 MOV #RETE4,BPTVEC ;SET UP
1089 003760 012737 000357 177776 MOV #357,CC ;PRE SET STATUS
1090 003766 000003 BPT
1091 003770 013700 021772 RETE4: MOV BUFF-2,%0 ;GET THE SAVED STATUS
1092 003774 022700 000357 CMP #357,%0 ;IS IT CORRECT?
1093 004000 001405 BEQ 15 ;BRANCH IF CORRECT
1094
1095 004002 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1096 004004 012713 000043 MOV #43,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1097 004010 000000 HLT ;WRONG "OLD" PSW SAVED ON STACK
1098 ;ON "BPT" TRAP, EXPECT 357
1099 004012 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1100 ;"JMP 2R0" (000110) TO GET A
1101 ;SCOPE LOOP AND HIT CONTINUE
1102 004014 010700 15: SCOPE
1103
1104 ;*****
1105 ;*TEST 33 TEST THAT "NEW" STATUS IS CORRECT ON A "BPT" TRAP
1106 ;*****
1107 004016 005237 000304 TST33: INC 2*STESTN
1108 004022 012706 021774 MOV #BUFF,%6
1109 004026 012737 004050 000014 MOV #RETF4,BPTVEC
1110 004034 005037 000016 CLR BPTVEC+2 ;CLEAR FUTURE PRIORITY AND CC
1111 004040 012737 000357 177776 MOV #357,CC ;PRE SET STATUS
1112 004046 000003 BPT
1113 004050 013700 177776 RETF4: MOV CC,%0 ;GET & TEST 'NEW' STATUS
1114 004054 001405 BEQ 15 ;BRANCH IF ALL 0'S
1115
1116 004056 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1117 004060 012713 000044 MOV #44,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1118 004064 000000 HLT ;WRONG "NEW" PSW LOADED ON
1119 ;"BPT" TRAP, EXPECT 0
1120 004066 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1121 ;"JMP 2R0" (000110) TO GET A
1122 ;SCOPE LOOP AND HIT CONTINUE

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ADDRESS	HEX	HEX	HEX	HEX	ASSEMBLY	REMARKS
1123	004070	005037	177776		IS: CLR CC	
1124	004074	010700			SCOPE	
1125						
1126	004076	012706	021774		MOV #BUFF,%6	
1127	004102	012737	004124	000014	MOV #RETG4,BPTVEC	
1128	004110	012737	000357	000016	MOV #357,BPTVEC+2	;LOAD 'NEW' STATUS
1129	004116	005037	177776		CLR CC	;PRE SET STATUS
1130	004122	000003			BPT	
1131	004124	013700	177776		RETG4: MOV CC,%0	;GET THE 'NEW' STATUS
1132	004130	022700	000357		CMP #357,%0	;IS IT CORRECT
1133	004134	001405			BEQ IS	;BRANCH IF CORRECT
1134						
1135	004136	005212			INC (R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1136	004140	012713	000045		MOV #45,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE F.ERROR
1137	004144	000000			HLT	;WRONG "NEW" PSW LOADED ON
1138						; "BPT" TRAP, EXPECT 357
1139	004146	000240			LOOP	;REPLACE THIS INSTRUCTION BY A
1140						; "JMP 3R0" (000110) TO GET A
1141						;SCOPE LOOP AND HIT CONTINUE
1142	004150	005037	177776		IS: CLR CC	
1143						
1144	004154	012737	000016	000014	MOV #16,BPTVEC	;RESTORE 'TRT' TRAP
1145	004162	005037	000016		CLR 16	;TO HALT AT 16
1146	004166	010700			SCOPE	
1147						

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T33 TEST THAT "NEW" STATUS IS CORRECT ON A "BPT" TRAP

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1148
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1150
1151
1152 004170 005237 000304 TST34: INC 2*STESTN
1153 004174 012706 021774 MOV #BUFF,%6 ;STACK POINTER SETUP
1154 004200 012737 004226 000004 MOV #RETAS,ERRVEC ;RETURN LOCATION
1155 004206 005037 000006 CLR ERRVEC+2
Z 1156 004212 000100 JMP %0 ;ILLEGAL INSTRUCTION, SHOULD TRAP
1157
1158 004214 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1159 004216 012713 000046 MOV #46,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1160 004222 000000 HLT ;ILLEGAL INSTR. DID NOT TRAP
1161 004224 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1162 ;"JMP 2R0" (000110) TO GET A
1163 ;SCOPE LOOP AND HIT CONTINUE
1164 004226 010700 RETAS: SCOPE
1165
1166
1167
1168
1169 004230 005237 000304 TST35: INC 2*STESTN
1170 004234 012706 021774 MOV #BUFF,%6 ;STACK POINTER SETUP
1171 004240 012737 004250 000004 MOV #RETS,ERRVEC ;RETURN POINTER
Z 1172 004246 000100 JMP %0 ;RESERVED INSTRUCTION
1173 004250 020627 021770 RETS: CMP %6,#BUFF-4 ;TEST DECREMENT OF %6
1174 004254 001405 BEQ 1$
1175
1176 004256 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1177 004260 012713 000047 MOV #47,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1178 004264 000000 HLT ;STACK POINTER DID NOT DECREMENT
1179 ;BY TWO WORDS ON ILLEGAL INSTR. TRAP
1180 004266 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1181 ;"JMP 2R0" (000110) TO GET A
1182 ;SCOPE LOOP AND HIT CONTINUE
1183 004270 010700 1$: SCOPE
1184
1185
1186
1187
1188 004272 005237 000304 TST36: INC 2*STESTN
1189 004276 012706 021774 MOV #BUFF,%6 ;STACK POINTER SETUP
1190 004302 012737 004312 000004 MOV #RETC5,ERRVEC ;RETURN FROM TRAP POINTER
Z 1191 004310 000100 JMP %0 ;TRAP ON THIS INSTRUCTION
1192 004312 022737 004312 021770 RETC5: CMP #.,BUFF-4 ;CHECK FOR INCREMENTED P.C.
1193 004320 001405 BEQ 1$
1194
1195 004322 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1196 004324 012713 000050 MOV #50,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1197 004330 000000 HLT ;WRONG "OLD" PC SAVED ON STACK
1198 ;ON ILLEGAL INSTR. TRAP
1199 004332 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1200 ;"JMP 2R0" (000110) TO GET A
1201 ;SCOPE LOOP AND HIT CONTINUE
1202 004334 010700 1$: SCOPE
1203

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N02

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T37 TEST THAT "OLD" CC AND PRIORITY ARE SAVED ON AN ILLEGAL INSTR. TRAP

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1204 ;*****
1205 ;*TEST 37 TEST THAT "OLD" CC AND PRIORITY ARE SAVED ON AN ILLEGAL INSTR. TRAP
1206 ;*****
1207 004336 005237 000304 TST37: INC 2*STESTN
1208 004342 012706 021774 MOV #BUFF,%6 ;SET UP
1209 004346 012737 004362 000004 MOV #RETDS,ERRVEC ;SET UP
1210 004354 005037 177776 CLR CC ;CLEAR CC AND PRIORITY
1211 004360 000100 JMP %0 ;TRAP
1212 004362 013700 021772 RETDS: MOV BUFF-2,%0 ;GET THE SAVED STATUS
1213 004366 001405 BEQ 1$ ;BRANCH IF ALL 0'S
1214
1215 004370 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1216 004372 012713 000051 MOV #51,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1217 004376 000000 HLT ;ERROR! SAVED PSW IS INCORRECT
1218 ;ON ILLEGAL INSTR. TRAP, EXPECT 0
1219 004400 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1220 ;"JMP 2RD" (000110) TO GET A
1221 ;SCOPE LOOP AND HIT CONTINUE
1222 004402 010700 1$: SCOPE
1223
1224 004404 012706 021774 MOV #BUFF,%6 ;SET UP
1225 004410 012737 004426 000004 MOV #RETES,ERRVEC ;SET UP
1226 004416 012737 000357 177776 MOV #357,CC ;PRE SET STATUS
1227 004424 000101 JMP %1
1228 004426 013700 021772 RETES: MOV BUFF-2,%0 ;GET THE SAVED STATUS
1229 004432 022700 000357 CMP #357,%0 ;IS IT CORRECT
1230 004436 001405 BEQ 1$ ;BRANCH IF SAVED STATUS IS CORRECT
1231
1232 004440 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1233 004442 012713 000052 MOV #52,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1234 004446 000000 HLT ;ERROR! SAVED PSW IS INCORRECT
1235 ;ON ILLEGAL INSTR. TRAP, EXPECT 357
1236 004450 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1237 ;"JMP 2RD" (000110) TO GET A
1238 ;SCOPE LOOP AND HIT CONTINUE
1239 004452 010700 1$: SCOPE
1240
1241 ;*****
1242 ;*TEST 40 TEST THAT "NEW" STATUS IS CORRECT ON AN ILLEGAL INSTR. TRAP
1243 ;*****
1244 004454 005237 000304 TST40: INC 2*STESTN
1245 004460 012706 021774 MOV #BUFF,%6
1246 004464 012737 004506 000004 MOV #RETF5,ERRVEC
1247 004472 005037 000006 CLR ERRVEC+2 ;CLEAR FUTURE PRIORITY AND CC
1248 004476 012737 000357 177776 MOV #357,CC ;PRE SET STATUS
1249 004504 000100 JMP %0
1250 004506 013700 177776 RETF5: MOV CC,%0 ;GET & TEST 'NEW' STATUS
1251 004512 001405 BEQ 1$
1252
1253 004514 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1254 004516 012713 000053 MOV #53,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1255 004522 000000 HLT ;ERROR! 'NEW' PSW IS INCORRECT
1256 ;ON ILLEGAL INSTR. TRAP, EXPECT 0
1257 004524 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1258 ;"JMP 2RD" (000110) TO GET A
1259 ;SCOPE LOOP AND HIT CONTINUE

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T40 TEST THAT "NEW" STATUS IS CORRECT ON AN ILLEGAL INSTR. TRAP

1260	004526	005037	177776	15:	CLR	CC	
1261	004532	010700			SCOPE		
1262							
1263	004534	012706	021774		MOV	#BUFF,%6	
1264	004540	012737	004562	000004	MOV	#RETGS,ERRVEC	
1265	004546	012737	000357	000006	MOV	#357,ERRVEC+2	;LOAD 'NEW' STATUS
1266	004554	005037	177776		CLR	CC	;PRE SET STATUS
Z 1267	004560	000100			JMP	%0	
1268	004562	013700	177776	RETGS:	MOV	CC,%0	;GET THE 'NEW' STATUS
1269	004566	022700	000357		CMP	#357,%0	;IS IT CORRECT
1270	004572	001405			BEQ	15	;BRANCH IF CORRECT
1271							
1272	004574	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1273	004576	012713	000054		MOV	#54,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1274	004602	000000			HLT		;ERROR! 'NEW' STATUS IS INCORRECT
1275							;ON ILLEGAL INSTR. TRAP, EXPECT 357
1276	004604	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
1277							;JMP 200 (000110) TO GET A
1278							;SCOPE LOOP AND HIT CONTINUE
1279	004606	005037	177776	15:	CLR	CC	
1280	004612	010700			SCOPE		

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T40 TEST THAT "NEW" STATUS IS CORRECT ON AN ILLEGAL INSTR. TRAP

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1284
1285 004614 005237 000304
1286 004620 012706 021774
1287 004624 012737 004652 000004
1288 004632 005037 000006
Z 1289 004636 004000
1290
1291 004640 005212
1292 004642 012713 000055
1293 004646 000000
1294 004650 000240
1295
1296
1297 004652 010700
1298
1299
1300 004654 012706 021774
1301 004660 012737 004670 000004
Z 1302 004666 004000
1303 004670 020627 021770
1304 004674 001405
1305
1306 004676 005212
1307 004700 012713 000056
1308 004704 000000
1309
1310 004706 000240
1311
1312
1313 004710 010700
1314
1315
1316
1317
1318 004712 005237 000304
1319 004716 012706 021774
1320 004722 012737 004732 000004
Z 1321 004730 004000
1322 004732 022737 004732 021770
1323 004740 001405
1324
1325 004742 005212
1326 004744 012713 000057
1327 004750 000000
1328
1329 004752 000240
1330
1331
1332 004754 010700
1333
1334
1335
1336

;*****
;TEST 41 TEST THAT A TRAP OCCURS ON ALL ILLEGAL INSTRUCTION - JSR R0,R0
;*****
TST41: INC @TESTN
MOV @BUFF,%6 ;STACK POINTER SETUP
MOV @RETH5,ERRVEC ;RETURN LOCATION
CLR ERRVEC+2
JSR %0,%0 ;ILLEGAL INSTRUCTION (SHOULD TRAP)

INC (R2) ;SET MESSAGE TYPE (MSGTY) TO FATAL ERROR
MOV #55,(R3) ;MOVE TO MAIL BOX (SFATAL) THE ERROR
HLT ;ILLEGAL INSTRUCTION FAILED TO TRAP
LOOP ;REPLACE THIS INSTRUCTION BY A
; "JMP @R0" (000110) TO GET A
; SCOPE LOOP AND HIT CONTINUE

RETH5: SCOPE
;TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
MOV @BUFF,%6 ;STACK POINTER SETUP
MOV @RETH5,ERRVEC ;RETURN POINTER
JSR %0,%0 ;RESERVED INSTRUCTION
RETJ: CMP %6,@BUFF-4 ;TEST DECREMENT OF %6
BEQ 1$

INC (R2) ;SET MESSAGE TYPE (MSGTY) TO FATAL ERROR
MOV #56,(R3) ;MOVE TO MAIL BOX (SFATAL) THE ERROR
HLT ;R6 DID NOT DECREMENT BY 2 WORDS
; ON ILLEGAL INSTR. TRAP
; REPLACE THIS INSTRUCTION BY A
; "JMP @R0" (000110) TO GET A
; SCOPE LOOP AND HIT CONTINUE

1$: SCOPE

;*****
;TEST 42 TEST THAT PROPER P.C. IS SAVED ON AN ILLEGAL INSTR. TRAP
;*****
TST42: INC @TESTN
MOV @BUFF,%6 ;STACK POINTER SETUP
MOV @RETK,ERRVEC ;RETURN FROM TRAP POINTER
JSR %0,%0 ;TRAP ON THIS INSTRUCTION
RETK: CMP @INSTK+2,BUFF-4 ;CHECK FOR INCREMENTED P.C.
BEQ 1$

INC (R2) ;SET MESSAGE TYPE (MSGTY) TO FATAL ERROR
MOV #57,(R3) ;MOVE TO MAIL BOX (SFATAL) THE ERROR
HLT ;WRONG "OLD" PC SAVED ON STACK
; ON ILLEGAL INSTR. TRAP
; REPLACE THIS INSTRUCTION BY A
; "JMP @R0" (000110) TO GET A
; SCOPE LOOP AND HIT CONTINUE

1$: SCOPE

;*****
;TEST 43 TEST THAT "OLD" CC AND PRIORITY ARE SAVED ON AN ILLEGAL INSTR. TRAP
;*****

```

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T43 TEST THAT "OLD" CC AND PRIORITY ARE SAVED ON AN ILLEGAL INSTR. TRAP

1337	004756	005237	000304		TST43:	INC	2*STESTN	
1338	004762	012706	021774			MOV	#BUFF,%6	;SET UP
1339	004766	012737	005002	000004		MOV	#RETL,ERRVEC	;SET UP
1340	004774	005037	177776			CLR	CC	;CLEAR CC AND PRIORITY
Z 1341	005000	004000				JSR	%0,%0	
1342	005002	013700	021772		RETL:	MOV	BUFF-2,%0	;GET & TEST SAVED STATUS
1343	005006	001405				BEQ	1\$	;BRANCH IF ALL 0'S
1344								
1345	005010	005212				INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1346	005012	012713	000060			MOV	#60,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1347	005016	000000				HLT		;ERROR! INCORRECT PSW SAVED ON STACK
1348								;ON ILLEGAL INSTR. TRAP, EXPECT 0
1349	005020	000240				LOOP		;REPLACE THIS INSTRUCTION BY A
1350								; "JMP 2RD" (000110) TO GET A
1351								;SCOPE LOOP AND HIT CONTINUE
1352	005022	010700			1\$:	SCOPE		
1353								
1354	005024	012706	021774			MOV	#BUFF,%6	;SET UP
1355	005030	012737	005046	000004		MOV	#RETM,ERRVEC	;SET UP
1356	005036	012737	000357	177776		MOV	#357,CC	;PRE SET STATUS
Z 1357	005044	004000				JSR	%0,%0	
1358	005046	013700	021772		RETM:	MOV	BUFF-2,%0	;GET SAVED STATUS
1359	005052	022700	000357			CMP	#357,%0	;IS IT CORRECT
1360	005056	001405				BEQ	1\$	
1361								
1362	005060	005212				INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1363	005062	012713	000061			MOV	#61,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1364	005066	000000				HLT		;ERROR! INCORRECT PSW SAVED ON STACK
1365								;ON ILLEGAL INSTR. TRAP, EXPECT 357
1366	005070	000240				LOOP		;REPLACE THIS INSTRUCTION BY A
1367								; "JMP 2RD" (000110) TO GET A
1368								;SCOPE LOOP AND HIT CONTINUE
1369	005072	010700			1\$:	SCOPE		
1370								
1371								
1372								
1373								
1374	005074	005237	000304		TST44:	INC	2*STESTN	
1375	005100	012706	021774			MOV	#BUFF,%6	
1376	005104	012737	005126	000004		MOV	#RETN,ERRVEC	
1377	005112	005037	000006			CLR	ERRVEC+2	;CLEAR FUTURE PRIORITY AND CC
1378	005116	012737	000357	177776		MOV	#357,CC	;PRE SET STATUS
Z 1379	005124	004000				JSR	%0,%0	
1380	005126	013700	177776		RETN:	MOV	CC,%0	;GET & TEST 'NEW' STATUS
1381	005132	001405				BEQ	1\$	;BRANCH IF ALL 0'S
1382								
1383	005134	005212				INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1384	005136	012713	000062			MOV	#62,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1385	005142	000000				HLT		;ERROR! 'NEW' PSW IS INCORRECT
1386								;ON ILLEGAL INSTR. TRAP
1387	005144	000240				LOOP		;REPLACE THIS INSTRUCTION BY A
1388								; "JMP 2RD" (000110) TO GET A
1389								;SCOPE LOOP AND HIT CONTINUE
1390	005146	005037	177776		1\$:	CLR	CC	
1391	005152	010700				SCOPE		
1392								

 ;TEST 44 TEST THAT "NEW" STATUS IS CORRECT ON AN ILLEGAL INSTR. TRAP

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144 TEST THAT "NEW" STATUS IS CORRECT ON AN ILLEGAL INSTR. TRAP

1393	005154	012706	021774		MOV	#BUFF,%6	
1394	005160	012737	005202	000004	MOV	#RETO,ERRVEC	
1395	005166	012737	000357	000006	MOV	#357,ERRVEC+2	;LOAD 'NEW' STATUS
1396	005174	005037	177776		CLR	CC	;PRE SET STATUS
Z 1397	005200	004000			JSR	%0,%0	
1398	005202	013700	177776		RET0:	MOV	CC,%0
1399	005206	022700	000357		CMP	#357,%0	;GET THE 'NEW' STATUS
1400	005212	001405			BEQ	IS	;IS IT CORRECT
1401							;BRANCH IF CORRECT
1402	005214	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1403	005216	012713	000063		MOV	#63,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1404	005222	000000			HLT		;ERROR! 'NEW' PSW IS INCORRECT
1405							;ON ILLEGAL INSTR. TRAP
1406	005224	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
1407							; "JMP 2R0" (000110) TO GET A
1408							;SCOPE LOOP AND HIT CONTINUE
1409	005226	005037	177776		IS:	CLR	CC
1410	005232	010700				SCOPE	
1411							
1412							
1413							;*****
1414							;*TEST 45 TEST THAT A TRAP OCCURES ON AN ILLEGAL ADDRESS (ODD)
1415							;*****
1416	005234	005237	000304		TST45:	INC	2#TESTN
1417	005240	012706	021774		MOV	#BUFF,%6	;STACK POINTER SETUP
1418	005244	012737	005274	000004	MOV	#RETP,ERRVEC	;RETURN LOCATION
1419	005252	005037	000006		CLR	ERRVEC+2	
1420	005256	005737	000001		TST	1	;ILL.ADRS. (ODD ADDRESS ON WORD INST.)
1421							
1422	005262	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1423	005264	012713	000064		MOV	#64,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1424	005270	000000			HLT		;ILLEGAL ADDRESS DID NOT TRAP
1425	005272	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
1426							; "JMP 2R0" (000110) TO GET A
1427							;SCOPE LOOP AND HIT CONTINUE
1428	005274	010700			RETP:	SCOPE	
1429							

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T45 TEST THAT A TRAP OCCURES ON AN ILLEGAL ADDRESS (000)

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1430
1431
1432
1433
1434 005276 005237 000304 TST46: INC 2*STESTN
1435 005302 012706 021774 MOV 8*BUFF,%6 ;STACK POINTER SETUP
1436 005306 012737 005320 000004 MOV 8*RETR,ERRVEC ;RETURN FROM TRAP POINTER
1437 005314 005737 000001 TST 1 ;TRAP ON THIS INSTRUCTION
1438 005320 020627 021770 RETQ: CMP %6,8*BUFF-4 ;CHECK FOR INCREMENTED P.C.
1439 005324 001405 BEQ 1$
1440
1441 005326 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1442 005330 012713 000065 MOV 8*65,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1443 005334 000000 HLT ;WRONG "OLD" PC SAVED ON STACK
1444 ;ON ODD ADDRESS TRAP
1445 005336 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1446 ;"JMP 2RD" (000110) TO GET A
1447 ;SCOPE LOOP AND HIT CONTINUE
1448 005340 010700 1$: SCOPE
1449
1450
1451
1452
1453 005342 005237 000304 TST47: INC 2*STESTN
1454 005346 012706 021774 MOV 8*BUFF,%6 ;STACK POINTER SETUP
1455 005352 012737 005364 000004 MOV 8*RETR,ERRVEC ;RETURN FROM TRAP POINTER
1456 005360 005737 000001 TST 1 ;TRAP ON THIS INSTRUCTION
1457 005364 022737 005364 021770 RETR: CMP 8,8*BUFF-4 ;CHECK FOR INCREMENTED P.C.
1458 005372 001405 BEQ 1$
1459
1460 005374 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1461 005376 012713 000066 MOV 8*66,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1462 005402 000000 HLT ;WRONG "OLD" PC SAVED ON STACK
1463 ;ON ODD ADDRESS TRAP
1464 005404 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1465 ;"JMP 2RD" (000110) TO GET A
1466 ;SCOPE LOOP AND HIT CONTINUE
1467 005406 010700 1$: SCOPE
1468
1469
1470
1471
1472 005410 005237 000304 TST50: INC 2*STESTN
1473 005414 012706 021774 MOV 8*BUFF,%6 ;SET UP
1474 005420 012737 005436 000004 MOV 8*RETS,ERRVEC ;SET UP
1475 005426 005037 177776 CLR CC ;CLEAR CC AND PRIORITY
1476 005432 005737 000001 TST 1
1477 005436 013700 021772 RETS: MOV 8*BUFF-2,%0 ;GET & TEST SAVED STATUS ON STACK
1478 005442 001405 BEQ 1$ ;BRANCH IF SAVED STATUS IS CORRECT
1479
1480 005444 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1481 005446 012713 000067 MOV 8*67,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1482 005452 000000 HLT ;ERROR! SAVED PSH IS INCORRECT
1483 005454 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1484 ;"JMP 2RD" (000110) TO GET A
1485 ;SCOPE LOOP AND HIT CONTINUE

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T50 TEST THAT "OLD" CC & PRIORITY ARE SAVED ON AN ODD ADDRESS TRAP

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1486 005456 010700      1S:  SCOPE
1487
1488 005460 012706 021774      MOV  #BUFF,%6      ;SET UP
1489 005464 012737 005504 000004      MOV  #RETT,ERRVEC  ;SET UP
1490 005472 012737 000357 177776      MOV  #357,CC      ;PRE SET STATUS
1491 005500 005737 000001      TST  1
1492 005504 013700 021772      RETT: MOV  BUFF-2,%0    ;GET THE SAVED STATUS OFF STACK
1493 005510 022700 000357      CMP  #357,%0      ;IS IT CORRECT
1494 005514 001405      BEQ  1S      ;BRANCH IF CORRECT
1495
1496 005516 005212      INC  (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1497 005520 012713 000070      MOV  #70,(R3)    ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1498 005524 000000      HLT
1499 005526 000240      LOOP
1500
1501
1502 005530 010700      1S:  SCOPE
1503
1504      ;*****
1505      ;*TEST 51 TEST THAT "NEW" STATUS IS CORRECT ON AN ODD ADDRESS TRAP
1506      ;*****
1507 005532 005237 000304      TST51: INC  #TESTN
1508 005536 012706 021774      MOV  #BUFF,%6
1509 005542 012737 005566 000004      MOV  #RETV,ERRVEC
1510 005550 005037 000006      CLR  ERRVEC+2    ;CLEAR FUTURE PRIORITY AND CC
1511 005554 012737 000357 177776      MOV  #357,CC      ;PRE SET STATUS
1512 005562 005737 000001      TST  1
1513 005566 013700 177776      RETU: MOV  CC,%0    ;GET & TEST THE 'NEW' STATUS
1514 005572 001405      BEQ  1S      ;BRANCH IF CORRECT
1515
1516 005574 005212      INC  (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1517 005576 012713 000071      MOV  #71,(R3)    ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1518 005602 000000      HLT
1519 005604 000240      LOOP
1520
1521
1522 005606 005037 177776      1S:  CLR  CC
1523 005612 010700      SCOPE
1524
1525 005614 012706 021774      MOV  #BUFF,%6
1526 005620 012737 005640 000004      MOV  #RETV,ERRVEC
1527 005626 012737 000357 000006      MOV  #357,ERRVEC+2 ;LOAD 'NEW' STATUS
1528 005634 005737 000001      TST  1
1529 005640 013700 177776      RETV: MOV  CC,%0    ;GET THE 'NEW' STATUS
1530 005644 022700 000357      CMP  #357,%0      ;IS IT CORRECT
1531 005650 001405      BEQ  1S      ;BRANCH IF CORRECT
1532
1533 005652 005212      INC  (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1534 005654 012713 000072      MOV  #72,(R3)    ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1535 005660 000000      HLT
1536 005662 000240      LOOP
1537
1538
1539 005664 005037 177776      1S:  CLR  CC
1540 005670 010700      SCOPE
1541

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T52 TEST THAT AN OODSOURCE INTERMEDIATE ADDRESS CAUSES AN ODD ADDRESS TRAP

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1542      ;*****
1543      ;*TEST 52 TEST THAT AN OODSOURCE INTERMEDIATE ADDRESS CAUSES AN ODD ADDRESS TRAP
1544      ;*****
1545 005672 005237 000304      TST52: INC      2*TESTN
1546 005676 012706 021774      MOV      #BUFF,%6      ;SET UP STACK POINTER
1547 005702 012737 005736 000004      MOV      #OAERO,4      ;LOAD ERROR VECTOR
1548 005710 005037 000006      CLR      6
1549 005714 012701 000001      MOV      #1,%1      ;LOAD INDEX REGISTER
1550 005720 067100 000000      ADD      20(1),%0      ;SRC ADRS [0(1)] IS ODD
1551
1552 005724 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1553 005726 012713 000073      MOV      #73,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1554 005732 000000      HLT
1555 005734 000240      LOOP      ;ERROR! ODD ADRES ERROR FAILED TO TRAP
1556      ;REPLACE THIS INSTRUCTION BY A
1557      ;"JMP 2RD" (000110) TO GET A
1558      ;SCOPE LOOP AND HIT CONTINUE
1558 005736 010700      OAERO: SCOPE
1559
1560 005740 012706 021774      MOV      #BUFF,%6
1561 005744 012737 005774 000004      MOV      #OAER1,4
1562 005752 012701 021773      MOV      #BUFF-1,%1
1563 005756 147100 000000      BICB      20(1),%0      ;SRC INT ADRS [0(1)] IS ODD
1564
1565 005762 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1566 005764 012713 000074      MOV      #74,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1567 005770 000000      HLT
1568 005772 000240      LOOP      ;ERROR! ODD ADRS IN DST FAILED TO TRAP
1569      ;REPLACE THIS INSTRUCTION BY A
1570      ;"JMP 2RD" (000110) TO GET A
1571      ;SCOPE LOOP AND HIT CONTINUE
1571 005774 010700      OAER1: SCOPE
1572
1573      ;*****
1574      ;*TEST 53 TEST THAT AN ODD SOURCE FINAL ADDRESS WILL CAUSE AN ODD ADDRESS TRAP
1575      ;*****
1576 005776 005237 000304      TST53: INC      2*TESTN
1577 006002 012706 021774      MOV      #BUFF,%6
1578 006006 012737 006042 000004      MOV      #OAER2,4
1579 006014 012737 000001 000100      MOV      #1,100
1580 006022 005001      CLR      %1
1581 006024 017100 000100      MOV      2100(1),%0      ;SRC FINAL ADRS IS ODD
1582
1583 006030 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1584 006032 012713 000075      MOV      #75,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1585 006036 000000      HLT
1586 006040 000240      LOOP      ;ERROR! ODD FINAL SRC ADRS FAILED TO TRAP
1587      ;REPLACE THIS INSTRUCTION BY A
1588      ;"JMP 2RD" (000110) TO GET A
1589      ;SCOPE LOOP AND HIT CONTINUE
1589 006042 010700      OAER2: SCOPE
1590
1591      ;*****
1592      ;*TEST 54 TEST THAT AN ODD DEST INTERMEDIATE ADDRESS CAUSES AN ODD ADRS TRAP
1593      ;*****
1594 006044 005237 000304      TST54: INC      2*TESTN
1595 006050 012706 021774      MOV      #BUFF,%6
1596 006054 012737 006104 000004      MOV      #OAER3,4
1597 006062 012701 000001      MOV      #1,%1

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T54 TEST THAT AN ODD DEST INTERMEDIATE ADDRESS CAUSES AN ODD ADRS TRAP

```

1598 006066 074071 000000          XOR      %0,20(1)          ;DST INT ADRS [0(1)] IS ODD
1599
1600 006072 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1601 006074 012713 000076          MOV      #76,(R3)          ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1602 006100 000000          HLT              ;ERROR! ODD ADRS ERROR FAILED TO TRAP
1603 006102 000240          LOOP             ;REPLACE THIS INSTRUCTION BY A
1604                                     ;"JMP 2RD" (000110) TO GET A
1605                                     ;SCOPE LOOP AND HIT CONTINUE
1606 006104 010700          OAER3:  SCOPE
1607
1608 006106 012706 021774          MOV      #BUFF,%6
1609 006112 012737 006136 000004          MOV      #OAER4,4
1610 006120 005001          CLR      %1
1611 006122 122131          CMPB     (1)+,2(1)+          ;DST INT ADRS IS ODD [(R1) =1]
1612
1613 006124 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1614 006126 012713 000077          MOV      #77,(R3)          ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1615 006132 000000          HLT              ;ERROR! ODD ADRS ERROR FAILED TO TRAP
1616 006134 000240          LOOP             ;REPLACE THIS INSTRUCTION BY A
1617                                     ;"JMP 2RD" (000110) TO GET A
1618                                     ;SCOPE LOOP AND HIT CONTINUE
1619 006136 010700          OAER4:  SCOPE
1620
1621                                     ;*****
1622                                     ;*TEST 55 TEST THAT AN ODD DEST FINAL ADRS WILL CAUSE AN ODD ADRS TRAP
1623                                     ;*****
1624 006140 005237 000304          TST55:  INC      2*TESTN
1625 006144 012706 021774          MOV      #BUFF,%6
1626 006150 012737 006204 000004          MOV      #OAER5,4
1627 006156 012737 000001 000100          MOV      #1,100
1628 006164 005001          CLR      %1
1629 006166 006771 000100          SXT      2100(1)          ;DST FINAL ADRS IS ODD
1630
1631 006172 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1632 006174 012713 000100          MOV      #100,(R3)          ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1633 006200 000000          HLT              ;ERROR! DST ODD ADRS ERR FAILED TO TRAP
1634 006202 000240          LOOP             ;REPLACE THIS INSTRUCTION BY A
1635                                     ;"JMP 2RD" (000110) TO GET A
1636                                     ;SCOPE LOOP AND HIT CONTINUE
1637 006204 010700          OAER5:  SCOPE
1638
1639                                     ;*****
1640                                     ;*TEST 56 TEST THAT CMPB 2(R)+,2(R)+ DOES NOT FAIL
1641                                     ;*****
1642 006206 005237 000304          TST56:  INC      2*TESTN
1643 006212 012706 021774          MOV      #BUFF,%6          ;INITIALIZE THE STACK POINTER
1644 006216 012737 006324 000004          MOV      #OAER6,4
1645 [ 34 005001          CLR      %1
1646 [ 36 012737 021415 000000          MOV      #TEMP+1,0
1647 [ 34 012737 021416 000002          MOV      #TEMP+2,2
1648 [ 42 012737 123000 021414          MOV      #123000,TEMP
1649 [ 50 012737 177246 021416          MOV      #177246,TEMP+2
1650 [ 56 123131          CMPB     2(1)+,2(1)+          ;COMP. LOC. (BITE) TEMP+1 & TEMP+2
1651 006260 001405          BEQ      1$
1652
1653 006262 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR

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T56 TEST THAT CMPB 2(R)+,2(R)+ DOES NOT FAIL

```

1654 006264 012713 000101      MOV      #101,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1655 006270 000000      HLT                      ;COMPARE INSTRUCTION FAILED
1656 006272 000240      LOOP                     ;REPLACE THIS INSTRUCTION BY A
1657                                     ;"JMP 2R0" (000110) TO GET A
1658                                     ;SCOPE LOOP AND HIT CONTINUE
1659 006274 022701 000004      15:    CMP      #4,%1      ;DID REGISTER INCREMENT PROPERLY
1660 006300 001405      BEQ      25:
1661                                     ;
1662 006302 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1663 006304 012713 000102      MOV      #102,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1664 006310 000000      HLT                      ;ERROR! R1 DID NOT INC. BY +2 TWICE
1665 006312 000240      LOOP                     ;REPLACE THIS INSTRUCTION BY A
1666                                     ;"JMP 2R0" (000110) TO GET A
1667                                     ;SCOPE LOOP AND HIT CONTINUE
1668 006314 000405      25:    BR       0AER8
1669                                     ;
1670 006316 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1671 006320 012713 000103      MOV      #103,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1672 006324 000000      0AER6:  HLT                      ;ERROR! ODD ADDRESS ERROR
1673 006326 000240      LOOP                     ;REPLACE THIS INSTRUCTION BY A
1674                                     ;"JMP 2R0" (000110) TO GET A
1675                                     ;SCOPE LOOP AND HIT CONTINUE
1676 006330 010700      0AER8:  SCOPE
1677                                     ;
1678                                     ;*****
1679                                     ;*TEST 57 TEST THAT SWAB ODD ADDRESS CAUSES AN ODD ADDRESS TRAP
1680                                     ;*****
1681 006332 005237 000304      TST57: INC      2*STESTN
1682 006336 012706 021774      MOV      #BUFF,%6
1683 006342 012737 006366 000004      MOV      #0AER7,4
1684 006350 000337 021415      SWAB     TEMP+1      ;DO SWAB USING AN ODD ADDRESS
1685                                     ;
1686 006354 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1687 006356 012713 000104      MOV      #104,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1688 006362 000000      HLT                      ;ERROR! FAILED TO TRAP
1689 006364 000240      LOOP                     ;REPLACE THIS INSTRUCTION BY A
1690                                     ;"JMP 2R0" (000110) TO GET A
1691                                     ;SCOPE LOOP AND HIT CONTINUE
1692 006366      0AER7:
1693                                     ;
1694 006366 012737 000006 000004      MOV      #ERRVEC+2,ERRVEC;RESTORE ODD ADDRESS ERROR TO
1695 006374 005037 000006      CLR      ERRVEC+2      ;HALT AT ERRVEC+2
1696 006400 010700      SCOPE
1697

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T57 TEST THAT SWAB ODD ADDRESS CAUSES AN ODD ADDRESS TRAP

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1698
1699
1700
1701
1702 006402 005237 000304      TST60: INC      @#STESTN
1703 006406 012706 021774      MOV      #BUFF,%6
1704 006412 005001              CLR      R1
1705 006414 012737 006454 000014  MOV      #RETAT,TRTVEC ;SET UP TO TRAP TO 14
1706 006422 005037 000016      CLR      TRTVEC+2
1707 006426 012746 000020      MOV      #20,-(6) ;PUSH 'T'BIT ON THE STACK
1708 006432 012746 006440      MOV      #.+6,-(6) ;PUSH PC ON THE STACK
1709 006436 000002              RTI      ;SET 'T' BIT
1710 006440 005201              INC      R1 ;TRAP HERE
1711
1712 006442 005212              INC      (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1713 006444 012713 000105      MOV      #105,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1714 006450 000000              HLT      ;TRACE BIT DOES NOT TRAP
1715 006452 000240              LOOP     ;REPLACE THIS INSTRUCTION BY A
1716 ;JMP 200" (000110) TO GET A
1717 ;SCOPE LOOP AND HIT CONTINUE
1718 006454 005701      RETAT: TST      R1 ;DID T BIT TRAP RIGHT AFTER RTI?
1719 006456 001405      BEQ      1$ ;YES
1720
1721 006460 005212              INC      (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1722 006462 012713 000106      MOV      #106,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1723 006466 000000              HLT      ;T BIT TRAP DID NOT OCCUR
1724 ;RIGHT AFTER RTI (ONE INSTR
1725 ;LDS ALLOWED AFTER RTI)
1726 006470 000240              LOOP     ;REPLACE THIS INSTRUCTION BY A
1727 ;JMP 200" (000110) TO GET A
1728 ;SCOPE LOOP AND HIT CONTINUE
1729 006472 010700      1$:      SCOPE
1730
1731
1732
1733 006474 005237 000304      TST61: INC      @#STESTN
1734 006500 012706 021774      MOV      #BUFF,%6
1735 006504 012737 006524 000014  MOV      #RETBT,TRTVEC
1736 006512 012746 000020      MOV      #20,-(6) ;PUSH 'T'BIT ON THE STACK
1737 006516 012746 006524      MOV      #.+6,-(6) ;PUSH PC ON THE STACK
1738 006522 000002              RTI      ;SET 'T' BIT
1739 006524 020627 021770      RETBT: CMP      %6,#BUFF-4
1740 006530 001405      BEQ      1$
1741
1742 006532 005212              INC      (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1743 006534 012713 000107      MOV      #107,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1744 006540 000000              HLT      ;STACK POINTER WAS NOT PUSHED TWICE BY T BIT TRAP
1745 006542 000240              LOOP     ;REPLACE THIS INSTRUCTION BY A
1746 ;JMP 200" (000110) TO GET A
1747 ;SCOPE LOOP AND HIT CONTINUE
1748 006544 010700      1$:      SCOPE
1749
1750
1751
1752 006546 005237 000304      TST62: INC      @#STESTN
1753 006552 012706 021774      MOV      #BUFF,%6

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T62 TEST FOR PROPER PC ON STACK ON A T BIT TRAP

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1754 006556 012737 006610 000014      MOV      RETCT,TRTVEC
1755 006564 012746 000020      MOV      #20,-(6)          ;PUSH 'T' BIT ON THE STACK
1756 006570 012746 006576      MOV      #.+6,-(6)        ;PUSH PC ON THE STACK
1757 006574 000002      RTI          ;SET 'T' BIT
1758 006576      RETCT3:
1759
1760 006576 005212      INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1761 006600 012713 000110      MOV      #110,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1762 006604 000000      HLT          ;ERROR! 'T' BIT TRAP NOT ACKNOWLEDGED
1763      ;BEFORE 1ST INST. AFTER AN RTI
1764 006606 000240      LOOP        ;REPLACE THIS INSTRUCTION BY A
1765      ;"JMP 2RD" (000110) TO GET A
1766      ;SCOPE LOOP AND HIT CONTINUE
1767 006610 022737 006576 021770 RETCT: CMP      RETCT3,BUFF-4
1768 006616 001405      BEQ      15
1769
1770 006620 005212      INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1771 006622 012713 000111      MOV      #111,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1772 006626 000000      HLT          ;CORRECT PC WAS NOT SAVED ON STACK
1773      ;ON A T BIT TRAP
1774 006630 000240      LOOP        ;REPLACE THIS INSTRUCTION BY A
1775      ;"JMP 2RD" (000110) TO GET A
1776      ;SCOPE LOOP AND HIT CONTINUE
1777 006632 022737 000020 021772 15:  CMP      #20,BUFF-2
1778 006640 001405      BEQ      25
1779
1780 006642 005212      INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1781 006644 012713 000112      MOV      #112,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1782 006650 000000      HLT          ;OLD PSH WAS NOT SAVED ON THE STACK
1783      ;CORRECTLY, ON A T BIT TRAP
1784 006652 000240      LOOP        ;REPLACE THIS INSTRUCTION BY A
1785      ;"JMP 2RD" (000110) TO GET A
1786      ;SCOPE LOOP AND HIT CONTINUE
1787 006654 010700      25:  SCOPE
1788
1789
1790      ;*****
1791      ;*TEST 63 TEST FOR PROPER PC ON THE STACK, ON A T BIT TRAP (RTT)
1792      ;*****
1793 006656 005237 000304      TST63: INC      #STESTN
1794 006662 012706 021774      MOV      #BUFF,%6      ;INITIALIZE THE STACK POINTER
1795 006666 012737 006724 000014      MOV      RETCT1,TRTVEC ;SET UP 'T' BIT TRAP VECTOR
1796 006674 005001      CLR      R1
1797 006676 012746 000020      MOV      #20,-(6)        ;PUSH 'T' BIT ON THE STACK
1798 006702 012746 006710      MOV      #.+6,-(6)      ;PUSH PC ON THE STACK
1799 006706 000006      RTT          ;RETURN FROM INTERRUPT
1800 006710 005201      INC      R1
1801      ;'T' BIT TRAP SHOULD OCCUR HERE
1802 006712      RETCT2:
1803
1804 006712 005212      INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1805 006714 012713 000113      MOV      #113,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1806 006720 000000      HLT          ;ERROR! 'T' BIT DID NOT TRAP
1807 006722 000240      LOOP        ;REPLACE THIS INSTRUCTION BY A
1808      ;"JMP 2RD" (000110) TO GET A
1809      ;SCOPE LOOP AND HIT CONTINUE

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T63 TEST FOR PROPER PC ON THE STACK, ON A T BIT TRAP (RTT)

1810	006724	022737	006712	021770	RETCT1: CMP	#RETCT2,BUFF-4	;PROPER PC ON THE STACK
1811	006732	001405			BEQ	1\$	
1812							
1813	006734	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1814	006736	012713	000114		MOV	#114,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1815	006742	000000			HLT		;ERROR! IMPROPER PC ON THE STACK
1816	006744	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
1817							; "JMP 2\$0" (000110) TO GET A
1818							;SCOPE LOOP AND HIT CONTINUE
1819	006746	005701			1\$: TST	R1	;DID T BIT ALLOW ONE INSTR
1820							;AFTER RTT BEFORE TRAPPING?
1821	006750	001005			BNE	2\$	;YES
1822							
1823	006752	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1824	006754	012713	000115		MOV	#115,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1825	006760	000000			HLT		;T BIT DID NOT ALLOW ONE
1826							;INSTR AFTER RTT BEFORE
1827							;TRAPPING
1828	006762	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
1829							; "JMP 2\$0" (000110) TO GET A
1830							;SCOPE LOOP AND HIT CONTINUE
1831	006764				2\$:		
1832							
1833							
1834	006764	012737	000016	000014	MOV	#16,TRTVEC	;RESTORE 'T' TRAP
1835	006772	005037	000016		CLR	TRTVEC+2	;TO HALT AT 16
1836	006776	010700			SCOPE		

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T63 TEST FOR PROPER PC ON THE STACK, ON A T BIT TRAP (RTT)

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1837
1838
1839
1840
1841 007000 005237 000304 TST64: INC 2*STESTN
1842 007004 012706 000376 MOV 376,%6 ;SET STACK POINTER LESS THAN 400
1843 007010 012737 007034 000004 MOV TDEC1,ERRVEC ;LOAD TRAP VECTOR
1844 007016 005037 000006 CLR ERRVEC+2
1845 007022 005716 TST (6) ;DATI FROM LOC 376
1846 007024 000405 BR TDEC1A
1847
1848 007026 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1849 007030 012713 000116 MOV #116,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1850 007034 000000 TDEC1: HLT ;ERROR! STACK OVERFLOW TRAP OCCURED
1851 ;ON A DATI TO LOC LESS THAN 400
1852 007036 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1853 ;"JMP 2R0" (000110) TO GET A
1854 ;SCOPE LOOP AND HIT CONTINUE
1855 007040 010700 TDEC1A: SCOPE
1856
1857
1858
1859
1860 007042 005237 000304 TST65: INC 2*STESTN
1861 007046 012706 000376 MOV 376,%6
1862 007052 012737 007076 000004 MOV TDEC2,ERRVEC ;DATIP/DATO TO BE 376
1863 007060 005716 CLR (6)
1864 007062 000240 NOP
1865
1866 007064 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1867 007066 012713 000117 MOV #117,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1868 007072 000000 HLT ;ERROR! NO STACK OVERFLOW TRAP (YELLOW)
1869 007074 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1870 ;"JMP 2R0" (000110) TO GET A
1871 ;SCOPE LOOP AND HIT CONTINUE
1872 007076 010700 TDEC2: SCOPE
1873
1874
1875
1876
1877 007100 005237 000304 TST66: INC 2*STESTN
1878 007104 012706 000376 MOV 376,%6
1879 007110 012737 007134 000004 MOV TDEC2A,ERRVEC
1880 007116 152716 177777 BISB #-1,(6)
1881
1882 007122 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
1883 007124 012713 000120 MOV #120,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
1884 007130 000000 HLT ;ERROR! NO STACK OVERFLOW TRAP (YELLOW ZONE)
1885 007132 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
1886 ;"JMP 2R0" (000110) TO GET A
1887 ;SCOPE LOOP AND HIT CONTINUE
1888 007134 010700 TDEC2A: SCOPE
1889
1890
1891
1892

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T67 TEST NO STACK OVERFLOW TRAP ON A DATI (BYTE) TO STACK LOC. LESS THAN 400

1893	007136	005237	000304		TST67:	INC	2#STESTN	
1894	007142	012705	001000			MOV	#1000,%5	
1895	007146	012706	000376			MOV	#376,%6	
1896	007152	012737	007172	000004		MOV	#TDEC3,ERRVEC	
1897	007160	124645				CMPB	-(6),-(5)	
1898	007162	000405				BR	TDEC6	
1899								
1900	007164	005212				INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1901	007166	012713	000121			MOV	#121,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1902	007172	000000			TDEC3:	HLT		;ERROR! STACK OVERFLOW TRAP OCCURED
1903								;ON A DATI TO STACK LOC UNDER 400
1904	007174	000240				LOOP		;REPLACE THIS INSTRUCTION BY A
1905								; "JMP 2R0" (000110) TO GET A
1906								; SCOPE LOOP AND HIT CONTINUE
1907	007176	010700			TDEC6:	SCOPE		
1908								
1909	007200	012706	000400			MOV	#400,%6	
1910	007204	012737	007224	000004		MOV	#TDEC4,ERRVEC	
1911	007212	134546				BITB	-(5),-(6)	
1912	007214	000405				BR	TDEC6A	
1913								
1914	007216	005212				INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1915	007220	012713	000122			MOV	#122,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1916	007224	000000			TDEC4:	HLT		;ERROR! STACK OVERFLOW TRAP OCCURED
1917								;ON A DATI TO STACK LOC UNDER 400
1918	007226	000240				LOOP		;REPLACE THIS INSTRUCTION BY A
1919								; "JMP 2R0" (000110) TO GET A
1920								; SCOPE LOOP AND HIT CONTINUE
1921	007230	010700			TDEC6A:	SCOPE		
1922								
1923								;*****
1924								;*TEST 70 TEST THAT OVERFLOW TRAP DOES NOT LOSE INFORMATION (OLD PC & PS)
1925								;*****
1926	007232	005237	000304		TST70:	INC	2#STESTN	
1927	007236	012706	000400			MOV	#400,%6	
1928	007242	005037	000376			CLR	376	;STATUS WORD OF LOC 10
1929	007246	005037	000374			CLR	374	
1930	007252	012737	007304	000004		MOV	#TDEC5,ERRVEC	;RETURN TO LOC 4
1931	007260	012737	000017	177776		MOV	#17,CC	;PRE SET STATUS
1932	007266	005246				INC	-(6)	
1933								
1934	007270	005212				INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1935	007272	012713	000123			MOV	#123,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1936	007276	000000			TDEC5A:	HLT		;ERROR! NO STACK OVERFLOW TRAP (YELLOW)
1937	007300	000240				LOOP		;REPLACE THIS INSTRUCTION BY A
1938								; "JMP 2R0" (000110) TO GET A
1939								; SCOPE LOOP AND HIT CONTINUE
1940	007302	000415				BR	TDEC5B	;GO TO SCOPE
1941	007304	022737	000001	000376	TDEC5:	CMP	#1,376	;WAS INC -(6) EXECUTED
1942	007312	001405				BEG	15	
1943								
1944	007314	005212				INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
1945	007316	012713	000124			MOV	#124,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
1946	007322	000000				HLT		;ERROR! INSTRUCTION CAUSING YELLOW
1947								;ZONE VIOLATION WAS ABORTED. IT
1948								;SHOULD HAVE BEEN EXECUTED BEFORE

Line	Address	Inst	Op1	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op417	Op418	Op419	Op420	Op421	Op422	Op423	Op424	Op425	Op426	Op427	Op428	Op429	Op430	Op431	Op432	Op433	Op434	Op435	Op436	Op437	Op438	Op439	Op440	Op441	Op442	Op443	Op444	Op445	Op446	Op447	Op448	Op449	Op450	Op451	Op452	Op453	Op454	Op455	Op456	Op457	Op458	Op459	Op460	Op461	Op462	Op463	Op464</
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2005	007474	012737	007530	000030	MOV	#VDEC6,30	;SET UP INST VECTOR
2006	007502	012737	007534	000014	MOV	#VDEC5,4	;SET UP OVERFLOW VECTOR
2007	007510	104000			EMT		;THIS TRAP SHOULD CAUSE OVERFLOW
2008							
2009	007512	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2010	007514	012713	000131		MOV	#131,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
2011	007520	000000			HLT		;NO TRAP OCCURRED
2012							
2013	007522	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2014	007524	012713	000132		MOV	#132,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
2015	007530	000000			HLT		;TRAP FLAG OVERFLOW DID NOT OCCUR
2016	007532	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
2017							; "JMP 2RD" (000110) TO GET A
2018							; SCOPE LOOP AND HIT CONTINUE
2019	007534	010700			VDEC5: SCOPE		;NORMAL OVERFLOW RETURN
2020							
2021							;*****
2022							;*TEST 74 TEST THAT AN "TRAP" CAUSES AN OVERFLOW TRAP
2023							;*****
2024	007536	005237	000304		TST74: INC	2*\$TESTN	
2025	007542	012706	000400		MOV	#400,%6	;SET UP STACK TO OVERFLOW
2026	007546	012737	007602	000034	MOV	#VDEC8,34	;SET UP INST VECTOR
2027	007554	012737	007606	000004	MOV	#VDEC7,4	;SET UP OVERFLOW VECTOR
2028	007562	104400			TRAP		;THIS TRAP SHOULD CAUSE OVERFLOW
2029							
2030	007564	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2031	007566	012713	000133		MOV	#133,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
2032	007572	000000			HLT		;NO TRAP OCCURRED
2033							
2034	007574	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2035	007576	012713	000134		MOV	#134,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
2036	007602	000000			VDEC8: HLT		;TRAP FLAG OVERFLOW DID NOT OCCUR
2037	007604	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
2038							; "JMP 2RD" (000110) TO GET A
2039							; SCOPE LOOP AND HIT CONTINUE
2040	007606	010700			VDEC7: SCOPE		;NORMAL OVERFLOW RETURN
2041							
2042							;*****
2043							;*TEST 75 TEST THAT AN BPT CAUSES AN OVERFLOW TRAP
2044							;*****
2045	007610	005237	000304		TST75: INC	2*\$TESTN	
2046	007614	012706	000400		MOV	#400,%6	;SET UP STACK TO OVERFLOW
2047	007620	012737	007654	000014	MOV	#VDEC10,14	;SET UP INST VECTOR
2048	007626	012737	007660	000004	MOV	#VDEC9,4	;SET UP OVERFLOW VECTOR
2049	007634	000003			BPT		;THIS TRAP SHOULD CAUSE OVERFLOW
2050							
2051	007636	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2052	007640	012713	000135		MOV	#135,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
2053	007644	000000			HLT		;NO TRAP OCCURRED
2054							
2055	007646	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2056	007650	012713	000136		MOV	#136,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
2057	007654	000000			VDEC10: HLT		;TRAP FLAG OVERFLOW DID NOT OCCUR
2058	007656	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
2059							; "JMP 2RD" (000110) TO GET A
2060							; SCOPE LOOP AND HIT CONTINUE

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2061 007660 010700          VDEC9: SCOPE          ;NORMAL OVERFLOW RETURN
2062
2063          ;*****.*****
2064          ;*TEST 76 TEST THAT AN ILLEGAL INSTR. CAUSES AN OVERFLOW TRAP
2065          ;*****
2066 007662 005237 000304      TST76: INC 2*STESTN
2067 007666 012706 000400      MOV 400,%6          ;SET UP STACK TO OVERFLOW
2068 007672 012737 007726 000004  MOV 8VDEC12,4      ;SET UP INST VECTOR
2069 007700 012737 007732 000004  MOV 8VDEC11,4      ;SET UP OVERFLOW VECTOR
2070 007706 004700          ILLA          ;THIS TRAP SHOULD CAUSE OVERFLOW
2071
2072 007710 005212          INC (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2073 007712 012713 000137      MOV 137,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2074 007716 000000          HLT          ;NO TRAP OCCURRED
2075
2076 007720 005212          INC (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2077 007722 012713 000140      MOV 140,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2078 007726 000000          VDEC12: HLT          ;TRAP FLAG OVERFLOW DID NOT OCCUR
2079 007730 000240          LOOP          ;REPLACE THIS INSTRUCTION BY A
2080          ;"JMP 2R0" (000110) TO GET A
2081          ;SCOPE LOOP AND HIT CONTINUE
2082 007732 010700          VDEC11: SCOPE          ;NORMAL OVERFLOW RETURN
2083 007734 020627 000370      CMP 6,%370
2084 007740 001405          BEQ 15          ;STACK PUSHED FOUR WORDS?
2085
2086 007742 005212          INC (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2087 007744 012713 000141      MOV 141,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2088 007750 000000          HLT          ;TRAP OVERFLOW DID NOT OCCUR
2089 007752 000240          LOOP          ;REPLACE THIS INSTRUCTION BY A
2090          ;"JMP 2R0" (000110) TO GET A
2091          ;SCOPE LOOP AND HIT CONTINUE
2092 007754 010700          15: SCOPE
2093
2094          ;*****.*****
2095          ;*TEST 77 TEST THAT AN ILLEGAL INSTR. CAUSES AN OVERFLOW TRAP
2096          ;*****
2097 007756 005237 000304      TST77: INC 2*STESTN
2098 007762 012706 000400      MOV 400,%6          ;SET UP STACK TO OVERFLOW
2099 007766 012737 010022 000004  MOV 8VDEC14,4      ;SET UP INST VECTOR
2100 007774 012737 010026 000004  MOV 8VDEC13,4      ;SET UP OVERFLOW VECTOR
2101 010002 000100          ILLB          ;THIS TRAP SHOULD CAUSE OVERFLOW
2102
2103 010004 005212          INC (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2104 010006 012713 000142      MOV 142,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2105 010012 000000          HLT          ;NO TRAP OCCURRED
2106
2107 010014 005212          INC (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2108 010016 012713 000143      MOV 143,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2109 010022 000000          VDEC14: HLT          ;TRAP FLAG OVERFLOW DID NOT OCCUR
2110 010024 000240          LOOP          ;REPLACE THIS INSTRUCTION BY A
2111          ;"JMP 2R0" (000110) TO GET A
2112          ;SCOPE LOOP AND HIT CONTINUE
2113 010026 010700          VDEC13: SCOPE          ;NORMAL OVERFLOW RETURN
2114
2115          ;INSTRUCTION EQUATE STATEMENTS
2116

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T77 TEST THAT AN ILLEGAL INSTR. CAUSES AN OVERFLOW TRAP

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2117      :      4510      =JSR      5,(0)
2118      :      005046    =CLR      -(6)
2119      :      010046    =MOV      %0,-(6)
2120      :      006746    =SXT      -(6)
2121      :      074046    =XOR      %0,-(6)
2122
2123      : *****
2124      : *TEST 100 TEST THAT THE INSTRUCTION (4510) CAUSES STACK OVERFLOW CONDITION
2125      : *****
2126      010030 005237 000304      TST100: INC      2*STESTN
2127      010034 012706 000400      MOV      #400,%6 ;SET STACK POINTER
2128      010040 005000      CLR      %0      ;PRE SET R0
2129      010042 012737 010064 000004      MOV      #VDEC15,4      ;LOAD ERROR VECTOR
2130      010050 004510      4510      ;CAUSE OVERFLOW
2131
2132      010052 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2133      010054 012713 000144      MOV      #144,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2134      010060 000000      HLT      ;ERROR! OVERFLOW FAILED TO TRAP
2135      010062 000240      LOOP      ;REPLACE THIS INSTRUCTION BY 15
2136      : "JMP 2R0" (000110) TO GET 15
2137      : SCOPE LOOP AND HIT CONTINUE
2138      010064 022706 000372      VDEC15: CMP      #372,%6      ;HAS STACK POINTER MOVED BY 6
2139      010070 001405      BEQ      1$      ; (2 FOR THE AUTO DECREMENT + 4 FOR
2140
2141      010072 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2142      010074 012713 000145      MOV      #145,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2143      010100 000000      HLT      ;THE ERROR TRAP)
2144      : R6 DID NOT DECREMENT BY 6 WHEN
2145      : AN INSTRUCTION DOING AUTO-DECREMENT
2146      : OF R6 CAUSED YELLOW ZONE VIOLATION
2147      010102 000240      LOOP      ;REPLACE THIS INSTRUCTION BY 15
2148      : "JMP 2R0" (000110) TO GET 15
2149      : SCOPE LOOP AND HIT CONTINUE
2150      010104 010700      1$:      SCOPE
2151
2152      : *****
2153      : *TEST 101 TEST THAT THE INSTRUCTION (005046) CAUSES STACK OVERFLOW CONDITION
2154      : *****
2155      010106 005237 000304      TST101: INC      2*STESTN
2156      010112 012706 000400      MOV      #400,%6 ;SET STACK POINTER
2157      010116 005000      CLR      %0      ;PRE SET R0
2158      010120 012737 010142 000004      MOV      #VDEC16,4      ;LOAD ERROR VECTOR
2159      010126 005046      005046      ;CAUSE OVERFLOW
2160
2161      010130 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2162      010132 012713 000146      MOV      #146,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2163      010136 000000      HLT      ;ERROR! OVERFLOW FAILED TO TRAP
2164      010140 000240      LOOP      ;REPLACE THIS INSTRUCTION BY 16
2165      : "JMP 2R0" (000110) TO GET 16
2166      : SCOPE LOOP AND HIT CONTINUE
2167      010142 022706 000372      VDEC16: CMP      #372,%6      ;HAS STACK POINTER MOVED BY 6
2168      010146 001405      BEQ      1$      ; (2 FOR THE AUTO DECREMENT + 4 FOR
2169
2170      010150 005212      INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2171      010152 012713 000147      MOV      #147,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2172      010156 000000      HLT      ;THE ERROR TRAP)

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T101 TEST THAT THE INSTRUCTION (005046) CAUSES STACK OVERFLOW CONDITION

```

2173                                     ;R6 DID NOT DECREMENT BY 6 WHEN
2174                                     ;AN INSTRUCTION DOING AUTO-DECREMENT
2175                                     ;OF R6 CAUSED YELLOW ZONE VIOLATION
2176 010160 000240                      LOOP      ;REPLACE THIS INSTRUCTION BY 16
2177                                     ;"JMP 2RD" (000110) TO GET 16
2178                                     ;SCOPE LOOP AND HIT CONTINUE
2179 010162 010700          15:  SCOPE
2180
2181                                     ;*****
2182                                     ;*TEST 102 TEST THAT THE INSTRUCTION (010046) CAUSES STACK OVERFLOW CONDITION
2183                                     ;*****
2184 010164 005237 000304          TST102: INC      2#STESTN
2185 010170 012706 000400          MOV      #400,%6 ;SET STACK POINTER
2186 010174 005000          CLR      %0          ;PRE SET R0
2187 010176 012737 010220 000004          MOV      #VDEC17,4      ;LOAD ERROR VECTOR
2188 010204 010046          010046          ;CAUSE OVERFLOW
2189
2190 010206 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2191 010210 012713 000150          MOV      #150,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2192 010214 000000          HLT          ;ERROR! OVERFLOW FAILED TO TRAP
2193 010216 000240          LOOP      ;REPLACE THIS INSTRUCTION BY 17
2194                                     ;"JMP 2RD" (000110) TO GET 17
2195                                     ;SCOPE LOOP AND HIT CONTINUE
2196 010220 022706 000372          VDEC17: CMP      #372,%6
2197 010224 001405          BEQ      15          ;HAS STACK POINTER MOVED BY 6
2198                                     ; (2 FOR THE AUTO DECREMENT + 4 FOR
2199
2200 010226 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2201 010230 012713 000151          MOV      #151,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2202 010234 000000          HLT          ;THE ERROR TRAP)
2203                                     ;R6 DID NOT DECREMENT BY 6 WHEN
2204                                     ;AN INSTRUCTION DOING AUTO-DECREMENT
2205 010236 000240                      LOOP      ;OF R6 CAUSED YELLOW ZONE VIOLATION
2206                                     ;REPLACE THIS INSTRUCTION BY 17
2207                                     ;"JMP 2RD" (000110) TO GET 17
2208 010240 010700          15:  SCOPE      ;SCOPE LOOP AND HIT CONTINUE
2209
2210                                     ;*****
2211                                     ;*TEST 103 TEST THAT THE INSTRUCTION (006746) CAUSES STACK OVERFLOW CONDITION
2212                                     ;*****
2213 010242 005237 000304          TST103: INC      2#STESTN
2214 010246 012706 000400          MOV      #400,%6 ;SET STACK POINTER
2215 010252 005000          CLR      %0          ;PRE SET R0
2216 010254 012737 010276 000004          MOV      #VDEC18,4      ;LOAD ERROR VECTOR
2217 010262 006746          006746          ;CAUSE OVERFLOW
2218
2219 010264 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2220 010266 012713 000152          MOV      #152,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2221 010272 000000          HLT          ;ERROR! OVERFLOW FAILED TO TRAP
2222 010274 000240          LOOP      ;REPLACE THIS INSTRUCTION BY 18
2223                                     ;"JMP 2RD" (000110) TO GET 18
2224                                     ;SCOPE LOOP AND HIT CONTINUE
2225 010276 022706 000372          VDEC18: CMP      #372,%6
2226 010302 001405          BEQ      15          ;HAS STACK POINTER MOVED BY 6
2227                                     ; (2 FOR THE AUTO DECREMENT + 4 FOR
2228 010304 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR

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T103 TEST THAT THE INSTRUCTION (006746) CAUSES STACK OVERFLOW CONDITION

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2229 010306 012713 000153      MOV    #153,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2230 010312 000000      HLT                      ;THE ERROR TRAP)
2231                                     ;R6 DID NOT DECREMENT BY 6 WHEN
2232                                     ;AN INSTRUCTION DOING AUTO-DECREMENT
2233                                     ;OF R6 CAUSED YELLOW ZONE VIOLATION
2234 010314 000240      LOOP                     ;REPLACE THIS INSTRUCTION BY 18
2235                                     ;"JMP 2R0" (000110) TO GET 18
2236                                     ;SCOPE LOOP AND HIT CONTINUE
2237 010316 010700      1$: SCOPE
2238
2239      ;*****
2240      ;*TEST 104 TEST THAT THE INSTRUCTION (074046) CAUSES STACK OVERFLOW CONDITION
2241      ;*****
2242 010320 005237 000304      TST104: INC    2*$TESTN
2243 010324 012706 000400      MOV    #400,%6 ;SET STACK POINTER
2244 010330 005000      CLR    %0      ;PRE SET R0
2245 010332 012737 010354 000004      MOV    #VDEC19,4      ;LOAD ERROR VECTOR
2246 010340 074046      074046      ;CAUSE OVERFLOW
2247
2248 010342 005212      INC    (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2249 010344 012713 000154      MOV    #154,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2250 010350 000000      HLT                      ;ERROR! OVERFLOW FAILED TO TRAP
2251 010352 000240      LOOP                     ;REPLACE THIS INSTRUCTION BY 19
2252                                     ;"JMP 2R0" (000110) TO GET 19
2253                                     ;SCOPE LOOP AND HIT CONTINUE
2254 010354 022706 000372      VDEC19: CMP    #372,%6      ;HAS STACK POINTER MOVED BY 6
2255 010360 001405      BEQ    1$                ; (2 FOR THE AUTO DECREMENT + 4 FOR
2256                                     ;
2257 010362 005212      INC    (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2258 010364 012713 000155      MOV    #155,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2259 010370 000000      HLT                      ;THE ERROR TRAP)
2260                                     ;R6 DID NOT DECREMENT BY 6 WHEN
2261                                     ;AN INSTRUCTION DOING AUTO-DECREMENT
2262                                     ;OF R6 CAUSED YELLOW ZONE VIOLATION
2263 010372 000240      LOOP                     ;REPLACE THIS INSTRUCTION BY 19
2264                                     ;"JMP 2R0" (000110) TO GET 19
2265                                     ;SCOPE LOOP AND HIT CONTINUE
2266 010374 010700      1$: SCOPE
2267
2268

```

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T104 TEST THAT THE INSTRUCTION (074046) CAUSES STACK OVERFLOW CONDITION

```

2269
2270
2271
2272
2273 010376 005237 000304 TST105: INC 2*STESTN
2274 ;PROGRAM MAY HAVE RELOADED IF OVERFLOW FAILS
2275
2276 010402 012737 010500 000004 MOV #FOVER,4 ;SET UP OVERFLOW POINTER
2277 010410 012706 000402 MOV #402,%6
2278 010414 010605 MOV R6,R5
2279 010416 005746 TST -(6) ;SHOULD NOT OVERFLOW
2280 010420 012706 001002 MOV #1002,%6
2281 010424 010605 MOV R6,R5
2282 010426 005746 TST -(6) ;SHOULD NOT OVERFLOW
2283 010430 012706 002002 MOV #2002,%6
2284 010434 010605 MOV R6,R5
2285 010436 005746 TST -(6) ;SHOULD NOT OVERFLOW
2286 010440 012706 004002 MOV #4002,%6
2287 010444 010605 MOV R6,R5
2288 010446 005746 TST -(6) ;SHOULD NOT OVERFLOW
2289 010450 012706 010002 MOV #10002,%6
2290 010454 010605 MOV R6,R5
2291 010456 005746 TST -(6)
2292 010460 012706 020000 MOV #20000,%6 ;SHOULD NOT OVERFLOW
2293 010464 010605 MOV R6,R5
2294 010466 005746 TST -(6)
2295 010470 000405 BR FOV1
2296
2297 010472 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2298 010474 012713 000156 MOV #156,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2299 010500 000000 FOVER: HLT ;FALSE STACK OVERFLOW TRAP OCCURRED
2300 ;ON DOING AN AUTO-DECREMENT OF R6
2301 ;THE INITIAL R6 IS IN SAVED IN R5
2302 ;CHECK STACK TO FIND WHERE
2303 010502 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
2304 ;"JMP 240" (000110) TO GET A
2305 ;SCOPE LOOP AND HIT CONTINUE
2306 010504 010700 FOV1: SCOPE
2307
2308
2309
2310
2311 010506 005237 000304 TST106: INC 2*STESTN
2312 ;WHAT THE STACK LOOKS LIKE WHEN INSTRUCTION AT "04" IS BEING EXECUTED
2313 : OVFLW PC=05,STAT=0 04 342 BOTTOM OF STACK
2314 : TRT PC=04,STAT=4 4 344
2315 : 03A 346
2316 : 0 350
2317 : OVFLW PC=05,STAT=0 03 352
2318 : 3 354
2319 : IOT PC=03,STAT=3 02A 356
2320 : 0 360
2321 : OVFLW PC=05,STAT=0 02 362
2322 : 2 364
2323 : TRAP PC=02,STAT=2 01A 366
2324 : 0 370

```

2325				OVFLW	PC=05,STAT=0	01	372	
2326						1	374	
2327				ENT	PC=01,STAT=1	00A	376	
2328						17	400	
2329							402	INITIAL STACK POINTER
2330	010512	012706	000402	MOV	#402,%5			INITIALIZE STACK POINTER
2331	010516	012737	010632	MOV	#01,ENTVEC			NEW PC POINTS TO NEXT INSTR.
2332	010524	012737	000001	MOV	#1,ENTVEC+2			NEW PSW
2333	010532	012737	010646	MOV	#02,TRAPVEC			NEW PC POINTS TO NEXT INSTR
2334	010540	012737	000002	MOV	#2,TRAPVEC+2			NEW PSW
2335	010546	012737	010662	MOV	#03,IOTVEC			NEW PC POINTS TO NEXT INSTR
2336	010554	012737	000003	MOV	#3,IOTVEC+2			NEW PSW
2337	010562	012737	010676	MOV	#04,TRTVEC			NEW PC POINTS TO NEXT INSTR
2338	010570	012737	000004	MOV	#4,TRTVEC+2			NEW PSW
2339	010576	012737	011324	MOV	#05,ERRVEC			NEW PC POINTS TO NEXT INSTR
2340	010604	005037	000006	CLR	ERRVEC+2			NEW PSW
2341	010610	012737	000017	MOV	#17,CC			PRESENT PSW
2342	010616	104000		00:	ENT			
2343	010620			001:				
2344								
2345	010620	005212		INC	(R2)			SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2346	010622	012713	000157	MOV	#157,(R3)			MOVE TO MAIL BOX (\$FATAL) THE ERROR
2347	010626	000000		00A:	HLT			ENT NOT EXECUTED
2348	010630	000240			LOOP			REPLACE THIS INSTRUCTION BY A
2349								"JMP 2R0" (000110) TO GET A
2350								SCOPE LOOP AND HIT CONTINUE
2351	010632	104400		01:	TRAP			RETURN HERE FROM PREVIOUS YELLOW ZONE
2352								STACK VIOLATION
2353	010634			011:				
2354								
2355	010634	005212		INC	(R2)			SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2356	010636	012713	000160	MOV	#160,(R3)			MOVE TO MAIL BOX (\$FATAL) THE ERROR
2357	010642	000000		01A:	HLT			TRAP NOT EXECUTED
2358	010644	000240			LOOP			REPLACE THIS INSTRUCTION BY A
2359								"JMP 2R0" (000110) TO GET A
2360								SCOPE LOOP AND HIT CONTINUE
2361	010646	000004		02:	IOT			RETURN HERE FROM PREVIOUS YELLOW ZONE
2362								STACK VIOLATION
2363	010650			021:				
2364								
2365	010650	005212		INC	(R2)			SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2366	010652	012713	000161	MOV	#161,(R3)			MOVE TO MAIL BOX (\$FATAL) THE ERROR
2367	010656	000000		02A:	HLT			IOT NOT EXECUTED
2368	010660	000240			LOOP			REPLACE THIS INSTRUCTION BY A
2369								"JMP 2R0" (000110) TO GET A
2370								SCOPE LOOP AND HIT CONTINUE
2371	010662	000003		03:	BPT			RETURN HERE FROM PREVIOUS YELLOW ZONE
2372								STACK VIOLATION
2373	010664			031:				
2374								
2375	010664	005212		INC	(R2)			SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2376	010666	012713	000162	MOV	#162,(R3)			MOVE TO MAIL BOX (\$FATAL) THE ERROR
2377	010672	000000		03A:	HLT			BPT NOT EXECUTED
2378	010674	000240			LOOP			REPLACE THIS INSTRUCTION BY A
2379								"JMP 2R0" (000110) TO GET A
2380								SCOPE LOOP AND HIT CONTINUE

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T106 TEST FOR REPEATED TRAPS AND OVERFLOW OF STACK

2381	010676	022706	000342	04:	CMP	#342,%6	; IS STACK POINTER
2382	010702	001405			BEQ	20\$	; POSITIONED PROPERLY
2383							
2384	010704	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2385	010706	012713	000163		MOV	#163,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2386	010712	000000			HLT		; ERROR! INCORRECT STACK POINTER AFTER
2387							; 4 REPETITIVE STACK OVERFLOW TRAPS
2388	010714	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
2389							; "JMP 2RD" (000110) TO GET A
2390							; SCOPE LOOP AND HIT CONTINUE
2391	010716	012700	000402	20\$:	MOV	#402,%0	
2392	010722	022740	000017		CMP	#17,-(0)	; CORRECT OLD PSW SAVED?
2393	010726	001405			BEQ	1\$	
2394							
2395	010730	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2396	010732	012713	000164		MOV	#164,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2397	010736	000000			HLT		; CORRECT PSW WAS NOT SAVED
2398							; ON EMT TRAP
2399	010740	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
2400							; "JMP 2RD" (000110) TO GET A
2401							; SCOPE LOOP AND HIT CONTINUE
2402	010742	022740	010620	1\$:	CMP	#001,-(C)	
2403	010746	001405			BEQ	2\$	
2404							
2405	010750	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2406	010752	012713	000165		MOV	#165,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2407	010756	000000			HLT		; CORRECT PC WAS NOT SAVED ON
2408							; EMT TRAP
2409	010760	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
2410							; "JMP 2RD" (000110) TO GET A
2411							; SCOPE LOOP AND HIT CONTINUE
2412	010762	022740	000001	2\$:	CMP	#1,-(0)	
2413	010766	001405			BEQ	3\$	
2414							
2415	010770	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2416	010772	012713	000166		MOV	#166,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2417	010776	000000			HLT		; CORRECT PSW WAS NOT SAVED ON STACK
2418							; OVERFLOW TRAP FOLLOWING EMT
2419	011000	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
2420							; "JMP 2RD" (000110) TO GET A
2421							; SCOPE LOOP AND HIT CONTINUE
2422	011002	022740	010632	3\$:	CMP	#01,-(0)	
2423	011006	001405			BEQ	4\$	
2424							
2425	011010	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2426	011012	012713	000167		MOV	#167,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2427	011016	000000			HLT		; CORRECT PC WAS NOT SAVED ON STACK
2428							; OVERFLOW TRAP FOLLOWING EMT
2429	011020	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
2430							; "JMP 2RD" (000110) TO GET A
2431							; SCOPE LOOP AND HIT CONTINUE
2432	011022	022740	000000	4\$:	CMP	#0,-(0)	
2433	011026	001405			BEQ	5\$	
2434							
2435	011030	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2436	011032	012713	000170		MOV	#170,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR

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T106 TEST FOR REPEATED TRAPS AND OVERFLOW OF STACK

2437	011036	000000		HLT		: CORRECT PSW WAS NOT SAVED ON
2438						: "TRAP" TRAP
2439	011040	000240		LOOP		: REPLACE THIS INSTRUCTION BY A
2440						: "JMP 2R0" (000110) TO GET A
2441						: SCOPE LOOP AND HIT CONTINUE
2442	011042	022740	010634	5\$: CMP	#011, -(0)	
2443	011046	001405		BEQ	6\$	
2444						
2445	011050	005212		INC	(R2)	: SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2446	011052	012713	000171	MOV	#171, (R3)	: MOVE TO MAIL BOX (\$FATAL) THE ERROR
2447	011056	000000		HLT		: CORRECT PC WAS NOT SAVED ON
2448						: "TRAP" TRAP
2449	011060	000240		LOOP		: REPLACE THIS INSTRUCTION BY A
2450						: "JMP 2R0" (000110) TO GET A
2451						: SCOPE LOOP AND HIT CONTINUE
2452	011062	022740	000002	6\$: CMP	#2, -(0)	
2453	011066	001405		BEQ	7\$	
2454						
2455	011070	005212		INC	(R2)	: SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2456	011072	012713	000172	MOV	#172, (R3)	: MOVE TO MAIL BOX (\$FATAL) THE ERROR
2457	011076	000000		HLT		: CORRECT PSW WAS NOT SAVED ON STACK
2458						: OVERFLOW TRAP FOLLOWING "TRAP"
2459	011100	000240		LOOP		: REPLACE THIS INSTRUCTION BY A
2460						: "JMP 2R0" (000110) TO GET A
2461						: SCOPE LOOP AND HIT CONTINUE
2462	011102	022740	010646	7\$: CMP	#02, -(0)	
2463	011106	001405		BEQ	8\$	
2464						
2465	011110	005212		INC	(R2)	: SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2466	011112	012713	000173	MOV	#173, (R3)	: MOVE TO MAIL BOX (\$FATAL) THE ERROR
2467	011116	000000		HLT		: CORRECT PC WAS NOT SAVED ON STACK
2468						: OVERFLOW TRAP FOLLOWING "TRAP"
2469	011120	000240		LOOP		: REPLACE THIS INSTRUCTION BY A
2470						: "JMP 2R0" (000110) TO GET A
2471						: SCOPE LOOP AND HIT CONTINUE
2472	011122	022740	000000	8\$: CMP	#0, -(0)	
2473	011126	001405		BEQ	9\$	
2474						
2475	011130	005212		INC	(R2)	: SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2476	011132	012713	000174	MOV	#174, (R3)	: MOVE TO MAIL BOX (\$FATAL) THE ERROR
2477	011136	000000		HLT		: CORRECT PSW WAS NOT SAVED ON
2478						: "IOT" TRAP
2479	011140	000240		LOOP		: REPLACE THIS INSTRUCTION BY A
2480						: "JMP 2R0" (000110) TO GET A
2481						: SCOPE LOOP AND HIT CONTINUE
2482	011142	022740	010650	9\$: CMP	#021, -(0)	
2483	011146	001405		BEQ	10\$	
2484						
2485	011150	005212		INC	(R2)	: SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2486	011152	012713	000175	MOV	#175, (R3)	: MOVE TO MAIL BOX (\$FATAL) THE ERROR
2487	011156	000000		HLT		: CORRECT PC WAS NOT SAVED ON
2488						: "IOT" TRAP
2489	011160	000240		LOOP		: REPLACE THIS INSTRUCTION BY A
2490						: "JMP 2R0" (000110) TO GET A
2491						: SCOPE LOOP AND HIT CONTINUE
2492	011162	022740	000003	10\$: CMP	#3, -(0)	

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T106 TEST FOR REPEATED TRAPS AND OVERFLOW OF STACK

2543	011166	001405		BEQ	115	
2544	011170	005212		INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2545	011172	012713	000176	MOV	#176, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2546	011176	000000		HLT		; CORRECT PSW WAS NOT SAVED ON STACK
2547						; OVERFLOW FOLLOWING IOT
2548	011200	000240		LOOP		; REPLACE THIS INSTRUCTION BY A
2549						; "JMP 2R0" (000110) TO GET A
2550						; SCOPE LOOP AND HIT CONTINUE
2551	011202	022740	010662	115:	CMP	#03, -(0)
2552	011206	001405		BEQ	125	
2553						
2554	011210	005212		INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2555	011212	012713	000177	MOV	#177, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2556	011216	000000		HLT		; CORRECT PC WAS NOT SAVED ON STACK
2557						; OVERFLOW FOLLOWING IOT
2558	011220	000240		LOOP		; REPLACE THIS INSTRUCTION BY A
2559						; "JMP 2R0" (000110) TO GET A
2560						; SCOPE LOOP AND HIT CONTINUE
2561	011222	022740	000000	125:	CMP	#0, -(0)
2562	011226	001405		BEQ	135	
2563						
2564	011230	005212		INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2565	011232	012713	000200	MOV	#200, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2566	011236	000000		HLT		; CORRECT PSW WAS NOT SAVED
2567						; ON BPT TRAP
2568	011240	000240		LOOP		; REPLACE THIS INSTRUCTION BY A
2569						; "JMP 2R0" (000110) TO GET A
2570						; SCOPE LOOP AND HIT CONTINUE
2571	011242	022740	010664	135:	CMP	#031, -(0)
2572	011246	001405		BEQ	145	
2573						
2574	011250	005212		INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2575	011252	012713	000201	MOV	#201, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2576	011256	000000		HLT		; CORRECT PC WAS NOT SAVED
2577						; ON BPT TRAP
2578	011260	000240		LOOP		; REPLACE THIS INSTRUCTION BY A
2579						; "JMP 2R0" (000110) TO GET A
2580						; SCOPE LOOP AND HIT CONTINUE
2581	011262	022740	000004	145:	CMP	#4, -(0)
2582	011266	001405		BEQ	155	
2583						
2584	011270	005212		INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2585	011272	012713	000202	MOV	#202, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2586	011276	000000		HLT		; CORRECT PSW WAS NOT SAVED ON STACK
2587						; OVERFLOW FOLLOWING BPT
2588	011300	000240		LOOP		; REPLACE THIS INSTRUCTION BY A
2589						; "JMP 2R0" (000110) TO GET A
2590						; SCOPE LOOP AND HIT CONTINUE
2591	011302	022740	010676	155:	CMP	#04, -(0)
2592	011306	001405		BEQ	07	
2593						
2594	011310	005212		INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2595	011312	012713	000203	MOV	#203, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2596	011316	000000		STKERR: HLT		; CORRECT PC WAS NOT SAVED ON STACK
2597						; OVERFLOW FOLLOWING BPT

Address	Instruction	Comments
2549		
2550	011320 000240	LOOP
2551		
2552		
2553	011322 000402	07: BR 06
2554	011324 000176 000000	05: JMP 2(6)
2555	011330 010700	06: SCOPE
2556		
2557		
2558		
2559		
2560	011332 005237 000304	TST107: INC 2*STESTN
2561	011336 005037 021414	CLR TEMP
2562	011342 012706 000400	MOV #400,%6
2563	011346 012737 011532 000014	MOV #TRTC,TRTVEC
2564	011354 005037 000016	CLR TRTVEC+2
2565	011360 012737 011416 000004	MOV #TRTB,ERRVEC
2566	011366 005037 000006	CLR ERRVEC+2
2567	011372 013737 011410 021416	MOV TRTA,TEMP+2
2568	011400 012737 000003 011410	MOV #BPT,TRTA
2569	011406 000277	SCC
2570	011410 005137 021414	COM TEMP
2571	011414 000535	TRTAA: BR TRTF
2572	011416 022737 000017 000376	TRTB: CMP #17,376
2573	011424 001405	BEQ 1\$
2574		
2575	011426 005212	INC (R2)
2576	011430 012713 000204	MOV #204,(R3)
2577	011434 000000	HLT
2578	011436 000240	LOOP
2579		
2580		
2581	011440 022737 011412 000374 1\$:	CMP #TRTA+2,374
2582	011446 001406	BEQ 2\$
2583		
2584	011450 005212	INC (R2)
2585	011452 012713 000205	MOV #205,(R3)
2586	011456 000000	HLT
2587	011460 000240	LOOP
2588		
2589		
2590	011462 000523	BR TRTEX
2591	011464 005737 000372	2\$: TST 372
2592	011470 001405	BEQ 3\$
2593		
2594	011472 005212	INC (R2)
2595	011474 012713 000206	MOV #206,(R3)
2596	011500 000000	HLT
2597	011502 000240	LOOP
2598		
2599		
2600	011504 022737 011532 000370 3\$:	CMP #TRTC,370
2601	011512 001406	BEQ 4\$
2602		
2603	011514 005212	INC (R2)
2604	011516 012713 000207	MOV #207,(R3)

2605	011522	000000				HLT			ERROR! TRT VECTOR (TRTVEC) NOT SAVED
2606	011524	000240				LOOP			REPLACE THIS INSTRUCTION BY A
2607									"JMP 2R0" (000110) TO GET A
2608									SCOPE LOOP AND HIT CONTINUE
2609	011526	000501				BR	TRTEX		EXIT TEST
2610	011530	000002			4\$:	RTI			RETURN FROM OVERFLOW TRAP
2611									
2612	011532	010605			TRTC:	MOV	%6,%5		GET STACK POINTER
2613	011534	162715	000002			SUB	#2,(5)		POINT PC TO TRAPPED INSTRUCTION
2614	011540	013735	021416			MOV	TEMP+2,a(5)+		RESTORE ORIGINAL INSTRUCTION (COM TEMP)
2615	011544	052715	000020			BIS	#20,(5)		SET 'T' BIT ON STACK
2616	011550	012737	011566	000004		MOV	#TRTD,ERRVEC		CHANGE ERROR VECTOR
2617	011556	012737	011702	000014		MOV	#TRTE,TBITVEC		LOAD 'T' BIT VECTOR
2618	011564	000006				RTT			GO DO ORIGINAL INSTRUCTION AND TRAP
2619									('T' BIT TRAP) WHEN FINISHED
2620									
2621					:CHECK THE STACK				
2622	011566	022737	000031	000376	TRTD:	CMP	#31,376		IS 'N','C','T' BITS SET ON THE STACK
2623	011574	001405				BEQ	1\$		(RESULT OF COM TEMP IN TRTA
2624									
2625	011576	005212				INC	(R2)		SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2626	011600	012713	000210			MOV	#210,(R3)		MOVE TO MAIL BOX (\$FATAL) THE ERROR
2627	011604	000000				HLT			ERROR! STATUS NOT SAVED
2628	011606	000240				LOOP			REPLACE THIS INSTRUCTION BY A
2629									"JMP 2R0" (000110) TO GET A
2630									SCOPE LOOP AND HIT CONTINUE
2631	011610	022737	011414	000374	1\$:	CMP	#TRTAA,374		WAS RETURN PC FROM 'T' TRAP SAVED?
2632	011616	001406				BEQ	2\$		
2633									
2634	011620	005212				INC	(R2)		SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2635	011622	012713	000211			MOV	#211,(R3)		MOVE TO MAIL BOX (\$FATAL) THE ERROR
2636	011626	000000				HLT			ERROR! RETURN PC NOT SAVED
2637	011630	000240				LOOP			REPLACE THIS INSTRUCTION BY A
2638									"JMP 2R0" (000110) TO GET A
2639									SCOPE LOOP AND HIT CONTINUE
2640	011632	000437				BR	TRTEX		EXIT TEST
2641	011634	005737	000372		2\$:	TST	372		'T' BIT TRAP STATUS SAVED?
2642	011640	001405				BEQ	3\$		
2643									
2644	011642	005212				INC	(R2)		SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2645	011644	012713	000212			MOV	#212,(R3)		MOVE TO MAIL BOX (\$FATAL) THE ERROR
2646	011650	000000				HLT			ERROR! 'T' BIT STATUS (TBITVEC+2) NOT SAVED
2647	011652	000240				LOOP			REPLACE THIS INSTRUCTION BY A
2648									"JMP 2R0" (000110) TO GET A
2649									SCOPE LOOP AND HIT CONTINUE
2650	011654	022737	011702	000370	3\$:	CMP	#TRTE,370		'T' BIT VECTOR SAVED (TBITVRC)
2651	011662	001406				BEQ	4\$		
2652									
2653	011664	005212				INC	(R2)		SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2654	011666	012713	000213			MOV	#213,(R3)		MOVE TO MAIL BOX (\$FATAL) THE ERROR
2655	011672	000000				HLT			ERROR! 'T' BIT VECTOR NOT SAVED
2656	011674	000240				LOOP			REPLACE THIS INSTRUCTION BY A
2657									"JMP 2R0" (000110) TO GET A
2658									SCOPE LOOP AND HIT CONTINUE
2659	011676	000415				BR	TRTEX		EXIT TEST
2660	01170								

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T107 TEST TRACE TRAP WHEN STACK IS IN YELLOW AREA

```

2661
2662 011702 005037 000375      TRTE:  CLR      376      ;CLEAR SAVED 'T' BIT
2663 011706 000002                RTI                ;RETURN FROM 'T' BIT TRAP
2664
2665 011710 022737 177777 021414  TRTF:  CMP      #-1,TEMP      ;WAS ORIGINAL INSTRUCTION EXECUTED?
2666 011716 001405                BEQ      TRTEX
2667
2668 011720 005212                INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2669 011722 012713 000214                MOV      #214,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2670 011726 000000                IS:   HLT                ;TRACED INSTRUCTION (COM TEMP) NOT EXEC.
2671 011730 000240                LOOP              ;REPLACE THIS INSTRUCTION BY A
2672                "JMP 300" (000110) TO GET A
2673                SCOPE LOOP AND HIT CONTINUE
2674 011732 012737 000016 000014  TRTEX:  MOV      #TRTVEC+2,TRTVEC ;RESTORE TRAP
2675 011740 012737 000006 000004      MOV      #6,4          ;VECTORS
2676 011746 010700                SCOPE
2677
2678                ;*****
2679                ;*TEST 110 TEST YELLOW ZONE STACK VIOLATION, USING INDEX MODE (6) & R6. (R6.GT.4)
2680                ;*****
2681 011750 005237 000304                TST110: INC      #TESTN
2682 011754 012706 001000                INDEX:  MOV      #1000,%6      ;SET UP STACK POINTER
2683 011760 012737 012010 000004      MOV      #IND1,4
2684 011766 005037 000006                CLR      6
2685 011772 005066 177340                CLR      -440(6)      ;FINAL ADDRESS IS 340
2686
2687 011776 005212                INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2688 012000 012713 000215                MOV      #215,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2689 012004 000000                HLT                ;ERROR! STACK OVERFLOW TRAP DID NOT OCCUR
2690 012006 000240                LOOP              ;REPLACE THIS INSTRUCTION BY A
2691                "JMP 300" (000110) TO GET A
2692                SCOPE LOOP AND HIT CONTINUE
2693 012010 010700                IND1:   SCOPE
2694
2695                ;TEST THAT THE TRAP SEQUENCE IS EXECUTED PROPERLY ON OVERFLOW.
2696 012012 012706 001000                MOV      #1000,%6
2697 012016 012737 012064 000004      MOV      #IND2,4
2698 012024 005037 000776                CLR      776
2699 012030 005037 000774                CLR      774
2700 012034 012737 000001 000376      MOV      #1,376      ;PRE SET DEST ADDRESS
2701 012042 012766 000000 177376      MOV      #0,-402(6)  ;FINAL ADDRESS IS 376
2702 012050
2703
2704 012050 005212                INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2705 012052 012713 000216                MOV      #216,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2706 012056 000000                IND2A: HLT                ;ERROR! FAILED TO TRAP
2707 012060 000240                LOOP              ;REPLACE THIS INSTRUCTION BY A
2708                "JMP 300" (000110) TO GET A
2709                SCOPE LOOP AND HIT CONTINUE
2710 012062 000442                BR      IND2X
2711 012064 023727 000776 000004  IND2:  CMP      776,#4      ;GO TO SCOPE
2712 012072 001405                BEQ      15          ;STATUS SAVED ON THE STACK (Z BIT SET)
2713                ;(RESULT OF MOV #0,-402(6))
2714 012074 005212                INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2715 012076 012713 000217                MOV      #217,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2716 012102 000000                HLT                ;ERROR! INCORRECT STATUS SAVED

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2717	012104	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
2718							"JMP 2R0" (000110) TO GET A
2719							SCOPE LOOP AND HIT CONTINUE
2720	012106	022737	012050	000774	1\$: CMP	#IND2B,774	; RETURN PC SAVED?
2721	012114	001405			BEQ	2\$	
2722							
2723	012116	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2724	012120	012713	000220		MOV	#220,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2725	012124	000000			HLT		; ERROR! RETURN PC NOT SAVED
2726	012126	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
2727							"JMP 2R0" (000110) TO GET A
2728							SCOPE LOOP AND HIT CONTINUE
2729	012130	020627	000774		2\$: CMP	%6,#774	; CORRECT STACK POINTER?
2730	012134	001405			BEQ	3\$	
2731							
2732	012136	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2733	012140	012713	000221		MOV	#221,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2734	012144	000000			HLT		; ERROR! INCORRECT STACK POINTER
2735	012146	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
2736							"JMP 2R0" (000110) TO GET A
2737							SCOPE LOOP AND HIT CONTINUE
2738	012150	005737	000376		3\$: TST	376	
2739	012154	001405			BEQ	IND2X	; WAS MOVE INST. EXECUTED
2740							
2741	012156	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2742	012160	012713	000222		MOV	#222,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2743	012164	000000			HLT		; ERROR! MOVE NOT EXECUTED
2744	012166	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
2745							"JMP 2R0" (000110) TO GET A
2746							SCOPE LOOP AND HIT CONTINUE
2747	012170	010700			IND2X:	SCOPE	
2748							
2749							; *****
2750							; *TEST 111 TEST YELLOW ZONE STACK VIOLATION, USING INDEX MODE (340.LT.R6.LT.400
2751							; *****
2752	012172	005237	000304		TST111:	INC	2*\$TESTN
2753	012176	012706	000376		MOV	#376,%6	; SET UP STACK IN 'YELLOW' AREA
2754	012202	012737	012236	000004	MOV	#IND3,4	; SET UP ERROR RETURN
2755	012210	005037	000374		CLR	374	
2756	012214	005037	000372		CLR	372	
2757	012220	005066	177742		CLR	-36(6)	; FINAL ADDRESS IS 340 (YELLOW)
2758	012224				IND3B:		
2759							
2760	012224	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2761	012226	012713	000223		MOV	#223,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2762	012232	000000			HLT		; FAILED TO TRAP
2763	012234	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
2764							"JMP 2R0" (000110) TO GET A
2765							SCOPE LOOP AND HIT CONTINUE
2766	012236	022737	000004	000374	IND3:	CMP	#4,374
2767	012244	001405			BEQ	1\$	
2768							
2769	012246	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2770	012250	012713	000224		MOV	#224,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2771	012254	000000			HLT		; SAVED STATUS WAS INCORRECT (2 SET)
2772	012256	000240			LOOP		; REPLACE THIS INSTRUCTION BY A

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2773									: "JMP 3RD" (000110) TO GET A
2774									: SCOPE LOOP AND HIT CONTINUE
2775	012260	022737	012224	000372	1S:	CMP	#IND3B,372		: SAVED RETURN ADDRESS CORRECT?
2776	012266	001405				BEQ	2S		
2777									
2778	012270	005212				INC	(R2)		: SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2779	012272	012713	000225			MOV	#225,(R3)		: MOVE TO MAIL BOX (\$FATAL) THE ERROR
2780	012276	000000				HLT			: ERROR! SAVED RETURN ADDRESS INCORRECT
2781	012300	000240				LOOP			: REPLACE THIS INSTRUCTION BY A
2782									: "JMP 3RD" (000110) TO GET A
2783									: SCOPE LOOP AND HIT CONTINUE
2784	012302	022706	000372		2S:	CMP	#372,%6		: STACK POINTER CORRECT
2785	012306	001405				BEQ	3S		
2786									
2787	012310	005212				INC	(R2)		: SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2788	012312	012713	000226			MOV	#226,(R3)		: MOVE TO MAIL BOX (\$FATAL) THE ERROR
2789	012316	000000				HLT			: ERROR! STACK POINTER INCORRECT
2790	012320	000240				LOOP			: REPLACE THIS INSTRUCTION BY A
2791									: "JMP 3RD" (000110) TO GET A
2792									: SCOPE LOOP AND HIT CONTINUE
2793	012322	005737	000340		3S:	TST	340		: WAS CLEAR INSTRUCTION EXECUTED?
2794	012326	001405				BEQ	4S		
2795									
2796	012330	005212				INC	(R2)		: SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2797	012332	012713	000227			MOV	#227,(R3)		: MOVE TO MAIL BOX (\$FATAL) THE ERROR
2798	012336	000000				HLT			: ERROR! CLEAR NOT EXECUTED
2799	012340	000240				LOOP			: REPLACE THIS INSTRUCTION BY A
2800									: "JMP 3RD" (000110) TO GET A
2801									: SCOPE LOOP AND HIT CONTINUE
2802	012342	010700			4S:	SCOPE			
2803									
2804									: *****
2805									: *TEST 112 TEST RED ZONE STACK VIOLATION & ABORT OF THE VIOLATING INSTRUCTION
2806									: *****
2807	012344	005237	000304		TST112:	INC	2#STESTN		
2808	012350	012706	001000			MOV	#1000,%6		
2809	012354	012737	012436	000004		MOV	#IND4,4		
2810	012362	012737	177777	000344		MOV	#-1,344		: PRE SET SAVED STATUS LOCATION
2811	012370	012737	177777	000000		MOV	#-1,0		
2812	012376	012737	177777	000002		MOV	#-1,2		
2813	012404	005037	000776			CLR	776		
2814	012410	005037	177776			CLR	CC		
2815	012414	012737	177777	000336		MOV	#-1,336		: PRE SET 336
2816	012422	005066	177336			CLR	-442(6)		: CLEAR 'RED' LOCATION (336)
2817	012426				IND4B:				
2818									
2819	012426	005212				INC	(R2)		: SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2820	012430	012713	000230			MOV	#230,(R3)		: MOVE TO MAIL BOX (\$FATAL) THE ERROR
2821	012434	000000			IND4A:	HLT			: ERROR! FAILED TO TRAP
2822	012436	005706			IND4:	TST	%6		: STACK POINTER CORRECT?
2823	012440	001405				BEQ	1S		
2824									
2825	012442	005212				INC	(R2)		: SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2826	012444	012713	000231			MOV	#231,(R3)		: MOVE TO MAIL BOX (\$FATAL) THE ERROR
2827	012450	000000				HLT			: ERROR! INCORRECT STACK POINTER
2828	012452	000240		</					

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T112 TEST RED ZONE STACK VIOLATION & ABORT OF THE VIOLATING INSTRUCTION

2829								; "JMP 2R0" (000110) TO GET A
2830								; SCOPE LOOP AND HIT CONTINUE
2831	012454	022737	177777	000336	1\$:	CMP	#-1,336	; WAS CLEAR INSTRUCTION ABORTED?
2832	012462	001405				BEQ	2\$	
2833								
2834	012464	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2835	012466	012713	000232			MOV	#232,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2836	012472	000000				HLT		; ERROR! CLEAR INSTRUCTION NOT ABORTED
2837	012474	000240				LOOP		; REPLACE THIS INSTRUCTION BY A
2838								; "JMP 2R0" (000110) TO GET A
2839								; SCOPE LOOP AND HIT CONTINUE
2840	012476	022737	000004	000002	2\$:	CMP	#4,2	; WAS PROPER STATUS SAVED? (Z SET)
2841	012504	001405				BEQ	3\$	; RESULT OF CLR -442(6)
2842								
2843	012506	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2844	012510	012713	000233			MOV	#233,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2845	012514	000000				HLT		; ERROR! INCORRECT STATUS WAS SAVED
2846								; THOUGH THE INSTR. (CLR) WAS ABORTED
2847								; THE Z BIT WAS SET BECAUSE OF CLEAR
2848								; HEIKE. ON THE STACK Z BIT WILL BE SAVED
2849	012516	000240				LOOP		; REPLACE THIS INSTRUCTION BY A
2850								; "JMP 2R0" (000110) TO GET A
2851								; SCOPE LOOP AND HIT CONTINUE
2852	012520	022737	012426	000000	3\$:	CMP	#IND48,0	; WAS RETURN PC SAVED?
2853	012526	001405				BEQ	4\$	
2854								
2855	012530	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2856	012532	012713	000234			MOV	#234,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2857	012536	000000				HLT		
2858	012540	000240				LOOP		; REPLACE THIS INSTRUCTION BY A
2859								; "JMP 2R0" (000110) TO GET A
2860								; SCOPE LOOP AND HIT CONTINUE
2861	012542	005737	000776		4\$:	TST	776	; WAS NOTHING PUT ON THE OLD STACK?
2862	012546	001405				BEQ	5\$	
2863								
2864	012550	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2865	012552	012713	000235			MOV	#235,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2866	012556	000000				HLT		; ERROR! RED TRAP DID NOT STACK AT 2 & 0
2867	012560	000240				LOOP		; REPLACE THIS INSTRUCTION BY A
2868								; "JMP 2R0" (000110) TO GET A
2869								; SCOPE LOOP AND HIT CONTINUE
2870	012562	010700			5\$:	SCOPE		
2871								
2872								; *****
2873								; *TEST 113 TEST THAT INDEX MODE USING R6 IN SOURCE DOES NOT TRAP
2874								; *****
2875	012564	005237	000304		TST113:	INC	#TESTN	
2876	012570	012706	001000			MOV	#1000,%6	; SET UP STACK
2877	012574	012737	012626	000004		MOV	#IND5,4	; SET UP ERROR TRAP
2878	012602	012737	177777	000350		MOV	#-1,350	
2879	012610	016637	177350	021414		MOV	-430(6),TEMP	
2880	012616	000405				BR	IND8	
2881								
2882	012620	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
2883	012622	012713	000236			MOV	#236,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
2884	012626	000000			IND5:	HLT		; ERROR! TRAPPED

Address	Instruction	Comment
2885	012630 000240	LOOP
2886		; REPLACE THIS INSTRUCTION BY A
2887		; "JMP 2R0" (000110) TO GET A
2888	012632 010700	IND8: SCOPE
2889		; *****
2890		; *TEST 114 THIS TEST IS THE SAME AS ABOVE EXCEPT THAT LOCATION IS 'RED'
2891		; *****
2892		
2893	012634 005237 000304	TST114: INC 2*TESTN
2894	012640 012706 001000	MOV #1000,%6
2895	012644 012737 012670 000004	MOV #IND6,4
2896	012652 016637 177336 021414	MOV -442(6),TEMP
2897	012660 000405	BR IND9
2898		
2899	012662 005212	INC (R2)
2900	012664 012713 000237	MOV #237,(R3)
2901	012670 000000	IND6: HLT
2902	012672 000240	LOOP
2903		; REPLACE THIS INSTRUCTION BY A
2904		; "JMP 2R0" (000110) TO GET A
2905	012674 010700	IND9: SCOPE
2906		; *****
2907		; *TEST 115 TEST THAT TRAP DOES NOT OCCUR IF INDEX USING R6 IN DEST IS DEFERRED
2908		; *****
2909		
2910	012676 005237 000304	TST115: INC 2*TESTN
2911	012702 012706 001000	MOV #1000,%6
2912	012706 012737 012736 000004	MOV #IND7,4
2913	012714 012737 021414 000350	MOV #TEMP,350
2914	012722 005076 177350	CLR 2-430(6)
2915	012726 000405	BR IND11
2916		; CLEAR TEMP
2917	012730 005212	INC (R2)
2918	012732 012713 000240	MOV #240,(R3)
2919	012736 000000	IND7: HLT
2920	012740 000240	LOOP
2921		; REPLACE THIS INSTRUCTION BY A
2922		; "JMP 2R0" (000110) TO GET A
2923	012742 010700	IND11: SCOPE
2924		; *****
2925		; *TEST 116 THIS TEST IS THE SAME AS ABOVE EXCEPT THE ADDRESS IS 'RED'
2926		; *****
2927		
2928	012744 005237 000304	TST116: INC 2*TESTN
2929	012750 012706 001000	MOV #1000,%6
2930	012754 012737 013006 000004	MOV #IND10,4
2931	012762 012737 021414 000336	MOV #TEMP,336
2932	012770 012776 177777 177336	MOV #-1,2-442(6)
2933	012776 000405	BR IND12
2934		; MOVE #-1 TO TEMP
2935	013000 005212	INC (R2)
2936	013002 012713 000241	MOV #241,(R3)
2937	013006 000000	IND10: HLT
2938	013010 000240	LOOP
2939		; REPLACE THIS INSTRUCTION BY A
2940		; "JMP 2R0" (000110) TO GET A
		; SCOPE LOOP AND HIT CONTINUE

H05

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T116 THIS TEST IS THE SAME AS ABOVE EXCEPT THE ADDRESS IS 'RED'

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2941 013012 010700          IND12: SCOPE
2942
2943          ;*****
2944          ;*TEST 117 TEST RED ZONE VIOLATION USING EMT INSTRUCTION
2945          ;*****
2946 013014 005237 000304      TST117: INC      2*STESTN
2947 013020 012706 000340      MOV      #340,%6          ;SET UP STACK POINTER IN 'RED' AREA
2948 013024 012737 013112 000030  MOV      #RED1,EMTVEC
2949 013032 005037 000032      CLR      EMTVEC+2
2950 013036 012737 013116 000004  MOV      #RED1A,4
2951 013044 005037 000006      CLR      6
2952 013050 005037 000000      CLR      0
2953 013054 012737 136336 000336  MOV      #136336,336      ;PRESET 'RED' LOCATION
2954 013062 012737 177777 000002  MOV      #-1,2          ;N BIT SET
2955 013070 104000
2956 013072          RED1C:
2957
2958 013072 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2959 013074 012713 000242      MOV      #242,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2960 013100 000000          RED1B: HLT
2961 013102 000240          LOOP
2962          ;REPLACE THIS INSTRUCTION BY A
2963          ;"JMP 2RD" (000110) TO GET A
2964          ;SCOPE LOOP AND HIT CONTINUE
2965 013104 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2966 013106 012713 000243      MOV      #243,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2967 013112 000000          RED1: HLT
2968 013114 000240          LOOP
2969          ;REPLACE THIS INSTRUCTION BY A
2970          ;"JMP 2RD" (000110) TO GET A
2971 013116 022737 000000 000002 RED1A: CMP      #0,2
2972 013124 001405          BEQ      1$
2973
2974 013126 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2975 013130 012713 000244      MOV      #244,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2976 013134 000000          HLT
2977          ;CORRECT (NEW) PSW WAS NOT SAVED
2978          ;ON A RED ZONE TRAP (CAUSED BY EMT)
2979          ;UPON EXECUTING EMT RED ZONE OCCURED
2980          ;THE 11/60 SAVES THE "NEW" PSW WHICH
2981          ;WOULD HAVE BEEN LOADED BY THE EMT.
2982          ;11/40 SAVES THE PSW THAT WAS CURRENT AT THE
2983          ;TIME EMT WAS EXECUTED.)
2984 013136 000240          LOOP
2985          ;REPLACE THIS INSTRUCTION BY A
2986          ;"JMP 2RD" (000110) TO GET A
2987 013140 022737 013072 000000 1$: CMP      #RED1C,0
2988 013146 001405          BEQ      2$
2989          ;(EMTVEC)
2990          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2991 013150 005212          INC      (R2)
2992 013152 012713 000245      MOV      #245,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
2993 013156 000000          HLT
2994 013160 000240          LOOP
2995          ;REPLACE THIS INSTRUCTION BY A
2996          ;"JMP 2RD" (000110) TO GET A
2997          ;SCOPE LOOP AND HIT CONTINUE
2998          ;STACK POINTER=0?
2999 013162 005706          2$: TST      %6
3000 013164 001405          BEQ      3$

```

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2997
2998 013166 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
2999 013170 012713 000246   MOV      #246,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3000 013174 000000          HLT
3001 013176 000240          LOOP
3002
3003
3004 013200 022737 136336 000336 3$: CMP      #136336,336      ;REPLACE THIS INSTRUCTION BY A
3005 013206 001405          BEQ      4$              ;"JMP 2R0" (000110) TO GET A
3006
3007 013210 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3008 013212 012713 000247   MOV      #247,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3009 013216 000000          HLT
3010 013220 000240          LOOP
3011
3012
3013 013222 012737 000032 000030 4$: MOV      #EMTVEC+2,EMTVEC      ;REPLACE THIS INSTRUCTION BY A
3014 013230 010700          SCOPE
3015
3016
3017
3018
3019 013232 005237 000304          TST120: INC      #0$TESTN
3020 013236 012706 000200          MOV      #200,X6          ;SET UP STACK IN 'RED' AREA
3021 013240 012737 176176 000176  MOV      #176176,176      ;PRE SET 'RED' LOCATION
3022 013250 012737 013326 000034  MOV      #RED2,TRAPVEC
3023 013256 005037 000036          CLR      TRAPVEC+2
3024 013260 005037 000006          CLR      6
3025 013266 005037 000000          CLR      0
3026 013272 012737 013332 000004  MOV      #RED2A,4
3027 013300 005037 000002          CLR      2          ;Z BIT SET
3028 013304 104400          TRAP
3029 013306
3030
3031 013306 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3032 013310 012713 000250  RED2B: MOV      #250,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3033 013314 000000          HLT          ;ERROR! FAILED TO TRAP
3034 013316 000240          LOOP
3035
3036
3037
3038 013320 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3039 013322 012713 000251  RED2:  MOV      #251,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3040 013326 000000          HLT          ;DID NOT ABORT TRAP
3041 013330 000240          LOOP
3042
3043
3044 013332 022737 000000 000002 RED2A: CMP      #0,2
3045 013340 001405          BEQ      1$              ;REPLACE THIS INSTRUCTION BY A
3046
3047 013342 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3048 013344 012713 000252  MOV      #252,(R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3049 013350 000000          HLT          ;CORRECT STATUS WORD WAS NOT SAVED
3050
3051
3052

```

UPON A RED ZONE VIOLATION CAUSED BY
 "TRAP" 11/60 SAVES THE NEW PSW
 WHICH WOULD HAVE BEEN LOADED BY "TRAP"

Address	Instruction	Comments
3053		; 11/40 SAVES THE "OLD" PSW THAT WAS CURRENT
3054		; AT THE TIME "TRAP" WAS EXECUTED
3055	013352 000240	; REPLACE THIS INSTRUCTION BY A
3056		; "JMP 2R0" (000110) TO GET A
3057		; SCOPE LOOP AND HIT CONTINUE
3058	013354 022737 013306 000000 1\$:	CMP #RED2C,0
3059	013362 001405	BEQ 2\$
3060		; (TRAPVEC)
3061	013364 005212	INC (R2)
3062	013366 012713 000253	MOV #253,(R3)
3063	013372 000000	
3064	013374 000240	HLT
3065		LOOP
3066		; REPLACE THIS INSTRUCTION BY A
3067		; "JMP 2R0" (000110) TO GET A
3068		; SCOPE LOOP AND HIT CONTINUE
3069	013376 005706 2\$:	TST %6
3070	013400 001405	BEQ 3\$
3071	013402 005212	INC (R2)
3072	013404 012713 000254	MOV #254,(R3)
3073	013410 000000	HLT
3074	013412 000240	LOOP
3075		; REPLACE THIS INSTRUCTION BY A
3076		; "JMP 2R0" (000110) TO GET A
3077		; SCOPE LOOP AND HIT CONTINUE
3078	013414 022737 176176 000176 3\$:	CMP #176176,176
3079	013422 001405	BEQ 4\$
3080	013424 005212	INC (R2)
3081	013426 012713 000255	MOV #255,(R3)
3082	013432 000000	HLT
3083	013434 000240	LOOP
3084		; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3085		; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3086		; ERROR! 'RED' LOCATION WAS CHANGED
3087		; REPLACE THIS INSTRUCTION BY A
3088		; "JMP 2R0" (000110) TO GET A
3089		; SCOPE LOOP AND HIT CONTINUE
3090	013436 012737 000036 000034 4\$:	MOV #TRAPVEC+2,TRAPVEC
3091	013444 010700	SCOPE
3092		; *****
3093		; *TEST 121 TEST RED ZONE VIOLATION USING "IOT" INSTRUCTION
3094		; *****
3095	013446 005237 000304	TST121: INC #STESTN
3096	013452 012706 000100	MOV #100,%6
3097	013456 012737 013534 000020	MOV #RED3,IOTVEC
3098	013464 005037 000022	CLR IOTVEC+2
3099	013470 005037 000006	CLR 6
3100	013474 012737 013540 000004	MOV #RED3A,4
3101	013502 005037 000000	CLR 0
3102	013506 005037 000002	CLR 2
3103	013512 000004	IOT
3104		RED3C:
3105	013514	
3106	013514 005212	INC (R2)
3107	013516 012713 000256	MOV #256,(R3)
3108	013522 000000	HLT
3109	013524 000240	LOOP
3110		RED3B:
3111		; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3112		; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3113		; DID NOT OVERFLOW
3114		; REPLACE THIS INSTRUCTION BY A
3115		; "JMP 2R0" (000110) TO GET A
3116		; SCOPE LOOP AND HIT CONTINUE

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T121 TEST RED ZONE VIOLATION USING "IOT" INSTRUCTION

3109	013526	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3110	013530	012713	000257			MOV	#257, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3111	013534	000000			RED3:	HLT		; DID NOT ABORT IOT
3112	013536	000240				LOOP		; REPLACE THIS INSTRUCTION BY A
3113								; "JMP 2R0" (000110) TO GET A
3114								; SCOPE LOOP AND HIT CONTINUE
3115	013540	022737	000000	000002	RED3A:	CMP	#0, 2	; WAS STATUS SAVED?
3116	013546	001405				BEQ	15	
3117								
3118	013550	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3119	013552	012713	000260			MOV	#260, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3120	013556	000000				HLT		; CORRECT STATUS WORD WAS NOT SAVED
3121								; UPON A RED ZONE VIOLATION CAUSED BY
3122								; "IOT". 11/60 SAVES THE NEW PSW
3123								; WHICH WOULD HAVE BEEN LOADED BY "IOT"
3124								; 11/40 SAVES THE "OLD" PSW THAT WAS CURRENT
3125								; AT THE TIME "TRAP" WAS EXECUTED
3126	013560	000240				LOOP		; REPLACE THIS INSTRUCTION BY A
3127								; "JMP 2R0" (000110) TO GET A
3128								; SCOPE LOOP AND HIT CONTINUE
3129	013562	022737	013514	000000	15:	CMP	#RED3C, 0	; WAS RETURN PC SAVED?
3130	013570	001405				BEQ	25	; (IOTVEC)
3131								
3132	013572	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3133	013574	012713	000261			MOV	#261, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3134	013600	000000				HLT		
3135	013602	000240				LOOP		; REPLACE THIS INSTRUCTION BY A
3136								; "JMP 2R0" (000110) TO GET A
3137								; SCOPE LOOP AND HIT CONTINUE
3138	013604	005706			25:	TST	%6	
3139	013606	001405				BEQ	35	
3140								
3141	013610	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3142	013612	012713	000262			MOV	#262, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3143	013616	000000				HLT		
3144	013620	000240				LOOP		; REPLACE THIS INSTRUCTION BY A
3145								; "JMP 2R0" (000110) TO GET A
3146								; SCOPE LOOP AND HIT CONTINUE
3147	013622	012737	000022	000020	35:	MOV	#IOTVEC+2, IOTVEC	
3148	013630	010700				SCOPE		
3149								
3150								
3151								
3152								
3153	013632	005237	000304		TST122:	INC	#TESTN	
3154	013636	005006				CLR	%6	
3155	013640	012737	013716	000014		MOV	#RED4, TRTVEC	
3156	013646	005037	000016			CLR	TRTVEC+2	
3157	013652	005037	000006			CLR	6	
3158	013656	012737	013722	000004		MOV	#RED4A, 4	
3159	013664	005037	000000			CLR	0	
3160	013670	005037	000002			CLR	2	
3161	013674	000003				BPT		; TRACE TRAP
3162	013676				RED4C:			
3163								
3164	013676	005212				INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR

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3165	013700	012713	000263		MOV	#263, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3166	013704	000000		RED4B:	HLT		; DID NOT OVERFLOW
3167	013706	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
3168							; "JMP 2R0" (000110) TO GET A
3169							; SCOPE LOOP AND HIT CONTINUE
3170							
3171	013710	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3172	013712	012713	000264		MOV	#264, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3173	013716	000000		RED4:	HLT		; DID NOT ABORT TRT
3174	013720	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
3175							; "JMP 2R0" (000110) TO GET A
3176							; SCOPE LOOP AND HIT CONTINUE
3177	013722	022737	000000	000002	RED4A:	CMP	#0, 2
3178	013730	001405			BEQ	15	; WAS CORRECT? SW SAVED?
3179							
3180	013732	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3181	013734	012713	000265		MOV	#265, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3182	013740	000000			HLT		; CORRECT STATUS WORD WAS NOT SAVED
3183							; UPON A RED ZONE TRAP CAUSED BY A BPT
3184							; NEW PSW TAP WOULD BE LOADED BY BPT
3185							; SHOULD BE SAVED.
3186	013742	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
3187							; "JMP 2R0" (000110) TO GET A
3188							; SCOPE LOOP AND HIT CONTINUE
3189	013744	022737	013676	000000	15:	CMP	#RED4C, 0
3190	013752	001405			BEQ	25	; WAS RETURN PC SAVED?
3191							; (TRTVEC)
3192	013754	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3193	013756	012713	000266		MOV	#266, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3194	013762	000000			HLT		
3195	013764	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
3196							; "JMP 2R0" (000110) TO GET A
3197							; SCOPE LOOP AND HIT CONTINUE
3198	013766	005706			25:	TST	%6
3199	013770	001405			BEQ	35	
3200							
3201	013772	005212			INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3202	013774	012713	000267		MOV	#267, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3203	014000	000000			HLT		
3204	014002	000240			LOOP		; REPLACE THIS INSTRUCTION BY A
3205							; "JMP 2R0" (000110) TO GET A
3206							; SCOPE LOOP AND HIT CONTINUE
3207	014004	012737	000016	000014	35:	MOV	#TRTVEC+2, TRTVEC
3208	014012	010700			SCOPE		
3209							
3210							
3211							
3212							
3213	014014	005237	000304		TST123:	INC	#TESTN
3214							
3215	014020	012706	000344			MOV	#344, %6
3216	014024	012737	014124	000030		MOV	#REDS, EMTVEC
3217	014032	005037	000032			CLR	EMTVEC+2
3218	014036	012737	014132	000004		MOV	#REDS+4, 4
3219	014044	012737	000001	000006		MOV	#1, 6
3220	014052	012737	000017	000002		MOV	#17, 2

 ;TEST 123 TEST TRANSITION FROM 'YELLOW' TO 'RED' AREAS

 ;THE TRANSITION OCCURS AFTER THE ENT HAS PUSHED ITS RETURN ADDRESS AND STATUS.
 ;SET UP STACK TO ALLOW 2 'PUSHES'
 ;LOAD ENT VECTOR
 ;AND STATUS
 ;LOAD OVERFLOW VECTOR
 ;AND STATUS

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3221	014060	005037	000000		CLR	0	
3222	014064	012737	136336	000336	MOV	#136336,336	;PRE SET 'RED' LOCATION
3223	014072	012737	000004	177776	MOV	#4,CC	
3224	014100	104000			EMT		
3225	014102				REDS:		
3226							
3227	014102	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3228	014104	012713	000270		MOV	#270,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
3229	014110	000000			REDSB:		
3230	014112	000240			HLT		
3231					LOOP		;REPLACE THIS INSTRUCTION BY A
3232							; "JMP 2R0" (000110) TO GET A
3233	014114	000240					;SCOPE LOOP AND HIT CONTINUE
3234					NOP		
3235	014116	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3236	014120	012713	000271		MOV	#271,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
3237	014124	000000			REDS:		
3238	014126	000240			HLT		
3239					LOOP		;REPLACE THIS INSTRUCTION BY A
3240							; "JMP 2R0" (00011C) TO GET A
3241	014130	000240					;SCOPE LOOP AND HIT CONTINUE
3242	014132	022737	000004	000342	REDSA:		
3243	014140	001405			NOP		
3244					CMP	#4,342	;WAS STATUS SAVED?
3245	014142	005212			BEQ	15	
3246	014144	012713	000272		INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3247	014150	000000			MOV	#272,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
3248	014152	000240			HLT		;ERROR! EMT DID NOT SAVE STATUS
3249					LOOP		;REPLACE THIS INSTRUCTION BY A
3250							; "JMP 2R0" (000110) TO GET A
3251	014154	022737	014102	000340	15:	CMP	#REDS,340
3252	014162	001405			BEQ	25	;WAS RETURN PC SAVED?
3253							
3254	014164	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3255	014166	012713	000273		MOV	#273,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
3256	014172	000000			HLT		;ERROR! RETURN PC NOT SAVED
3257	014174	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
3258							; "JMP 2R0" (000110) TO GET A
3259							;SCOPE LOOP AND HIT CONTINUE
3260	014176	022737	136336	000336	25:	CMP	#136336,336
3261	014204	001405			BEQ	35	;WAS 'RED' LOCATION LEFT UNDISTURBED?
3262							
3263	014206	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3264	014210	012713	000274		MOV	#274,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
3265	014214	000000			HLT		;ERROR! 'RED' AREA WAS CHANGED
3266	014216	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
3267							; "JMP 2R0" (000110) TO GET A
3268							;SCOPE LOOP AND HIT CONTINUE
3269	014220	022737	000001	000002	35:	CMP	#1,2
3270	014226	001405			BEQ	45	;WAS CORRECT PSW SAVED?
3271							
3272	014230	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3273	014232	012713	000275		MOV	#275,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
3274	014236	000000			HLT		;CORRECT PSW WAS NOT SAVED WHEN
3275							;A RED ZONE OCCURED WHILE TRYING
3276							;TO SERVICE YELLOW ZONE. AFTER THE EMT

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T123 TEST TRANSITION FROM 'YELLOW' TO 'RED' AREAS

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3277                                     ;IS EXECUTED THE PENDING YELLOW ZONE OCCURS
3278                                     ;(AND YELLOW ZONE PSW IS LOADED), BUT TRYING
3279                                     ;TO PUSH THE STACK CAUSES RED ZONE AND
3280                                     ;THE NEW PSW (YELLOW ZONE'S) SHOULD
3281                                     ;BE SAVED ON THE STACK
3282 014240 000240                        LOOP      ;REPLACE THIS INSTRUCTION BY A
3283                                     ;"JMP 2R0" (000110) TO GET A
3284                                     ;SCOPE LOOP AND HIT CONTINUE
3285 014242 022737 014124 000000 45:    CMP      #RED5,0
3286 014250 001405                      BEQ      55
3287                                     ;
3288 014252 005212                        INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3289 014254 012713 000276                MOV      #276,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3290 014260 000000                      HLT
3291 014262 000240                      LOOP      ;ERROR! OVERFLOW'S VECTOR (4) NOT SAVED
3292                                     ;REPLACE THIS INSTRUCTION BY A
3293                                     ;"JMP 2R0" (000110) TO GET A
3294 014264 005706                        55:    TST      %6
3295 014266 001405                      BEQ      65
3296                                     ;
3297 014270 005212                        INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3298 014272 012713 000277                MOV      #277,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3299 014276 000000                      HLT
3300 014300 000240                      LOOP      ;REPLACE THIS INSTRUCTION BY A
3301                                     ;"JMP 2R0" (000110) TO GET A
3302                                     ;SCOPE LOOP AND HIT CONTINUE
3303 014302                        65:
3304
3305 014302 012737 000032 000030          MOV      #EMTVEC+2,EMTVEC
3306 014310 005037 000032              CLR      EMTVEC+2
3307 014314 010700                      SCOPE
3308
3309                                     ;*****
3310                                     ;*TEST 124 TEST TRANSITION FROM 'YELLOW' TO 'RED' ZONES
3311                                     ;*****
3312 014316 005237 000304          TST124: INC      2*TESTN
3313                                     ;THE TRANSITION OCCURS AFTER THE JSR HAS 'PUSHED' ITS OLD R5.
3314
3315 014322 012706 000342              MOV      #342,%6 ;SET UP STACK ON THE 'HAIRY EDGE'
3316 014326 012737 014424 000004      MOV      #RED6A,4 ;LOAD OVERFLOW VECTOR
3317 014334 012737 000357 000006      MOV      #357,6 ;AND OVERFLOW STATUS
3318 014342 005037 000000              CLR      0
3319 014346 005037 000002              CLR      2
3320 014352 005037 000340              CLR      340
3321 014356 012705 000007              MOV      #7,%5 ;PRE SET R5
3322 014362 012737 000017 177776      MOV      #17,CC ;PRE SET THE STATUS WORD
3323 014370 004537 014416              JSR      5,RED6 ;SHOULD CAUSE OVERFLOW TRAP
3324 014374
3325 RED6C:
3326 014374 005212                        INC      (R2)      ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3327 014376 012713 000300                MOV      #300,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3328 014402 000000                      HLT
3329 014404 000240                      LOOP      ;ERROR! DID NOT OVERFLOW TRAP
3330                                     ;REPLACE THIS INSTRUCTION BY A
3331                                     ;"JMP 2R0" (000110) TO GET A
3332 014406 000240                      NOP      ;SCOPE LOOP AND HIT CONTINUE

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Address	Instruction	Op-Code	Label	Comment	Assembly	Machine Code	Disassembly
3333	014410	005212			INC	(R2)	SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3334	014412	012713	000301		MOV	#301, (R3)	MOVE TO MAIL BOX (\$FATAL) THE ERROR
3335	014416	000000		RED6:	HLT		ERROR! DID NOT TRAP BEFORE JSR
3336	014420	000240			LOOP		REPLACE THIS INSTRUCTION BY A
3337							"JMP 2R0" (000110) TO GET A
3338							SCOPE LOOP AND HIT CONTINUE
3339	014422	000240			NOP		
3340	014424	022737	000357	177776	RED6A:	CMP	#357, CC
3341	014432	001405			BEQ	6\$	
3342							
3343	014434	005212			INC	(R2)	SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3344	014436	012713	000302		MOV	#302, (R3)	MOVE TO MAIL BOX (\$FATAL) THE ERROR
3345	014442	000000			HLT		WRONG PSW ON RED ZONE TRAP
3346	014444	000240			LOOP		REPLACE THIS INSTRUCTION BY A
3347							"JMP 2R0" (000110) TO GET A
3348							SCOPE LOOP AND HIT CONTINUE
3349	014446	022737	000007	000340	6\$:	CMP	#7, 340
3350	014454	001405			BEQ	1\$	WAS RS SAVED ON THE STACK
3351							
3352	014456	005212			INC	(R2)	SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3353	014460	012713	000303		MOV	#303, (R3)	MOVE TO MAIL BOX (\$FATAL) THE ERROR
3354	014464	000000			HLT		ERROR! RS NOT SAVED ON THE STACK
3355	014466	000240			LOOP		REPLACE THIS INSTRUCTION BY A
3356							"JMP 2R0" (000110) TO GET A
3357							SCOPE LOOP AND HIT CONTINUE
3358	014470	022705	014374		1\$:	CMP	#RED6C, %5
3359	014474	001405			BEQ	2\$	DOES RS CONTAIN RETURN ADDRESS?
3360							
3361	014476	005212			INC	(R2)	SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3362	014500	012713	000304		MOV	#304, (R3)	MOVE TO MAIL BOX (\$FATAL) THE ERROR
3363	014504	000000			HLT		ERROR! RS DID NOT GET RETURN ADARS.
3364	014506	000240			LOOP		REPLACE THIS INSTRUCTION BY A
3365							"JMP 2R0" (000110) TO GET A
3366							SCOPE LOOP AND HIT CONTINUE
3367	014510	022737	000357	000002	2\$:	CMP	#357, 2
3368	014516	001405			BEQ	3\$	DID OVERFLOW SAVE THE STATUS?
3369							
3370	014520	005212			INC	(R2)	SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3371	014522	012713	000305		MOV	#305, (R3)	MOVE TO MAIL BOX (\$FATAL) THE ERROR
3372	014526	000000			HLT		CORRECT PSW WAS NOT SAVED WHEN
3373							A RED ZONE OCCURED WHILE TRYING
3374							TO SERVICE YELLOW ZONE. AFTER THE JSR
3375							IS EXECUTED THE PENDING YELLOW ZONE OCCURS
3376							(AND YELLOW ZONE PSW IS LOADED), BUT TRYING
3377							TO PUSH THE STACK CAUSES RED ZONE AND
3378							THE NEW PSW (YELLOW ZONE'S) SHOULD
3379							BE SAVED ON THE STACK
3380	014530	000240			LOOP		REPLACE THIS INSTRUCTION BY A
3381							"JMP 2R0" (000110) TO GET A
3382							SCOPE LOOP AND HIT CONTINUE
3383	014532	022737	014416	000000	3\$:	CMP	#RED6, 0
3384	014540	001405			BEQ	4\$	WAS RETURN ADDRESS SAVED ON THE STACK
3385							
3386	014542	005212			INC	(R2)	SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR

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3389 014550 000000      HLT      ;OVERFLOW TRAP DID NOT SAVE RETURN PC
3390 014552 000240      LOOP     ;REPLACE THIS INSTRUCTION BY A
3391                                     ;"JMP 2R0" (000110) TO GET A
3392                                     ;SCOPE LOOP AND HIT CONTINUE
3393 014554 022737 136336 000336 45:  CMP      #136336,336 ;WAS 'RED' LOCATION UNDISTURBED?
3394 014562 001405      BEQ      55
3395
3396 014564 005212      INC      (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3397 014566 012713 000307  MOV      #307,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3398 014572 000000      HLT      ;ERROR! 'RED' LOCATION WAS CHANGED
3399 014574 000240      LOOP     ;REPLACE THIS INSTRUCTION BY A
3400                                     ;"JMP 2R0" (000110) TO GET A
3401                                     ;SCOPE LOOP AND HIT CONTINUE
3402 014576 010700      55:      SCOPE
3403
3404                                     ;*****
3405                                     ;*TEST 125 TEST TRANSITION FROM 'YELLOW' TO 'RED' ZONE
3406                                     ;*****
3407 014600 005237 000304  TST125: INC      #TESTN
3408                                     ;THIS TEST IS THE SAME AS ABOVE EXCEPT THAT THE TRANSITION IS AFTER THE
3409                                     ;OVERFLOW PUSHES ONE WORD.
3410 014604 012706 000344      MOV      #344,%6
3411 014610 012737 014676 000004  MOV      #RED7A,4 ;LOAD OVERFLOW VECTOR
3412 014616 005037 000006      CLR      6
3413 014622 005037 000342      CLR      342
3414 014626 012737 136336 000336  MOV      #136336,336 ;PRE SET 'RED' LOCATION
3415 014634 012705 000007      MOV      #7,%5 ;PRE SET RS
3416 014640 012737 000357 177776  MOV      #357,CC ;PRE SET STATUS
3417 014646 004537 014672      JSR      5,RED7 ;CAUSE OVERFLOW
3418 014652
3419 RED7C:
3420 014652 005212      INC      (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3421 014654 012713 000310  MOV      #310,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3422 014660 000000      HLT      ;ERROR DID NOT OVERFLOW TRAP
3423 014662 000240      LOOP     ;REPLACE THIS INSTRUCTION BY A
3424                                     ;"JMP 2R0" (000110) TO GET A
3425                                     ;SCOPE LOOP AND HIT CONTINUE
3426
3427 014664 005212      INC      (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3428 014666 012713 000311  MOV      #311,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3429 014672 000000      HLT      ;ERROR! DID NOT TRAP BEFORE JSR
3430 014674 000240      LOOP     ;REPLACE THIS INSTRUCTION BY A
3431                                     ;"JMP 2R0" (000110) TO GET A
3432                                     ;SCOPE LOOP AND HIT CONTINUE
3433 014676 022737 000007 000342 RED7A: CMP      #7,342
3434 014704 001405      BEQ      15
3435
3436 014706 005212      INC      (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3437 014710 012713 000312  MOV      #312,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3438 014714 000000      HLT      ;ERROR! RS NOT SAVED ON THE STACK
3439 014716 000240      LOOP     ;REPLACE THIS INSTRUCTION BY A
3440                                     ;"JMP 2R0" (000110) TO GET A
3441                                     ;SCOPE LOOP AND HIT CONTINUE
3442 014720 022705 014652      15:  CMP      #RED7C,%5 ;DOES RS CONTAIN RETURN PC?
3443 014724 001405      BEQ      25
3444

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T125 TEST TRANSITION FROM 'YELLOW' TO 'RED' ZONE

3445	014726	005212				INC	(R2)	SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3446	014730	012713	000313			MOV	#313,(R3)	MOVE TO MAIL BOX (\$FATAL) THE ERROR
3447	014734	000000				HLT		ERROR! JSR DID NOT LOAD RS
3448	014736	000240				LOOP		REPLACE THIS INSTRUCTION BY A
3449								"JMP 2R0" (000110) TO GET A
3450								SCOPE LOOP AND HIT CONTINUE
3451	014740	022737	000357	000340	2\$:	CMP	#357,340	WAS STATUS SAVED?
3452	014746	001405				BEQ	3\$	
3453								
3454	014750	005212				INC	(R2)	SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3455	014752	012713	000314			MOV	#314,(R3)	MOVE TO MAIL BOX (\$FATAL) THE ERROR
3456	014756	000000				HLT		ERROR! STATUS NOT SAVED
3457	014760	000240				LOOP		REPLACE THIS INSTRUCTION BY A
3458								"JMP 2R0" (000110) TO GET A
3459								SCOPE LOOP AND HIT CONTINUE
3460	014762	022737	000000	000002	3\$:	CMP	#0,2	WAS STATUS SAVED?
3461	014770	001405				BEQ	4\$	
3462								
3463	014772	005212				INC	(R2)	SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3464	014774	012713	000315			MOV	#315,(R3)	MOVE TO MAIL BOX (\$FATAL) THE ERROR
3465	015000	000000				HLT		CORRECT PSW WAS NOT SAVED WHEN
3466								A RED ZONE OCCURED WHILE TRYING
3467								TO SERVICE YELLOW ZONE. AFTER THE JSR
3468								IS EXECUTED THE PENDING YELLOW ZONE OCCURS
3469								(AND YELLOW ZONE PSW IS LOADED), BUT TRYING
3470								TO PUSH THE STACK CAUSES RED ZONE AND
3471								THE NEW PSW (YELLOW ZONE'S) SHOULD
3472								BE SAVED ON THE STACK
3473	015002	000240				LOOP		REPLACE THIS INSTRUCTION BY A
3474								"JMP 2R0" (000110) TO GET A
3475								SCOPE LOOP AND HIT CONTINUE
3476	015004	022737	014672	000000	4\$:	CMP	#RED7,0	RETURN PC SAVED?
3477	015012	001405				BEQ	5\$	
3478								
3479	015014	005212				INC	(R2)	SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3480	015016	012713	000316			MOV	#316,(R3)	MOVE TO MAIL BOX (\$FATAL) THE ERROR
3481	015022	000000				HLT		ERROR! RETURN PC NOT SAVED
3482	015024	000240				LOOP		REPLACE THIS INSTRUCTION BY A
3483								"JMP 2R0" (000110) TO GET A
3484								SCOPE LOOP AND HIT CONTINUE
3485	015026	022737	136336	000336	5\$:	CMP	#136336,336	WAS 'RED' LOCATION UNDISTURBED?
3486	015034	001405				BEQ	6\$	
3487								
3488	015036	005212				INC	(R2)	SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3489	015040	012713	000317			MOV	#317,(R3)	MOVE TO MAIL BOX (\$FATAL) THE ERROR
3490	015044	000000				HLT		ERROR! 'RED' LOCATION WAS CHANGED
3491	015046	000240				LOOP		REPLACE THIS INSTRUCTION BY A
3492								"JMP 2R0" (000110) TO GET A
3493								SCOPE LOOP AND HIT CONTINUE
3494	015050	010700			6\$:	SCOPE		
3495								
3496								*****
3497								*TEST 126 TEST THAT A TTY INTERRUPT CAUSES AN OVERFLOW TRAP
3498								*****
3499	015052	005237	000304		TST126:	INC	#TESTN	
3500	015056	012737	000340	177776		MOV	#340,STATUS	;LOCK OUT INTERRUPT

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T126 TEST THAT A TTY INTERRUPT CAUSES AN OVERFLOW TRAP

3501	015064	012706	000400		MOV	#400,%6	;SET UP STACK TO OVERFLOW
3502	015070	012737	015142	000004	MOV	#TDEC7,4	;SET UP OVERFLOW TRAP
3503	015076	012737	015136	000064	MOV	#TDEC8,64	;SET UP INTERRUPT VECTOR
3504	015104	012737	000100	177564	MOV	#100,TTCSR	;SET INTERRUPT ENABLE
3505	015112	005037	177776		CLR	STATUS	;ALLOW INTERRUPT TO OCCUR
3506							
3507	015116	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3508	015120	012713	000320		MOV	#320,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
3509	015124	000000			HLT		;NO INTERRUPT OCCURRED
3510	015126	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
3511							; "JMP 2R0" (000110) TO GET A
3512							; SCOPE LOOP AND HIT CONTINUE
3513							
3514	015130	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3515	015132	012713	000321		MOV	#321,(R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
3516	015136	000000			HLT		;TRAP FLAG OVERFLOW DID NOT OCCUR
3517	015140	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
3518							; "JMP 2R0" (000110) TO GET A
3519							; SCOPE LOOP AND HIT CONTINUE
3520	015142	005037	177564		CLR	TTCSR	;CLEAR INTERRUPT ENABLE
3521	015146	010700			SCOPE		

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T126 TEST THAT A TTY INTERRUPT CAUSES AN OVERFLOW TRAP

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3522
3523
3524
3525
3526 015150 005237 000304 TST127: INC 2*STESTN
3527 015154 012706 021774 MOV 8*BUFF,%6 ;SET UP STACK POINTER
3528 015160 012737 015214 000004 MOV 8*R7TR1,4 ;RETURN FROM TRAP
3529 015166 012707 000001 MOV 81,%7 ;PC EQUALS ONE
3530
3531 015172 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3532 015174 012713 000322 MOV 8322,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3533 015200 000000 HLT
3534 015202 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
3535 ;"JMP 2R0" (000110) TO GET A
3536 ;SCOPE LOOP AND HIT CONTINUE
3537
3538 015204 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3539 015206 012713 000323 MOV 8323,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3540 015212 000000 HLT
3541 015214 022737 000003 021770 R7TR1: CMP 83,BUFF-4
3542 015222 001405 BEQ 15 ;CORRECT PC WAS NOT SAVED ON STACK
3543
3544 015224 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3545 015226 012713 000324 MOV 8324,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3546 015232 000000 HLT
3547 015234 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
3548 ;"JMP 2R0" (000110) TO GET A
3549 ;SCOPE LOOP AND HIT CONTINUE
3550
3551 015236 010700 15: SCOPE
3552
3553
3554
3555
3556 015240 005237 000304 TST130: INC 2*STESTN
3557 015244 012706 021774 MOV 8*BUFF,%6 ;STACK POINTER
3558 015250 012737 015302 000004 MOV 8*R7TR2,4
3559 015256 005207 INC 87,%7 ;PC BECOMES ODD
3560 015260
3561
3562 015260 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3563 015262 012713 000325 MOV 8325,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3564 015266 000000 HLT
3565 015270 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
3566 ;"JMP 2R0" (000110) TO GET A
3567 ;SCOPE LOOP AND HIT CONTINUE
3568
3569 015272 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3570 015274 012713 000326 MOV 8326,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3571 015300 000000 HLT
3572 015302 022737 015263 021770 R7TR2: CMP 8R7TR2A+3,BUFF-4
3573 015310 001405 BEQ 15 ;CORRECT PC NOT ON STACK
3574
3575 015312 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3576 015314 012713 000327 MOV 8327,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3577 015320 000000 HLT

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T130 TEST THAT A TRAP OCCURS WHEN THE PC IS INCREMENTED TO AN ODD VALUE

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3578 015322 000240          LOOP          ;REPLACE THIS INSTRUCTION BY A
3579                                     ;"JMP 2RD" (000110) TO GET A
3580                                     ;SCOPE LOOP AND HIT CONTINUE
3581 015324 010700          1S:          SCOPE
3582                                     ;*****
3583                                     ;*TEST 131 TEST THAT A DECREMENT OF PC TO AN ODD VALUE RESULTS IN A TRAP
3584                                     ;*****
3585                                     ;*****
3586 015326 005237 000304      TST131: INC 2*STESTN
3587 015332 012706 021774      MOV  #BUFF,%6
3588 015336 012737 015360 000004      MOV  #R7TR3,4
3589 015344 005307          DEC  %7          ;MAKE PC ODD
3590 015346          R7TR3A:
3591
3592 015346 005212          INC  (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3593 015350 012713 000330      MOV  #330,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3594 015354 000000          HLT          ;SHOULD TRAP
3595 015356 000240          LOOP          ;REPLACE THIS INSTRUCTION BY A
3596                                     ;"JMP 2RD" (000110) TO GET A
3597                                     ;SCOPE LOOP AND HIT CONTINUE
3598 015360 022737 015347 021770 R7TR3: CMP  #R7TR3A+1,BUFF-4 ;CHECK VALUE OF PC ON STACK
3599 015366 001405          BEQ  1S
3600
3601 015370 005212          INC  (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3602 015372 012713 000331      MOV  #331,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3603 015376 000000          HLT          ;WRONG VALUE ON STACK
3604 015400 000240          LOOP          ;REPLACE THIS INSTRUCTION BY A
3605                                     ;"JMP 2RD" (000110) TO GET A
3606                                     ;SCOPE LOOP AND HIT CONTINUE
3607
3608 015402 010700          1S:          SCOPE
3609                                     ;*****
3610                                     ;*TEST 132 TEST THAT "SEC, ROL PC" RESULTS IN TRAP
3611                                     ;*****
3612                                     ;*****
3613 015404 005237 000304      TST132: INC 2*STESTN
3614 015410 012706 021774      MOV  #BUFF,%6
3615 015414 012737 015450 000004      MOV  #R7TR4,4
3616 015422 000261          SEC          ;CARRY EQUALS A 1
3617 015424 006107          ROL  %7          ;PC BECOMES ODD
3618 015426          TR4A:
3619
3620 015426 005212          INC  (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3621 015430 012713 000332      MOV  #332,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3622 015434 000000          HLT
3623 015436 000240          LOOP          ;REPLACE THIS INSTRUCTION BY A
3624                                     ;"JMP 2RD" (000110) TO GET A
3625                                     ;SCOPE LOOP AND HIT CONTINUE
3626
3627 015440 005212          INC  (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3628 015442 012713 000333      MOV  #333,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3629 015446 000000          HLT
3630 015450 022737 033057 021770 R7TR4: CMP  #TR4A+TR4A+3,BUFF-4 ;CHECK FOR VALUE ON STACK
3631 015456 001405          BEQ  1S
3632
3633 015460 005212          INC  (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR

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T132 TEST THAT "SEC, ROL PC" RESULTS IN TRAP

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3634 015462 012713 000334      MOV      #334, (R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3635 015466 000200      HLT                      ;WRONG VALUE ON STACK
3636 015470 000240      LOOP                     ;REPLACE THIS INSTRUCTION BY A
3637                                     ;"JMP 2R0" (000110) TO GET A
3638                                     ;SCOPE LOOP AND HIT CONTINUE
3639 015472 012737 000006 000004 15:  MOV      #6, 4          ;RESET UP A HALT FOR TRAP
3640
3641 015500 010700      SCOPE
3642
3643                                     ;*****
3644                                     ;*TEST 133 TEST THAT A PENDING TTY INTERRUPT OCCURS BEFORE A "TRAP" TRAP
3645                                     ;*****
3646 015502 005237 000304      TST133: INC      @TESTN
3647 015506 012706 021774      MOV      @BUFF, %6
3648 015512 012737 000340 177776  MOV      #340, STATUS      ;HIGHEST PRIORITY LEVEL
3649 015520 012737 000100 177564  MOV      #100, TTCSR      ;INTERRUPT FOR TTY PUNCH/PRINTER
3650 015526 012737 015564 000034  MOV      #TR1, 34        ;TRAP VECTOR
3651 015534 012737 015570 000064  MOV      #TR2, 64        ;TTY VECTOR
3652 015542 012737 000340 000036  MOV      #340, 36        ;IF TRAP TRAPS, MOVE 340 TO PRIORITY
3653 015550 005037 177776      CLR      STATUS      ;SHOULD TRAP AT END OF CLR INST
3654 015554 104400      TRAP                     ;TTY INTERRUPT SHOULD OVERRIDE TRAP
3655
3656 015556 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3657 015560 012713 000335      MOV      #335, (R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3658 015564 000000      TR1:  HLT                      ;TRAP OCCUR FIRST
3659 015566 000240      LOOP                     ;REPLACE THIS INSTRUCTION BY A
3660                                     ;"JMP 2R0" (000110) TO GET A
3661                                     ;SCOPE LOOP AND HIT CONTINUE
3662 015570 005037 177564      TR2:  CLR      TTCSR
3663 015574 005037 000036      CLR      36
3664 015600 010700      SCOPE
3665
3666                                     ;*****
3667                                     ;*TEST 134 TEST THAT A PENDING TTY INTERRUPT OCCURS BETWEEN "TRAP" & AN "IOT"
3668                                     ;*****
3669 015602 005237 000304      TST134: INC      @TESTN
3670 015606 012706 021774      MOV      @BUFF, %6
3671 015612 012737 000340 177776  MOV      #340, STATUS      ;HIGHEST PRIORITY LEVEL
3672 015620 012737 000100 177564  MOV      #100, TTCSR      ;INTERRUPT FOR TTY PUNCH/PRINTER
3673 015626 012737 015664 000034  MOV      #TR3, 34        ;TRAP VECTOR
3674 015634 005037 000036          CLR      36          ;TTY OUTPUT
3675 015640 012737 015700 000064  MOV      #TR4, 64        ;IOT
3676 015646 012737 015674 000020  MOV      #TR5, 20        ;IOT PRIORITY
3677 015654 012737 000340 000022  MOV      #340, 22        ;THE ACT OF TRAPPING LOWER PRIORITY
3678 015662 104400      TRAP                     ;INTERRUPT SHOULD OCCURE INPLACE OF IOT TRAP
3679 015664 000004      TR3:  IOT
3680
3681 015666 005212          INC      (R2)          ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3682 015670 012713 000336      MOV      #336, (R3)      ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3683 015674 000000      TR5:  HLT                      ;NO INTERRUPT BETWEEN TRAPS
3684 015676 000240      LOOP                     ;REPLACE THIS INSTRUCTION BY A
3685                                     ;"JMP 2R0" (000110) TO GET A
3686                                     ;SCOPE LOOP AND HIT CONTINUE
3687 015700 005037 177564      TR4:  CLR      TTCSR
3688 015704 005037 000022      CLR      22          ;CLR IOT PRIORITY
3689 015710 010700      SCOPE

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T135 TEST THAT 'T' BIT TRAP OCCURS BEFORE AN INTERRUPT IS ACKNOWLEDGED

```

3690                                     ;*****
3691                                     ;*TEST 135 TEST THAT 'T' BIT TRAP OCCURS BEFORE AN INTERRUPT IS ACKNOWLEDGED
3692                                     ;*****
3693 015712 005237 000304 TST135: INC 2*TESTN
3694 015716 012737 000340 177776 MOV #340,CC ;SET PRIORITY =7
3695 015724 012737 000100 177564 MOV #100,TTCSR ;ENABLE INTERRUPT ON TTY PRINTER
3696 015732 012737 015770 000014 MOV #INT,TBITVEC ;LOAD 'T' BIT VECTOR
3697 015740 005037 000016 CLR TBITVEC+2
3698 015744 012737 016002 000064 MOV #INT2,64 ;LOAD TTY INT. VECTOR
3699 015752 012706 021774 MOV #BUFF,%6 ;SET STACK POINTER
3700 015756 012746 000020 MOV #20,-(6) ;PUSH 'T' BIT ON THE STACK
3701 015762 012746 015770 MOV #.+6,-(6) ;PUSH PC ON THE STACK
3702 015766 000002 RTI ;SET 'T' BIT
3703 015770
3704
3705 015770 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3706 015772 012713 000337 MOV #337,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3707 015776 000000 HLT ;ERROR! TTY INTERRUPTED
3708 016000 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
3709 ;"JMP 2R0" (000110) TO GET A
3710 ;SCOPE LOOP AND HIT CONTINUE
3711 016002 005037 177564 INT2: CLR TTCSR
3712 016006 022737 000020 021772 CMP #20,BUFF-2
3713 016014 001405 BEQ 1$
3714
3715 016016 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3716 016020 012713 000340 MOV #340,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3717 016024 000000 HLT
3718 016026 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
3719 ;"JMP 2R0" (000110) TO GET A
3720 ;SCOPE LOOP AND HIT CONTINUE
3721 016030 022737 015770 021770 1$: CMP #INT,BUFF-4
3722 016036 001405 BEQ 2$
3723
3724 016040 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3725 016042 012713 000341 MOV #341,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3726 016046 000000 HLT
3727 016050 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
3728 ;"JMP 2R0" (000110) TO GET A
3729 ;SCOPE LOOP AND HIT CONTINUE
3730 016052 022737 000000 021766 2$: CMP #0,BUFF-6
3731 016060 001405 BEQ 3$
3732
3733 016062 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3734 016064 012713 000342 MOV #342,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3735 016070 000000 HLT
3736 016072 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
3737 ;"JMP 2R0" (000110) TO GET A
3738 ;SCOPE LOOP AND HIT CONTINUE
3739 016074 022737 015770 021764 3$: CMP #INT,BUFF-10
3740 016102 001405 BEQ INT1
3741
3742 016104 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3743 016106 012713 000343 MOV #343,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3744 016112 000000 HLT
3745 016114 000240 LOOP ;REPLACE THIS INSTRUCTION BY A

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T135 TEST THAT 'T' BIT TRAP OCCURS BEFORE AN INTERRUPT IS ACKNOWLEDGED

```

3746                                     ;"JMP 2R0" (000110) TO GET A
3747                                     ;SCOPE LOOP AND HIT CONTINUE
3748 016116 010700          INT1:  SCOPE
3749
3750                                     ;*****
3751                                     ;*TEST 136 TEST THAT "RESET" GOES TO OUTSIDE WORLD
3752                                     ;*****
3753 016120 005237 000304          TST136: INC 2*STESTN
3754 016124 012706 021774          MOV  #BUFF,%6
3755 016130 012737 000340 177776          MOV  #340,CC          ;LOCK OUT INTERRUPTS
3756 016136 012737 016206 000064          MOV  #TR6,64          ;LOAD TELEPRINTER VECTOR
3757 016144 012737 000100 177564          MOV  #100,TTCSR          ;SET INTERRUPT ENABLE
3758 016152 000005          RESET          ;SHOULD CLEAR INTERRUPT ENABLE
3759 016154 032737 000100 177564          BIT  #100,TTCSR          ;TEST FOR CLEAR
3760 016162 001405          BEQ  15
3761
3762 016164 005212          INC  (R2)          ;SET MESSAGE TYPE (MSGTY) TO FATAL ERROR
3763 016166 012713 000344          MOV  #344,(R3)          ;MOVE TO MAIL BOX (SFATAL) THE ERROR
3764 016172 000000          HLT
3765 016174 000240          LOOP          ;REPLACE THIS INSTRUCTION BY A
3766                                     ;"JMP 2R0" (000110) TO GET A
3767                                     ;SCOPE LOOP AND HIT CONTINUE
3768 016176 000406          15:  BR  TR6X
3769
3770 016200 005212          INC  (R2)          ;SET MESSAGE TYPE (MSGTY) TO FATAL ERROR
3771 016202 012713 000345          MOV  #345,(R3)          ;MOVE TO MAIL BOX (SFATAL) THE ERROR
3772 016206 000000          TR6:  HLT          ;ERROR! TELETYPE INTERRUPTED WHEN
3773                                     ;PROCESSOR WAS AT LEVEL 7
3774 016210 000240          LOOP          ;REPLACE THIS INSTRUCTION BY A
3775                                     ;"JMP 2R0" (000110) TO GET A
3776                                     ;SCOPE LOOP AND HIT CONTINUE
3777 016212 022626          TR6X:  CMP  (6)+(6)+
3778 016214 005037 177564          CLR  TTCSR
3779 016220 010700          SCOPE
3780
3781                                     ;*****
3782                                     ;*TEST 137 TEST THAT RESET DOES NOT HANG THE SYSTEM
3783                                     ;*****
3784 016222 005237 000304          TST137: INC 2*STESTN
3785 016226 012706 021774          MOV  #BUFF,%6          ;SET STACK
3786 016232 005037 177776          CLR  STATUS          ;ALLOW INTERRUPT
3787 016236 012737 016252 000064          MOV  #RESET1,64          ;TTY INTERRUPT VECTOR
3788 016244 052737 000100 177564          BIS  #100,TTCSR          ;SET INTERRUPT ENABLE
3789 016252 000005          RESET          ;IF THIS HANGS CHECK SACK
3790 016254 012737 000066 000064          MOV  #66,64          ;FOR FALSE INTERRUPT
3791 016262 010700          SCOPE
3792
3793                                     ;*****
3794                                     ;*TEST 140 TEST RESET WITH TRACE ON
3795                                     ;*****
3796 016264 005237 000304          TST140: INC 2*STESTN
3797 016270 012706 021774          MOV  #BUFF,%6          ;SET STACK
3798 016274 012737 016336 000014          MOV  #RESET2,TBITVEC ;SET UP TRACE VECTOR
3799 016302 005037 000016          CLR  TBITVEC+2
3800 016306 012746 000020          MOV  #20,-(6)          ;PUSH 'T' BIT ON THE STACK
3801 016312 012746 016320          MOV  #.+6,-(6)          ;PUSH PC ON THE STACK
3801                                     ;SET 'T' BIT

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3802	016320	000005		RESET		; SHOULD HAVE NO EFFECT
3803	016322	000005		RESET		; NO EFFECT
3804						
3805	016324	005212		INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3806	016326	012713	000346	MOV	#346,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3807	016332	000000		HLT		; TRACE TRAP FAILED
3808	016334	000240		LOOP		; REPLACE THIS INSTRUCTION BY A
3809						; "JMP BRO" (000110) TO GET A
3810						; SCOPE LOOP AND HIT CONTINUE
3811	016336	005037	177776	RESET2:	CLR STATUS	; CLEAR TRACK
3812	016342	005037	000016		CLR 16	; TRACE STATUS
3813	016346	010700			SCOPE	
3814						
3815						; *****
3816						; *TEST 141 TEST THAT WHEN TTY INTERRUPTS IT POPS NEW STATUS
3817						; *****
3818	016350	005237	000304	TST141:	INC #0\$TESTN	
3819	016354	000005			RESET	
3820	016356	012706	021774		MOV #BUFF,%6	; SET UP STACK
3821	016362	012737	016406	000064	MOV #TTY3,64	; INTERRUPT VECTOR
3822	016370	005037	177776		CLR STATUS	; DROP PROCESSOR PRIORITY
3823	016374	012737	000357	000066	MOV #357,66	; HIGH PRIORITY ON INTERRUPT
3824	016402	005137	177564		COM TTCSR	; SHOULD SET INTERRUPT ENABLE & INTERRUPT
3825						
3826	016406	013727	177776	TTY3:	MOV STATUS,(PC)+	; SAVE PROCESSOR STATUS
3827	016412	000000			.WORD 0	
3828	016414	022737	000357	016412	CMP #357,-2	
3829	016422	001405			BEQ 1\$	
3830						
3831	016424	005212			INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3832	016426	012713	000347		MOV #347,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3833	016432	000000			HLT	; INTERRUPT DID NOT POP CORRECT STATUS
3834	016434	000240			LOOP	; REPLACE THIS INSTRUCTION BY A
3835						; "JMP BRO" (000110) TO GET A
3836						; SCOPE LOOP AND HIT CONTINUE
3837	016436	000005		1\$:	RESET	; CLR INTERRUPT ENABLE
3838	016440	010700			SCOPE	
3839	016442	012706	021774		MOV #BUFF,%6	; STACK SET UP
3840	016446	012737	016472	000064	MOV #TTY4,64	; INTERRUPT VECTOR
3841	016454	005037	000066		CLR 66	; CLR NEW STATUS
3842	016460	012737	000157	177776	MOV #157,STATUS	; PROCESSOR STATUS
3843	016466	005137	177564		COM TTCSR	; SET INTERRUPT ENABLE
3844	016472	013727	177776	TTY4:	MOV STATUS,(PC)+	; SAVE NEW STATUS
3845	016476	000000			.WORD 0	
3846	016500	005737	016476		TST -2	
3847	016504	001405			BEQ 1\$	
3848						
3849	016506	005212			INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
3850	016510	012713	000350		MOV #350,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
3851	016514	000000			HLT	; INTERRUPT DID NOT POP CORRECT STATUS
3852	016516	000240			LOOP	; REPLACE THIS INSTRUCTION BY A
3853						; "JMP BRO" (000110) TO GET A
3854						; SCOPE LOOP AND HIT CONTINUE
3855	016520	005037	177564	1\$:	CLR TTCSR	
3856	016524	010700			SCOPE	
3857						; *****

L06

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3858                                     ;*TEST 142 CONTIGUOUS MEMORY ADDRESS TEST
3 59                                     ;*****
3 60 016526 005237 000304 TST142: INC 2*TESTN
3 61                                     ;THIS TEST CHECKS THAT ALL MEMORY (UP TO 28K) IS CONTIGUOUS
3 62 016532 012706 021774 MOV 2*BUFF,%6 ;SET STACK POINTER
3 63 016536 012737 016552 000004 MOV 2*MEMEND,%4 ;SET TIME OUT TRAP VECTOR
3864 016544 005000 CLR %0 ;SET STARTING ADDRESS FOR TEST
3865 016546 005720 TST (0)+ ;BEGIN
3866 016550 000776 BR -2 ;LOOP UNTIL TIMEOUT OCCURS
3867 016552 022626 MEMEND: CMP (6)+,(6)+ ;RESTORE STACK POINTER
3868 016554 022700 160002 CMP 2*160002,%0 ;AT END OF 28K MEMORY??
3869 016560 001406 BEQ MEMEX ;YES - EXIT TEST
3870 016562 005720 TST (0)+ ;SHOULD TIME OUT HERE UP TO 28K
3871
3872 016564 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3873 016566 012713 000351 MOV 2*351,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3874 016572 000000 HLT ;ERROR - FAILED TO TIME OUT!
3875 016574 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
3876                                     ;"JMP 2*0" (000110) TO GET A
3877                                     ;SCOPE LOOP AND HIT CONTINUE
3878 016576 012737 000006 000004 MEMEX: MOV 2*6,%4 ;RESTORE TRAPCATCHER
3879 016604 005037 000006 CLR 2*6
3880 016610 010700 SCOPE
  
```

MO6

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;SPECIAL CASE OF ODD;.EVEN .BYTE AND REGISTER 6

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3881
3882
3883
3884
3885
3886 016612 005237 000304 TST143: INC 2*STESTN
3887
3888 016616 012706 021774 AIDR6: MOV #BUFF,%6 ;SET UP THE STACK
3889 016622 112627 MOV (6)+,(PC)+ ;SIX SHOULD INCREMENT BY TWO
3890 016624 000000 .WORD 0
3891 016626 020627 021776 CMP %6,#BUFF+2
3892 016632 001405 BEQ 1$
3893
3894 016634 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3895 016636 012713 000352 MOV #352,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3896 016642 000000 HLT ;R6 DID NOT AUTO INCREMENT BY TWO
3897 016644 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
3898 ;"JMP 2R0" (000110) TO GET A
3899 ;SCOPE LOOP AND HIT CONTINUE
3900 016646 010700 1$: SCOPE
3901
3902 016650 012706 001000 MOV #1000,%6
3903 016654 114627 MOV (6)+,(PC)+ ;SHOULD DECREMENT BY TWO
3904 016656 000000 .WORD 0
3905 016660 020627 000776 CMP %6,#776
3906 016664 001405 BEQ 2$
3907
3908 016666 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3909 016670 012713 000353 MOV #353,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3910 016674 000000 HLT ;R6 DID NOT AUTO DECREMENT BY 2
3911 016676 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
3912 ;"JMP 2R0" (000110) TO GET A
3913 ;SCOPE LOOP AND HIT CONTINUE
3914 016700 010700 2$: SCOPE
3915
3916 016702 012706 021774 MOV #BUFF,%6
3917 016706 112626 MOV (6)+,(6)+ ;DOUBLE AUTO INCREMENT OF R6
3918 016710 020627 022000 CMP %6,#BUFF+4
3919 016714 001405 BEQ 3$
3920
3921 016716 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3922 016720 012713 000354 MOV #354,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
3923 016724 000000 HLT ;WRONG AUTO INCREMENT OF R6
3924 016726 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
3925 ;"JMP 2R0" (000110) TO GET A
3926 ;SCOPE LOOP AND HIT CONTINUE
3927 016730 010700 3$: SCOPE
3928
3929 016732 012706 021774 MOV #BUFF,%6
3930 016736 005004 CLR %4
3931 016740 122624 CMPB (6)+,(4)+ ;TEST INCREMENT OF R6
3932 016742 020627 021776 CMP %6,#BUFF+2
3933 016746 001405 BEQ 4$
3934
3935 016750 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
3936 016752 012713 000355 MOV #355,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR

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T143 TEST AUTO INCREMENT & DECREMENT OF R6 - WORD & BYTE

Address	Instruction	Comment
3937	016755 000000	HLT
3938	016760 000240	LOOP
3939		
3940		
3941	016762 010700	45: SCOPE
3942		
3943	016764 012706 021774	MOV #BUFF,%6
3944	016770 005004	CLR %4
3945	016772 122426	CMPB (4)+(6)+
3946	016774 020627 021776	CMP %6,#BUFF+2
3947	017000 001405	BEQ 55
3948		
3949	017002 005212	INC (R2)
3950	017004 012713 000356	MOV #356,(R3)
3951	017010 070000	HLT
3952	017012 000240	LOOP
3953		
3954		
3955	017014 010700	55: SCOPE
3956		
3957	017016 012706 021774	MOV #BUFF,%6
3958	017022 005004	CLR %4
3959	017024 122624	CMPB (6)+(4)+
3960	017026 020427 000001	CMP %4,#1
3961	017032 001405	BEQ 65
3962		
3963	017034 005212	INC (R2)
3964	017036 012713 000357	MOV #357,(R3)
3965	017042 000000	HLT
3966	017044 000240	LOOP
3967		
3968		
3969	017046 010700	65: SCOPE
3970	017050 012706 021774	MOV #BUFF,%6
3971	017054 005004	CLR %4
3972	017056 122446	CMPB (4)+,-(6)
3973	017060 020627 021772	CMP %6,#BUFF-2
3974	017064 001405	BEQ 75
3975		
3976	017066 005212	INC (R2)
3977	017070 012713 000360	MOV #360,(R3)
3978	017074 000000	HLT
3979	017076 000240	LOOP
3980		
3981		
3982	017100 010700	75: SCOPE
3983		
3984	017102 012706 021774	MOV #BUFF,%6
3985	017106 005004	CLR %4
3986	017110 122426	CMPB (4)+(6)+
3987	017112 020427 000001	CMP %4,#1
3988	017116 001405	BEQ 85
3989		
3990	017120 005212	INC (R2)
3991	017122 012713 000361	MOV #361,(R3)
3992	017126 000000	HLT

Address	Offset	Label	Instruction	Comment
3993	017130	000240	LOOP	
3994				; REPLACE THIS INSTRUCTION BY A
3995				; "JMP 2R0" (000110) TO GET A
3996	017132	010700	8\$: SCOPE	; SCOPE LOOP AND HIT CONTINUE
3997				
3998	017134	012706	001000	MOV #1000,%6
3999	017140	124627		CMPB -(6),(PC)+
4000	017142	022706	000776	CMP #776,%6
4001	017146	001405		BEQ 9\$
4002				
4003	017150	005212		INC (R2)
4004	017152	012713	000362	MOV #362,(R3)
4005	017156	000000		HLT
4006	017160	000240		LOOP
4007				; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4008				; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4009	017162	010700	9\$: SCOPE	; WRONG DECREMENT OF R6
4010				; REPLACE THIS INSTRUCTION BY A
4011	017164	010700		; "JMP 2R0" (000110) TO GET A
4012	017166	012706	021774	MOV #BUFF,%6
4013	017172	012737	177777	MOV #-1,BUFF-2
4014	017200	012737	025252	MOV #25252,K1
4015	017206	114637	001001	MOVB -(6),K1+1
4016	017212	022737	177652	CMP #177652,K1
4017	017220	001405		BEQ 10\$
4018				; MOV TO ODD ADDRESS
4019	017222	005212		INC (R2)
4020	017224	012713	000363	MOV #363,(R3)
4021	017230	000000		HLT
4022	017232	000240		LOOP
4023				; DID MOVWB WORK CORRECTLY
4024				
4025	017234	010700	10\$: SCOPE	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4026				; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4027	017236	012706	021774	MOV #BUFF,%6
4028	017242	012737	177777	MOV #-1,BUFF-2
4029	017250	012737	125252	MOV #125252,K1
4030	017256	114637	001000	MOVB -(6),K1
4031	017262	022737	125377	CMP #125377,K1
4032	017270	001405		BEQ 11\$
4033				; TEST RESULTS
4034	017272	005212		INC (R2)
4035	017274	012713	000364	MOV #364,(R3)
4036	017300	000000		HLT
4037	017302	000240		LOOP
4038				; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4039				; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4040	017304	010700	11\$: SCOPE	; MOVWB -(6), EVEN, FAILED
				; REPLACE THIS INSTRUCTION BY A
				; "JMP 2R0" (000110) TO GET A
				; SCOPE LOOP AND HIT CONTINUE

```

4041                                     ;*****
4042                                     ;TEST 144 TEST TRANSFER OF .BYTE USING R6
4043                                     ;*****
4044 017306 005237 000304 TST144: INC 2#TESTN
4045 017312 012737 123456 BXFR: MOV #123456,K5
4046 017320 012737 050505 001010 MOV #050505,K1
4047 017326 012705 001000 MOV #K1,%5 ;%5=(050505)K1
4048 017332 012706 001010 MOV #K5,%6 ;%6(123456)K5
4049 017336 112625 MOV #K5,%6 ;LOW .BYTE OF R6 TO R5
4050 017340 022737 050456 001000 MOV (6)+,(5)+
4051 017346 001405 CMP #050456,K1
4052 BEQ 1$
4053 017350 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4054 017352 012713 000365 MOV #365,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4055 017356 000000 HLT ;FALSE TRANSFER OF .BYTE
4056 017360 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
4057 ;"JMP 2R0" (000110) TO GET A
4058 ;SCOPE LOOP AND HIT CONTINUE
4059 017362 010700 1$: SCOPE
4060
4061 017364 012737 123456 001010 MOV #123456,K5
4062 017372 012737 050505 001000 MOV #050505,K1
4063 017400 012705 001000 MOV #K1,%5 ;%5(050505)K1
4064 017404 012706 001012 MOV #K6,%6 ;%6(123456)K5
4065 017410 114625 MOV #K6,%6 ;LOW .BYTE OF R6 TO R5 (DECREMENT)
4066 017412 023727 001000 050456 CMP K1,#050456
4067 017420 001405 BEQ 2$
4068
4069 017422 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4070 017424 012713 000366 MOV #366,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4071 017430 000000 HLT ;FALSE R6 .BYTE TRANSFER
4072 017432 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
4073 ;"JMP 2R0" (000110) TO GET A
4074 ;SCOPE LOOP AND HIT CONTINUE
4075 017434 010700 2$: SCOPE
4076
4077 017436 012737 123456 001000 MOV #123456,K1
4078 017444 012737 050505 001010 MOV #050505,K5
4079 017452 012705 001000 MOV #K1,%5 ;(123456)
4080 017456 012706 001010 MOV #K5,%6 ;(050505)
4081 017462 112526 MOV #K5,%6 ;LOW OF R5 TO LOW OF R6
4082 017464 022737 050456 001010 CMP #050456,K5
4083 017472 001405 BEQ 3$
4084
4085 017474 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4086 017476 012713 000367 MOV #367,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4087 017502 000000 HLT ;FALSE R6 .BYTE TRANSFER
4088 017504 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
4089 ;"JMP 2R0" (000110) TO GET A
4090 ;SCOPE LOOP AND HIT CONTINUE
4091 017506 010700 3$: SCOPE
4092
4093 017510 012737 123456 001000 MOV #123456,K1
4094 017516 012737 050505 001010 MOV #050505,K5
4095 017524 012705 001001 MOV #K1+1,%5 ;123456
4096 017530 012706 001010 MOV #K5,%6 ;050505

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 DOKDBA.P11 17-FEB-77 08:26 T144 TEST TRANSFER OF .BYTE USING R6

4097	017534	112526			MOVB	(5)+(6)+	;HIGH OF R5 TO LOW OF R6
4098	017536	023727	001010	050647	CMP	K5, #050647	
4099	017544	001405			BEQ	4\$	
4100							
4101	017546	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4102	017550	012713	000370		MOV	#370, (R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
4103	017554	000000			HLT		;FALSE R6 .BYTE TRANSFER
4104	017556	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
4105							; "JMP 2R0" (000110) TO GET A
4106							;SCOPE LOOP AND HIT CONTINUE
4107	017560	010700			4\$: SCOPE		
4108							
4109	017562	012737	123456	001000	MOV	#123456, K1	
4110	017570	012737	050505	001010	MOV	#050505, K5	
4111	017576	012705	001001		MOV	#K1+1, %5	;R5-123456--000 ADDRESS
4112	017602	012706	001010		MOV	#K5, %6	;R6-050505--.EVEN ADDRESS
4113	017606	112625			MOVB	(6)+(5)+	;LOW OF R6 TO HIGH OF R5
4114	017610	022737	042456	001000	CMP	#042456, K1	
4115	017616	001405			BEQ	5\$	
4116							
4117	017620	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4118	017622	012713	000371		MOV	#371, (R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
4119	017626	000000			HLT		;FAILED LOW OF 6 TO HIGH OF 5
4120	017630	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
4121							; "JMP 2R0" (000110) TO GET A
4122							;SCOPE LOOP AND HIT CONTINUE
4123	017632	010700			5\$: SCOPE		
4124							
4125							
4126							
4127							
4128	017634	005237	000304		TST145: INC	2\$TESTN	
4129	017640	123737	001014	001015	BYTOP: CMPB	K7, K7+1	;SAME .WORD LOW TO HIGH
4130	017646	001405			BEQ	1\$	
4131							
4132	017650	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4133	017652	012713	000372		MOV	#372, (R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
4134	017656	000000			HLT		;SHOULD COMPARE LOW TO HIGH
4135	017660	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
4136							; "JMP 2R0" (000110) TO GET A
4137							;SCOPE LOOP AND HIT CONTINUE
4138	017662	010700			1\$: SCOPE		
4139							
4140	017664	123737	001015	001014	CMPB	K7+1, K7	;COMPARE ODD TO .EVEN SAME .WORD
4141	017672	001405			BEQ	2\$	
4142							
4143	017674	005212			INC	(R2)	;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4144	017676	012713	000373		MOV	#373, (R3)	;MOVE TO MAIL BOX (\$FATAL) THE ERROR
4145	017702	000000			HLT		;ODD TO .EVEN .BYTE FAILURE
4146	017704	000240			LOOP		;REPLACE THIS INSTRUCTION BY A
4147							; "JMP 2R0" (000110) TO GET A
4148							;SCOPE LOOP AND HIT CONTINUE
4149	017706	010700			2\$: SCOPE		
4150							
4151	017710	123737	001017	001014	CMPB	K10+1, K7	;SEQUENTIAL .BYTES
4152	017716	001405			BEQ	3\$	;DIFFERENT .WORDS

[illegible]

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T145 TEST .BYTE OPERATION WITH SEQUENTIAL ODD;.EVEN ADDRESS

4209	020064	005212		INC	(R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4210	020066	012713	000401	MOV	#401, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4211	020072	000000		HLT		; EVEN TO ODD FAILED
4212	020074	000240		LOOP		; REPLACE THIS INSTRUCTION BY A
4213						; "JMP 2R0" (000110) TO GET A
4214						; SCOPE LOOP AND HIT CONTINUE
4215	020076	010700		85:	SCOPE	
4216						

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4217
4218
4219
4220
4221 020100 005237 000304 TST146: INC 28$TESTN
4222 020104 012737 177777 001020 RLOBYT: MOV #-1,K11
4223 020112 012700 000125 MOV #125,%0 ;LOAD R0
4224 020116 110037 001020 MOVB %0,K11
4225 020122 023727 001020 177525 CMP K11,#177525 ;WAS ONLY LSH MOVED?
4226 020130 001405 BEQ 1$
4227
4228 020132 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4229 020134 012713 000402 MOV #402,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4230 020140 000000 HLT ;ERROR! MOVB %R FAILED
4231 020142 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
4232 ;"JMP 2R0" (000110) TO GET A
4233 ;SCOPE LOOP AND HIT CONTINUE
4234 020144 010700 1$: SCOPE
4235
4236 020146 012700 001020 MOV #K11,%0
4237 020152 010037 001020 MOV %0,K11
Z 4238 020156 110020 MOVB %0,(0)+
4239 020160 022737 001021 001020 CMP #K11+1,K11
4240 020166 001405 BEQ 2$
4241
4242 020170 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4243 020172 012713 000403 MOV #403,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4244 020176 000000 HLT
4245 020200 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
4246 ;"JMP 2R0" (000110) TO GET A
4247 ;SCOPE LOOP AND HIT CONTINUE
4248 020202 010700 2$: SCOPE
4249
4250 020204 012706 001020 MOV #K11,%6
4251 020210 010637 001020 MOV %6,K11
Z 4252 020214 110626 MOVB %6,(6)+
4253 020216 023727 001020 001022 CMP K11,#K11+2
4254 020224 001405 BEQ 3$
4255
4256 020226 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4257 020230 012713 000404 MOV #404,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4258 020234 000000 HLT ;FAILED MOVB %6,(6)+
4259 020236 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
4260 ;"JMP 2R0" (000110) TO GET A
4261 ;SCOPE LOOP AND HIT CONTINUE
4262 020240 010700 3$: SCOPE
4263
4264 020242 012706 001020 MOV #K11,%6
Z 4265 020246 010626 MOV %6,(6)+
4266 020250 023727 001020 001022 CMP K11,#K11+2
4267 020256 001405 BEQ 4$
4268
4269 020260 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4270 020262 012713 000405 MOV #405,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4271 020266 000000 HLT ;FAILED MOV %6,(6)+
4272 020270 000240 LOOP ;REPLACE THIS INSTRUCTION BY A

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4273						; "JMP 2R0" (000110) TO GET A
4274						; SCOPE LOOP AND HIT CONTINUE
4275	020272	010700		4\$:	SCOPE	
4276						
4277	020274	000277			SCC	; SET STATUS
4278	020276	005037	177776		CLR STATUS	; CLEAR STATUS
4279	020302	103005			BCC 5\$	
4280						
4281	020304	005212			INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4282	020306	012713	000406		MOV #406,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4283	020312	000000			HLT	; C NOT CLEAR
4284	020314	000240			LOOP	; REPLACE THIS INSTRUCTION BY A
4285						; "JMP 2R0" (000110) TO GET A
4286						; SCOPE LOOP AND HIT CONTINUE
4287	020316	102005		5\$:	BVC 6\$	
4288						
4289	020320	005212			INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4290	020322	012713	000407		MOV #407,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4291	020326	000000			HLT	; V NOT CLEAR
4292	020330	000240			LOOP	; REPLACE THIS INSTRUCTION BY A
4293						; "JMP 2R0" (000110) TO GET A
4294						; SCOPE LOOP AND HIT CONTINUE
4295	020332	001005		6\$:	BNE 7\$	
4296						
4297	020334	005212			INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4298	020336	012713	000410		MOV #410,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4299	020342	000000			HLT	; Z NOT CLEAR
4300	020344	000240			LOOP	; REPLACE THIS INSTRUCTION BY A
4301						; "JMP 2R0" (000110) TO GET A
4302						; SCOPE LOOP AND HIT CONTINUE
4303	020346	100005		7\$:	BPL 8\$	
4304						
4305	020350	005212			INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4306	020352	012713	000411		MOV #411,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4307	020356	000000			HLT	; N NOT CLEAR
4308	020360	000240			LOOP	; REPLACE THIS INSTRUCTION BY A
4309						; "JMP 2R0" (000110) TO GET A
4310						; SCOPE LOOP AND HIT CONTINUE
4311	020362	010700		8\$:	SCOPE	
4312						
4313	020364	000257			CCC	; CLEAR CONDITION CODES
4314	020366	052737	000017 177776		BIS #17,STATUS	; SET STATUS TO ONES
4315	020374	103405			BCS 9\$	
4316						
4317						
4318	020376	005212			INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4319	020400	012713	000412		MOV #412,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4320	020404	000000			HLT	; C NOT SET
4321	020406	000240			LOOP	; REPLACE THIS INSTRUCTION BY A
4322						; "JMP 2R0" (000110) TO GET A
4323						; SCOPE LOOP AND HIT CONTINUE
4324	020410	102405		9\$:	BVS 10\$	
4325						
4326	020412	005212			INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4327	020414	012713	000413		MOV #413,(R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4328	020420	000000			HLT	; V NOT SET

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T146 TEST THAT MOV8 %R MOVES ONLY THE LSH OF THE REGISTER

Address	Instruction	Op-Code	Register	Comment
4329	020422	000240	LOOP	
4330				; REPLACE THIS INSTRUCTION BY A
4331				; "JMP 2R0" (000110) TO GET A
4332	020424	001405	10\$: BEQ 11\$	; SCOPE LOOP AND HIT CONTINUE
4333				
4334	020426	005212	INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4335	020430	012713	MOV #414, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4336	020434	000000	HLT	; Z NOT SET
4337	020436	000240	LOOP	; REPLACE THIS INSTRUCTION BY A
4338				; "JMP 2R0" (000110) TO GET A
4339				; SCOPE LOOP AND HIT CONTINUE
4340	020440	100405	11\$: BMI 12\$	
4341				
4342	020442	005212	INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4343	020444	012713	MOV #415, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4344	020450	000000	HLT	; N NOT SET
4345	020452	000240	LOOP	; REPLACE THIS INSTRUCTION BY A
4346				; "JMP 2R0" (000110) TO GET A
4347				; SCOPE LOOP AND HIT CONTINUE
4348	020454	010700	12\$: SCOPE	
4349				
4350				
4351				; TEST THAT (%6) +4 TO %6
4352	020456	012706	MOV #BUFF, %6	; SET UP BUFFER POINTER
4353	020462	005037	CLR BUFF+2	; SET UP NEW STATUS
4354	020466	012737	MOV #.+10, BUFF	; SET UP, RETURN
4355	020474	000006	RTT	; RETURN NEXT INSTRUCTION
4356	020476	020627	CMP %6, #BUFF+4	; %6 SHOULD BE PLUS 4
4357	020502	001405	BEQ 13\$	
4358				
4359	020504	005212	INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4360	020506	012713	MOV #416, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4361	020512	000000	HLT	; %6 NOT INCREMENTED
4362	020514	000240	LOOP	; REPLACE THIS INSTRUCTION BY A
4363				; "JMP 2R0" (000110) TO GET A
4364				; SCOPE LOOP AND HIT CONTINUE
4365				
4366	020516	010700	13\$: SCOPE	; TEST ((%6+2)) TO STATUS
4367	020520	012737	MOV #357, BUFF+2	; RETURN STATUS ALL ONES
4368	020526	012706	MOV #BUFF, %6	; SET UP BUFFER POINTER
4369	020532	012737	MOV #.+12, BUFF	; SET UP RETURN POINTER
4370	020540	000257	CCC	; CLEAR CONDITION CODES
4371	020542	000006	RTT	; RETURN
4372				
4373	020544	001405	BEQ 14\$	
4374				
4375	020546	005212	INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4376	020550	012713	MOV #417, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4377	020554	000000	HLT	; Z NOT SET
4378	020556	000240	LOOP	; REPLACE THIS INSTRUCTION BY A
4379				; "JMP 2R0" (000110) TO GET A
4380				; SCOPE LOOP AND HIT CONTINUE
4381	020560	102405	14\$: BVS 15\$	
4382				
4383	020562	005212	INC (R2)	; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4384	020564	012713	MOV #420, (R3)	; MOVE TO MAIL BOX (\$FATAL) THE ERROR

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T146 TEST THAT MOVB %R MOVES ONLY THE LSH OF THE REGISTER

4385	020570	000000				HLT			; V NOT SET
4386	020572	000240				LOOP			; REPLACE THIS INSTRUCTION BY A
4387									; "JMP 2R0" (000110) TO GET A
4388									; SCOPE LOOP AND HIT CONTINUE
4389	020574	100405			15\$:	BMI	16\$		
4390									
4391	020576	005212				INC	(R2)		; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4392	020600	012713	000421			MOV	#421, (R3)		; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4393	020604	000000				HLT			; N NOT SET
4394	020606	000240				LOOP			; REPLACE THIS INSTRUCTION BY A
4395									; "JMP 2R0" (000110) TO GET A
4396									; SCOPE LOOP AND HIT CONTINUE
4397	020610	103405			16\$:	BCS	17\$		
4398									
4399	020612	005212				INC	(R2)		; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4400	020614	012713	000422			MOV	#422, (R3)		; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4401	020620	000000				HLT			; C NOT SET
4402	020622	000240				LOOP			; REPLACE THIS INSTRUCTION BY A
4403									; "JMP 2R0" (000110) TO GET A
4404									; SCOPE LOOP AND HIT CONTINUE
4405									
4406	020624	010700			17\$:	SCOPE			
4407	020626	005037	021776			CLR	BUFF+2		; ZERO TO STATUS
4408	020632	012706	021774			MOV	#BUFF, %6		
4409	020636	012737	020650	021774		MOV	#.+12, BUFF		
4410	020644	000277				SCC			; SET CONDITION CODES
4411	020646	000006				RTT			; RETURN
4412	020650	001005				BNE	18\$		
4413									
4414	020652	005212				INC	(R2)		; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4415	020654	012713	000423			MOV	#423, (R3)		; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4416	020660	000000				HLT			; Z NOT CLEARED
4417	020662	000240				LOOP			; REPLACE THIS INSTRUCTION BY A
4418									; "JMP 2R0" (000110) TO GET A
4419									; SCOPE LOOP AND HIT CONTINUE
4420	020664	102005			18\$:	BVC	19\$		
4421									
4422	020666	005212				INC	(R2)		; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4423	020670	012713	000424			MOV	#424, (R3)		; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4424	020674	000000				HLT			; V NOT CLEARED
4425	020676	000240				LOOP			; REPLACE THIS INSTRUCTION BY A
4426									; "JMP 2R0" (000110) TO GET A
4427									; SCOPE LOOP AND HIT CONTINUE
4428	020700	100005			19\$:	BPL	20\$		
4429									
4430	020702	005212				INC	(R2)		; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4431	020704	012713	000425			MOV	#425, (R3)		; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4432	020710	000000				HLT			; N NOT CLEARED
4433	020712	000240				LOOP			; REPLACE THIS INSTRUCTION BY A
4434									; "JMP 2R0" (000110) TO GET A
4435									; SCOPE LOOP AND HIT CONTINUE
4436	020714	103005			20\$:	BCC	21\$		
4437									
4438	020716	005212				INC	(R2)		; SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
4439	020720	012713	000426			MOV	#426, (R3)		; MOVE TO MAIL BOX (\$FATAL) THE ERROR
4440	020724	000000				HLT			; C NOT CLEARED

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T146 TEST THAT MOV8 %R MOVES ONLY THE LSH OF THE REGISTER

4441 020726 000240

LOOP

;REPLACE THIS INSTRUCTION BY A
; "JMP 3R0" (000110) TO GET A
; SCOPE LOOP AND HIT CONTINUE

4442
4443
4444 020730 010700
4445 020732

215: SCOPE
RLOBY1:

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T146 TEST THAT MOV B %R MOVES ONLY THE LSH OF THE REGISTER

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4446
4447
4448
4449
4450 020732 005237 000304 TST147: INC @TESTN
4451 020736 012700 137777 MOV @137777,R0
4452 020742 076600 MED
4453 020744 000352 352
4454 020746 012700 021344 MOV @TABLE,TAB
4455 020752 012002 GIN1: MOV (TAB)+,FIRST
4456 020754 012001 MOV (TAB)+,LAST
4457 020756 020237 021400 CMP FIRST,FINISH
4458 020762 001453 BEQ RET3A
4459 020764 010237 021402 GIN2: MOV FIRST,INST
4460 020770 012737 021012 000010 MOV @RET,RESVEC
4461 020776 012706 021774 MOV @BUFF,%6
4462 021002 005037 177776 CLR CC
4463 021006 000137 021402 JMP INST
4464
4465
4466
4467 021012 020627 021770 RET: CMP %6,@BUFF-4
4468 021016 001404 BEQ RET1
4469
4470 021020 005212 INC (R2)
4471 021022 012713 000427 MOV @427,(R3)
4472 021026 000000 HLT
4473 021030 023727 021770 021404 RET1: CMP BUFF-4,@INST+2
4474 021036 001405 BEQ RET2
4475
4476 021040 005212 INC (R2)
4477 021042 012713 000430 MOV @430,(R3)
4478 021046 000000 HLT
4479 021050 000240 LOOP
4480
4481
4482 021052 005737 021772 RET2: TST BUFF-2
4483 021056 001405 BEQ RET3
4484
4485 021060 005212 INC (R2)
4486 021062 012713 000431 MOV @431,(R3)
4487 021066 000000 HLT
4488 021070 000240 LOOP
4489
4490
4491 021072 005237 021402 RET3: INC INST
4492 021076 005202 INC FIRST
4493 021100 023701 021402 CMP INST,LAST
4494 021104 001722 BEQ GIN1
4495 021106 000137 020764 JMP GIN2
4496
4497 021112 010700 RET3A: SCOPE
4498
4499
4500
4501

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 ;TEST 147 TEST THAT ALL RESERVED INSTRUCTIONS TRAP

DISABLE WCS IF PRESENT
 BY DOING "INIT". XFC SHOULD
 TRAP AA A RESERVED INSTR.
 TABLE POINTER
 FIRST OR CURRENT INSTRUCTION
 LAST INSTRUCTION OF GROUP
 TESTED ALL
 ;GO TO MULT TRAPS TEST IF FIN.
 ;SET UP INST
 ;LOAD RESERVED INST. TRAP VECTOR
 ;SET UP STACK POINTER
 ;CLEAR PRIORITY
 ;EXECUTE RESERVED INSTRUCTION
 ;TRAP SHOULD OCCUR

;TRAPPING SHOULD SEND YOU HERE

;TEST DECREMENT OF %6

;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
 ;MOVE TO MAIL BOX (\$FATAL) THE ERROR
 ;WRONG DECREMENT
 ;LOC OF INST UNINCREMENTED

;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
 ;MOVE TO MAIL BOX (\$FATAL) THE ERROR
 ;INST INC ON TRAP
 ;REPLACE THIS INSTRUCTION BY A
 ;"JMP 2R0" (000110) TO GET A
 ;SCOPE LOOP AND HIT CONTINUE

;SET MESSAGE TYPE (\$MSGTY) TO FATAL ERROR
 ;MOVE TO MAIL BOX (\$FATAL) THE ERROR
 ;CONDITION CODES SET ON TRAP
 ;REPLACE THIS INSTRUCTION BY A
 ;"JMP 2R0" (000110) TO GET A
 ;SCOPE LOOP AND HIT CONTINUE

;SET UP NEW GROUP
 ;FINISH OLD GROUP
 ;END OF INSTRUCTION GROUP

 ;TEST 150 CHECK MULTIPLE TRAP CONDITIONS

```

4502 021114 005237 000304 TST150: INC 2*STESTN
4503 ;THE FOLLOWING TESTS ARE WRITTEN TO CHECK MULTIPLE TRAP CONDITIONS
4504 ;TO TEST THAT TRAPS ARE PROCESSED PROPERLY.
4505 021120 012706 021774 SINSI: MOV #BUFF,%6 ;SET UP STACK POINTER
4506 021124 012737 021176 000014 MOV #SINSO,TBITVEC ;LOAD 'T' BIT VECTOR
4507 021132 012737 021222 000004 MOV #SINSE,4 ;LOAD ERROR VECTOR
4508 021140 012737 021205 000030 MOV #SINSF+1,EMTVEC ;LOAD EMT VECTOR (ODD)
4509 021146 005037 000032 CLR EMTVEC+2
4510 021152 005000 CLR %0 ;PRE SET R0
4511 021154 012746 000020 MOV #20,-(6) ;SET UP
4512 021160 012746 021166 MOV #SINSDD,-(6) ;TO SET 'T' BIT
4513 021164 000006 RTT ;SET 'T' BIT
4514 021166 104000 SINSDD: EMT ;DO EMT PICK UP ODD PC
4515
4516 021170 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4517 021172 012713 000432 SINSDD: MOV #432,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4518 021176 000000 HLT ;ERROR! 'T' TRAP OCCURRED BEFORE ERROR
4519 021200 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
4520 ;"JMP 2R0" (000110) TO GET A
4521 ;SCOPE LOOP AND HIT CONTINUE
4522 021202 000455 SINSF: BR SINSI ;GO TO SCOPE
4523 021204 000240 NOP ;THE EMT TRIES TO COME HERE
4524
4525 021206 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4526 021210 012713 000433 MOV #433,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4527 021214 000000 HLT ;ERROR! NO ERROR TRAP ON ODD EMT VECTOR
4528 021216 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
4529 ;"JMP 2R0" (000110) TO GET A
4530 ;SCOPE LOOP AND HIT CONTINUE
4531 021220 000446 SINSI: BR SINSI ;GO TO SCOPE
4532 021222 012737 021246 021764 SINSE: MOV #SINSG,BUFF-10 ;CORRECT BAD EMT VECTOR ON THE STACK
4533 021230 000006 RTT ;GO TO SINSG (SERVICE EMT)
4534
4535 021232 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4536 021234 012713 000434 MOV #434,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4537 021240 000000 HLT ;DIDN'T GO
4538 021242 000240 LOOP ;REPLACE THIS INSTRUCTION BY A
4539 ;"JMP 2R0" (000110) TO GET A
4540 ;SCOPE LOOP AND HIT CONTINUE
4541 021244 000434 SINSI: BR SINSI ;GO TO SCOPE
4542 021246 012737 021276 021770 SINSG: MOV #SINSH,BUFF-4 ;RESTORE RETURN FROM EMT (ON STACK)
4543 021254 012737 021316 000014 MOV #SINSJ,TBITVEC ;CHANGE 'T' BIT VECTOR
4544 021262 000006 RTT ;GO TO SINSH
4545
4546 021264 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4547 021266 012713 000435 MOV #435,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4548 021272 000000 HLT ;REPLACE THIS INSTRUCTION BY A
4549 021274 000240 LOOP ;"JMP 2R0" (000110) TO GET A
4550 ;SCOPE LOOP AND HIT CONTINUE
4551
4552 021276 012700 000001 SINSH: MOV #1,%0 ;LOAD INDICATOR
4553
4554 021302 005212 INC (R2) ;SET MESSAGE TYPE ($MSGTY) TO FATAL ERROR
4555 021304 012713 000436 MOV #436,(R3) ;MOVE TO MAIL BOX ($FATAL) THE ERROR
4556 021310 000000 HLT ;ERROR! SHOULD HAVE 'T' TRAPPED
4557 021312 000240 LOOP ;REPLACE THIS INSTRUCTION BY A

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Address	Op Code	Op 2	Op 3	Op 4	Op 5	Op 6	Op 7	Op 8	Op 9	Op 10	Op 11	Op 12	Op 13	Op 14	Op 15	Op 16	Op 17	Op 18	Op 19	Op 20	Op 21	Op 22	Op 23	Op 24	Op 25	Op 26	Op 27	Op 28	Op 29	Op 30	Op 31	Op 32	Op 33	Op 34	Op 35	Op 36	Op 37	Op 38	Op 39	Op 40	Op 41	Op 42	Op 43	Op 44	Op 45	Op 46	Op 47	Op 48	Op 49	Op 50	Op 51	Op 52	Op 53	Op 54	Op 55	Op 56	Op 57	Op 58	Op 59	Op 60	Op 61	Op 62	Op 63	Op 64	Op 65	Op 66	Op 67	Op 68	Op 69	Op 70	Op 71	Op 72	Op 73	Op 74	Op 75	Op 76	Op 77	Op 78	Op 79	Op 80	Op 81	Op 82	Op 83	Op 84	Op 85	Op 86	Op 87	Op 88	Op 89	Op 90	Op 91	Op 92	Op 93	Op 94	Op 95	Op 96	Op 97	Op 98	Op 99	Op 100	Op 101	Op 102	Op 103	Op 104	Op 105	Op 106	Op 107	Op 108	Op 109	Op 110	Op 111	Op 112	Op 113	Op 114	Op 115	Op 116	Op 117	Op 118	Op 119	Op 120	Op 121	Op 122	Op 123	Op 124	Op 125	Op 126	Op 127	Op 128	Op 129	Op 130	Op 131	Op 132	Op 133	Op 134	Op 135	Op 136	Op 137	Op 138	Op 139	Op 140	Op 141	Op 142	Op 143	Op 144	Op 145	Op 146	Op 147	Op 148	Op 149	Op 150	Op 151	Op 152	Op 153	Op 154	Op 155	Op 156	Op 157	Op 158	Op 159	Op 160	Op 161	Op 162	Op 163	Op 164	Op 165	Op 166	Op 167	Op 168	Op 169	Op 170	Op 171	Op 172	Op 173	Op 174	Op 175	Op 176	Op 177	Op 178	Op 179	Op 180	Op 181	Op 182	Op 183	Op 184	Op 185	Op 186	Op 187	Op 188	Op 189	Op 190	Op 191	Op 192	Op 193	Op 194	Op 195	Op 196	Op 197	Op 198	Op 199	Op 200	Op 201	Op 202	Op 203	Op 204	Op 205	Op 206	Op 207	Op 208	Op 209	Op 210	Op 211	Op 212	Op 213	Op 214	Op 215	Op 216	Op 217	Op 218	Op 219	Op 220	Op 221	Op 222	Op 223	Op 224	Op 225	Op 226	Op 227	Op 228	Op 229	Op 230	Op 231	Op 232	Op 233	Op 234	Op 235	Op 236	Op 237	Op 238	Op 239	Op 240	Op 241	Op 242	Op 243	Op 244	Op 245	Op 246	Op 247	Op 248	Op 249	Op 250	Op 251	Op 252	Op 253	Op 254	Op 255	Op 256	Op 257	Op 258	Op 259	Op 260	Op 261	Op 262	Op 263	Op 264	Op 265	Op 266	Op 267	Op 268	Op 269	Op 270	Op 271	Op 272	Op 273	Op 274	Op 275	Op 276	Op 277	Op 278	Op 279	Op 280	Op 281	Op 282	Op 283	Op 284	Op 285	Op 286	Op 287	Op 288	Op 289	Op 290	Op 291	Op 292	Op 293	Op 294	Op 295	Op 296	Op 297	Op 298	Op 299	Op 300	Op 301	Op 302	Op 303	Op 304	Op 305	Op 306	Op 307	Op 308	Op 309	Op 310	Op 311	Op 312	Op 313	Op 314	Op 315	Op 316	Op 317	Op 318	Op 319	Op 320	Op 321	Op 322	Op 323	Op 324	Op 325	Op 326	Op 327	Op 328	Op 329	Op 330	Op 331	Op 332	Op 333	Op 334	Op 335	Op 336	Op 337	Op 338	Op 339	Op 340	Op 341	Op 342	Op 343	Op 344	Op 345	Op 346	Op 347	Op 348	Op 349	Op 350	Op 351	Op 352	Op 353	Op 354	Op 355	Op 356	Op 357	Op 358	Op 359	Op 360	Op 361	Op 362	Op 363	Op 364	Op 365	Op 366	Op 367	Op 368	Op 369	Op 370	Op 371	Op 372	Op 373	Op 374	Op 375	Op 376	Op 377	Op 378	Op 379	Op 380	Op 38
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 DOKDBA.P11 17-FEB-77 08:26 T150 CHECK MULTIPLE TRAP CONDITIONS

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4614 021456 105737 177564      WAIT:  TSTB    @TPS      ;TTY READY
4615 021462 100375              BPL      WAIT      ;NO WAIT
4616 021464 112037 177566      MOVB    (RO)+,@TPB  ;PRINT CHARACTER
4617 021470 001372              BNE      WAIT      ;NEXT IF NOT DONE.
4618 021472 105737 177564      WAIT1:  TSTB    @TPS
4619 021476 100375              BPL      WAIT1
4620 021500 000005              RESET
4621 021502 012737 177761 021546 ACT:    MOV      @177761,PASSPT ;DO IT ABOUT 15 DECIMAL TIMES
4622 021510 013700 000042      MOV      @42,RO    ;CHECK ACT
4623 021514 001405              BEQ      GOAGIN   ;KEEP GOING
4624 021516 007005              RESET
4625 021520 004710      SENDAD: JSR      PC,(RO)    ;ACT HOOKS
4626 021522 000240              NOP
4627 021524 000240              NOP
4628 021526 000240              NOP
4629 021530 012737 000012 000010 GOAGIN: MOV      @12,10
4630 021536 005037 000012      CLR      12
4631 021542 000137 001110      JMP      BEGIN1    ;DO NEXT PASS
4632 021546 177777      PASSPT: -1
4633 021550 005015 047105 020104 MSG:    .ASCIZ  <15><12>/END OF PASS/
4634 021556 043117 020040 040520
4635 021564 051523      000
4636      021570      .EVEN
4637
4638      ;POWER FAIL, POWER UP ROUTINE
4639
4640 021570 012737 021600 000024 PWRDWN: MOV      @PWRUP,24
4641 021576 000000              HALT
4642
4643 021600 012737 021570 000024 PWRUP:  MOV      @PWRDWN,24
4644 021606 012706 021774      MOV      @BUFF,SP
4645 021612 132737 000040 000321      BITB    @40,$ENVN    ;WILL APT ALLOW PRINTING?
4646 021620 001013              BNE      PFRES     ;NO
4647 021622 012700 021654      MOV      @MSGPWF,RO  ;GET MSG ADDR.
4648 021626 105737 177564      PWAIT:  TSTB    @TPS      ;TTY READY
4649 021632 100375              BPL      PWAIT     ;NO WAIT
4650 021634 112037 177566      MOVB    (RO)+,@TPB  ;PRINT CHARACTER
4651 021640 001372              BNE      PWAIT     ;NEXT IF NOT DONE.
4652 021642 105737 177564      PWAIT1: TSTB    @TPS
4653 021646 100375              BPL      PWAIT1
4654 021650 000137 001102      PFRES:  JMP      BEGIN
4655 021654 005015 047520 042527 MSGPWF: .ASCIZ  <15><12>.POWER FAILED!.
4656 021662 020122 040506 046111
4657 021670 042105 000041
4658
4659      . = .+100
4660 021774 000000      BUFF:    0
4661      000001      .END

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 DOKDBA.P11 17-FEB-77 08:26 CROSS REFERENCE TABLE -- USER SYMBOLS

ABASE =	000000	318			
ACOW1 =	000000	318			
ACOW2 =	000000	318			
ACPUOP =	000000	318	333		
ACT	021510	4608	4610	4612	4622#
ADDW0 =	000000	318			
ADDW1 =	000000	318			
ADDW10 =	000000	318			
ADDW11 =	000000	318			
ADDW12 =	000000	318			
ADDW13 =	000000	318			
ADDW14 =	000000	318			
ADDW15 =	000000	318			
ADDW2 =	000000	318			
ADDW3 =	000000	318			
ADDW4 =	000000	318			
ADDW5 =	000000	318			
ADDW6 =	000000	318			
ADDW7 =	000000	318			
ADDW8 =	000000	318			
ADDW9 =	000000	318			
ADEVCT =	000000	318	324		
ADEVN =	000000	318			
AEV =	000000	318	329		
AEVW =	000000	318	330		
AFATAL =	000000	318	321		
AIDR6	016616	3888#			
AMADR1 =	000000	318			
AMADR2 =	000000	318			
AMADR3 =	000000	318			
AMADR4 =	000000	318			
AMAMS1 =	000000	318			
AMAMS2 =	000000	318			
AMAMS3 =	000000	318			
AMAMS4 =	000000	318			
AMSGAD =	000000	318	326		
AMSGLG =	000000	318	327		
AMSGTY =	000000	318	320		
AMTYP1 =	000000	318			
AMTYP2 =	000000	318			
AMTYP3 =	000000	318			
AMTYP4 =	000000	318			
APASS =	000000	318	323		
APRIOR =	000000	318			
ASWREG =	000000	318	331		
ATESTN =	000000	318	322		
AUNIT =	000000	318	325		
AUSW =	000000	318	332		
AVECT1 =	000000	318			
AVECT2 =	000000	318			
BEGIN	001102	303	397#	4654	
BEGIN1	001110	401#	4631		
BELL =	000240	286#			
BGN2	001202	418#	419	421	
BGN2A	001216	423#	424		
BGN3	001224	413	416	425#	

BPT = 000003
 BPTVEC= 000014
 BUFF = 021774

273#	2568												
279#	1017*	1018*	1034*	1053*	1072*	1088*	1109*	1110*	1127*	1128*	1144*		
408	432	449	452	469	472	487	491	504	508	526	545	571	
588	591	607	610	625	629	641	645	662	679	704	726	743	
746	762	765	781	785	797	801	818	836	861	878	881	897	
900	916	920	932	936	953	970	994	1016	1033	1036	1052	1055	
1071	1075	1087	1091	1108	1126	1153	1170	1173	1189	1192	1208	1212	
1224	1228	1245	1263	1286	1300	1303	1319	1322	1338	1342	1354	1358	
1375	1393	1417	1435	1438	1454	1457	1473	1477	1488	1492	1508	1525	
1546	1560	1562	1577	1595	1608	1625	1643	1682	1703	1734	1739	1753	
1767	1777	1794	1810	3527	3541	3557	3572	3587	3598	3614	3630	3647	
3670	3699	3712	3721	3730	3739	3754	3785	3796	3820	3839	3862	3888	
3891	3916	3918	3929	3932	3943	3946	3957	3970	3973	3984	4012	4013*	
4027	4028*	4352	4353*	4354*	4356	4367*	4368	4369*	4407*	4408	4409*	4461	
4467	4473	4482	4505	4532*	4542*	4644	4660#						
4045#													
4129#													

BXFR 017312
 BYTOP 017640
 CC = 177776

294#	489*	506*	529*	531	542*	548*	550	627*	643*	665*	667	676*	
682*	684	695*	783*	799*	821*	823	833*	839*	841	918*	934*	956*	
958	973*	975	1073*	1089*	1111*	1113	1123*	1129*	1131	1142*	1210*	1226*	
1248*	1250	1260*	1266*	1268	1279*	1340*	1356*	1378*	1380	1390*	1396*	1398	
1409*	1475*	1490*	1511*	1513	1522*	1529	1539*	1931*	2341*	2814*	3223*	3322*	
3341	3416*	3694*	3755*	4462*									

EMTVEC= 000030

277#	812*	863*	879*	898*	917*	933*	954*	955*	971*	972*	1008*	1009*	
2331*	2332*	2948*	2949*	3013*	3216*	3217*	3305*	3306*	4508*	4509*			

ENDOT 021420
 ERRVEC= 000004

4572	4506#												
275#	1154*	1155*	1171*	1190*	1209*	1225*	1246*	1247*	1264*	1265*	1287*	1288*	
1301*	1320*	1339*	1355*	1376*	1377*	1394*	1395*	1418*	1419*	1436*	1455*	1474*	
1489*	1517*	1510*	1526*	1527*	1694*	1695*	1843*	1844*	1862*	1879*	1896*	1910*	
1930*	2334*	2340*	2565*	2566*	2616*								

FINISH 021400
 FOVER 010500
 FOVI 010504
 GINI 020752
 GIN2 020764
 GOAGIN 021530
 HLT = 000000

4457	4594#												
2276	2299#												
2295	2306#												
4455#	4494												
4459#	4495												
4623	4629#												
271#	439	457	477	496	514	536	556	578	596	615	634	651	
672	690	709	733	751	770	790	807	828	847	868	886	905	
925	942	963	981	999	1023	1041	1060	1080	1097	1118	1137	1160	
1178	1197	1217	1234	1255	1274	1293	1308	1327	1347	1364	1385	1404	
1424	1443	1462	1482	1498	1518	1535	1554	1567	1585	1602	1615	1633	
1655	1664	1672	1688	1714	1723	1744	1762	1772	1782	1806	1815	1825	
1850	1868	1884	1902	1916	1936	1946	1970	1974	1991	1995	2011	2015	
2032	2036	2053	2057	2074	2078	2088	2105	2109	2134	2143	2163	2172	
2192	2201	2221	2230	2250	2259	2299	2347	2357	2367	2377	2386	2397	
2407	2417	2427	2437	2447	2457	2467	2477	2487	2497	2507	2517	2527	
2537	2547	2577	2586	2596	2605	2627	2636	2646	2655	2670	2689	2706	
2716	2725	2734	2743	2762	2771	2780	2789	2798	2821	2827	2836	2845	
2857	2866	2884	2901	2919	2937	2960	2967	2976	2991	3000	3009	3033	
3040	3049	3063	3072	3081	3104	3111	3120	3134	3143	3166	3173	3182	
3194	3203	3229	3237	3247	3256	3265	3274	3290	3299	3328	3336	3346	
3355	3364	3373	3389	3398	3422	3429	3438	3447	3456	3465	3481	3490	
3509	3516	3533	3540	3546	3564	3571	3577	3594	3603	3622	3629	3635	
3658	3683	3707	3717	3726	3735	3744	3764	3772	3807	3833	3851	3874	
3896	3910	3923	3937	3951	3965	3978	3992	4005	4021	4036	4055	4071	
4087	4103	4119	4134	4145	4156	4167	4178	4189	4200	4211	4230	4244	

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CROSS REFERENCE TABLE -- USER SYMBOLS

		4258	4271	4283	4291	4299	4307	4320	4328	4336	4344	4361	4377	4385
		4393	4401	4416	4424	4432	4440	4472	4478	4487	4518	4527	4537	4548
		4556	4566											
ILLA	= 004700	2070	2101											
ILLB	= 000100	2682												
INDEX	011754	2683	2693											
IND1	012010	2930	2937											
IND10	013006	2915	2923											
IND11	012742	2933	2941											
IND12	013012	2697	2711											
IND2	012064	2706												
IND2A	012056	2702	2720											
IND2B	012050	2710	2739	2747										
IND2X	012170	2754	2766											
IND3	012236	2762												
IND3A	012232	2758	2775											
IND3B	012224	2809	2822											
IND4	012436	2821												
IND4A	012434	2817	2852											
IND4B	012426	2877	2884											
IND5	012626	2895	2901											
IND6	012670	2912	2919											
IND7	012736	2880	2888											
IND8	012632	2897	2905											
IND9	012674	4459	4463	4473	4491	4493	4595							
INST	021402	471												
INSTC	001346	1321	1322											
INSTK	004730	3696	3703	3721	3739									
INT	015770	3740	3748											
INT1	016116	3698	3711											
INT2	016002	280	727	728	744	763	782	798	819	820	837	838	854	855
IOTVEC=	000020	2335	2336	3093	3094	3147								
ITRAPS=	000004	274												
K1	001000	372	4014	4015	4016	4029	4030	4031	4046	4047	4050	4062	4063	4066
		4077	4079	4093	4095	4109	4111	4114						
K10	001016	379	4151	4162	4173	4184	4195	4206						
K11	001020	380	4222	4224	4225	4236	4237	4239	4250	4251	4253	4264	4266	
K12	001022	381												
K2	001002	373												
K3	001004	374												
K4	001006	375												
K5	001010	376	4045	4048	4061	4078	4080	4082	4094	4096	4098	4110	4112	
K6	001012	377	4064	4162										
K7	001014	378	4129	4140	4151	4173	4206							
LOOP =	000240	287	440	460	479	499	517	539	559	579	598	617	636	653
		673	692	711	734	753	772	792	809	830	849	869	888	907
		927	944	965	983	1001	1024	1043	1062	1082	1099	1120	1139	1161
		1180	1199	1219	1236	1257	1276	1294	1310	1329	1349	1366	1387	1406
		1425	1445	1464	1483	1499	1519	1536	1555	1568	1586	1603	1616	1634
		1656	1665	1673	1689	1715	1726	1745	1764	1774	1784	1807	1816	1828
		1852	1869	1885	1904	1918	1937	1950	1975	1996	2016	2037	2058	2079
		2089	2110	2135	2147	2164	2176	2193	2205	2222	2234	2251	2263	2303
		2348	2358	2368	2378	2388	2399	2409	2419	2429	2439	2449	2459	2469
		2479	2489	2499	2509	2519	2529	2539	2550	2578	2587	2597	2606	2628
		2637	2647	2656	2671	2690	2707	2717	2726	2735	2744	2763	2772	2781

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CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

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DOKDBA.P11 17-FEB-77 08:26 CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

SCOPE = 010700

1053	1055#
1190	1192#
488	491#
626	629#
782	785#
917	920#
1072	1075#
1209	1212#
505	508#
642	645#
798	801#
933	936#
1088	1091#
1225	1228#
527	531#
663	667#
819	823#
954	958#
1109	1113#
1246	1250#
546	550#
680	684#
837	841#
971	975#
1127	1131#
1264	1268#
1287	1297#
1301	1303#
1320	1322#
1339	1342#
1355	1358#
1376	1380#
1394	1398#
1418	1428#
1436	1438#
1455	1457#
1474	1477#
1489	1492#
1509	1513#
1526	1529#
4468	4473#
4474	4482#
4483	4491#
4458	4497#
4222#	
4445#	
3528	3541#
3558	3572#
3560#	3572
3588	3598#
3590#	3598
3615	3630#
270#	427
656	677
910	930
1164	1183

443	463	482	502	520	543	565	582	601	620	639
696	721	737	756	775	795	812	834	856	872	891
947	968	986	1010	1027	1046	1065	1085	1102	1124	1146
1202	1222	1239	1261	1280	1297	1313	1332	1352	1369	1391

		1410	1428	1448	1467	1486	1502	1523	1540	1558	1571	1589	1606	1619
		1637	1676	1696	1729	1748	1787	1836	1855	1872	1888	1907	1921	1956
		1978	1999	2019	2040	2061	2082	2092	2113	2150	2179	2208	2237	2266
		2306	2555	2676	2693	2747	2802	2870	2888	2905	2923	2941	3014	3086
		3148	3208	3307	3402	3494	3521	3551	3581	3608	3641	3664	3689	3748
		3779	3791	3813	3838	3856	3880	3900	3914	3927	3941	3955	3969	3982
		3996	4009	4011	4025	4040	4059	4075	4091	4107	4123	4138	4149	4160
		4171	4182	4193	4204	4215	4234	4248	4262	4275	4311	4348	4366	4406
		4444	4497	4570										
SINSD	021176	4506	4518#											
SINSD0	021166	4512	4514#											
SINSE	021222	4507	4532#											
SINSF	021204	4508	4523#											
SINSG	021246	4532	4542#											
SINSH	021276	4542	4552#											
SINSI	021336	4522	4531	4541	4560	4562	4570#							
SINSJ	021316	4543	4561#											
SINS1	021120	4505#												
STATUS=	177776	289#	3500*	3505*	3648*	3653*	3671*	3786*	3811*	3822*	3826	3842*	3844	4278*
		4314#												
STKERR	011316	2547#												
TABLE	021344	4454	4576#											
TBITVE=	000014	276#	2617*	3696*	3697*	3797*	3798*	4506*	4543*					
TDEC1	007034	1843	1850#											
TDEC1A	007040	1846	1855#											
TDEC2	007076	1862	1872#											
TDEC2A	007134	1879	1888#											
TDEC3	007172	1896	1902#											
TDEC4	007224	1910	1916#											
TDEC5	007304	1930	1941#											
TDEC5A	007276	1936#												
TDEC5B	007336	1940	1955	1956#										
TDEC6	007176	1898	1907#											
TDEC6A	007230	1912	1921#											
TDEC7	015142	3502	3520#											
TDEC8	015136	3503	3516#											
TEMP	021414	1646	1647	1648*	1649*	1684*	2561*	2567*	2570*	2614	2665	2879*	2896*	2913
		2931	4600#											
TPB	= 177566	285#	420*	4616*	4650*									
TPS	= 177564	284#	418	423	4614	4618	4648	4652						
TRAPVE=	000034	281#	572*	573*	589*	608*	626*	642*	663*	664*	680*	681*	719*	720*
		2333#	2334*	3022*	3023*	3085*								
TRCSR	= 177560	283#												
TRT	= 000003	272#												
TRTA	011410	2567	2568*	2570#	2581									
TRTAA	011414	2571#	2631											
TRTB	011416	2565	2572#											
TRTC	011532	2563	2600	2612#										
TRTD	011566	2616	2622#											
TRTE	011702	2617	2650	2662#										
TRTEX	011732	2590	2609	2640	2659	2666	2674#							
TRTF	011710	2571	2665#											
TRTVEC=	000014	278#	1705*	1706*	1735*	1754*	1795*	1834*	1835*	2337*	2338*	2563*	2564*	2674*
		3155#	3156*	3207*										
TR1	015564	3650	3658#											
TR2	015570	3651	3662#											

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 DOKDBA.P11 17-FEB-77 08:26 CROSS REFERENCE TABLE -- USER SYMBOLS

TR3	015664	3673	3679#
TR4	015700	3675	3687#
TR4A	015426	3618#	3630
TR5	015674	3676	3683#
TR6	016206	3756	3772#
TR6X	016214	3768	3778#
TST1	001226	431#	
TST10	001762	606#	
TST100	010030	2126#	
TST101	010106	2155#	
TST102	010164	2184#	
TST103	010242	2213#	
TST104	010320	2242#	
TST105	010376	2273#	
TST106	010506	2311#	
TST107	011332	2560#	
TST11	002026	624#	
TST110	011750	2681#	
TST111	012172	2752#	
TST112	012344	2807#	
TST113	012564	2875#	
TST114	012634	2893#	
TST115	012676	2910#	
TST116	012744	2928#	
TST117	013014	2946#	
TST12	002144	661#	
TST120	013232	3019#	
TST121	013446	3091#	
TST122	013632	3153#	
TST123	014014	3213#	
TST124	014316	3312#	
TST125	014600	3407#	
TST126	015052	3499#	
TST127	015150	3526#	
TST13	002304	701#	
TST130	015240	3556#	
TST131	015326	3586#	
TST132	015404	3613#	
TST133	015502	3646#	
TST134	015602	3669#	
TST135	015712	3693#	
TST136	016120	3753#	
TST137	016222	3784#	
TST14	002374	725#	
TST140	016264	3795#	
TST141	016350	3818#	
TST142	016526	3860#	
TST143	016612	3886#	
TST144	017306	4044#	
TST145	017634	4128#	
TST146	020100	4221#	
TST147	020732	4450#	
TST15	002434	742#	
TST150	021114	4502#	
TST16	002476	761#	
TST17	002542	780#	

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DOKDBA.P11 17-FEB-77 08:26 CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

[illegible]

M08

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CROSS REFERENCE TABLE -- USER SYMBOLS

		3271	3274	3287	3290	3296	3299	3325	3328	3333	3336	3343	3346	3352
		3355	3361	3364	3370	3373	3386	3389	3395	3398	3419	3422	3426	3429
		3435	3438	3444	3447	3453	3456	3462	3465	3478	3481	3487	3490	3506
		3509	3513	3516	3530	3533	3537	3540	3543	3546	3561	3564	3568	3571
		3574	3577	3591	3594	3600	3603	3619	3622	3626	3629	3632	3635	3655
		3658	3680	3683	3704	3707	3714	3717	3723	3726	3732	3735	3741	3744
		3761	3764	3769	3772	3804	3807	3830	3833	3848	3851	3871	3874	3893
		3896	3907	3910	3920	3923	3934	3937	3948	3951	3962	3965	3975	3978
		3989	3992	4002	4005	4018	4021	4033	4036	4052	4055	4068	4071	4084
		4087	4100	4103	4116	4119	4131	4134	4142	4145	4153	4156	4164	4167
		4175	4178	4186	4189	4197	4200	4208	4211	4227	4230	4241	4244	4255
		4258	4268	4271	4280	4283	4288	4291	4296	4299	4304	4307	4317	4320
		4325	4328	4333	4336	4341	4344	4358	4361	4374	4377	4382	4385	4390
		4393	4398	4401	4413	4416	4421	4424	4429	4432	4437	4440	4469	4472
		4475	4478	4484	4487	4515	4518	4524	4527	4534	4537	4545	4548	4553
		4556	4563	4566										
SENV	000320	329												
SENVH	000321	330	415	4609	4645									
SENVH=	000302	366	405											
SETABL	000320	328												
SETEND	000330	340	363											
SFATAL	000302	321	366	407										
SHIBTS	000330	358												
SHAIL	000300	319	359	363										
SHOR	000332	359												
SHAD	000314	326												
SHGLG	000316	327												
SHCTY	000300	320	401	406										
SPASS	000306	323	4606											
SPATH	000336	361												
SSN =	000151	268	428	432	445	449	465	469	483	487	522	526	567	571
		584	588	603	607	621	625	658	662	698	702	722	726	739
		743	758	762	777	781	814	818	857	861	874	878	893	897
		912	916	949	953	988	992	1012	1016	1029	1033	1048	1052	1067
		1071	1104	1108	1149	1153	1166	1170	1185	1189	1204	1208	1241	1245
		1282	1286	1315	1319	1334	1338	1371	1375	1413	1417	1431	1435	1450
		1454	1469	1473	1504	1508	1542	1546	1573	1577	1591	1595	1621	1625
		1639	1643	1678	1682	1699	1703	1730	1734	1749	1753	1790	1794	1838
		1842	1857	1861	1874	1878	1890	1894	1923	1927	1959	1963	1980	1984
		2000	2004	2021	2025	2042	2046	2063	2067	2094	2098	2123	2127	2152
		2156	2181	2185	2210	2214	2239	2243	2270	2274	2308	2312	2557	2561
		2678	2682	2749	2753	2804	2808	2872	2876	2890	2894	2907	2911	2925
		2929	2943	2947	3016	3020	3088	3092	3150	3154	3210	3214	3309	3313
		3404	3408	3496	3500	3523	3527	3553	3557	3583	3587	3610	3614	3643
		3647	3666	3670	3690	3694	3750	3754	3781	3785	3792	3796	3815	3819
		3857	3861	3883	3887	4041	4045	4125	4129	4218	4222	4447	4451	4499
		4503												
SSVPC =	000300	309	314											
SSWREG	000322	331												
STESTN	000304	322	365	431	448	468	486	525	570	587	606	624	661	701
		725	742	761	780	817	860	877	896	915	952	991	1015	1032
		1051	1070	1107	1152	1169	1188	1207	1244	1285	1318	1337	1374	1416
		1434	1453	1472	1507	1545	1576	1594	1624	1642	1681	1702	1733	1752
		1793	1841	1860	1877	1893	1926	1962	1983	2003	2024	2045	2066	2097
		2126	2155	2184	2213	2242	2273	2311	2560	2681	2752	2807	2875	2893
		2910	2928	2946	3019	3091	3153	3213	3312	3407	3499	3526	3556	3586

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DOKDBA.P11 17-FEB-77 08:26 CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

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 DOKDBA.P11 17-FEB-77 08:26 CROSS REFERENCE TABLE -- MACRO NAMES

AEROR	258#	436	454	474	493	511	533	553	575	593	612	631	648	669	687
	706	730	748	767	787	804	825	844	865	883	902	922	939	960	978
	996	1020	1038	1057	1077	1094	1115	1134	1157	1175	1194	1214	1231	1252	1271
	1290	1305	1324	1344	1361	1382	1401	1421	1440	1459	1479	1495	1515	1532	1551
	1564	1582	1599	1612	1630	1652	1661	1669	1685	1711	1720	1741	1759	1769	1779
	1803	1812	1822	1847	1865	1881	1899	1913	1933	1943	1967	1971	1988	1992	2008
	2012	2029	2033	2050	2054	2071	2075	2085	2102	2106	2131	2140	2160	2169	2189
	2198	2218	2227	2247	2256	2296	2344	2354	2364	2374	2383	2394	2404	2414	2424
	2434	2444	2454	2464	2474	2484	2494	2504	2514	2524	2534	2544	2574	2583	2593
	2602	2624	2633	2643	2652	2667	2686	2703	2713	2722	2731	2740	2759	2768	2777
	2786	2795	2818	2824	2833	2842	2854	2863	2881	2898	2916	2934	2957	2964	2973
	2988	2997	3006	3030	3037	3046	3060	3069	3078	3101	3108	3117	3131	3140	3163
	3170	3179	3191	3200	3226	3234	3244	3253	3262	3271	3287	3296	3325	3333	3343
	3352	3361	3370	3386	3395	3419	3426	3435	3444	3453	3462	3478	3487	3506	3513
	3530	3537	3543	3561	3568	3574	3591	3600	3619	3626	3632	3655	3680	3704	3714
	3723	3732	3741	3761	3769	3804	3830	3848	3871	3893	3907	3920	3934	3948	3962
	3975	3989	4002	4018	4033	4052	4068	4084	4100	4116	4131	4142	4153	4164	4175
	4186	4197	4208	4227	4241	4255	4268	4280	4288	4296	4304	4317	4325	4333	4341
	4358	4374	4382	4390	4398	4413	4421	4429	4437	4469	4475	4484	4515	4524	4534
	4545	4553	4563												
APTERO	257#	436	454	474	493	511	533	553	575	593	612	631	648	669	687
	706	730	748	767	787	804	825	844	865	883	902	922	939	960	978
	996	1020	1038	1057	1077	1094	1115	1134	1157	1175	1194	1214	1231	1252	1271
	1290	1305	1324	1344	1361	1382	1401	1421	1440	1459	1479	1495	1515	1532	1551
	1564	1582	1599	1612	1630	1652	1661	1669	1685	1711	1720	1741	1759	1769	1779
	1803	1812	1822	1847	1865	1881	1899	1913	1933	1943	1967	1971	1988	1992	2008
	2012	2029	2033	2050	2054	2071	2075	2085	2102	2106	2131	2140	2160	2169	2189
	2198	2218	2227	2247	2256	2296	2344	2354	2364	2374	2383	2394	2404	2414	2424
	2434	2444	2454	2464	2474	2484	2494	2504	2514	2524	2534	2544	2574	2583	2593
	2602	2624	2633	2643	2652	2667	2686	2703	2713	2722	2731	2740	2759	2768	2777
	2786	2795	2818	2824	2833	2842	2854	2863	2881	2898	2916	2934	2957	2964	2973
	2988	2997	3006	3030	3037	3046	3060	3069	3078	3101	3108	3117	3131	3140	3163
	3170	3179	3191	3200	3226	3234	3244	3253	3262	3271	3287	3296	3325	3333	3343
	3352	3361	3370	3386	3395	3419	3426	3435	3444	3453	3462	3478	3487	3506	3513
	3530	3537	3543	3561	3568	3574	3591	3600	3619	3626	3632	3655	3680	3704	3714
	3723	3732	3741	3761	3769	3804	3830	3848	3871	3893	3907	3920	3934	3948	3962
	3975	3989	4002	4018	4033	4052	4068	4084	4100	4116	4131	4142	4153	4164	4175
	4186	4197	4208	4227	4241	4255	4268	4280	4288	4296	4304	4317	4325	4333	4341
	4358	4374	4382	4390	4398	4413	4421	4429	4437	4469	4475	4484	4515	4524	4534
	4545	4553	4563												
HDR	261#	428	445	465	483	522	567	584	603	621	658	698	722	739	758
	777	814	857	874	893	912	949	988	1012	1029	1048	1067	1104	1149	1166
	1185	1204	1241	1282	1315	1334	1371	1413	1431	1450	1469	1504	1542	1573	1591
	1621	1639	1678	1699	1730	1749	1790	1838	1857	1874	1890	1923	1959	1980	2000
	2021	2042	2063	2094	2123	2152	2181	2210	2239	2270	2308	2557	2678	2749	2804
	2872	2890	2907	2925	2943	3016	3088	3150	3210	3309	3404	3496	3523	3553	3583
	3610	3643	3666	3690	3750	3781	3792	3815	3857	3883	4041	4125	4218	4447	4499
SETTBI	259#	1707	1736	1755	3700	3799									
STARS	258#	307	317	344	346	353									
THOR	264#	428	445	465	483	522	567	584	603	621	658	698	722	739	758
	777	814	857	874	893	912	949	988	1012	1029	1048	1067	1104	1149	1166
	1185	1204	1241	1282	1315	1334	1371	1413	1431	1450	1469	1504	1542	1573	1591
	1621	1639	1678	1699	1730	1749	1790	1838	1857	1874	1890	1923	1959	1980	2000
	2021	2042	2063	2094	2123	2152	2181	2210	2239	2270	2308	2557	2678	2749	2804
	2872	2890	2907	2925	2943	3016	3088	3150	3210	3309	3404	3496	3523	3553	3583
	3610	3643	3666	3690	3750	3781	3792	3815	3857	3883	4041	4125	4218	4447	4499

C09

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DQKDBA.P11 17-FEB-77 08:26 CROSS REFERENCE TABLE -- MACRO NAMES

VTRPO	2115#	2123	2152	2181	2210	2239
.SACT1	300#	305				
.SAPT8	300#	315				
.SAPTH	300#	342				

. ABS. 021776 000

X ERRORS DETECTED: 0 HARD 17 SOFT
DEFAULT GLOBALS GENERATED: 0

DSKZ:DQKDBA,DSKZ:DQKDBA.SEQ/CRF/SOL=DSKZ:DQKDBA.P11
RUN-TIME: 14 12 1 SECONDS
RUN-TIME RATIO: 423/28=14.9
CORE USED: 10K (20 PAGES)