

The image shows a grid of 48 small, illegible data tables or charts arranged in 8 rows and 6 columns on the left side of the page. Each cell in the grid contains a small table with multiple columns and rows of text, which is too small to read. The right side of the page is mostly blank with some faint, illegible markings.

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1. ABSTRACT
THIS IS A TEST OF ALL OPERATIONS AND INSTRUCTIONS THAT CAUSE TRAPS. ALSO TESTED ARE TRAP OVERFLOW CONDITIONS, ODDITIES OF REGISTER 6, INTERRUPTS , THE RESET AND WAIT INSTRUCTIONS.
2. REQUIREMENTS
 - 2.1 EQUIPMENT
11/04 STANDARD COMPUTER
 - 2.2 STORAGE
 - 2.2.1 PROGRAM STORAGE - THE ROUTINE USES MEMORY FROM 0000 TO 17500.
3. LOADING PROCEDURE
 - 3.1 METHOD
PROCEDURE FOR NORMAL ABSOLUTE TAPES SHOULD BE FOLLOWED.
4. STARTING PROCEDURE

THE PROGRAM STARTS AT 200.

IF IT IS DESIRED TO RESET THE PASS COUNT BACK TO ZERO ; THEN START THIS PROGRAM AT LOCATION 210
- 4.2 PROGRAM AND/OR OPERATOR ACTION
LOAD PROGRAM INTO MEMORY. (BOTTOM 4K)
LOAD ADDRESS.
START.
THE PROGRAM WILL LOOP.
IT WILL PRINT "END OF DFKAB" AFTER THE FIRST ITERATION AND THEN PRINTS IT EVERY 15 TIMES (APPROXIMATELY A MINUTE)

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5. OPERATION

5.2 SUBROUTINE ABSTRACTS

5.2.1 BEGIN AT 200

5.2.2 SCOPE

 IF A SCOPE LOOP IS NEEDED INSERT A BRANCH AS THE
 COMMENT TO THE HALT EXPLAINS.

5.2.3 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 PRINCIPLE OF THIS ROUTINE IS: THE VECTOR ENTRANCE
 ADDRESS POINTS TO THE NEXT SEQUENTIAL WORD WHICH WILL CON-
 TAIN A HALT (00000) (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
 WHERE THE PROGRAM WAS. 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'(304) CONTAINS
 THE TEST NUMBER THAT IT WAS DOING BEFORE IT
 TRAPPED.

5.3 PROGRAM AND/OR OPERATOR ACTION

5.3.1 LOADING AND STARTING AT 200 STARTS THE TEST. IF
 AN ERROR IS DETECTED, THERE WILL BE A HALT.
 NOTE: IF A SCOPE LOOP IS NEEDED
 THE COMMENT SECTION OF THE HALT EXPLAINS
 HOW TO UTILIZE THIS LOOP.

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- 6. ERRORS
- 6.1 ALL ERRORS WILL CAUSE A HALT.
- 6.1.1 THE PROGRAM CHECKS TO SEE THAT THE P.C. DOESN'T JUMP WITHIN THE TESTS, BY A SEQUENCE COUNT CALLED 'STSTN' THIS TEST IS A SEQUENTIAL INCREMENT AND COMPARE COUNT.

EXAMPLE

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TSTA: INC      J#STSTNM      ;INCREMENT THE TEST NUMBER
      CMP      #A J#STSTNM   ;COMPARE FOR THE RIGHT TEST
      BNE      TSTA+1-12    ;IF NOT CORRECT BRACHH TO A HALT
      ----
      CODE
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IMPORTANT

IF AN ERROR IS DETECTED ;IT COULD BE BECAUSE OF TWO REASONS.
 A) WRONG TEST NUMBER
 B) ERROR IN THE PRESENT TEST.

////////////////////////////////////
 THE TEST SEQUENCE LOCATION "TESTN" SHOULD BE CHECKED FIRST
 TO SEE IF IT MATCHES THE PRESENT TEST.
 IF IT DOESN'T MATCH ; THEN THE CONTENTS OF THIS LOCATION
 TELL YOU WHICH TEST IT WAS DOING BEFORE IT HALTED.
 //////////////////////////////////////

- 6.2 ERROR RECOVERY
 - ON TRAP ERRORS - RESTART AT STARTING ADDRESS
- 7. RESTRICTIONS
 - 7.1 STARTING RESTRICTION
 - NONE
 - 7.2 OPERATIONAL RESTRICTION
 - NONE

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8. MISCELLANEOUS

8.1 EXECUTION TIME

FOR ONE ITERATION ABOUT 5 SECONDS.
IT TYPES "END OF DFKAB" APPROXIMATELY EVERY MINUTE.

9. 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 "EMT" TRAP INSTRUCTIONS ARE TESTED TO SEE THAT ALL COMBINATIONS WILL TRAP. CHECKED ALSO IS THAT ALL RESERVED INSTRUCTIONS WILL TRAP. VERIFICATION OF THE "RTI" INSTRUCTION (00003) WHICH IS USED FOR SOFTWARE DEBUG ROUTINES: ODT, DDT, IS DONE. ALSO, THE TRACE BIT IS CHECKED TO SEE IF IT CAUSES A TRAP. THE RTI AND RTT INSTRUCTIONS ARE CHECKED. STACK OVERFLOW IS ALSO CHECKED FOR ALL THE TRAP INSTRUCTIONS. SPECIAL CHECKS ARE MADE TO SEE IF BUS ERROR TRAPS OCCUR ON NON-EXISTENT MEMORY.

.ENDR

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: ALL INSTRUCTIONS THAT ARE RESERVED
: SHOULD TRAP TO LOCATION 10, AND THE
: PC THAT POINTS TO THE TRAPPING INSTRUCTION
: SHOULD BE PLACED ON THE STACK

: LISTING

000006
000006
000003
000001
000005
000002
000000
000003
000004
000004
000014
000030
000020
000034
177564
177560
177564
177566
000240
000240
177776
000007
000010
004700
000100
177776

.LIST ME
.NLIST MC,MD,CND
.ABS
SP=%6
R6=%6
TAB=%3
LAST=%1
FIRST=%5
R2=%2
HLT=HALT
TRT=3
ITRAP5=4
RTRAP5=4
RTRAP4=14
RTRAP3=30
RTRAP2=20
RTRAP1=34
TTCSR=177564
TRCSR=177560
TPS=177564
TPB=177566
BELL=240
NOP=240
STATUS=177776
TRAPA=7
RTRAP=10
ILLA=004700
ILLB=100
CC=177776

: RESERVED INST AND ILLEGAL ADDRESSES
: FOR TRACE TRAP
: FOR EMULATOR TRAP
: FOR IOT TRAP
: FOR TRAP INST

235
236 000200 000167 000414
237
238 000210 005037 000306
239 000214 000167 000400
240
241
242
243
244
245 000300
246 000046 000046
247 000046 015424
248
249 000052 000052
250 000052 000000
251 000052 000300
252
253
254
255 000300
256 000300 000000
257 000302 000000
258 000304 000000
259 000306 000000
260 000310 000000
261 000312 000000
262 000314 000000
263 000316 000000
264 000320
265 000320 000
266 000321 000
267 000322 000000
268 000324 000000
269 000326 000000
270
271
272
273
274
275
276 000330
277
278
279
280
281
282
283 000330
284 000024 000024
285 000024 000200
286 000044 000044
287 000044 000330
288 000044 000330
289
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.=200
JMP BEGIN
.=210
CLR @#$PASS
JMP BEGIN
.=300
.SBTTL ACT11 HOOKS
;*****
;HOOKS REQUIRED BY ACT11
$SVPC=. ;SAVE PC
.=46
$ENDAD ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .SEOP
.=52
.WORD 0 ;;2)SET LOC.52 TO ZERO
.$SVPC ;; RESTORE PC
.SBTTL APT MAILBOX-ETABLE
;*****
.EVEN
$MAIL: ;APT MAILBOX
$MSGTY: .WORD AMSGTY ;MESSAGE TYPE CODE
$FATAL: .WORD AFATAL ;FATAL ERROR NUMBER
$TESTN: .WORD ATESTN ;TEST NUMBER
$PASS: .WORD APASS ;PASS COUNT
$DEVCT: .WORD ADEVCT ;DEVICE COUNT
$UNIT: .WORD AUNIT ;I/O UNIT NUMBER
$MSGAD: .WORD AMSGAD ;MESSAGE ADDRESS
$MSGLG: .WORD AMSGLG ;MESSAGE LENGTH
$ETABLE: ;APT ENVIRONMENT TABLE
$ENV: .BYTE AENV ;ENVIRONMENT BYTE
$ENVM: .BYTE AENVM ;ENVIRONMENT MODE BITS
$SWREG: .WORD ASWREG ;APT SWITCH REGISTER
$USWR: .WORD AUSWR ;USER SWITCHES
$CPUOP: .WORD ACPUOP ;CPU TYPE, OPTIONS
*
* BIT 15-11=CPU TYPE
* 11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
* 11/70=06,PDQ=07,Q=10
*
* BIT 10=REAL TIME CLOCK
* BIT 9=FLOATING POINT PROCESSOR
* BIT 8=MEMORY MANAGEMENT
$ETEND:
.MEXIT
.SBTTL APT PARAMETER BLOCK
;*****
;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
;*****
.$X=. ;SAVE CURRENT LOCATION
.=24 ;SET POWER FAIL TO POINT TO START OF PROGRAM
200 ;FOR APT START UP
.=44 ;POINT TO APT INDIRECT ADDRESS PNTR.
$APTHDR ;POINT TO APT HEADER BLOCK
.=.$X ;RESET LOCATION COUNTER
;*****
;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC

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291 ;INTERFACE SPEC.
292
293 000330 $APTHD:
294 000330 000000 $HIPTS: .WORD 0 ;; TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
295 000332 000300 $MBADR: .WORD $MAIL ;; ADDRESS OF APT MAILBOX (BITS 0-15)
296 000334 000002 $STSM: .WORD 2 ;; RUN TIM OF LONGEST TEST
297 000336 000002 $PASTM: .WORD 2 ;; RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
298 000340 000000 $UNITM: .WORD 0 ;; ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
299 000342 000014 .WORD 0 $ETEND-$MAIL/2 ;; LENGTH MAILBOX-ETABLE(WORDS)
300 000304 $TSTNM=$TESTN
301 000302 $ERROR=$FATAL
302
303 000500 .=500
304 000500 000000 BUFF: 0
305 000502 177572 SR0: 177572
306 000504 177573 SR0H: 177573
307 000506 177574 SR1: 177574
308 000510 177576 SR2: 177576
309 000512 000250 KTVEC: 250
310 000514 000252 KTSTA: 252
311 000516 ADRTAB:
312 000516 177600 UPDR0: 177600 ;USER PAGE DESCRIPTOR REGISTERS
313 000520 177602 UPDR1: 177602
314 000522 177604 UPDR2: 177604
315 000524 177606 UPDR3: 177606
316 000526 177610 UPDR4: 177610
317 000530 177612 UPDR5: 177612
318 000532 177614 UPDR6: 177614
319 000534 177616 UPDR7: 177616
320 ;
321 000536 177640 UPARD: 177640 ;USER PAGE ADDRESS REGISTERS
322 000540 177642 UPAR1: 177642
323 000542 177644 UPAR2: 177644
324 000544 177646 UPAR3: 177646
325 000546 177650 UPAR4: 177650
326 000550 177652 UPAR5: 177652
327 000552 177654 UPAR6: 177654
328 000554 177656 UPAR7: 177656
329 ;
330 000556 172300 KPDR0: 172300 ;KERNEL PAGE DESCRIPTOR REGISTERS
331 000560 172302 KPDR1: 172302
332 000562 172304 KPDR2: 172304
333 000564 172306 KPDR3: 172306
334 000566 172310 KPDR4: 172310
335 000570 172312 KPDR5: 172312
336 000572 172314 KPDR6: 172314
337 000574 172316 KPDR7: 172316
338 ;
339 000576 172340 KPAR0: 172340 ;KERNEL PAGE ADDRESS REGISTERS
340 000600 172342 KPAR1: 172342
341 000602 172344 KPAR2: 172344
342 000604 172346 KPAR3: 172346
343 000606 172350 KPAR4: 172350
344 000610 172352 KPAR5: 172352
345 000612 172354 KPAR6: 172354
346 000614 172356 KPAR7: 172356

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SEQ 0011

347 000616 000614
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ADREND: .-2

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SEQ 0012

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351
352 000620 012737 177777 015452 BEGIN: MOV #-1,0#PASSPT ;CLEAR THE ITERATION COUNTER
353 000626 005067 177446 RESTRT: CLR $MSGTY
354 000632 012767 015630 177164 MOV #PWRDWN,24 ;SET UP THE POWER DOWN VECTOR
355 000640 012767 000340 177160 MOV #340,26 ;SET UP POWER DOWN PRIORITY
356 000646 005067 177432 CLR $TSTNM
357 000652 005067 177424 CLR $ERROR
358 000656 012702 000300 MOV #MSGTY,R2
359
360 ;SPECIAL CASE OF ODD;.EVEN .BYTE AND REGISTER 6
361 000000 HERE=0
362
363 000662 000167 000024 JMP TST1
364 000666 000000 K1: 0
365 000670 000000 K2: 0
366 000672 000000 K3: 0
367 000674 000000 K4: 0
368 000676 000000 K5: 0
369 000700 000000 K6: 0
370 000702 052525 K7: 052525
371 000704 052400 K10: 052400
372 000706 000000 K11: 0
373 000710 000000 K12: 0
374
375 ;*****
376 ;TEST 1 TEST AUTO INCREMENT AND DECREMENT OF R6 FOR WORD AND BYTES
377 ;*****
377 000712 005237 000304 TST1: INC 0#STESTN ;UPDATE TEST NUMBER
378 000716 022737 000001 000304 CMP #1,0#STESTN ;SEQUENCE ERROR?
379 000724 001137 BNE TST2-12 ;BR TO ERROR HALT ON SEQ ERROR
380 000726 005006 CLR %6
381 000730 112667 177044 MOVB (6)+,HERE ;SIX SHOULD INCREMENT BY TWO
382 000734 020627 000002 CMP %6,#2
383 000740 001405 BEQ BR1
384 000742 012737 000001 000302 MOV #1,0#$FATAL ;MOVE TO MAILBOX # ***** 1 *****
385 000750 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
386 000752 000000 HALT ;R6 DID NOT AUTO INCREMENT BY TWO
387 ; TO SCOPE REPLACE HALT W/ 240
388 ; AND REPLACE NEXT INST W/ 764
389
390 000754 012706 001000 BR1: MOV #1000,%6
391 000760 114627 000000 MOVB -(6),#HERE ;SHOULD DECREMENT BY TWO
392 000764 020627 000776 CMP %6,#776
393 000770 001405 BEQ BR2
394 000772 012737 000002 000302 MOV #2,0#$FATAL ;MOVE TO MAILBOX # ***** 2 *****
395 001000 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
396 001002 000000 HALT ;R6 DID NOT AUTO DECREMENT BY 2
397 ; TO SCOPE REPLACE HALT W/ 240
398 ; AND REPLACE NEXT INST W/ 750
399
400 001004 005006 BR2: CLR %6
401 001006 112626 MOVB (6)+(6)+ ;DOUBLES AUTO INCREMENT OF R6
402 001010 020627 000004 CMP %6,#4
403 001014 001405 BEQ BR3
404 001016 012737 000003 000302 MOV #3,0#$FATAL ;MOVE TO MAILBOX # ***** 3 *****
405 001024 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
406 001026 000000 HALT ;WRONG AUTO INCREMENT OF R6

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TEST AUTO INCREMENT AND DECREMENT OF R6 FOR WORD AND BYTES

SEQ 0013

; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 736

; TEST INCREMENT OF R6

; MOVE TO MAILBOX # ***** 4 *****
; SET MSGTYP TO FATAL ERROR
; WRONG INCREMENT OF R6
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 723

; TEST INCREMENT OF R6

; MOVE TO MAILBOX # ***** 5 *****
; SET MSGTYP TO FATAL ERROR
; WRONG INCREMENT OF R6
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 710

; TEST INCREMENT OF R4

; MOVE TO MAILBOX # ***** 6 *****
; SET MSGTYP TO FATAL ERROR
; WRONG INCREMENT OF R4
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 675

; TEST INCREMENT OF R6

; MOVE TO MAILBOX # ***** 7 *****
; SET MSGTYP TO FATAL ERROR
; WRONG INCREMENT OF R6
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 662

; TEST INCREMENT OF R4

; MOVE TO MAILBOX # ***** 10 *****
; SET MSGTYP TO FATAL ERROR
; WRONG INCREMENT OF R4
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 647

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410 001030 005006 BR3: CLR %6
411 001039 005004 CLR %4
412 001037 122624 CMPB (6)+,(4)+
413 001036 020627 000002 CMP %6,#2
414 001042 001405 BEQ BR4
415 001044 012737 000004 000302 MOV #4,@#$FATAL
416 001052 005212 INC (R2)
417 001054 000000 HALT
418
419
420
421 001056 005006 BR4: CLR %6
422 001060 005004 CLR %4
423 001062 122426 CMPB (4)+,(6)+
424 001064 020627 000002 CMP %6,#2
425 001070 001405 BEQ BR5
426 001072 012737 000005 000302 MOV #5,@#$FATAL
427 001100 005212 INC (R2)
428 001102 000000 HALT
429
430
431
432 001104 005006 BR5: CLR %6
433 001106 005004 CLR %4
434 001110 122624 CMPB (6)+,(4)+
435 001112 020427 000001 CMP %4,#1
436 001116 001405 BEQ BR6
437 001120 012737 000006 000302 MOV #6,@#$FATAL
438 001126 005212 INC (R2)
439 001130 000000 HALT
440
441
442 001132 005006 BR6: CLR %6
443 001134 005004 CLR %4
444 001136 122426 CMPB (4)+,(6)+
445 001140 020627 000002 CMP %6,#2
446 001144 001405 BEQ BR7
447 001146 012737 000007 000302 MOV #7,@#$FATAL
448 001154 005212 INC (R2)
449 001156 000000 HALT
450
451
452
453 001160 005006 BR7: CLR %6
454 001162 005004 CLR %4
455 001164 122426 CMPB (4)+,(6)+
456 001166 020427 000001 CMP %4,#1
457 001172 001405 BEQ BR10
458 001174 012737 000010 000302 MOV #10,@#$FATAL
459 001202 005212 INC (R2)
460 001204 000000 HALT
461
462

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TEST AUTO INCREMENT AND DECREMENT OF R6 FOR WORD AND BYTES

SEQ 0014

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463
464 001206 012706 001000 BR10: MOV #1000,%6
465 001212 124627 000000 CMPB -(6),#HERE ;TEST DECREMENT OF R6
466 001216 022706 000776 CMP #776,%6
467 001222 001405 BEQ TST2
468 001224 012737 000011 000302 MOV #11,@$FATAL ;MOVE TO MAILBOX # ***** 11 *****
469 001232 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
470 001234 000000 HALT ;WRONG DECREMENT OF R6 OR WRONG $STNM
471 ; TO SCOPE REPLACE HALT W/ 240
472 ; AND REPLACE NEXT INST W/ 633
473 ;*****
474 ;TEST 2 TEST TRANSFER OF .BYTE USING R6
475 ;*****
476 001236 005237 000304 TST2: INC @#$TESTN ;UPDATE TEST NUMBER
477 001242 022737 000002 000304 CMP #2,@#$TESTN ;SEQUENCE ERROR?
478 001250 001137 BNE TST3-12 ;BR TO ERROR HALT ON SEQ ERROR
479 001252 012767 123456 177416 MOV #123456,K5
480 001260 012767 050505 177400 MOV #050505,K1
481 001266 012705 000666 MOV #K1,%5 ;%5=(050505)K1
482 001272 012706 000676 MOV #K5,%6 ;%6=(123456)K5
483 001276 112625 MOVVB (6)+,(5)+ ;LOW .BYTE OF R6 TO R5
484 001300 022767 050456 177360 CMP #050456,K1
485 001306 001405 BEQ BR11
486 001310 012737 000012 000302 MOV #12,@$FATAL ;MOVE TO MAILBOX # ***** 12 *****
487 001316 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
488 001320 000000 HALT ;FALSE TRANSFER OF .BYTE
489 ; TO SCOPE REPLACE HALT W/ 240
490 ; AND REPLACE NEXT INST W/ 753
491
492 001322 012767 123456 177346 BR11: MOV #123456,K5
493 001330 012767 050505 177330 MOV #050505,K1
494 001336 012705 000666 MOV #K1,%5 ;%5(050505)K1
495 001342 012706 000700 MOV #K6,%6 ;%6(123456)K5
496 001346 114625 MOVVB -(6),(5)+ ;LOW .BYTE OF R6 TO R5 (DECREMENT)
497 001350 026727 177312 050456 CMP K1,#050456
498 001356 001405 BEQ BR12
499 001360 012737 000013 000302 MOV #13,@$FATAL ;MOVE TO MAILBOX # ***** 13 *****
500 001366 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
501 001370 000000 HALT ;FALSE R6 .BYTE TRANSFER
502 ; TO SCOPE REPLACE HALT W/ 240
503 ; AND REPLACE NEXT INST W/ 727
504
505 001372 012767 123456 177266 BR12: MOV #123456,K1
506 001400 012767 050505 177270 MOV #050505,K5
507 001406 012705 000666 MOV #K1,%5 ;(123456)
508 001412 012706 000676 MOV #K5,%6 ;(050505)
509 001416 112526 MOVVB (5)+,(6)+ ;LOW OF R5 TO LOW OF R6
510 001420 022767 050456 177250 CMP #050456,K5
511 001426 001405 BEQ BR13
512 001430 012737 000014 000302 MOV #14,@$FATAL ;MOVE TO MAILBOX # ***** 14 *****
513 001436 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
514 001440 000000 HALT ;FALSE R6 .BYTE TRANSFER
515 ; TO SCOPE REPLACE HALT W/ 240
516 ; AND REPLACE NEXT INST W/ 703
517
518 001442 012767 123456 177216 BR13: MOV #123456,K1

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TEST TRANSFER OF .BYTE USING R6

SEQ 0015

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519 001450 012767 050505 177220      MOV      #050505,K5
520 001456 012705 000667              MOV      #K1+1,%5      ;123456
521 001462 012706 000676              MOV      #K5,%6       ;050505
522 001466 112526              MOVVB   (5)+,(6)+     ;HIGH OF R5 TO LOW OF R6
523 001470 026727 177202 050647      CMP      K5,#050647
524 001476 001405              BEQ     BR14
525 001500 012737 000015 000302      MOV      #15,@#$FATAL ;MOVE TO MAILBOX # ***** 15 *****
526 001506 005212              INC     (R2)          ;SET MSGTYP TO FATAL ERROR
527 001510 000000              HALT                ;FALSE R6 .BYTE TRANSFER
                    ; TO SCOPE REPLACE HALT W/ 240
                    ; AND REPLACE NEXT INST W/ 657
528
529
530
531 001512 012767 123456 177146  BR14:  MOV      #123456,K1
532 001520 012767 050505 177150      MOV      #050505,K5
533 001526 012705 000667              MOV      #K1+1,%5     ;R5-123456-ODD ADDRESS
534 001532 012706 000676              MOV      #K5,%6       ;R6-050505--.EVEN ADDRESS
535 001536 112625              MOVVB   (6)+,(5)+     ;LOW OF R6 TO HIGH OF R5
536 001540 022767 042456 177120      CMP      #042456,K1
537 001546 001405              BEQ     TST3
538 001550 012737 000016 000302      MOV      #16,@#$FATAL ;MOVE TO MAILBOX # ***** 16 *****
539 001556 005212              INC     (R2)          ;SET MSGTYP TO FATAL ERROR
540 001560 000000              HALT                ;FAILED LOW OF 6 TO HIGH OF 5,OR WRONG $STNM
                    ; TO SCOPE REPLACE HALT W/ 240
                    ; AND REPLACE NEXT INST W/ 633
541
542
543
544
545
546 001562 005237 000304              TST3:  INC     @#$TESTN ;UPDATE TEST NUMBER
547 001566 022737 000003 000304      CMP      #3,@#$TESTN ;SEQUENCE ERROR?
548 001574 001103              BNE     TST4-12 ;BR TO ERROR HALT ON SEQ ERROR
549 001576 126767 177100 177077      CMPB   K7,K7+1        ;SAME .WORD LOW TO HIGH
550 001604 001405              BEQ     BR15
551 001606 012737 000017 000302      MOV      #17,@#$FATAL ;MOVE TO MAILBOX # ***** 17 *****
552 001614 005212              INC     (R2)          ;SET MSGTYP TO FATAL ERROR
553 001616 000000              HALT                ;SHOULD COMPARE LOW TO HIGH
                    ; TO SCOPE REPLACE HALT W/ 240
                    ; AND REPLACE NEXT INST W/ 766
554
555
556
557 001620 126767 177057 177054  BR15:  CMPB   K7+1,K7        ;COMPARE ODD TO .EVEN SAME .WORD
558 001626 001405              BEQ     BR16
559 001630 012737 000020 000302      MOV      #20,@#$FATAL ;MOVE TO MAILBOX # ***** 20 *****
560 001636 005212              INC     (R2)          ;SET MSGTYP TO FATAL ERROR
561 001640 000000              HALT                ;ODD TO .EVEN .BYTE FAILURE
                    ; TO SCOPE REPLACE HALT W/ 240
                    ; AND REPLACE NEXT INST W/ 755
562
563
564
565 001642 126767 177037 177032  BR16:  CMPB   K10+1,K7       ;SEQUENTIAL .BYTES
566 001650 001405              BEQ     BR17
567 001652 012737 000021 000302      MOV      #21,@#$FATAL ;MOVE TO MAILBOX # ***** 21 *****
568 001660 005212              INC     (R2)          ;SET MSGTYP TO FATAL ERROR
569 001662 000000              HALT                ;ODD TO .EVEN FAILED
                    ; TO SCOPE REPLACE HALT W/ 240
                    ; AND REPLACE NEXT INST W/ 744
570
571
572
573 001664 126767 177014 177006  BR17:  CMPB   K10,K6
574 001672 001405              BEQ     BR20

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575 001674 012737 000022 000302 MOV #22, @SFATAL ;MOVE TO MAILBOX # ***** 22 *****
576 001702 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
577 001704 000000 HALT ;.EVEN TO EVEN FAILED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 733
578
579
580 001706 126767 176771 176771 BR20: CMPB K7+1, K10+1
581 001714 001405 BEQ BR21
582 001716 012737 000023 000302 MOV #23, @SFATAL ;MOVE TO MAILBOX # ***** 23 *****
583 001724 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
584 001726 000000 HALT ;ODD TO ODD FAILED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 722
585
586
587
588 001730 126767 176750 176747 BR21: CMPB K10, K10+1
589 001736 001005 BNE BR22
590 001740 012737 000024 000302 MOV #24, @SFATAL ;MOVE TO MAILBOX # ***** 24 *****
591 001746 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
592 001750 000000 HALT ;LOW TO HIGH IN SAME .WORD FAILED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 711
593
594
595
596 001752 126767 176727 176725 BR22: CMPB K10+1, K10+1
597 001760 001405 BEQ BR23
598 001762 012737 000025 000302 MOV #25, @SFATAL ;MOVE TO MAILBOX # ***** 25 *****
599 001770 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
600 001772 000000 HALT ;HIGH TO LOW IN SAME .WORD FAILED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 700
601
602
603
604 001774 126767 176704 176701 BR23: CMPB K10, K7+1
605 002002 001005 BNE TST4
606 002004 012737 000026 000302 MOV #26, @SFATAL ;MOVE TO MAILBOX # ***** 26 *****
607 002012 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
608 002014 000000 HALT ;.EVEN TO ODD FAILED, OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 667
609
610
611
612
613
614
615
616 002016 005237 000304 TST4: INC @STESTN ;UPDATE TEST NUMBER
617 002022 022737 000004 000304 CMP #4, @STESTN ;SEQUENCE ERROR?
618 002030 001062 BNE TST5-12 ;BR TO ERROR HALT ON SEQ ERROR
619 002032 000277 SCC ;SET STATUS
620 002034 005067 175736 CLR STATUS ;CLEAR STATUS
621 002040 103005 BCC BR33
622 002042 012737 000027 000302 MOV #27, @SFATAL ;MOVE TO MAILBOX # ***** 27 *****
623 002050 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
624 002052 000000 HALT ;C NOT CLEAR
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 766
625
626
627 002054 BR33: BVC BR34
628 002054 102005 MOV BR34
629 002056 012737 000030 000302 MOV #30, @SFATAL ;MOVE TO MAILBOX # ***** 30 *****
630 002064 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR

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;*****
;TEST 4 TEST THE CC BITS
;*****

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631 002066 000000          HALT          ;V NOT CLEAR
632                                     ; TO SCOPE REPLACE HALT W/ 240
633                                     ; AND REPLACE NEXT INST W/ 760
634 002070          BR34:
635 002070 001005          BNE          BR35
636 002072 012737 000031 000302      MOV          #31, @#$FATAL
637 002100 005212          INC          (R2)
638 002102 000000          HALT          ; MOVE TO MAILBOX # ***** 31 *****
639                                     ; SET MSGTYP TO FATAL ERROR
640                                     ; Z NOT CLEAR
641                                     ; TO SCOPE REPLACE HALT W/ 240
642                                     ; AND REPLACE NEXT INST W/ 752
643 002104          BR35:
644 002104 100005          BPL          BR36
645 002106 012737 000032 000302      MOV          #32, @#$FATAL
646 002114 005212          INC          (R2)
647 002116 000000          HALT          ; MOVE TO MAILBOX # ***** 32 *****
648                                     ; SET MSGTYP TO FATAL ERROR
649                                     ; N NOT CLEAR
650                                     ; TO SCOPE REPLACE HALT W/ 240
651                                     ; AND REPLACE NEXT INST W/ 744
652 002120 000257          BR36:      CCC
653 002122 052767 000017 175646      BIS          #17, STATUS
654                                     ; CLEAR CONDITION CODES
655                                     ; SET STATUS TO ONES
656 002130 103405          BCS          BR37
657 002132 012737 000033 000302      MOV          #33, @#$FATAL
658 002140 005212          INC          (R2)
659 002142 000000          HALT          ; MOVE TO MAILBOX # ***** 33 *****
660                                     ; SET MSGTYP TO FATAL ERROR
661                                     ; C NOT SET
662                                     ; TO SCOPE REPLACE HALT W/ 240
663                                     ; AND REPLACE NEXT INST W/ 732
664 002144          BR37:
665 002144 102405          BVS          BR40
666 002146 012737 000034 000302      MOV          #34, @#$FATAL
667 002154 005212          INC          (R2)
668 002156 000000          HALT          ; MOVE TO MAILBOX # ***** 34 *****
669                                     ; SET MSGTYP TO FATAL ERROR
670                                     ; V NOT SET
671                                     ; TO SCOPE REPLACE HALT W/ 240
672                                     ; AND REPLACE NEXT INST W/ 724
673 002160          BR40:
674 002160 001405          BEQ          BR41
675 002162 012737 000035 000302      MOV          #35, @#$FATAL
676 002170 005212          INC          (R2)
677 002172 000000          HALT          ; MOVE TO MAILBOX # ***** 35 *****
678                                     ; SET MSGTYP TO FATAL ERROR
679                                     ; Z NOT SET
680                                     ; TO SCOPE REPLACE HALT W/ 240
681                                     ; AND REPLACE NEXT INST W/ 716
682 002174          BR41:
683 002174 100405          BMI          TST5
684 002176 012737 000036 000302      MOV          #36, @#$FATAL
685 002204 005212          INC          (R2)
686 002206 000000          HALT          ; MOVE TO MAILBOX # ***** 36 *****
687                                     ; SET MSGTYP TO FATAL ERROR
688                                     ; N NOT SET, OR WRONG $TSTNM
689                                     ; TO SCOPE REPLACE HALT W/ 240
690                                     ; AND REPLACE NEXT INST W/ 710
691 *****
692 ; TEST 5 TEST THAT A TRAP OCCURS ON A RESERVED INSTRUCTION
693 *****
694 TST5: INC          @#$TESTN          ; UPDATE TEST NUMBER
695      CMP          #5, @#$TESTN      ; SEQUENCE ERROR?
696      BNE          RETA              ; BR TO ERROR HALT ON SEQ ERROR
697      MOV          @BUFF, SP         ; STACK POINTER SETUP
698      MOV          @RETA, RTRAP      ; RETURN LOCATION
699      TRAPA
700 ; RESERVED INSTRUCTION, SHOULD TRAP

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687 002240 RETA:
688 002240 012737 000037 000302 MOV #37, @#$FATAL ;MOVE TO MAILBOX # ***** 37 *****
689 002246 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
690 002250 000000 HALT ;RESERVE INSTRUCTION DIDN'T TRAP, OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 764

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693 002252 RETAH:
694 *****
695 ;TEST 6 TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
696 *****

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697 002252 005237 000304 TST6: INC @#$TESTN ;UPDATE TEST NUMBER
698 002256 022737 000006 000304 CMP #6, @#$TESTN ;SEQUENCE ERROR?
699 002264 001011 BNE TST7-12 ;BR TO ERROR HALT ON SEQ ERROR
700 002266 012706 000500 MOV #BUFF, SP ;STACK POINTER SETUP
701 002272 012767 002302 175510 MOV #RETB, RTRAP ;RETURN POINTER
702 002300 000007 TRAPA ;RESERVED INSTRUCTION
703 002302 020627 000474 RETB: CMP SP, #BUFF-4 ;TEST DECREMENT OF SP
704 002306 001405 BEQ TST7
705 002310 012737 000040 000302 MOV #40, @#$FATAL ;MOVE TO MAILBOX # ***** 40 *****
706 002316 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
707 002320 000000 HALT ;NOT DECREMENTED TWO WORDS, OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761

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710 *****
711 ;TEST 7 TEST THAT PROPER P.C. IS SAVED
712 *****

```

```

713 002322 005237 000304 TST7: INC @#$TESTN ;UPDATE TEST NUMBER
714 002326 022737 000007 000304 CMP #7, @#$TESTN ;SEQUENCE ERROR?
715 002334 001012 BNE TST10-12 ;BR TO ERROR HALT ON SEQ ERROR
716 002336 012706 000500 MOV #BUFF, SP ;STACK POINTER SETUP
717 002342 012767 002352 175440 MOV #RETC, RTRAP ;RETURN FROM TRAP POINTER
718 002350 000007 INSTC: TRAPA ;TRAP ON THIS INSTRUCTION
719 002352 022767 002352 176114 RETC: CMP #, BUFF-4 ;CHECK FOR INCREMENTED P.C.
720 002360 001405 BEQ TST10
721 002362 012737 000041 000302 MOV #41, @#$FATAL ;MOVE TO MAILBOX # ***** 41 *****
722 002370 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
723 002372 000000 HALT ;INCORRECT P.C., OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 760

```

```

726 *****
727 ;TEST 10 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
728 *****

```

```

729 002374 005237 000304 TST10: INC @#$TESTN ;UPDATE TEST NUMBER
730 002400 022737 000010 000304 CMP #10, @#$TESTN ;SEQUENCE ERROR?
731 002406 001040 BNE TST11-12 ;BR TO ERROR HALT ON SEQ ERROR
732 002410 012706 000500 MOV #BUFF, SP ;SET UP
733 002414 012767 002432 175366 MOV #RETD, RTRAP ;SET UP
734 002422 005067 175350 CLR CC ;CLEAR CC AND PRIORITY
735 002426 000257 CCC
736 002430 000007 TRAPA ;TRAP
737 002432 026727 176040 000000 RETD: CMP BUFF-2, #0 ;TEST THAT OLD STATUS WENT TO STACK
738 002440 001405 BEQ IS
739 002442 012737 000042 000302 MOV #42, @#$FATAL ;MOVE TO MAILBOX # ***** 42 *****
740 002450 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
741 002452 000000 HALT ;INCORRECT STATUS
; TO SCOPE REPLACE HALT W/ 240
742

```

E02

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TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK

SEQ 0019

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743                                     ; AND REPLACE NEXT INST W/ 755
744 002454 012706 000500 1S:  MOV    #BUFF,SP      ;SET UP
745 002460 012767 002500 175322  MOV    #RETE,RTRAP  ;SET UP
746 002466 012767 000357 175302  MOV    #357,CC     ;SET PRIORITY
747 002474 000277                SCC                ;SET CC
748 002476 000007                TRAPA              ;TRAP
749 002500 026727 175772 000357 RETE: CMP    BUFF-2,#357  ;COMPARES STATUS ON STACK
750 002506 001405                BEQ    TST11
751 002510 012737 000043 000302  MOV    #43,@#$FATAL ;MOVE TO MAILBOX # ***** 43 *****
752 002516 005212                INC    (R2)         ;SET MSGTYP TO FATAL ERROR
753 002520 000000                HALT              ;INCORRECT STATUS ON STACK,OR WRONG $STNM
754                                     ; TO SCOPE REPLACE HALT W/ 240
755                                     ; AND REPLACE NEXT INST W/ 732
756                                     ;*****
757                                     ;TEST 11          TEST THAT "NEW" STATUS IS CORRECT
758                                     ;*****
759 002522 005237 000304 000304 TST11: INC    @#$TESTN  ;UPDATE TEST NUMBER
760 002526 022737 000011 000304  CMP    #11,@#$TESTN ;SEQUENCE ERROR?
761 002534 001121                BNE    STPP         ;BR TO ERROR HALT ON SEQ ERROR
762 002536 012706 000500                MOV    #BUFF,SP
763 002542 012767 002556 175240  MOV    #RETF,RTRAP
764 002550 005067 175236                CLR    RTRAP+2     ;CLEAR FUTURE PRIORITY AND CC
765 002554 000007                TRAPA              ;TEST FOR "C" CLEARED
766 002556 100005                RETF:             BPL    1S
767 002560 012737 000044 000302  MOV    #44,@#$FATAL ;MOVE TO MAILBOX # ***** 44 *****
768 002566 005212                INC    (R2)         ;SET MSGTYP TO FATAL ERROR
769 002570 000000                HALT              ;N NOT CLEARED
770                                     ; TO SCOPE REPLACE HALT W/ 240
771                                     ; AND REPLACE NEXT INST W/ 761
772
773 002572 001005 1S:  BNE    2S
774 002574 012737 000045 000302  MOV    #45,@#$FATAL ;MOVE TO MAILBOX # ***** 45 *****
775 002602 005212                INC    (R2)         ;SET MSGTYP TO FATAL ERROR
776 002604 000000                HALT              ;Z NOT CLEARED
777                                     ; TO SCOPE REPLACE HALT W/ 240
778                                     ; AND REPLACE NEXT INST W/ 753
779
780 002606 102005 2S:  BVC    3S
781 002606 012737 000046 000302  MOV    #46,@#$FATAL ;MOVE TO MAILBOX # ***** 46 *****
782 002610 005212                INC    (R2)         ;SET MSGTYP TO FATAL ERROR
783 002616 000000                HALT              ;V NOT CLEARED
784                                     ; TO SCOPE REPLACE HALT W/ 240
785                                     ; AND REPLACE NEXT INST W/ 745
786
787 002622 103005 3S:  BCC    4S
788 002624 012737 000047 000302  MOV    #47,@#$FATAL ;MOVE TO MAILBOX # ***** 47 *****
789 002632 005212                INC    (R2)         ;SET MSGTYP TO FATAL ERROR
790 002634 000000                HALT              ;C NOT CLEARED
791                                     ; TO SCOPE REPLACE HALT W/ 240
792                                     ; AND REPLACE NEXT INST W/ 737
793
794 002636 032767 000340 175132 4S:  BIT    #340,CC
795 002644 001405                BEQ    5S
796 002646 012737 000050 000302  MOV    #50,@#$FATAL ;MOVE TO MAILBOX # ***** 50 *****
797 002654 005212                INC    (R2)         ;SET MSGTYP TO FATAL ERROR
798 002656 000000                HALT              ;PRIORITY NOT ZERO
  
```



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855 003064 104400 TRAP ;RESERVED INSTRUCTION, SHOULD TRAP
856 003066 012737 000056 000302 MOV #56, @#$FATAL ;MOVE TO MAILBOX # ***** 56 *****
857 003074 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
858 003076 000000 HALT ;TRAP DIDN'T TRAP, OR WRONG $STSTM
859 ; TO SCOPE REPLACE HALT W/ 240
860 ; AND REPLACE NEXT INST W/ 757

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```

861 003100 RETA1:
862 ;*****
863 ;TEST 13 TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
864 ;*****

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865 003100 005237 000304 TST13: INC @#$TESTN ;UPDATE TEST NUMBER
866 003104 022737 000013 000304 CMP #13, @#$TESTN ;SEQUENCE ERROR?
867 003112 001011 BNE TST14-12 ;BR TO ERROR HALT ON SEQ ERROR
868 003114 012706 000500 MOV #BUFF, SP ;STACK POINTER SETUP
869 003120 012767 003130 174706 MOV #RETB1, RTRAP1 ;RETURN POINTER
870 003126 104400 TRAP ;RESERVED INSTRUCTION
871 003130 020627 000474 RETB1: CMP SP, #BUFF-4 ;TEST DECREMENT OF SP
872 003134 001405 BEQ TST14
873 003136 012737 000057 000302 MOV #57, @#$FATAL ;MOVE TO MAILBOX # ***** 57 *****
874 003144 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
875 003146 000000 HALT ;NOT DECREMENTED TWO WORDS, OR WRONG $STSTM
876 ; TO SCOPE REPLACE HALT W/ 240
877 ; AND REPLACE NEXT INST W/ 761

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```

878 ;*****
879 ;TEST 14 TEST THAT PROPER P.C. IS SAVED
880 ;*****

```

```

881 003150 005237 000304 TST14: INC @#$TESTN ;UPDATE TEST NUMBER
882 003154 022737 000014 000304 CMP #14, @#$TESTN ;SEQUENCE ERROR?
883 003162 001012 BNE TST15-12 ;BR TO ERROR HALT ON SEQ ERROR
884 003164 012706 000500 MOV #BUFF, SP ;STACK POINTER SETUP
885 003170 012767 003200 174636 MOV #RETC1, RTRAP1 ;RETURN FROM TRAP POINTER
886 003176 104400 TRAP ;TRAP ON THIS INSTRUCTION
887 003200 022767 003200 175266 RETC1: CMP #, BUFF-4 ;CHECK INCREMENTED P.C.
888 003206 001405 BEQ TST15
889 003210 012737 000060 000302 MOV #60, @#$FATAL ;MOVE TO MAILBOX # ***** 60 *****
890 003216 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
891 003220 000000 HALT ;INCORRECT P.C. OR WRONG $STSTM
892 ; TO SCOPE REPLACE HALT W/ 240
893 ; AND REPLACE NEXT INST W/ 760

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```

894 ;*****
895 ;TEST 15 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
896 ;*****

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```

897 003222 005237 000304 TST15: INC @#$TESTN ;UPDATE TEST NUMBER
898 003226 022737 000015 000304 CMP #15, @#$TESTN ;SEQUENCE ERROR?
899 003234 001037 BNE TST16-12 ;BR TO ERROR HALT ON SEQ ERROR
900 003236 012706 000500 MOV #BUFF, SP ;SET UP
901 003242 012767 003260 174564 MOV #RETD1, RTRAP1 ;SET UP
902 003250 005067 174522 CLR CC ;CLEAR CC AND PRIORITY
903 003254 000257 CCC
904 003256 104400 TRAP ;TRAP
905 003260 026727 175212 000000 RETD1: CMP BUFF-2, #0 ;TEST THAT OLD STATUS WENT TO STACK
906 003266 001405 BEQ 15
907 003270 012737 000061 000302 MOV #61, @#$FATAL ;MOVE TO MAILBOX # ***** 61 *****
908 003276 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
909 003300 000000 HALT ;INCORRECT STATUS
910 ; TO SCOPE REPLACE HALT W/ 240

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967          ; AND REPLACE NEXT INST W/ 726
968 003504 012706 000500          5S:  MOV  #BUFF, SP
969 003510 012767 003526 174316  MOV  #RETG1, RTRAP1
970 003516 012767 000357 174312  MOV  #357, RTRAP1+2
971 003524 104400          TRAP          ; SET NEW "CC" AND PRIORITY
972 003526          RETG1:          ; TRAP HERE
973 003526 100405          BMI  1S
974 003530 012737 000070 000302  MOV  #70, @#$FATAL          ; MOVE TO MAILBOX # ***** 70 *****
975 003536 005212          INC  (R2)          ; SET MSGTYP TO FATAL ERROR
976 003540 000000          HALT          ; N NOT SET
977          ; TO SCOPE REPLACE HALT W/ 240
978          ; AND REPLACE NEXT INST W/ 707
979 003542          1S:
980 003542 001405          BEQ  2S
981 003544 012737 000071 000302  MOV  #71, @#$FATAL          ; MOVE TO MAILBOX # ***** 71 *****
982 003552 005212          INC  (R2)          ; SET MSGTYP TO FATAL ERROR
983 003554 000000          HALT          ; Z NOT SET
984          ; TO SCOPE REPLACE HALT W/ 240
985          ; AND REPLACE NEXT INST W/ 701
986 003556          2S:
987 003556 102405          BVS  3S
988 003560 012737 000072 000302  MOV  #72, @#$FATAL          ; MOVE TO MAILBOX # ***** 72 *****
989 003566 005212          INC  (R2)          ; SET MSGTYP TO FATAL ERROR
990 003570 000000          HALT          ; V NOT SET
991          ; TO SCOPE REPLACE HALT W/ 240
992          ; AND REPLACE NEXT INST W/ 673
993 003572          3S:
994 003572 103405          BCS  4S
995 003574 012737 000073 000302  MOV  #73, @#$FATAL          ; MOVE TO MAILBOX # ***** 73 *****
996 003602 005212          INC  (R2)          ; SET MSGTYP TO FATAL ERROR
997 003604 000000          HALT          ; C NOT SET
998          ; TO SCOPE REPLACE HALT W/ 240
999          ; AND REPLACE NEXT INST W/ 665
1000 003606 016706 174164          4S:  MOV  CC, SP
1001 003612 042706 000017          BIC  #17, SP
1002 003616 022706 000340          CMP  #340, SP
1003 003622 001405          BEQ  TST17
1004 003624 012737 000074 000302  MOV  #74, @#$FATAL          ; MOVE TO MAILBOX # ***** 74 *****
1005 003632 005212          INC  (R2)          ; SET MSGTYP TO FATAL ERROR
1006 003634 000000          HALT          ; PRIORITY WAS CHANGED, OR WRONG $STNM
1007          ; TO SCOPE REPLACE HALT W/ 240
1008          ; AND REPLACE NEXT INST W/ 651
1009          ; *****
1010          ; TEST 17          TEST THAT ALL COMBINATION OF "TRAP" WILL CAUSE A TRAP
1011          ; *****
1012 003636 005237 000304          TST17: INC  @#$STESTN          ; UPDATE TEST NUMBER
1013 003642 022737 000017 000304  CMP  #17, @#$STESTN          ; SEQUENCE ERROR?
1014 003650 001011          BNE  BR45          ; BR TO ERROR HALT ON SEQ ERROR
1015 003652 012767 104400 000012  MOV  #TRAP, RB1          ; INITIALIZE BASE TRAP INSTRUCTION
1016 003660 012767 003706 174146  MOV  #RA1, 34          ; RETURN FROM TRAP TO RA1
1017 003666 012706 000500          RC1:  MOV  #BUFF, SP          ; SET UP STACK POINTER
1018 003672 104400          RB1:  TRAP          ; TRAP INST WILL BE MODIFIED TO TRAP+377
1019 003674          BR45:
1020 003674 012737 000075 000302  MOV  #75, @#$FATAL          ; MOVE TO MAILBOX # ***** 75 *****
1021 003702 005212          INC  (R2)          ; SET MSGTYP TO FATAL ERROR
1022 003704 000000          HALT          ; PREVIOUS INST FAILED TO TRAP, OR WRONG $STNM

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1023                                     ; TO SCOPE REPLACE HALT W/ 240
1024                                     ; AND REPLACE NEXT INST W/ 761
1025 003706 005267 177760                RA1:  INC  RB1                ; INCREMENT TRAP INSTRUCTION
1026 003712 022767 104777 177752        CMP  #104777,RB1          ; TRAP+377 TO UPPER LIMIT
1027 003720 103362                        BHS  RC1                ; HAVE WE TESTED ALL
1028 003722 012767 000036 174104        MOV  #36,34
1029 003730 005067 174102                CLR  36
1030                                     ;*****
1031 ;TEST 20                                TEST THAT A TRAP OCCURES ON AN "IOT" INSTRUCTION
1032                                     ;*****
1033 003734 005237 000304                TST20: INC  @#$STSTN      ; UPDATE TEST NUMBER
1034 003740 022737 000020 000304        CMP  #20,@#$STSTN      ; SEQUENCE ERROR?
1035 003746 001006                        BNE  TST21-12          ; BR TO ERROR HALT ON SEQ ERROR
1036 003750 012706 000500                MOV  #BUFF,SP          ; STACK POINTER SETUP
1037 003754 012767 003776 174036        MOV  #RETA2,RTRAP2    ; RETURN LOCATION
1038 003762 000004                        IOT                          ; RESERVE INSTRUCTION, SHOULD TRAP
1039 003764 012737 000076 000302        MOV  #76,@#$FATAL     ; MOVE TO MAILBOX # ***** 76 *****
1040 003772 005212                        INC  (R2)              ; SET MSGTYP TO FATAL ERROR
1041 003774 000000                        HALT                     ; IOT DIDN'T TRAP, OR WRONG $STSTNM
1042                                     ; TO SCOPE REPLACE HALT W/ 240
1043                                     ; AND REPLACE NEXT INST W/ 764
1044 003776                                RETA2:
1045                                     ;*****
1046 ;TEST 21                                TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1047                                     ;*****
1048 003776 005237 000304                TST21: INC  @#$STSTN      ; UPDATE TEST NUMBER
1049 004002 022737 000021 000304        CMP  #21,@#$STSTN      ; SEQUENCE ERROR?
1050 004010 001011                        BNE  TST22-12          ; BR TO ERROR HALT ON SEQ ERROR
1051 004012 012706 000500                MOV  #BUFF,SP          ; STACK POINTER SETUP
1052 004016 012767 004026 173774        MOV  #RETB2,RTRAP2    ; RETURN POINTER
1053 004024 000004                        IOT                          ; RESERVED INSTRUCTION
1054 004026 020627 000474                RETB2: CMP  SP,#BUFF-4  ; TEST DECREMENT OF SP
1055 004032 001405                        BEQ  TST22
1056 004034 012737 000077 000302        MOV  #77,@#$FATAL     ; MOVE TO MAILBOX # ***** 77 *****
1057 004042 005212                        INC  (R2)              ; SET MSGTYP TO FATAL ERROR
1058 004044 000000                        HALT                     ; NOT DECREMENTED TWO WORDS, OR WRONG $STSTNM
1059                                     ; TO SCOPE REPLACE HALT W/ 240
1060                                     ; AND REPLACE NEXT INST W/ 761
1061                                     ;*****
1062 ;TEST 22                                TEST THAT PROPER P.C. IS SAVED
1063                                     ;*****
1064 004046 005237 000304                TST22: INC  @#$STSTN      ; UPDATE TEST NUMBER
1065 004052 022737 000022 000304        CMP  #22,@#$STSTN      ; SEQUENCE ERROR?
1066 004060 001012                        BNE  TST23-12          ; BR TO ERROR HALT ON SEQ ERROR
1067 004062 012706 000500                MOV  #BUFF,SP          ; STACK POINTER SETUP
1068 004066 012767 004076 173724        MOV  #RETC2,RTRAP2    ; RETURN FROM TRAP POINTER
1069 004074 000004                        IOT                          ; TRAP ON THIS INSTRUCTION
1070 004076 022767 004076 174370        RETC2: CMP  #,BUFF-4    ; CHECK FOR INCREMENTED P.C.
1071 004104 001405                        BEQ  TST23
1072 004106 012737 000100 000302        MOV  #100,@#$FATAL    ; MOVE TO MAILBOX # ***** 100 *****
1073 004114 005212                        INC  (R2)              ; SET MSGTYP TO FATAL ERROR
1074 004116 000000                        HALT                     ; INCORRECT P.C. OR WRONG $STSTNM
1075                                     ; TO SCOPE REPLACE HALT W/ 240
1076                                     ; AND REPLACE NEXT INST W/ 760
1077                                     ;*****
1078 ;TEST 23                                TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK

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K02

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1079          :*****
1080 004120 005237 000304          TST23: INC      @#STESTN      ;UPDATE TEST NUMBER
1081 004124 022737 000023 000304  CMP      #23,@#STESTN  ;SEQUENCE ERROR?
1082 004132 001040          BNE      TST24-12    ;BR TO ERROR HALT ON SEQ ERROR
1083 004134 012706 000500          MOV      #BUFF,SP    ;SET UP
1084 004140 012767 004156 173652  MOV      #RETD2,RTRAP2 ;SET UP
1085 004146 005067 173624          CLR      CC          ;CLEAR CC AND PRIORITY
1086 004152 000257          CCC
1087 004154 000004          IOT          ;TRAP
1088 004156 026727 174314 000000  RETD2: CMP      BUFF-2,#0 ;TEST THAT OLD STATUS WENT TO STACK
1089 004164 001405          BEQ      IS
1090 004166 012737 000101 000302  MOV      #101,@#SFATAL ;MOVE TO MAILBOX # ***** 101 *****
1091 004174 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR
1092 004176 000000          HALT          ;INCORRECT STATUS
1093          ; TO SCOPE REPLACE HALT W/ 240
1094          ; AND REPLACE NEXT INST W/ 755
1095 004200 012706 000500          IS:  MOV      #BUFF,SP  ;SET UP
1096 004204 012767 004224 173606  MOV      #RETE2,RTRAP2 ;SET UP
1097 004212 012767 000357 173556  MOV      #357,CC      ;SET PRIORITY
1098 004220 000277          SCC          ;SET CC
1099 004222 000004          IOT          ;TRAP
1100 004224 026727 174246 000357  RETE2: CMP      BUFF-2,#357 ;COMPARES STATUS ON STACK
1101 004232 001405          BEQ      TST24
1102 004234 012737 000102 000302  MOV      #102,@#SFATAL ;MOVE TO MAILBOX # ***** 102 *****
1103 004242 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR
1104 004244 000000          HALT          ;INCORRECT STATUS ON STACK,OR WRONG $STNM
1105          ; TO SCOPE REPLACE HALT W/ 240
1106          ; AND REPLACE NEXT INST W/ 732
1107          :*****
1108          ;TEST 24          TEST THAT "NEW" STATUS IS CORRECT
1109          :*****
1110 004246 005237 000304          TST24: INC      @#STESTN  ;UPDATE TEST NUMBER
1111 004252 022737 000024 000304  CMP      #24,@#STESTN  ;SEQUENCE ERROR?
1112 004260 001121          BNE      BR46        ;BR TO ERROR HALT ON SEQ ERROR
1113 004262 012706 000500          MOV      #BUFF,SP
1114 004266 012767 004302 173524  MOV      #RETF2,RTRAP2
1115 004274 005067 173522          CLR      RTRAP2+2    ;CLEAR FUTURE PRIORITY AND CC
1116 004300 000004          IOT
1117 004302          RETF2:          ;TEST FOR "C" CLEARED
1118 004302 100005          BPL      IS
1119 004304 012737 000103 000302  MOV      #103,@#SFATAL ;MOVE TO MAILBOX # ***** 103 *****
1120 004312 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR
1121 004314 000000          HALT          ;N NOT CLEARED
1122          ; TO SCOPE REPLACE HALT W/ 240
1123          ; AND REPLACE NEXT INST W/ 761
1124 004316          IS:
1125 004316 001005          BNE      ZS
1126 004320 012737 000104 000302  MOV      #104,@#SFATAL ;MOVE TO MAILBOX # ***** 104 *****
1127 004326 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR
1128 004330 000000          HALT          ;Z NOT CLEARED
1129          ; TO SCOPE REPLACE HALT W/ 240
1130          ; AND REPLACE NEXT INST W/ 753
1131 004332          ZS:
1132 004332 102005          BVC      ZS
1133 004334 012737 000105 000302  MOV      #105,@#SFATAL ;MOVE TO MAILBOX # ***** 105 *****
1134 004342 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR

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TEST THAT "NEW" STATUS IS CORRECT

SEQ 0026

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1135 004344 000000          HALT          ;V NOT CLEARED
1136                                     ; TO SCOPE REPLACE HALT W/ 240
1137                                     ; AND REPLACE NEXT INST W/ 745
1138 004346          3$:
1139 004346 103005          BCC          4$
1140 004350 012737 000106 000302      MOV          #106,2#$FATAL ;MOVE TO MAILBOX # ***** 106 *****
1141 004356 005212          INC          (R2)      ;SET MSGTYP TO FATAL ERROR
1142 004360 000000          HALT          ;C NOT CLEARED
1143                                     ; TO SCOPE REPLACE HALT W/ 240
1144                                     ; AND REPLACE NEXT INST W/ 737
1145 004362 032767 000340 173406 4$:  BIT          #340,CC
1146 004370 001405          BEQ          5$
1147 004372 012737 000107 000302      MOV          #107,2#$FATAL ;MOVE TO MAILBOX # ***** 107 *****
1148 004400 005212          INC          (R2)      ;SET MSGTYP TO FATAL ERROR
1149 004402 000000          HALT          ;PRIORITY NOT ZERO
1150                                     ; TO SCOPE REPLACE HALT W/ 240
1151                                     ; AND REPLACE NEXT INST W/ 726
1152 004404 012706 000500          MOV          #BUFF,SP
1153 004410 012767 004426 173402 5$:  MOV          #RETG2,RTRAP2
1154 004416 012767 000357 173376      MOV          #357,RTRAP2+2
1155 004424 000004          IOT
1156                                     ;SET NEW "CC" AND PRIORITY
1157                                     ;TRAP HERE
1157 004426 100405          RETG2:    BMI          1$
1158 004430 012737 000110 000302      MOV          #110,2#$FATAL ;MOVE TO MAILBOX # ***** 110 *****
1159 004436 005212          INC          (R2)      ;SET MSGTYP TO FATAL ERROR
1160 004440 000000          HALT          ;N NOT SET
1161                                     ; TO SCOPE REPLACE HALT W/ 240
1162                                     ; AND REPLACE NEXT INST W/ 707
1163 004442          1$:
1164 004442 001405          BEQ          2$
1165 004444 012737 000111 000302      MOV          #111,2#$FATAL ;MOVE TO MAILBOX # ***** 111 *****
1166 004452 005212          INC          (R2)      ;SET MSGTYP TO FATAL ERROR
1167 004454 000000          HALT          ;Z NOT SET
1168                                     ; TO SCOPE REPLACE HALT W/ 240
1169                                     ; AND REPLACE NEXT INST W/ 701
1170 004456          2$:
1171 004456 102405          BVS          3$
1172 004460 012737 000112 000302      MOV          #112,2#$FATAL ;MOVE TO MAILBOX # ***** 112 *****
1173 004466 005212          INC          (R2)      ;SET MSGTYP TO FATAL ERROR
1174 004470 000000          HALT          ;V NOT SET
1175                                     ; TO SCOPE REPLACE HALT W/ 240
1176                                     ; AND REPLACE NEXT INST W/ 673
1177 004472          3$:
1178 004472 103405          BCS          4$
1179 004474 012737 000113 000302      MOV          #113,2#$FATAL ;MOVE TO MAILBOX # ***** 113 *****
1180 004502 005212          INC          (R2)      ;SET MSGTYP TO FATAL ERROR
1181 004504 000000          HALT          ;C NOT SET
1182                                     ; TO SCOPE REPLACE HALT W/ 240
1183                                     ; AND REPLACE NEXT INST W/ 665
1184 004506 016706 173264          4$:  MOV          CC,SP
1185 004512 042706 000017          BIC          #17,SP
1186 004516 022706 000340          CMP          #340,SP
1187 004522 001405          BEQ          BR46A
1188 004524          BR46:
1189 004524 012737 000114 000302      MOV          #114,2#$FATAL ;MOVE TO MAILBOX # ***** 114 *****
1190 004532 005212          INC          (R2)      ;SET MSGTYP TO FATAL ERROR

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TEST THAT "NEW" STATUS IS CORRECT

SEQ 0027

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1191 004534 000000          HALT          ;PRIORITY WAS CHANGED,OR WRONG $STNM
1192                                     ; TO SCOPE REPLACE HALT W/ 240
1193                                     ; AND REPLACE NEXT INST W/ 651
1194 004536 012767 000022 173254 BR46A: MOV    #22,20          ;.+2
1195 004544 005067 173252          CLR    22          ;HALT
1196                                     ;*****
1197                                     ;TEST 25          TEST THAT A TRAP OCCURS ON AN EMT INSTRUCTION
1198                                     ;*****
1199 004550 005237 000304          TST25: INC    @#$TESTN      ;UPDATE TEST NUMBER
1200 004554 022737 000025 000304          CMP    #25,@#$TESTN      ;SEQUENCE ERROR?
1201 004562 001006          BNE    TST26-12          ;BR TO ERROR HALT ON SEQ ERROR
1202 004564 012706 000500          MOV    #BUFF,SP          ;STACK POINTER SETUP
1203 004570 012767 004612 173232          MOV    #RETA3,RTRAP3     ;RETURN LOCATION
1204 004576 104000          EMT                                     ;RESERVE INSTRUCTION, SHOULD TRAP
1205 004600 012737 000115 000302          MOV    #115,@#$FATAL     ;MOVE TO MAILBOX # ***** 115 *****
1206 004606 005212          INC    (R2)              ;SET MSGTYP TO FATAL ERROR
1207 004610 000000          HALT                          ;EMT DIDN'T TRAP,OR WRONG $STNM
1208                                     ; TO SCOPE REPLACE HALT W/ 240
1209                                     ; AND REPLACE NEXT INST W/ 764
1210 004612          RETA3:
1211                                     ;*****
1212                                     ;TEST 26          TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1213                                     ;*****
1214 004612 005237 000304          TST26: INC    @#$TESTN      ;UPDATE TEST NUMBER
1215 004616 022737 000026 000304          CMP    #26,@#$TESTN      ;SEQUENCE ERROR?
1216 004624 001011          BNE    TST27-12          ;BR TO ERROR HALT ON SEQ ERROR
1217 004626 012706 000500          MOV    #BUFF,SP          ;STACK POINTER SETUP
1218 004632 012767 004642 173170          MOV    #RETB3,RTRAP3     ;RETURN POINTER
1219 004640 104000          EMT                          ;RESERVED INSTRUCTION
1220 004642 020627 000474          RETB3: CMP    SP,#BUFF-4   ;TEST DECREMENT OF SP
1221 004646 001405          BEQ    TST27
1222 004650 012737 000116 000302          MOV    #116,@#$FATAL     ;MOVE TO MAILBOX # ***** 116 *****
1223 004656 005212          INC    (R2)              ;SET MSGTYP TO FATAL ERROR
1224 004660 000000          HALT                          ;NOT DECREMENTED TWO WORDS,OR WRONG $STNM
1225                                     ; TO SCOPE REPLACE HALT W/ 240
1226                                     ; AND REPLACE NEXT INST W/ 761
1227                                     ;*****
1228                                     ;TEST 27          TEST THAT PROPER P.C. IS SAVED
1229                                     ;*****
1230 004662 005237 000304          TST27: INC    @#$TESTN      ;UPDATE TEST NUMBER
1231 004666 022737 000027 000304          CMP    #27,@#$TESTN      ;SEQUENCE ERROR?
1232 004674 001012          BNE    TST30-12          ;BR TO ERROR HALT ON SEQ ERROR
1233 004676 012706 000500          MOV    #BUFF,SP          ;STACK POINTER SETUP
1234 004702 012767 004712 173120          MOV    #RETC3,RTRAP3     ;RTURN FROM TRAP POINTER
1235 004710 104000          EMT                          ;TRAP ON THIS INSTRUCTION
1236 004712 022767 004712 173554 RETC3: CMP    #. ,BUFF-4    ;CHECK FOR INCREMENTED P.C.
1237 004720 001405          BEQ    TST30
1238 004722 012737 000117 000302          MOV    #117,@#$FATAL     ;MOVE TO MAILBOX # ***** 117 *****
1239 004730 005212          INC    (R2)              ;SET MSGTYP TO FATAL ERROR
1240 004732 000000          HALT                          ;INCORRECT P.C.,OR WRONG $STNM
1241                                     ; TO SCOPE REPLACE HALT W/ 240
1242                                     ; AND REPLACE NEXT INST W/ 760
1243                                     ;*****
1244                                     ;TEST 30          TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
1245                                     ;*****
1246 004734 005237 000304          TST30: INC    @#$TESTN      ;UPDATE TEST NUMBER
  
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N02

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TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK

SEQ 0028

1247	004740	022737	000030	000304		CMP	#30,@#STESTN	;SEQUENCE ERROR?
1248	004746	001040				BNE	TST31-12	;BR TO ERROR HALT ON SEQ ERROR
1249	004750	012706	000500			MOV	#BUFF,SP	;SET UP
1250	004754	012767	004772	173046		MOV	#RETD3,RTRAP3	;SET UP
1251	004762	005067	173010			CLR	CC	;CLEAR CC AND PRIORITY
1252	004766	000257				CCC		
1253	004770	104000				EMT		;TRAP
1254	004772	026727	173500	000000	RETD3:	CMP	BUFF-2,#0	;TEST THAT OLD STATUS WENT TO STACK
1255	005000	001405				BEG	1\$	
1256	005002	012737	000120	000302		MOV	#120,@#\$FATAL	;MOVE TO MAILBOX # ***** 120 *****
1257	005010	005212				INC	(R2)	;SET MSGTYP TO FATAL ERROR
1258	005012	000000				HALT		;INCORRECT STATUS
1259								; TO SCOPE REPLACE HALT W/ 240
1260								; AND REPLACE NEXT INST W/ 755
1261	005014	012706	000500		1\$:	MOV	#BUFF,SP	;SET UP
1262	005020	012767	005040	173002		MOV	#RETE3,RTRAP3	;SET UP
1263	005026	012767	000357	172742		MOV	#357,CC	;SET PRIORITY
1264	005034	000277				SCC		;SET CC
1265	005036	104000				EMT		;TRAP
1266	005040	026727	173432	000357	RETE3:	CMP	BUFF-2,#357	;COMPARES STATUS ON STACK
1267	005046	001405				BEG	TST31	
1268	005050	012737	000121	000302		MOV	#121,@#\$FATAL	;MOVE TO MAILBOX # ***** 121 *****
1269	005056	005212				INC	(R2)	;SET MSGTYP TO FATAL ERROR
1270	005060	000000				HALT		;INCORRECT STATUS ON STACK,OR WRONG \$STNM
1271								; TO SCOPE REPLACE HALT W/ 240
1272								; AND REPLACE NEXT INST W/ 732
1273								*****
1274								TEST 31 TEST THAT "NEW" STATUS IS CORRECT
1275								*****
1276	005062	005237	000304		TST31:	INC	@#STESTN	;UPDATE TEST NUMBER
1277	005066	022737	000031	000304		CMP	#31,@#STESTN	;SEQUENCE ERROR?
1278	005074	001117				BNE	TST32-12	;BR TO ERROR HALT ON SEQ ERROR
1279	005076	012706	000500			MOV	#BUFF,SP	
1280	005102	012767	005116	172720		MOV	#RETF3,RTRAP3	
1281	005110	005067	172716			CLR	RTRAP3+2	;CLEAR FUTURE PRIORITY AND CC
1282	005114	104000				EMT		
1283	005116				RETF3:			;TEST FOR "C" CLEARED
1284	005116	100005				BPL	1\$	
1285	005120	012737	000122	000302		MOV	#122,@#\$FATAL	;MOVE TO MAILBOX # ***** 122 *****
1286	005126	005212				INC	(R2)	;SET MSGTYP TO FATAL ERROR
1287	005130	000000				HALT		;C NOT CLEARED
1288								; TO SCOPE REPLACE HALT W/ 240
1289								; AND REPLACE NEXT INST W/ 761
1290	005132				1\$:			
1291	005132	001005				BNE	2\$	
1292	005134	012737	000123	000302		MOV	#123,@#\$FATAL	;MOVE TO MAILBOX # ***** 123 *****
1293	005142	005212				INC	(R2)	;SET MSGTYP TO FATAL ERROR
1294	005144	000000				HALT		;Z NOT CLEARED
1295								; TO SCOPE REPLACE HALT W/ 240
1296								; AND REPLACE NEXT INST W/ 753
1297	005146				2\$:			
1298	005146	102005				BVC	3\$	
1299	005150	012737	000124	000302		MOV	#124,@#\$FATAL	;MOVE TO MAILBOX # ***** 124 *****
1300	005156	005212				INC	(R2)	;SET MSGTYP TO FATAL ERROR
1301	005160	000000				HALT		;V NOT CLEARED
1302								; TO SCOPE REPLACE HALT W/ 240

B03

TEST THAT "NEW" STATUS IS CORRECT

SEQ 0029

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1303                                     ; AND REPLACE NEXT INST W/ 745
1304 005162 35:
1305 005162 103005 BCC 45
1306 005164 012737 000125 000302 MOV #125,2#SFATAL ; MOVE TO MAILBOX # ***** 125 *****
1307 005172 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1308 005174 000000 HALT ; C NOT CLEARED
1309 ; TO SCOPE REPLACE HALT W/ 240
1310 ; AND REPLACE NEXT INST W/ 737
1311 005176 032767 000340 172572 45: BIT #340,CC ; TEST PRIORITY
1312 005204 001405 BEQ 55
1313 005206 012737 000126 000302 MOV #126,2#SFATAL ; MOVE TO MAILBOX # ***** 126 *****
1314 005214 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1315 005216 000000 HALT ; PRIORITY NOT ZERO
1316 ; TO SCOPE REPLACE HALT W/ 240
1317 ; AND REPLACE NEXT INST W/ 726
1318 005220 012706 000500 55: MOV #BUFF,SP
1319 005224 012767 005242 172576 MOV #RETG3,RTRAP3
1320 005232 012767 000357 172572 MOV #357,RTRAP3+2 ; SET NEW "CC" AND PRIORITY
1321 005240 104000 EMT ; TRAP HERE
1322 005242 RETG3:
1323 005242 100405 BMI 15
1324 005244 012737 000127 000302 MOV #127,2#SFATAL ; MOVE TO MAILBOX # ***** 127 *****
1325 005252 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1326 005254 000000 HALT ; N NOT SET
1327 ; TO SCOPE REPLACE HALT W/ 240
1328 ; AND REPLACE NEXT INST W/ 707
1329 005256 15:
1330 005256 001405 BEQ 25
1331 005260 012737 000130 000302 MOV #130,2#SFATAL ; MOVE TO MAILBOX # ***** 130 *****
1332 005266 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1333 005270 000000 HALT ; Z NOT SET
1334 ; TO SCOPE REPLACE HALT W/ 240
1335 ; AND REPLACE NEXT INST W/ 701
1336 005272 25:
1337 005272 102405 BVS 35
1338 005274 012737 000131 000302 MOV #131,2#SFATAL ; MOVE TO MAILBOX # ***** 131 *****
1339 005302 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1340 005304 000000 HALT ; V NOT SET
1341 ; TO SCOPE REPLACE HALT W/ 240
1342 ; AND REPLACE NEXT INST W/ 673
1343 005306 35:
1344 005306 103405 BCS 45
1345 005310 012737 000132 000302 MOV #132,2#SFATAL ; MOVE TO MAILBOX # ***** 132 *****
1346 005316 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1347 005320 000000 HALT ; C NOT SET
1348 ; TO SCOPE REPLACE HALT W/ 240
1349 ; AND REPLACE NEXT INST W/ 665
1350 005322 000257 45: CCC
1351 005324 022767 000340 172444 CMP #340,CC
1352 005332 001405 BEQ TST32
1353 005334 012737 000133 000302 MOV #133,2#SFATAL ; MOVE TO MAILBOX # ***** 133 *****
1354 005342 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1355 005344 000000 HALT ; PRIORITY WAS CHANGED, OR WRONG STSTNM
1356 ; TO SCOPE REPLACE HALT W/ 240
1357 ; AND REPLACE NEXT INST W/ 653
1358

```

```

1359 ;TEST 32 TEST THAT ALL COMBINATION OF EMT WILL CAUSE A TRAP
1360 ;*****
1361 005346 005237 000304 TST32: INC @#STESTN ;UPDATE TEST NUMBER
1362 005352 022737 000032 000304 CMP #32,@#STESTN ;SEQUENCE ERROR?
1363 005360 001011 BNE BR47 ;BR TO ERROR HALT ON SEQ ERROR
1364 005362 012767 104000 000012 MOV #EMT, RB ;INITIALIZE BASE EMT INSTRUCTION
1365 005370 012767 005416 172432 MOV #RA, 30 ;RETURN FROM TRAP TO RA
1366 005376 012706 000500 RC: MOV #BUFF, SP ;SET UP STACK POINTER
1367 005402 104000 RB: EMT ;TRAP INST. WILL BE MODIFIED TO EMT+377
1368 005404 BR47:
1369 005404 012737 000134 000302 MOV #134,@#SFATAL ;MOVE TO MAILBOX # ***** 134 *****
1370 005412 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1371 005414 000000 HALT ;PREVIOUS INST FAILED TO TRAP OR WRONG $STNM
1372 ; TO SCOPE REPLACE HALT W/ 240
1373 ; AND REPLACE NEXT INST W/ 761
1374 005416 005267 177760 RA: INC RB ;INCREMENT TRAP INSTRUCTION
1375 005422 022767 104377 177752 CMP #104377, RB ;EMT+377 TO EMT?
1376 005430 103362 BHIS RC ;HAVE WE TESTED ALL
1377 ; YES
1378 005432 012767 000032 172370 MOV #32, 30 ;/.+
1379 005440 005067 172366 CLR 32 ;HALT
1380 ;*****
1381 ;TEST 33 TEST THAT A TRAP OCCURES ON AN "TRACE-TRT" INSTRUCTION
1382 ;*****
1383 005444 005237 000304 TST33: INC @#STESTN ;UPDATE TEST NUMBER
1384 005450 022737 000033 000304 CMP #33,@#STESTN ;SEQUENCE ERROR?
1385 005456 001006 BNE TST34-12 ;BR TO ERROR HALT ON SEQ ERROR
1386 005460 012706 000500 MOV #BUFF, SP ;STACK POINTER SETUP
1387 005464 012767 005506 172322 MOV #RETA4, RTRAP4 ;RETURN LOCATION
1388 005472 000003 TRT ;RESERVED INSTRUCTION, SHOULD TRAP
1389 005474 012737 000135 000302 MOV #135,@#SFATAL ;MOVE TO MAILBOX # ***** 135 *****
1390 005502 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1391 005504 000000 HALT ;TRT DIDN'T TRAP OR WRONG $STNM
1392 ; TO SCOPE REPLACE HALT W/ 240
1393 ; AND REPLACE NEXT INST W/ 764
1394 005506 RETA4:
1395 ;*****
1396 ;TEST 34 TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1397 ;*****
1398 005506 005237 000304 TST34: INC @#STESTN ;UPDATE TEST NUMBER
1399 005512 022737 000034 000304 CMP #34,@#STESTN ;SEQUENCE ERROR?
1400 005520 001011 BNE TST35-12 ;BR TO ERROR HALT ON SEQ ERROR
1401 005522 012706 000500 MOV #BUFF, SP ;STACK POINTER SETUP
1402 005526 012767 005536 172260 MOV #RETB4, RTRAP4 ;RETURN POINTER
1403 005534 000003 TRT ;RESERVED INSTRUCTION
1404 005536 020627 000474 RETB4: CMP SP, #BUFF-4 ;TEST DECREMENT OF SP
1405 005542 001405 BEQ TST35
1406 005544 012737 000136 000302 MOV #136,@#SFATAL ;MOVE TO MAILBOX # ***** 136 *****
1407 005552 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1408 005554 000000 HALT ;NOT DECREMENTED TWO WORDS, OR WRONG $STNM
1409 ; TO SCOPE REPLACE HALT W/ 240
1410 ; AND REPLACE NEXT INST W/ 761
1411 ;*****
1412 ;TEST 35 TEST THAT PROPER P.C. IS SAVED
1413 ;*****
1414 005556 005237 000304 TST35: INC @#STESTN ;UPDATE TEST NUMBER

```

```

1415 005562 022737 000035 000304    CMP      #35,0#STESTN    ;SEQUENCE ERROR?
1416 005570 001012                BNE      TST36-12    ;BR TO ERROR HALT ON SEQ ERROR
1417 005572 012706 000500                MOV      #BUFF,SP    ;STACK POINTER SETUP
1418 005576 012767 005606 172210    MOV      #RETC4,RTRAP4 ;RETURN FROM TRAP POINTER
1419 005604 000003                TRT                      ;TRAP ON THIS INSTRUCTION
1420 005606 022767 005606 172660    RETC4:  CMP      #.BUFF-4    ;CHECK FOR INCREMENTED P.C.
1421 005614 001405                BEQ      TST36
1422 005616 012737 000137 000302    MOV      #137,0#SFATAL ;MOVE TO MAILBOX # ***** 137 *****
1423 005624 005212                INC      (R2)         ;SET MSGTYP TO FATAL ERROR
1424 005626 000000                HALT                    ;INCORRECT P.C.,OR WRONG $STNM

```

```

; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 760

```

```

;*****
;TEST 36      TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
;*****

```

```

1429
1430 005630 005237 000304                TST36:  INC      0#STESTN    ;UPDATE TEST NUMBER
1431 005634 022737 000036 000304    CMP      #36,0#STESTN    ;SEQUENCE ERROR?
1432 005642 001040                BNE      TST37-12    ;BR TO ERROR HALT ON SEQ ERROR
1433 005644 012706 000500                MOV      #BUFF,SP    ;SET UP
1434 005650 012767 005666 172136    MOV      #RETD4,RTRAP4 ;SET UP
1435 005656 005067 172114                CLR      CC           ;CLEAR CC AND PRIORITY
1436 005662 000257                CCC
1437 005664 000003                TRT                      ;TRAP
1438 005666 026727 172604 000000    RETD4:  CMP      BUFF-2,#0 ;TEST THAT OLD STATUS WENT TO STACK

```

```

;TEST FOR ALL ZEROS

```

```

1440 005674 001405                BEQ      1$
1441 005676 012737 000140 000302    MOV      #140,0#SFATAL ;MOVE TO MAILBOX # ***** 140 *****
1442 005704 005212                INC      (R2)         ;SET MSGTYP TO FATAL ERROR
1443 005706 000000                HALT                    ;INCORRECT STATUS

```

```

; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 755

```

```

1444
1445
1446 005710 012706 000500                1$:  MOV      #BUFF,SP    ;SET UP
1447 005714 012767 005734 172072    MOV      #RETE4,RTRAP4 ;SET UP
1448 005722 012767 000357 172046    MOV      #357,CC      ;SET PRIORITY

```

```

;SET-SET CC
;TRAP

```

```

1449 005730 000277                SCC
1450 005732 000003                TRT                      ;TRAP
1451 005734 026727 172536 000357    RETE4:  CMP      BUFF-2,#357 ;COMPARES STATUS ON STACK
1452 005742 001405                BEQ      TST37
1453 005744 012737 000141 000302    MOV      #141,0#SFATAL ;MOVE TO MAILBOX # ***** 141 *****
1454 005752 005212                INC      (R2)         ;SET MSGTYP TO FATAL ERROR
1455 005754 000000                HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $STNM

```

```

; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 732

```

```

;*****
;TEST 37      TEST THAT "NEW" STATUS IS CORRECT
;*****

```

```

1458
1459
1460 005756 005237 000304                TST37:  INC      0#STESTN    ;UPDATE TEST NUMBER
1461 005762 022737 000037 000304    CMP      #37,0#STESTN    ;SEQUENCE ERROR?
1462 005770 001121                BNE      BR51         ;BR TO ERROR HALT ON SEQ ERROR

```

```

1463 005772 012706 000500                MOV      #BUFF,SP
1464 005776 012767 006012 172010    MOV      #RETF4,RTRAP4 ;CLEAR FUTURE PRIORITY AND CC
1465 006004 005067 172006                CLR      RTRAP4+2

```

```

;CLEAR FUTURE PRIORITY AND CC

```

```

1466 006010 000003                TRT                      ;TEST FOR "C" CLEARED
1467 006012
1468 006012                RETF4:

```

```

1469 006012 100005                BPL      1$
1470 006014 012737 000142 000302    MOV      #142,0#SFATAL ;MOVE TO MAILBOX # ***** 142 *****

```

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TEST THAT "NEW" STATUS IS CORRECT

SEQ 0032

1471	006022	005212				INC	(R2)		:SET MSGTYP TO FATAL ERROR
1472	006024	000000				HALT			:C NOT CLEARED
1473									: TO SCOPE REPLACE HALT W/ 240
1474									: AND REPLACE NEXT INST W/ 761
1475	006026				1S:				
1476	006026	001005				BNE	2S		
1477	006030	012737	000143	000302		MOV	#143,2#SFATAL		:MOVE TO MAILBOX # ***** 143 *****
1478	006036	005212				INC	(R2)		:SET MSGTYP TO FATAL ERROR
1479	006040	000000				HALT			:Z NOT CLEARED
1480									: TO SCOPE REPLACE HALT W/ 240
1481									: AND REPLACE NEXT INST W/ 753
1482	006042				2S:				
1483	006042	102005				BVC	3S		
1484	006044	012737	000144	000302		MOV	#144,2#SFATAL		:MOVE TO MAILBOX # ***** 144 *****
1485	006052	005212				INC	(R2)		:SET MSGTYP TO FATAL ERROR
1486	006054	000000				HALT			:V NOT CLEARED
1487									: TO SCOPE REPLACE HALT W/ 240
1488									: AND REPLACE NEXT INST W/ 745
1489	006056				3S:				
1490	006056	103005				BCC	4S		
1491	006060	012737	000145	000302		MOV	#145,2#SFATAL		:MOVE TO MAILBOX # ***** 145 *****
1492	006066	005212				INC	(R2)		:SET MSGTYP TO FATAL ERROR
1493	006070	000000				HALT			:C NOT CLEARED
1494									: TO SCOPE REPLACE HALT W/ 240
1495									: AND REPLACE NEXT INST W/ 737
1496	006072	032767	000340	171676	4S:	BIT	#340,CC		:TEST PRIORITY
1497	006100	001405				BEQ	5S		
1498	006102	012737	000146	000302		MOV	#146,2#SFATAL		:MOVE TO MAILBOX # ***** 146 *****
1499	006110	005212				INC	(R2)		:SET MSGTYP TO FATAL ERROR
1500	006112	000000				HALT			:PRIORITY NOT ZERO
1501									: TO SCOPE REPLACE HALT W/ 240
1502									: AND REPLACE NEXT INST W/ 726
1503	006114	012706	000500		5S:	MOV	#BUFF,SP		
1504	006120	012767	006136	171666		MOV	#RETG4,RTRAP4		
1505	006126	012767	000357	171662		MOV	#357,RTRAP4+2		:SET NEW "CC" AND PRIORITY
1506	006134	000003				TRT			:TRAP HERE
1507	006136				RETG4:				
1508	006136	100405				BMI	1S		
1509	006140	012737	000147	000302		MOV	#147,2#SFATAL		:MOVE TO MAILBOX # ***** 147 *****
1510	006146	005212				INC	(R2)		:SET MSGTYP TO FATAL ERROR
1511	006150	000000				HALT			:N NOT SET
1512									: TO SCOPE REPLACE HALT W/ 240
1513									: AND REPLACE NEXT INST W/ 707
1514	006152				1S:				
1515	006152	001405				BEQ	2S		
1516	006154	012737	000150	000302		MOV	#150,2#SFATAL		:MOVE TO MAILBOX # ***** 150 *****
1517	006162	005212				INC	(R2)		:SET MSGTYP TO FATAL ERROR
1518	006164	000000				HALT			:Z NOT SET
1519									: TO SCOPE REPLACE HALT W/ 240
1520									: AND REPLACE NEXT INST W/ 701
1521	006166				2S:				
1522	006166	102405				BVS	3S		
1523	006170	012737	000151	000302		MOV	#151,2#SFATAL		:MOVE TO MAILBOX # ***** 151 *****
1524	006176	005212				INC	(R2)		:SET MSGTYP TO FATAL ERROR
1525	006200	000000				HALT			:V NOT SET
1526									: TO SCOPE REPLACE HALT W/ 240

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TEST THAT "NEW" STATUS IS CORRECT

SEQ 0033

```

1527 ; AND REPLACE NEXT INST W/ 673
1528 006202 35:
1529 006202 103405 BCS 45
1530 006204 012737 000152 000302 MOV #152, @#$FATAL ; MOVE TO MAILBOX # ***** 152 *****
1531 006212 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1532 006214 000000 HALT ; C NOT SET
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 665

```

```

1535 006216 016706 171554 45: MOV CC, SP
1536 006222 042706 000017 BIC #17, SP
1537 006226 022706 000340 CMP #340, SP
1538 006232 001405 BEQ BR51A

```

```

1539 006234 BR51:
1540 006234 012737 000153 000302 MOV #153, @#$FATAL ; MOVE TO MAILBOX # ***** 153 *****
1541 006242 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1542 006244 000000 HALT ; PRIORITY WAS CHANGED, OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 651

```

```

1545 006246 012767 000016 171540 BR51A: MOV #16, 14
1546 006254 005067 171536 CLR 16

```

```

1548 ; PDP-11 ILLEGAL AND ADDRESS INSTRUCTION TEST
1549 ; ALL INSTRUCTIONS THAT ARE RESERVED
1550 ; SHOULD TRAP TO LOCATION 4, AND THE
1551 ; PC THAT POINTS TO THE TRAPPING INSTRUCTION
1552 ; SHOULD BE PLACED ON THE STACK

```

```

1554 ; *****
1555 ; TEST 40 TEST THAT A TRAP OCCURS ON AN ILLEGAL INSTRUCTION
1556 ; *****

```

```

1557 006260 005237 000304 TST40: INC @#$TESTN ; UPDATE TEST NUMBER
1558 006264 022737 000040 000304 CMP #40, @#$TESTN ; SEQUENCE ERROR?
1559 006272 001006 BNE TST41-12 ; BR TO ERROR HALT ON SEQ ERROR
1560 006274 012706 000500 MOV #BUFF, SP ; STACK POINTER SETUP
1561 006300 012767 006322 171476 MOV #RETAS, RTRAPS ; RETURN LOCATION
1562 006306 000100 JMP %0 ; ILLEGAL INSTRUCTION, SHOULD TRAP
1563 006310 012737 000154 000302 MOV #154, @#$FATAL ; MOVE TO MAILBOX # ***** 154 *****
1564 006316 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1565 006320 000000 HALT ; ILLEGAL INSTRUCTION DIDN'T TRAP, OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 764

```

```

1568 006322 RETAS:
1569 ; *****
1570 ; TEST 41 TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1571 ; *****

```

```

1572 006322 005237 000304 TST41: INC @#$TESTN ; UPDATE TEST NUMBER
1573 006326 022737 000041 000304 CMP #41, @#$TESTN ; SEQUENCE ERROR?
1574 006334 001011 BNE TST42-12 ; BR TO ERROR HALT ON SEQ ERROR
1575 006336 012706 000500 MOV #BUFF, SP ; STACK POINTER SETUP
1576 006342 012767 006352 171434 MOV #RETBS, RTRAPS ; RETURN POINTER
1577 006350 000100 JMP %0 ; RESERVED INSTRUCTION
1578 006352 020627 000474 RETBS: CMP SP, #BUFF-4 ; TEST DECREMENT OF SP
1579 006356 001405 BEQ TST42
1580 006360 012737 000155 000302 MOV #155, @#$FATAL ; MOVE TO MAILBOX # ***** 155 *****
1581 006366 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1582 006370 000000 HALT ; NOT DECREMENTED TWO WORDS, OR WRONG $STNM

```


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TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION

SEQ 0034

```

1583                                     ; TO SCOPE REPLACE HALT W/ 240
1584                                     ; AND REPLACE NEXT INST W/ 761
1585 :*****
1586 :TEST 42      TEST THAT PROPER P.C. IS SAVED
1587 :*****
1588 006372 005237 000304 TST42: INC      @#$TESTN      ;UPDATE TEST NUMBER
1589 006376 022737 000042 000304  CMP      #42,@#$TESTN  ;SEQUENCE ERROR?
1590 006404 001012          BNE      TST43-12    ;BR TO ERROR HALT ON SEQ ERROR
1591 006406 012706 000500          MOV      #BUFF,SP    ;STACK POINTER SETUP
1592 006412 012767 006422 171364  MOV      #RETC5,RTRAPS ;RETURN FROM TRAP POINTER
1593 006420 000100          JMP      %0          ;TRAP ON THIS INSTRUCTION
1594 006422 022767 006422 172044  RETC5:  CMP      #,BUFF-4  ;CHECK FOR INCREMENTED P.C.
1595 006430 001405          BEQ      TST43
1596 006432 012737 000156 000302  MOV      #156,@#$FATAL ;MOVE TO MAILBOX # ***** 156 *****
1597 006440 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR
1598 006442 000000          HALT              ;INCORRECT P.C. OR WRONG $STNM
1599                                     ; TO SCOPE REPLACE HALT W/ 240
1600                                     ; AND REPLACE NEXT INST W/ 760
1601 :*****
1602 :TEST 43      TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
1603 :*****
1604 006444 005237 000304 TST43: INC      @#$TESTN      ;UPDATE TEST NUMBER
1605 006450 022737 000043 000304  CMP      #43,@#$TESTN  ;SEQUENCE ERROR?
1606 006456 001040          BNE      TST44-12    ;BR TO ERROR HALT ON SEQ ERROR
1607 006460 012706 000500          MOV      #BUFF,SP    ;SET UP
1608 006464 012767 006502 171312  MOV      #RETD5,RTRAPS ;SET UP
1609 006472 005067 171300          CLR      CC          ;CLEAR CC AND PRIORITY
1610 006476 000257          CCC
1611 006500 000100          JMP      %0          ;TRAP
1612 006502 026727 171770 000000  RETD5:  CMP      BUFF-2,#0 ;TEST THAT OLD STATUS WENT TO STACK
1613 006510 001405          BEQ      1$
1614 006512 012737 000157 000302  MOV      #157,@#$FATAL ;MOVE TO MAILBOX # ***** 157 *****
1615 006520 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR
1616 006522 000000          HALT              ;INCORRECT STATUS
1617                                     ; TO SCOPE REPLACE HALT W/ 240
1618                                     ; AND REPLACE NEXT INST W/ 755
1619 006524 012706 000500 1$:  MOV      #BUFF,SP    ;SET UP
1620 006530 012767 006550 171246  MOV      #RETE5,RTRAPS ;SET UP
1621 006536 012767 000357 171232  MOV      #357,CC      ;SET PRIORITY
1622 006544 000277          SCC
1623 006546 000100          JMP      %0          ;SET CC
1624 006550 026727 171722 000357  RETE5:  CMP      BUFF-2,#357 ;TRAP
1625 006556 001405          BEQ      TST44      ;COMPARES STATUS ON STACK
1626 006560 012737 000160 000302  MOV      #160,@#$FATAL ;MOVE TO MAILBOX # ***** 160 *****
1627 006566 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR
1628 006570 000000          HALT              ;INCORRECT STATUS ON STACK, OR WRONG $STNM
1629                                     ; TO SCOPE REPLACE HALT W/ 240
1630                                     ; AND REPLACE NEXT INST W/ 732
1631 :*****
1632 :TEST 44      TEST THAT "NEW" STATUS IS CORRECT
1633 :*****
1634 006572 005237 000304 TST44: INC      @#$TESTN      ;UPDATE TEST NUMBER
1635 006576 022737 000044 000304  CMP      #44,@#$TESTN  ;SEQUENCE ERROR?
1636 006604 001117          BNE      TST45-12    ;BR TO ERROR HALT ON SEQ ERROR
1637 006606 012706 000500          MOV      #BUFF,SP
1638 006612 012767 006626 171164  MOV      #RETF5,RTRAPS

```

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TEST THAT "NEW" STATUS IS CORRECT

SEQ 0035

1639	006620	005067	171162		CLR	RTRAP5+2		;CLEAR FUTURE PRIORITY AND CC
1640	006624	000100			JMP	%0		
1641	006626				RETF5:			;TEST FOR "C" CLEARED
1642	006626	100005			BPL	1\$		
1643	006630	012737	000161	000302	MOV	#161,@#\$FATAL		;MOVE TO MAILBOX # ***** 161 *****
1644	006636	005212			INC	(R2)		;SET MSGTYP TO FATAL ERROR
1645	006640	000000			HALT			;C NOT CLEARED
1646								; TO SCOPE REPLACE HALT W/ 240
1647								; AND REPLACE NEXT INST W/ 761
1648	006642				1\$:			
1649	006642	001005			BNE	2\$		
1650	006644	012737	000162	000302	MOV	#162,@#\$FATAL		;MOVE TO MAILBOX # ***** 162 *****
1651	006652	005212			INC	(R2)		;SET MSGTYP TO FATAL ERROR
1652	006654	000000			HALT			;Z NOT CLEARED
1653								; TO SCOPE REPLACE HALT W/ 240
1654								; AND REPLACE NEXT INST W/ 753
1655	006656				2\$:			
1656	006656	102005			BVC	3\$		
1657	006660	012737	000163	000302	MOV	#163,@#\$FATAL		;MOVE TO MAILBOX # ***** 163 *****
1658	006666	005212			INC	(R2)		;SET MSGTYP TO FATAL ERROR
1659	006670	000000			HALT			;V NOT CLEARED
1660								; TO SCOPE REPLACE HALT W/ 240
1661								; AND REPLACE NEXT INST W/ 745
1662	006672				3\$:			
1663	006672	103005			BCC	4\$		
1664	006674	012737	000164	000302	MOV	#164,@#\$FATAL		;MOVE TO MAILBOX # ***** 164 *****
1665	006702	005212			INC	(R2)		;SET MSGTYP TO FATAL ERROR
1666	006704	000000			HALT			;C NOT CLEARED
1667								; TO SCOPE REPLACE HALT W/ 240
1668								; AND REPLACE NEXT INST W/ 737
1669	006706	032767	000357	171062	4\$:	BIT	#357,CC	;TEST PRIORITY
1670	006714	001405			BEQ	5\$		
1671	006716	012737	000165	000302	MOV	#165,@#\$FATAL		;MOVE TO MAILBOX # ***** 165 *****
1672	006724	005212			INC	(R2)		;SET MSGTYP TO FATAL ERROR
1673	006726	000000			HALT			;PRIORITY NOT ZERO
1674								; TO SCOPE REPLACE HALT W/ 240
1675								; AND REPLACE NEXT INST W/ 726
1676	006730	012706	000500		5\$:	MOV	#BUFF,SP	
1677	006734	012767	006752	171042	MOV	#RETG5,RTRAP5		
1678	006742	012767	000357	171036	MOV	#357,RTRAP5+2		;SET NEW "CC" AND PRIORITY
1679	006750	000100			JMP	%0		;TRAP HERE
1680	006752				RETF5:			
1681	006752	100405			BMI	1\$		
1682	006754	012737	000166	000302	MOV	#166,@#\$FATAL		;MOVE TO MAILBOX # ***** 166 *****
1683	006762	005212			INC	(R2)		;SET MSGTYP TO FATAL ERROR
1684	006764	000000			HALT			;N NOT SET
1685								; TO SCOPE REPLACE HALT W/ 240
1686								; AND REPLACE NEXT INST W/ 707
1687	006766				1\$:			
1688	006766	001405			BEQ	2\$		
1689	006770	012737	000167	000302	MOV	#167,@#\$FATAL		;MOVE TO MAILBOX # ***** 167 *****
1690	006776	005212			INC	(R2)		;SET MSGTYP TO FATAL ERROR
1691	007000	000000			HALT			;Z NOT SET
1692								; TO SCOPE REPLACE HALT W/ 240
1693								; AND REPLACE NEXT INST W/ 701
1694	007002				2\$:			

```

1695 007002 102405      BVS      3$
1696 007004 012737 000170 000302  MOV      #170,2#$FATAL ;MOVE TO MAILBOX # ***** 170 *****
1697 007012 005212      INC      (R2) ;SET MSGTYP TO FATAL ERROR
1698 007014 000000      HALT    ;V NOT SET
1699 ; ; ;TO SCOPE REPLACE HALT W/ 240
1700 ; ; ;AND REPLACE NEXT INST W/ 673

```

```

1701 007016      3$:
1702 007016 103405      BCS      4$
1703 007020 012737 000171 000302  MOV      #171,2#$FATAL ;MOVE TO MAILBOX # ***** 171 *****
1704 007026 005212      INC      (R2) ;SET MSGTYP TO FATAL ERROR
1705 007030 000000      HALT    ;C NOT SET
1706 ; ; ;TO SCOPE REPLACE HALT W/ 240
1707 ; ; ;AND REPLACE NEXT INST W/ 665

```

```

1708 007032 016706 170740      4$:  MOV      CC,SP
1709 007036 022706 000357      CMP      #357,SP
1710 007042 001405      BEQ      TST45
1711 007044 012737 000172 000302  MOV      #172,2#$FATAL ;MOVE TO MAILBOX # ***** 172 *****
1712 007052 005212      INC      (R2) ;SET MSGTYP TO FATAL ERROR
1713 007054 000000      HALT    ;PRIORITY WAS CHANGED,OR WRONG $STNM
1714 ; ; ;TO SCOPE REPLACE HALT W/ 240
1715 ; ; ;AND REPLACE NEXT INST W/ 653

```

```

1716 ;*****
1717 ;TEST 45      TEST THAT A TRAP OCCURES ON ALL ILLEGAL INSTRUCTION
1718 ;*****

```

```

1719 007056 005237 000304      TST45: INC      2#$TESTN ;UPDATE TEST NUMBER
1720 007062 022737 000045 000304  CMP      #45,2#$TESTN ;SEQUENCE ERROR?
1721 007070 001006      BNE      TST46-12 ;BR TO ERROR HALT ON SEQ ERROR
1722 007072 012706 000500      MOV      #BUFF,SP ;STACK POINTER SETUP
1723 007076 012767 007120 170700  MOV      #RETH5,RTRAPS ;RETURN LOCATION
1724 007104 004000      JSR      %0,%0 ;RESERVED INSTRUCTION, SHOULD TRAP
1725 007106 012737 000173 000302  MOV      #173,2#$FATAL ;MOVE TO MAILBOX # ***** 173 *****
1726 007114 005212      INC      (R2) ;SET MSGTYP TO FATAL ERROR
1727 007116 000000      HALT    ;DIDN'T TRAP,OR WRONG $STNM
1728 ; ; ;TO SCOPE REPLACE HALT W/ 240
1729 ; ; ;AND REPLACE NEXT INST W/ 764

```

```

1730 007120      RETH5:
1731 ;*****
1732 ;TEST 46      TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1733 ;*****

```

```

1734 007120 005237 000304      TST46: INC      2#$TESTN ;UPDATE TEST NUMBER
1735 007124 022737 000046 000304  CMP      #46,2#$TESTN ;SEQUENCE ERROR?
1736 007132 001011      BNE      TST47-12 ;BR TO ERROR HALT ON SEQ ERROR
1737 007134 012706 000500      MOV      #BUFF,SP ;STACK POINTER SETUP
1738 007140 012767 007150 170636  MOV      #RETJ,RTRAPS ;RETURN POINTER
1739 007146 004000      JSR      %0,%0 ;RESERVED INSTRUCTION
1740 007150 020627 000474      RETJ:  CMP      SP,#BUFF-4 ;TEST DECREMENT OF SP
1741 007154 001405      BEQ      TST47
1742 007156 012737 000174 000302  MOV      #174,2#$FATAL ;MOVE TO MAILBOX # ***** 174 *****
1743 007164 005212      INC      (R2) ;SET MSGTYP TO FATAL ERROR
1744 007166 000000      HALT    ;NOT DECREMENTED TWO WORDS,OR WRONG $STNM
1745 ; ; ;TO SCOPE REPLACE HALT W/ 240
1746 ; ; ;AND REPLACE NEXT INST W/ 761

```

```

1747 ;*****
1748 ;TEST 47      TEST THAT PROPER P.C. IS SAVED
1749 ;*****
1750 007170 005237 000304      TST47: INC      2#$TESTN ;UPDATE TEST NUMBER

```

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TEST THAT PROPER P.C. IS SAVED

SEQ 0037

```

1751 007174 022737 000047 000304      CMP      #47,0#$STESTN ;SEQUENCE ERROR?
1752 007202 001012                    BNE      TST50-12    ;BR TO ERROR HALT ON SEQ ERROR
1753 007204 012706 000500                    MOV      #BUFF,SP   ;STACK POINTER SETUP
1754 007210 012767 007220 170566      MOV      #RETK,RTRAPS ;RETURN FROM TRAP POINTER
1755 007216 004000                    JSR      %0,%0      ;TRAP ON THIS INSTRUCTION
1756 007220 022767 007220 171246      RETK:    CMP      #INSTK+2,BUFF-4 ;CHECK FOR INCREMENTED P.C.
1757 007226 001405                    BEQ      TST50
1758 007230 012737 000175 000302      MOV      #175,0#$FATAL ;MOVE TO MAILBOX # ***** 175 *****
1759 007236 005212                    INC      (R2)        ;SET MSGTYP TO FATAL ERROR
1760 007240 000000                    HALT                ;INCORRECT P.C. OR WRONG $STSTM
                            ; TO SCOPE REPLACE HALT W/ 240
                            ; AND REPLACE NEXT INST W/ 760

```

```

;*****
;TEST 50      TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
;*****

```

```

1767 007242 005237 000304 000304      TST50:  INC      0#$STESTN ;UPDATE TEST NUMBER
1768 007246 022737 000050 000304      CMP      #50,0#$STESTN ;SEQUENCE ERROR?
1769 007254 001040                    BNE      TST51-12    ;BR TO ERROR HALT ON SEQ ERROR
1770 007256 012706 000500                    MOV      #BUFF,SP   ;SET UP
1771 007262 012767 007300 170514      MOV      #RETL,RTRAPS ;SET UP
1772 007270 005067 170502                    CLR      CC          ;CLEAR CC AND PRIORITY
1773 007274 000257                    CCC
1774 007276 004000                    JSR      %0,%0      ;TRAP
1775 007300 026727 171172 000000      RETL:    CMP      BUFF-2,#0 ;TEST THAT OLD STATUS WENT TO STACK
1776 007306 001405                    BEQ      1$
1777 007310 012737 000176 000302      MOV      #176,0#$FATAL ;MOVE TO MAILBOX # ***** 176 *****
1778 007316 005212                    INC      (R2)        ;SET MSGTYP TO FATAL ERROR
1779 007320 000000                    HALT                ;INCORRECT STATUS
                            ; TO SCOPE REPLACE HALT W/ 240
                            ; AND REPLACE NEXT INST W/ 755

```

```

1782 007322 012706 000500 1$:      MOV      #BUFF,SP   ;SET UP
1783 007326 012767 007346 170450      MOV      #RETM,RTRAPS ;SET UP
1784 007334 012767 000357 170434      MOV      #357,CC    ;SET PRIORITY
1785 007342 000277                    SCC                ;SET CC
1786 007344 004000                    JSR      %0,%0      ;TRAP
1787 007346 026727 171124 000357      RETM:    CMP      BUFF-2,#357 ;COMPARES STATUS ON STACK
1788 007354 001405                    BEQ      TST51
1789 007356 012737 000177 000302      MOV      #177,0#$FATAL ;MOVE TO MAILBOX # ***** 177 *****
1790 007364 005212                    INC      (R2)        ;SET MSGTYP TO FATAL ERROR
1791 007366 000000                    HALT                ;INCORRECT STATUS ON STACK, OR WRONG $STSTM
                            ; TO SCOPE REPLACE HALT W/ 240
                            ; AND REPLACE NEXT INST W/ 732

```

```

;*****
;TEST 51      TEST THAT "NEW" STATUS IS CORRECT
;*****

```

```

1797 007370 005237 000304 000304      TST51:  INC      0#$STESTN ;UPDATE TEST NUMBER
1798 007374 022737 000051 000304      CMP      #51,0#$STESTN ;SEQUENCE ERROR?
1799 007402 001116                    BNE      TST52-12    ;BR TO ERROR HALT ON SEQ ERROR
1800 007404 012706 000500                    MOV      #BUFF,SP   ;CLEAR FUTURE PRIORITY AND CC
1801 007410 012767 007424 170366      MOV      #RETN,RTRAPS
1802 007416 005067 170364                    CLR      RTRAPS+2
1803 007422 004000                    JSR      %0,%0      ;TEST FOR "C" CLEARED
1804 007424                    RETN:
1805 007424 100005                    BPL      1$
1806 007426 012737 000200 000302      MOV      #200,0#$FATAL ;MOVE TO MAILBOX # ***** 200 *****

```

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TEST THAT "NEW" STATUS IS CORRECT

SEQ 0038

1807	007434	005212				INC	(R2)		;SET MSGTYP TO FATAL ERROR
1808	007436	000000				HALT			;C NOT CLEARED
1809									; TO SCOPE REPLACE HALT W/ 240
1810									; AND REPLACE NEXT INST W/ 761
1811	007440				1\$:				
1812	007440	001005				BNE	2\$		
1813	007442	012737	000201	000302		MOV	#201,@#\$FATAL		;MOVE TO MAILBOX # ***** 201 *****
1814	007450	005212				INC	(R2)		;SET MSGTYP TO FATAL ERROR
1815	007452	000000				HALT			;Z NOT CLEARED
1816									; TO SCOPE REPLACE HALT W/ 240
1817									; AND REPLACE NEXT INST W/ 753
1818	007454				2\$:				
1819	007454	102005				BVC	3\$		
1820	007456	012737	000202	000302		MOV	#202,@#\$FATAL		;MOVE TO MAILBOX # ***** 202 *****
1821	007464	005212				INC	(R2)		;SET MSGTYP TO FATAL ERROR
1822	007466	000000				HALT			;V NOT CLEARED
1823									; TO SCOPE REPLACE HALT W/ 240
1824									; AND REPLACE NEXT INST W/ 745
1825	007470				3\$:				
1826	007470	103005				BCC	4\$		
1827	007472	012737	000203	000302		MOV	#203,@#\$FATAL		;MOVE TO MAILBOX # ***** 203 *****
1828	007500	005212				INC	(R2)		;SET MSGTYP TO FATAL ERROR
1829	007502	000000				HALT			;C NOT CLEARED
1830									; TO SCOPE REPLACE HALT W/ 240
1831									; AND REPLACE NEXT INST W/ 737
1832	007504	016700	170266		4\$:	MOV	CC,%0		;TEMP STORAGE
1833	007510	001405				BEQ	5\$		
1834	007512	012737	000204	000302		MOV	#204,@#\$FATAL		;MOVE TO MAILBOX # ***** 204 *****
1835	007520	005212				INC	(R2)		;SET MSGTYP TO FATAL ERROR
1836	007522	000000				HALT			;PRIORITY NOT ZERO
1837									; TO SCOPE REPLACE HALT W/ 240
1838									; AND REPLACE NEXT INST W/ 727
1839	007524	012706	000500		5\$:	MOV	#BUFF,SP		
1840	007530	012767	007546	170246		MOV	#RETO,RTRAPS		
1841	007536	012767	000357	170242		MOV	#357,RTRAPS+2		;SET NEW "CC" AND PRIORITY
1842	007544	004000				JSR	%0,%0		;TRAP HERE
1843	007546				RETO:				
1844	007546	100405				BMI	1\$		
1845	007550	012737	000205	000302		MOV	#205,@#\$FATAL		;MOVE TO MAILBOX # ***** 205 *****
1846	007556	005212				INC	(R2)		;SET MSGTYP TO FATAL ERROR
1847	007560	000000				HALT			;N NOT SET
1848									; TO SCOPE REPLACE HALT W/ 240
1849									; AND REPLACE NEXT INST W/ 710
1850	007562				1\$:				
1851	007562	001405				BEQ	2\$		
1852	007564	012737	000206	000302		MOV	#206,@#\$FATAL		;MOVE TO MAILBOX # ***** 206 *****
1853	007572	005212				INC	(R2)		;SET MSGTYP TO FATAL ERROR
1854	007574	000000				HALT			;Z NOT SET
1855									; TO SCOPE REPLACE HALT W/ 240
1856									; AND REPLACE NEXT INST W/ 702
1857	007576				2\$:				
1858	007576	102405				BVS	3\$		
1859	007600	012737	000207	000302		MOV	#207,@#\$FATAL		;MOVE TO MAILBOX # ***** 207 *****
1860	007606	005212				INC	(R2)		;SET MSGTYP TO FATAL ERROR
1861	007610	000000				HALT			;V NOT SET
1862									; TO SCOPE REPLACE HALT W/ 240

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TEST THAT "NEW" STATUS IS CORRECT

SEQ 0039

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1863                                     ; AND REPLACE NEXT INST W/ 674
1864 007612 3$: BCS 4$
1865 007612 103405 000210 000302 MOV #210,@#$FATAL ; MOVE TO MAILBOX # ***** 210 *****
1866 007614 012737 INC (R2) ; SET MSGTYP TO FATAL ERROR
1867 007622 005212 HALT ; C NOT SET
1868 007624 000000 ; TO SCOPE REPLACE HALT W/ 240
1869 ; AND REPLACE NEXT INST W/ 666
1870
1871 007626 016700 170144 4$: MOV CC,%0
1872 007632 022700 000357 CMP #357,%0
1873 007636 001405 BEQ TST52
1874 007640 012737 000211 000302 MOV #211,@#$FATAL ; MOVE TO MAILBOX # ***** 211 *****
1875 007646 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1876 007650 000000 HALT ; PRIORITY WAS CHANGED, OR WRONG $STNM
1877 ; TO SCOPE REPLACE HALT W/ 240
1878 ; AND REPLACE NEXT INST W/ 654
1879

```

```

1880 ;*****
1881 ;TEST 52 TEST THAT A TRAP OCCURES ON AN ILLEGAL ADDRESS
1882 ;*****
1883 007652 005237 000304 TST52: INC @#$TESTN ; UPDATE TEST NUMBER
1884 007656 022737 000052 000304 CMP #52,@#$TESTN ; SEQUENCE ERROR?
1885 007664 001007 BNE TST53-12 ; BR TO ERROR HALT ON SEQ ERROR
1886 007666 012706 000500 MOV #BUFF,SP ; STACK POINTER SETUP
1887 007672 012767 007716 170104 MOV #RETP,RTRAPS ; RETURN LOCATION
1888 007700 005767 170075 TST 1 ; ILLEGAL ADDRESS INSTRUCTION, SHOULD TRAP
1889 007704 012737 000212 000302 MOV #212,@#$FATAL ; MOVE TO MAILBOX # ***** 212 *****
1890 007712 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1891 007714 000000 HALT ; ILLEGAL ADDRESS DID NOT TRAP, OR WRONG $STNM
1892 ; TO SCOPE REPLACE HALT W/ 240
1893 ; AND REPLACE NEXT INST W/ 763
1894 007716

```

```

1895 RETP:
1896 ;*****
1897 ;TEST 53 TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1898 ;*****
1898 007716 005237 000304 TST53: INC @#$TESTN ; UPDATE TEST NUMBER
1899 007722 022737 000053 000304 CMP #53,@#$TESTN ; SEQUENCE ERROR?
1900 007730 001012 BNE TST54-12 ; BR TO ERROR HALT ON SEQ ERROR
1901 007732 012706 000500 MOV #BUFF,SP ; STACK POINTER SETUP
1902 007736 012767 007750 170040 MOV #RETP,RTRAPS ; RETURN POINTER
1903 007744 005767 170031 TST 1 ; RESERVED INSTRUCTION
1904 007750 020627 000474 RETQ: CMP SP,#BUFF-4 ; TEST DECREMENT OF SP
1905 007754 001405 BEQ TST54
1906 007756 012737 000213 000302 MOV #213,@#$FATAL ; MOVE TO MAILBOX # ***** 213 *****
1907 007764 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1908 007766 000000 HALT ; NOT DECREMENTED TWO WORDS, OR WRONG $STNM
1909 ; TO SCOPE REPLACE HALT W/ 240
1910 ; AND REPLACE NEXT INST W/ 760

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```

1911 ;*****
1912 ;TEST 54 TEST THAT PROPER P.C. IS SAVED
1913 ;*****
1914 007770 005237 000304 TST54: INC @#$TESTN ; UPDATE TEST NUMBER
1915 007774 022737 000054 000304 CMP #54,@#$TESTN ; SEQUENCE ERROR?
1916 010002 001013 BNE TST55-12 ; BR TO ERROR HALT ON SEQ ERROR
1917 010004 012706 000500 MOV #BUFF,SP ; STACK POINTER SETUP
1918 010010 012767 010022 167766 MOV #RETR,RTRAPS ; RETURN FROM TRAP POINTER

```

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TEST THAT PROPER P.C. IS SAVED

SEQ 0040

```

1919 010016 005767 167757          TST 1          ;TRAP ON THIS INSTRUCTION
1920 010022 022767 010022 170444 RETR: CMP          #.BUFF-4      ;CHECK FOR INCREMENTED P.C.
1921 010030 001405          BEQ          TST55
1922 010032 012737 000214 000302  MOV          #214, @#$FATAL ;MOVE TO MAILBOX # ***** 214 *****
1923 010040 005212          INC          (R2)          ;SET MSGTYP TO FATAL ERROR
1924 010042 000000          HALT          ;INCORRECT P.C. OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 757

```

```

;*****
;TEST 55          TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
;*****

```

```

1930 010044 005237 000304          TST55: INC          @#$TESTN ;UPDATE TEST NUMBER
1931 010050 022737 000055 000304  CMP          #55, @#$TESTN ;SEQUENCE ERROR?
1932 010056 001042          BNE          TST56-12      ;BR TO ERROR HALT ON SEQ ERROR
1933 010060 012706 000500          MOV          #BUFF, SP      ;SET UP
1934 010064 012767 010104 167712  MOV          #RETS, RTRAPS ;SET UP
1935 010072 005067 167700          CLR          CC            ;CLEAR CC AND PRIORITY
1936 010076 000257          CCC

```

```

1937 010100 005767 167675          TST 1          ;TRAP
1938 010104 026727 170366 000000 RETS: CMP          BUFF-2, #0 ;TEST THAT OLD STATUS WENT TO STACK
1939 010112 001405          BEQ          1$
1940 010114 012737 000215 000302  MOV          #215, @#$FATAL ;MOVE TO MAILBOX # ***** 215 *****
1941 010122 005212          INC          (R2)          ;SET MSGTYP TO FATAL ERROR
1942 010124 000000          HALT          ;INCORRECT STATUS
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 754

```

```

1945 010126 012706 000500          1$: MOV          #BUFF, SP      ;SET UP
1946 010132 012767 010154 167644  MOV          #RETT, RTRAPS ;SET UP
1947 010140 012767 000357 167630  MOV          #357, CC       ;SET PRIORITY
1948 010146 000277          SCC                    ;SET CC
1949 010150 005767 167625          TST 1          ;TRAP
1950 010154 026727 170316 000357 RETT: CMP          BUFF-2, #357 ;COMPARES STATUS ON STACK
1951 010162 001405          BEQ          TST56

```

```

1952 010164 012737 000216 000302  MOV          #216, @#$FATAL ;MOVE TO MAILBOX # ***** 216 *****
1953 010172 005212          INC          (R2)          ;SET MSGTYP TO FATAL ERROR
1954 010174 000000          HALT          ;INCORRECT STATUS ON STACK, OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 730

```

```

;*****
;TEST 56          TEST THAT "NEW" STATUS IS CORRECT
;*****

```

```

1960 010176 005237 000304          TST56: INC          @#$TESTN ;UPDATE TEST NUMBER
1961 010202 022737 000056 000304  CMP          #56, @#$TESTN ;SEQUENCE ERROR?
1962 010210 001121          BNE          TST57-12      ;BR TO ERROR HALT ON SEQ ERROR
1963 010212 012706 000500          MOV          #BUFF, SP      ;SET UP
1964 010216 012767 010234 167560  MOV          #RETT, RTRAPS ;SET UP
1965 010224 005067 167556          CLR          RTRAPS+2      ;CLEAR FUTURE PRIORITY AND CC
1966 010230 005767 167545          TST 1          ;TRAP HERE

```

```

1967 010234          RETU:          ;TEST FOR "C" CLEARED
1968 010234 100005          BPL          1$
1969 010236 012737 000217 000302  MOV          #217, @#$FATAL ;MOVE TO MAILBOX # ***** 217 *****
1970 010244 005212          INC          (R2)          ;SET MSGTYP TO FATAL ERROR
1971 010246 000000          HALT          ;C NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 760

```

```

1972
1973
1974 010250          1$:

```

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TEST THAT "NEW" STATUS IS CORRECT

SEQ 0041

1975	010250	001005			BNE	2\$			
1976	010252	012737	000220	000302	MOV	#220,2#\$FATAL		; MOVE TO MAILBOX # ***** 220 *****	
1977	010260	005212			INC	(R2)		; SET MSGTYP TO FATAL ERROR	
1978	010262	000000			HALT			; Z NOT CLEARED	
1979								; TO SCOPE REPLACE HALT W/ 240	
1980								; AND REPLACE NEXT INST W/ 752	
1981	010264				2\$:				
1982	010264	102005			BVC	3\$			
1983	010266	012737	000221	000302	MOV	#221,2#\$FATAL		; MOVE TO MAILBOX # ***** 221 *****	
1984	010274	005212			INC	(R2)		; SET MSGTYP TO FATAL ERROR	
1985	010276	000000			HALT			; V NOT CLEARED	
1986								; TO SCOPE REPLACE HALT W/ 240	
1987								; AND REPLACE NEXT INST W/ 744	
1988	010300				3\$:				
1989	010300	103005			BCC	4\$			
1990	010302	012737	000222	000302	MOV	#222,2#\$FATAL		; MOVE TO MAILBOX # ***** 222 *****	
1991	010310	005212			INC	(R2)		; SET MSGTYP TO FATAL ERROR	
1992	010312	000000			HALT			; C NOT CLEARED	
1993								; TO SCOPE REPLACE HALT W/ 240	
1994								; AND REPLACE NEXT INST W/ 736	
1995	010314	032767	000357	167454	4\$:	BIT	#357,CC		; TEST PRIORITY FOR ZERO
1996	010322	001405			BEQ	5\$			
1997	010324	012737	000223	000302	MOV	#223,2#\$FATAL		; MOVE TO MAILBOX # ***** 223 *****	
1998	010332	005212			INC	(R2)		; SET MSGTYP TO FATAL ERROR	
1999	010334	000000			HALT			; PRIORITY NOT ZERO	
2000								; TO SCOPE REPLACE HALT W/ 240	
2001								; AND REPLACE NEXT INST W/ 725	
2002	010336	012706	000500		5\$:	MOV	#BUFF,SP		
2003	010342	012767	010362	167434	MOV	#RETV,RTRAPS			
2004	010350	012767	000357	167430	MOV	#357,RTRAPS+2		; SET NEW "CC" AND PRIORITY	
2005	010356	005767	167417		TST	1		; TRACE HERE	
2006	010362				RETV:				
2007	010362	100405			BMI	1\$			
2008	010364	012737	000224	000302	MOV	#224,2#\$FATAL		; MOVE TO MAILBOX # ***** 224 *****	
2009	010372	005212			INC	(R2)		; SET MSGTYP TO FATAL ERROR	
2010	010374	000000			HALT			; N NOT SET	
2011								; TO SCOPE REPLACE HALT W/ 240	
2012								; AND REPLACE NEXT INST W/ 705	
2013	010376				1\$:				
2014	010376	001405			BEQ	2\$			
2015	010400	012737	000225	000302	MOV	#225,2#\$FATAL		; MOVE TO MAILBOX # ***** 225 *****	
2016	010406	005212			INC	(R2)		; SET MSGTYP TO FATAL ERROR	
2017	010410	000000			HALT			; Z NOT SET	
2018								; TO SCOPE REPLACE HALT W/ 240	
2019								; AND REPLACE NEXT INST W/ 677	
2020	010412				2\$:				
2021	010412	102405			BVS	3\$			
2022	010414	012737	000226	000302	MOV	#226,2#\$FATAL		; MOVE TO MAILBOX # ***** 226 *****	
2023	010422	005212			INC	(R2)		; SET MSGTYP TO FATAL ERROR	
2024	010424	000000			HALT			; V NOT SET	
2025								; TO SCOPE REPLACE HALT W/ 240	
2026								; AND REPLACE NEXT INST W/ 671	
2027	010426				3\$:				
2028	010426	103405			BCS	4\$			
2029	010430	012737	000227	000302	MOV	#227,2#\$FATAL		; MOVE TO MAILBOX # ***** 227 *****	
2030	010436	005212			INC	(R2)		; SET MSGTYP TO FATAL ERROR	


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2075 :*****
2076 :TEST 61      TEST DIFFERENT TYPES OF OVERFLOW
2077 :*****
2078 010600 005237 000304      TST61:  INC  @#STESTN      ;UPDATE TEST NUMBER
2079 010604 022737 000061 000304      CMP    #61,@#STESTN    ;SEQUENCE ERROR?
2080 010612 001043              BNE    TST62-12        ;BR TO ERROR HALT ON SEQ ERROR
2081 010614 012706 000150      MOV    #150,%6         ;
2082 010620 005067 167322      CLR    146             ;STATUS WORD OF LOC 10
2083 010624 012767 010634 167152      MOV    #TDEC3,4        ;RETURN TO LOC 4
2084 010632 005246              INC    -(6)
2085 010634 005767 167306      TDEC3: TST    146
2086 010640 001005              BNE    1$
2087 010642 012737 000233 000302      MOV    #233,@#SFATAL   ;MOVE TO MAILBOX # ***** 233 *****
2088 010650 005212              INC    (R2)            ;SET MSGTYP TO FATAL ERROR
2089 010652 000000              HALT                   ;INCREMENT OPERATION NOT INHIBITED
2090 :           ; TO SCOPE REPLACE HALT W/ 240
2091 :           ; AND REPLACE NEXT INST W/ 757
2092 010654 012705 001000      1$:  MOV    #1000,%5
2093 010660 012706 000400      MOV    #400,%6
2094 010664 012767 010706 167112      MOV    #TDEC4,4
2095 010672 124645              CMPB   -(6),-(5)
2096 010674 012737 000234 000302      MOV    #234,@#SFATAL   ;MOVE TO MAILBOX # ***** 234 *****
2097 010702 005212              INC    (R2)            ;SET MSGTYP TO FATAL ERROR
2098 010704 000000              HALT                   ;STACK = 400 AND DECREMENTED, SHOULD TRAP
2099 :           ; TO SCOPE REPLACE HALT W/ 240
2100 :           ; AND REPLACE NEXT INST W/ 742
2101 010706 012706 000400      TDEC4: MOV    #400,%6
2102 010712 012767 010734 167064      MOV    #TDEC7,4
2103 010720 134546              BITB   -(5),-(6)
2104 010722              TDEC6:
2105 010722 012737 000235 000302      MOV    #235,@#SFATAL   ;MOVE TO MAILBOX # ***** 235 *****
2106 010730 005212              INC    (R2)            ;SET MSGTYP TO FATAL ERROR
2107 010732 000000              HALT                   ;NO STACK OVERFLOW,OR WRONG $STNM
2108 :           ; TO SCOPE REPLACE HALT W/ 240
2109 :           ; AND REPLACE NEXT INST W/ 727
2110 010734              TDEC7:
2111 :*****
2112 :TEST 62      TEST THAT AN 7 CAUSES AN OVERFLOW TRAP
2113 :*****
2114 :*****
2115 010734 005237 000304      TST62:  INC  @#STESTN      ;UPDATE TEST NUMBER
2116 010740 022737 000062 000304      CMP    #62,@#STESTN    ;SEQUENCE ERROR?
2117 010746 001011              BNE    VDEC2           ;BR TO ERROR HALT ON SEQ ERROR
2118 010750 012706 000400      MOV    #400,%6         ;SET UP STACK TO OVERFLOW
2119 010754 012767 010772 167026      MOV    #VDEC2,10       ;SET UP 7 VECTOR
2120 010762 012767 011004 167014      MOV    #VDEC1,4        ;SET UP OVERFLOW VECTOR
2121 010770 000007              7              ;THIS TRAP SHOULD CAUSE OVERFLOW
2122 010772              VDEC2:
2123 010772 012737 000236 000302      MOV    #236,@#SFATAL   ;MOVE TO MAILBOX # ***** 236 *****
2124 011000 005212              INC    (R2)            ;SET MSGTYP TO FATAL ERROR
2125 011002 000000              HALT                   ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
2126 :           ; TO SCOPE REPLACE HALT W/ 240
2127 :           ; AND REPLACE NEXT INST W/ 761
2128 011004 012767 000012 166776      VDEC1:  MOV    #10+2,10
2129 :*****
2130 :TEST 63      TEST THAT AN IOT CAUSES AN OVERFLOW TRAP

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2131          ;*****
2132 011012 005237 000304          †ST63: INC      2#STESTN      ;UPDATE TEST NUMBER
2133 011016 022737 000063 000304      CMP      #63,2#STESTN      ;SEQUENCE ERROR?
2134 011024 001011          BNE      VDEC4            ;BR TO ERROR HALT ON SEQ ERROR
2135 011026 012706 000400          MOV      #400,%6          ;SET UP STACK TO OVERFLOW
2136 011032 012767 011050 166760      MOV      #VDEC4,20        ;SET UP IOT VECTOR
2137 011040 012767 011062 166736      MOV      #VDEC3,4         ;SET UP OVERFLOW VECTOR
2138 011046 000004          IOT                    ;THIS TRAP SHOULD CAUSE OVERFLOW
2139 011050          VDEC4:
2140 011050 012737 000237 000302      MOV      #237,2#SFATAL    ;MOVE TO MAILBOX # ***** 237 *****
2141 011056 005212          INC      (R2)            ;SET MSGTYP TO FATAL ERROR
2142 011060 000000          HALT                   ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
2143          ; TO SCOPE REPLACE HALT W/ 240
2144          ; AND REPLACE NEXT INST W/ 761
2145 011062 012767 000022 166730      VDEC3: MOV      #20+2,20
2146          ;*****
2147          ;TEST 64          TEST THAT AN EMT CAUSES AN OVERFLOW TRAP
2148          ;*****
2149 011070 005237 000304          †ST64: INC      2#STESTN      ;UPDATE TEST NUMBER
2150 011074 022737 000064 000304      CMP      #64,2#STESTN      ;SEQUENCE ERROR?
2151 011102 001011          BNE      VDEC6            ;BR TO ERROR HALT ON SEQ ERROR
2152 011104 012706 000400          MOV      #400,%6          ;SET UP STACK TO OVERFLOW
2153 011110 012767 011126 166712      MOV      #VDEC6,30        ;SET UP EMT VECTOR
2154 011116 012767 011140 166660      MOV      #VDEC5,4         ;SET UP OVERFLOW VECTOR
2155 011124 104000          EMT                    ;THIS TRAP SHOULD CAUSE OVERFLOW
2156 011126          VDEC6:
2157 011126 012737 000240 000302      MOV      #240,2#SFATAL    ;MOVE TO MAILBOX # ***** 240 *****
2158 011134 005212          INC      (R2)            ;SET MSGTYP TO FATAL ERROR
2159 011136 000000          HALT                   ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
2160          ; TO SCOPE REPLACE HALT W/ 240
2161          ; AND REPLACE NEXT INST W/ 761
2162 011140 012767 000032 166662      VDEC5: MOV      #30+2,30
2163          ;*****
2164          ;TEST 65          TEST THAT AN TRAP CAUSES AN OVERFLOW TRAP
2165          ;*****
2166 011146 005237 000304          †ST65: INC      2#STESTN      ;UPDATE TEST NUMBER
2167 011152 022737 000065 000304      CMP      #65,2#STESTN      ;SEQUENCE ERROR?
2168 011160 001011          BNE      VDEC8            ;BR TO ERROR HALT ON SEQ ERROR
2169 011162 012706 000400          MOV      #400,%6          ;SET UP STACK TO OVERFLOW
2170 011166 012767 011204 166640      MOV      #VDEC8,34        ;SET UP TRAP VECTOR
2171 011174 012767 011216 166602      MOV      #VDEC7,4         ;SET UP OVERFLOW VECTOR
2172 011202 104400          TRAP                   ;THIS TRAP SHOULD CAUSE OVERFLOW
2173 011204          VDEC8:
2174 011204 012737 000241 000302      MOV      #241,2#SFATAL    ;MOVE TO MAILBOX # ***** 241 *****
2175 011212 005212          INC      (R2)            ;SET MSGTYP TO FATAL ERROR
2176 011214 000000          HALT                   ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
2177          ; TO SCOPE REPLACE HALT W/ 240
2178          ; AND REPLACE NEXT INST W/ 761
2179 011216 012767 000036 166610      VDEC7: MOV      #34+2,34
2180          ;*****
2181          ;TEST 66          TEST THAT AN TRT CAUSES AN OVERFLOW TRAP
2182          ;*****
2183 011224 005237 000304          †ST66: INC      2#STESTN      ;UPDATE TEST NUMBER
2184 011230 022737 000066 000304      CMP      #66,2#STESTN      ;SEQUENCE ERROR?
2185 011236 001011          BNE      VDEC10           ;BR TO ERROR HALT ON SEQ ERROR
2186 011240 012706 000400          MOV      #400,%6          ;SET UP STACK TO OVERFLOW

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TEST THAT AN TRT CAUSES AN OVERFLOW TRAP

SEQ 0045

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2187 011244 012767 011262 166542 MOV #VDEC10,14 ;SET UP TRT VECTOR
2188 011252 012767 011274 166524 MOV #VDEC9,4 ;SET UP OVERFLOW VECTOR
2189 011260 000003 TRT ;THIS TRAP SHOULD CAUSE OVERFLOW
2190 011262 VDEC10:
2191 011262 012737 000242 000302 MOV #242,2#$FATAL ;MOVE TO MAILBOX # ***** 242 *****
2192 011270 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2193 011272 000000 HALT ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
2194
2195
2196 011274 012767 000016 166512 VDEC9: MOV #14+2,14
2197 ;*****
2198 ;TEST 67 TEST THAT AN ILLA CAUSES AN OVERFLOW TRAP
2199 ;*****
2200 011302 005237 000304 TST67: INC 2#$TESTN ;UPDATE TEST NUMBER
2201 011306 022737 000067 000304 CMP #67,2#$TESTN ;SEQUENCE ERROR?
2202 011314 001011 BNE VDEC11 ;BR TO ERROR HALT ON SEQ ERROR
2203 011316 012706 000400 MOV #400,%6 ;SET UP STACK TO OVERFLOW
2204 011322 012767 011340 166454 MOV #VDEC11,4 ;SET UP ILLA VECTOR
2205 011330 012767 011352 166446 MOV #VDEC12,4 ;SET UP OVERFLOW VECTOR
2206 011336 004700 ILLA ;THIS TRAP SHOULD CAUSE OVERFLOW
2207 011340 VDEC11:
2208 011340 012737 000243 000302 MOV #243,2#$FATAL ;MOVE TO MAILBOX # ***** 243 *****
2209 011346 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2210 011350 000000 HALT ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
2211
2212
2213 011352 012767 000006 166424 VDEC12: MOV #4+2,4
2214 011360 020627 000370 CMP %6,#370 ;STACK PUSHED FOUR WORDS?
2215 011364 001405 BEQ TST70
2216 011366 012737 000244 000302 MOV #244,2#$FATAL ;MOVE TO MAILBOX # ***** 244 *****
2217 011374 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2218 011376 000000 HALT ;TRAP OVERFLOW DID NOT OCCUR
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 746
2219
2220
2221 ;*****
2222 ;TEST 70 TEST THAT AN ILLB CAUSES AN OVERFLOW TRAP
2223 ;*****
2224 011400 005237 000304 TST70: INC 2#$TESTN ;UPDATE TEST NUMBER
2225 011404 022737 000070 000304 CMP #70,2#$TESTN ;SEQUENCE ERROR?
2226 011412 001011 BNE VDEC13 ;BR TO ERROR HALT ON SEQ ERROR
2227 011414 012706 000400 MOV #400,%6 ;SET UP STACK TO OVERFLOW
2228 011420 012767 011436 166356 MOV #VDEC13,4 ;SET UP ILLB VECTOR
2229 011426 012767 011450 166350 MOV #VDEC14,4 ;SET UP OVERFLOW VECTOR
2230 011434 000100 ILLB ;THIS TRAP SHOULD CAUSE OVERFLOW
2231 011436 VDEC13:
2232 011436 012737 000245 000302 MOV #245,2#$FATAL ;MOVE TO MAILBOX # ***** 245 *****
2233 011444 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2234 011446 000000 HALT ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
2235
2236
2237 011450 012767 000006 166326 VDEC14: MOV #4+2,4
2238
2239 ;*****
2240 ;TEST 71 TEST FOR FALSE OVERFLOW TRAP
2241 ;*****
2242 011456 005237 000304 TST71: INC 2#$TESTN ;UPDATE TEST NUMBER

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2243 011462 022737 000071 000304    CMP      #71,2#STESTN    ;SEQUENCE ERROR?
2244 011470 001023                    BNE      FOVER         ;BR TO ERROR HALT ON SEQ ERROR
2245
2246 011472 012767 011540 166304    MOV      #FOVER,4      ;SET UP OVERFLOW POINTER
2247 011500 012706 001002                    MOV      #1002,%6
2248 011504 005746                    TST      -(6)          ;SHOULD NOT OVERFLOW
2249 011506 012706 002002                    MOV      #2002,%6
2250 011512 005746                    TST      -(6)          ;SHOULD NOT OVERFLOW
2251 011514 012706 004002                    MOV      #4002,%6
2252 011520 005746                    TST      -(6)          ;SHOULD NOT OVERFLOW
2253 011522 012706 010002                    MOV      #10002,%6
2254 011526 005746                    TST      -(6)          ;SHOULD NOT OVERFLOW
2255 011530 012706 020000                    MOV      #20000,%6    ;SHOULD NOT OVERFLOW
2256 011534 005746                    TST      -(6)
2257 011536 000405                    BR       STP
2258 011540
2259 011540 012737 000246 000302    FOVER:  MOV      #246,2#$FATAL ;MOVE TO MAILBOX # ***** 246 *****
2260 011546 005212                    INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2261 011550 000000                    HALT                    ;IT OVERFLOWED,OR WRONG $STNM
2262
2263
2264 011552 012767 000006 166224    STP:    MOV      #6,4
2265 011560 005067 166222                    CLR      6
2266
2267
2268
2269 011564 005237 000304                    ;*****
2270 011570 022737 000072 000304    ;TEST 72      TEST THAT BIT 4 PSW WILL CAUSE A TRAP TO 14
2271 011576 001013                    ;*****
2272 011600 012706 000500                    †TST72: INC      2#STESTN    ;UPDATE TEST NUMBER
2273 011604 012767 011640 166202    CMP      #72,2#STESTN ;SEQUENCE ERROR?
2274 011612 012746 000020                    BNE      TST73-12     ;BR TO ERROR HALT ON SEQ ERROR
2275 011616 012746 011624                    MOV      #BUFF,SP
2276 011622 000002                    MOV      #RETAT,RTRAP4 ;SET UP TO TRAP TO 14
2277 011624 000240                    MOV      #20,-(SP)    ;PUSH T BIT
2278 011626 012737 000247 000302    MOV      #.+6,-(SP)   ;PUSH PC
2279 011634 005212                    RTI                    ;SET T BIT
2280 011636 000000                    NOP                    ;TRAP HERE
2281
2282
2283 011640                    MOV      #247,2#$FATAL ;MOVE TO MAILBOX # ***** 247 *****
2284
2285
2286
2287 011640 005237 000304                    RETAT:
2288 011644 022737 000073 000304    ;*****
2289 011652 001023                    ;TEST 73      TEST STACK POINTER DECREMENTS
2290 011654 012706 000500                    ;*****
2291 011660 012767 011714 166126    †TST73: INC      2#STESTN    ;UPDATE TEST NUMBER
2292 011666 012746 000020                    CMP      #73,2#STESTN ;SEQUENCE ERROR?
2293 011672 012746 011700                    BNE      TST74-12     ;BR TO ERROR HALT ON SEQ ERROR
2294 011676 000002                    MOV      #BUFF,SP
2295 011700 000240                    MOV      #RETBT,RTRAP4 ;PUSH T BIT
2296 011702 012737 000250 000302    MOV      #20,-(SP)    ;PUSH PC
2297 011710 005212                    MOV      #.+6,-(SP)   ;SET T BIT
2298 011712 000000                    RTI                    ;TRAP HERE
2299
2299 011712 000000                    MOV      #250,2#$FATAL ;MOVE TO MAILBOX # ***** 250 *****
2299 011712 000000                    INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2299 011712 000000                    HALT                    ;TRACE BIT DID NOT TRAP!

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G04

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-2299                                     ; TO SCOPE REPLACE HALT W/ 240
2300                                     ; AND REPLACE NEXT INST W/ 757
2301 011714 020627 000474 RETBT: CMP SP,#BUFF-4
2302 011720 001405 BEQ TST74
2303 011722 012737 000251 000302 MOV #251,#$FATAL ;MOVE TO MAILBOX # ***** 251 *****
2304 011730 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2305 011732 000000 HALT ;STACK POINTER WAS NOT PUSHED BY TRAP,OR WRONG $TESTN
2306                                     ; TO SCOPE REPLACE HALT W/ 240
2307                                     ; AND REPLACE NEXT INST W/ 747
2308 ;*****
2309 ;TEST 74 TEST FOR PROPER PC ON STACK
2310 ;*****
2311 011734 005237 000304 TST74: INC @#$TESTN ;UPDATE TEST NUMBER
2312 011740 022737 000074 000304 CMP #74,@#$TESTN ;SEQUENCE ERROR?
2313 011746 001016 BNE TST75-12 ;BR TO ERROR HALT ON SEQ ERROR
2314 011750 012706 000500 MOV #BUFF,SP
2315 011754 012767 011774 166032 MOV #RETCT,RTRAP4
2316 011762 012746 000020 MOV #20,-(SP) ;PUSH T BIT
2317 011766 012746 011774 MOV #.+6,-(SP) ;PUSH PC
2318 011772 000002 RTI ;SET T BIT
2319 ;TRAP HERE
2320 011774 022767 011774 166472 RETCT: CMP #.+BUFF-4
2321 012002 001405 BEQ TST75
2322 012004 012737 000252 000302 MOV #252,@#$FATAL ;MOVE TO MAILBOX # ***** 252 *****
2323 012012 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2324 012014 000000 HALT ;CORRECT PC WAS NOT SAVED ON STACK,OR WRONG $TESTN
2325                                     ; TO SCOPE REPLACE HALT W/ 240
2326                                     ; AND REPLACE NEXT INST W/ 754
2327
2328
2329 ;*****
2330 ;TEST 75 TEST THAT RTT POPS T- BIT
2331 ;*****
2332 012016 005237 000304 TST75: INC @#$TESTN ;UPDATE TEST NUMBER
2333 012022 022737 000075 000304 CMP #75,@#$TESTN ;SEQUENCE ERROR?
2334 012030 001015 BNE TST76-12 ;BR TO ERROR HALT ON SEQ ERROR
2335
2336 012032 012706 000500 MOV #BUFF,SP
2337 012036 005001 CLR R1 ;CLEAR R1
2338 012040 012746 000020 MOV #20,-(SP)
2339 012044 012746 012060 MOV #RTT1,-(SP)
2340 012050 012767 012076 165736 MOV #RTT2,14
2341 012056 000006 RTT
2342 012060 000240 RTT1: NOP
2343 012062 001405 BEQ TST76
2344 012064 012737 000253 000302 MOV #253,@#$FATAL ;MOVE TO MAILBOX # ***** 253 *****
2345 012072 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2346 012074 000000 HALT ;T-BIT DID NOT TRAP,OR WRONG $TESTN
2347                                     ; TO SCOPE REPLACE HALT W/ 240
2348                                     ; AND REPLACE NEXT INST W/ 755
2349
2350 012076 RTT2:
2351 ;*****
2352 ;TEST 76 TEST THAT RTT ALLOWS ONE INST. BEFORE TRAP
2353 ;*****
2354 012076 005237 000304 TST76: INC @#$TESTN ;UPDATE TEST NUMBER

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2355 012102 022737 000076 000304      CMP      #76,0#$STESTN      ;SEQUENCE ERROR?
2356 012110 001031                    BNE      TST77-12        ;BR TO ERROR HALT ON SEQ ERROR
2357 012112 012705 177777                    MOV      #177777,%5
2358 012116 012706 000500      RTT5:    MOV      #BUFF,SP
2359 012122 012746 000020                    MOV      #20,-(SP)
2360 012126 012746 012144                    MOV      #RTT3,-(SP)
2361 012132 012767 012164 165654                    MOV      #RTT4,14
2362 012140 005001                    CLR      R1              ;CLEAR R0
2363 012142 000006                    RTT                    ;SET T-BIT
2364 012144 005201      RTT3:    INC      R1
2365 012146 005205                    INC      %5
2366 012150 001762                    BEQ      RTT5            ;DO THIS TEST NO MORE THAN 2 TIMES
2367 012152 012737 000254 000302                    MOV      #254,0#$FATAL  ;MOVE TO MAILBOX # ***** 254 *****
2368 012160 005212                    INC      (R2)           ;SET MSGTYP TO FATAL ERROR
2369 012162 000000                    HALT                    ;DID NOT TRAP
2370                                ; TO SCOPE REPLACE HALT W/ 240
2371                                ; AND REPLACE NEXT INST W/ 752
2372                                ;SEE IF RTT ALLOWS 1 INST.
2372 012164 005301      RTT4:    DEC      R1
2373 012166 001407                    BEQ      RTT6
2374 012170 005205                    INC      %5              ;DO THIS TEST NO MORE THAN TWO TIMES
2375 012172 001751                    BEQ      RTT5
2376 012174 012737 000255 000302                    MOV      #255,0#$FATAL  ;MOVE TO MAILBOX # ***** 255 *****
2377 012202 005212                    INC      (R2)           ;SET MSGTYP TO FATAL ERROR
2378 012204 000000                    HALT                    ;RTT DID NOT ALLOW 1 INST.,OR WRONG $TESTN
2379                                ; TO SCOPE REPLACE HALT W/ 240
2380                                ; AND REPLACE NEXT INST W/ 741
2381 012206      RTT6:
2382 ;*****
2383 ;TEST 77      TEST THAT RTI DOES NOT ALLOW 1 INST.
2384 ;*****
2385 012206 005237 000304      ST77:   INC      0#$STESTN      ;UPDATE TEST NUMBER
2386 012212 022737 000077 000304      CMP      #77,0#$STESTN  ;SEQUENCE ERROR?
2387 012220 001023                    BNE      TST100-12      ;BR TO ERROR HALT ON SEQ ERROR
2388 012222 012706 000500                    MOV      #BUFF,SP
2389 012226 012746 000020                    MOV      #20,-(SP)
2390 012232 012746 012250                    MOV      #RTI1,-(SP)
2391 012236 012767 012264 165550                    MOV      #RTI2,14
2392 012244 005001                    CLR      R1
2393 012246 000002                    RTI                    ;SET T-BIT
2394 012250 005201      RTI1:   INC      R1        ;RTI SHOULD NOT ALLOW THIS
2395 012252 012737 000256 000302                    MOV      #256,0#$FATAL  ;MOVE TO MAILBOX # ***** 256 *****
2396 012260 005212                    INC      (R2)           ;SET MSGTYP TO FATAL ERROR
2397 012262 000000                    HALT                    ;T- BIT DID NOT CAUSE TRAP
2398                                ; TO SCOPE REPLACE HALT W/ 240
2399                                ; AND REPLACE NEXT INST W/ 756
2400 012264 005701      RTI2:   TST      R1
2401                                ;RTI SHOULD NOT ALLOW 1 INST. BEFORE TRAP
2402 012266 001405                    BEQ      TST100
2403 012270 012737 000257 000302                    MOV      #257,0#$FATAL  ;MOVE TO MAILBOX # ***** 257 *****
2404 012276 005212                    INC      (R2)           ;SET MSGTYP TO FATAL ERROR
2405 012300 000000                    HALT                    ;RTI DID ALLOW 1 INST. BEFORE TRAP,OR WRONG $TESTN
2406                                ; TO SCOPE REPLACE HALT W/ 240
2407                                ; AND REPLACE NEXT INST W/ 747
2408
2409 ;*****
2410 ;TEST 100     DOES THE PROCESSOR TRAP WHEN %7 IS ODD?

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*****
2411          :*****
2412 012302 005237 000304 TST100: INC  @#$TESTN ;UPDATE TEST NUMBER
2413 012306 022737 000100 000304 CMP  #100,@#$TESTN ;SEQUENCE ERROR?
2414 012314 001120          BNE  TST101-12 ;BR TO ERROR HALT ON SEQ ERROR
2415 012316 012706 000500          MOV  #BUFF,%6 ;SET UP STACK POINTER
2416 012322 012767 012346 165454 MOV  #R7TR1,4 ;RETURN FROM TRAP
2417 012330 012707 000001          MOV  #1,%7 ;PC EQUALS ONE
2418 012334 012737 000260 000302 MOV  #260,@#$FATAL ;MOVE TO MAILBOX # ***** 260 *****
2419 012342 005212          INC  (R2) ;SET MSGTYP TO FATAL ERROR
2420 012344 000000          HALT ;ODD ADDRESS SHOULD HAVE TRAPPED
2421          ; TO SCOPE REPLACE HALT W/ 240
2422          ; AND REPLACE NEXT INST W/ 763
2423 012346 022767 000001 166120 R7TR1: CMP  #1,BUFF-4
2424 012354 001405          BEQ  1$
2425 012356 012737 000261 000302 MOV  #261,@#$FATAL ;MOVE TO MAILBOX # ***** 261 *****
2426 012364 005212          INC  (R2) ;SET MSGTYP TO FATAL ERROR
2427 012366 000000          HALT ;CORRECT PC WAS NOT SAVED ON STACK
2428          ; TO SCOPE REPLACE HALT W/ 240
2429          ; AND REPLACE NEXT INST W/ 752
2430
2431 012370 012706 000500          1$: MOV  #BUFF,%6 ;STACK POINTER
2432 012374 012767 012416 165402 MOV  #R7TR2,4
2433 012402 005207          INC  %7 ;PC BECOMES ODD
2434 012404          R7TR2A:
2435 012404 012737 000262 000302 MOV  #262,@#$FATAL ;MOVE TO MAILBOX # ***** 262 *****
2436 012412 005212          INC  (R2) ;SET MSGTYP TO FATAL ERROR
2437 012414 000000          HALT ;
2438          ; TO SCOPE REPLACE HALT W/ 240
2439          ; AND REPLACE NEXT INST W/ 737
2440 012416 022767 012405 166050 R7TR2: CMP  #R7TR2A+1,BUFF-4
2441 012424 001405          BEQ  1$
2442 012426 012737 000263 000302 MOV  #263,@#$FATAL ;MOVE TO MAILBOX # ***** 263 *****
2443 012434 005212          INC  (R2) ;SET MSGTYP TO FATAL ERROR
2444 012436 000000          HALT ;CORRECT PC NOT ON STACK
2445          ; TO SCOPE REPLACE HALT W/ 240
2446          ; AND REPLACE NEXT INST W/ 726
2447 012440 012706 000500          1$: MOV  #BUFF,%6
2448 012444 012767 012466 165332 MOV  #R7TR3,4
2449 012452 005307          BR60: DEC  %7 ;MAKE PC ODD
2450 012454 012737 000264 000302 MOV  #264,@#$FATAL ;MOVE TO MAILBOX # ***** 264 *****
2451 012462 005212          INC  (R2) ;SET MSGTYP TO FATAL ERROR
2452 012464 000000          HALT ;SHOULD TRAP
2453          ; TO SCOPE REPLACE HALT W/ 240
2454          ; AND REPLACE NEXT INST W/ 713
2455 012466 022767 012453 166000 R7TR3: CMP  #BR60+1,BUFF-4 ;CHECK VALUE OF PC ON STACK
2456 012474 001405          BEQ  1$
2457 012476 012737 000265 000302 MOV  #265,@#$FATAL ;MOVE TO MAILBOX # ***** 265 *****
2458 012504 005212          INC  (R2) ;SET MSGTYP TO FATAL ERROR
2459 012506 000000          HALT ;WRONG VALUE ON STACK
2460          ; TO SCOPE REPLACE HALT W/ 240
2461          ; AND REPLACE NEXT INST W/ 702
2462
2463 012510 012706 000500          1$: MOV  #BUFF,%6
2464 012514 012767 012540 165262 MOV  #R7TR4,4
2465 012522 000261          SEC
2466 012524 006107          ROL  %7 ;CARRY EQUALS A 1
          ;PC BECOMES ODD

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2467 012526 TR4A:
2468 012526 012737 000266 000302 MOV #266, @SFATAL ; MOVE TO MAILBOX # ***** 266 *****
2469 012534 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
2470 012536 000000 HALT ; ODD ADDRESS DIDN'T TRAP
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 666
2471
2472
2473 012540 012767 000006 165236 R7TR4: MOV #6, 4 ; RESET UP A HALT FOR TRAP
2474 012546 022767 025255 165720 CMP #(<2*TR4A+1>, BUFF-4 ; CHECK FOR VALUE ON STACK
2475 012554 001405 BEQ TST101
2476 012556 012737 000267 000302 MOV #267, @SFATAL ; MOVE TO MAILBOX # ***** 267 *****
2477 012564 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
2478 012566 000000 HALT ; WRONG VALUE ON STACK, OR WRONG $TSTNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 652
2479
2480
2481 ;*****
2482 ;TEST 101 TEST TRAP ON TRAP THAT TRACE BIT TRAPS ARE INHIBITED ON TRAP INST
2483 ;*****
2484 012570 005237 000304 TST101: INC @STESTN ; UPDATE TEST NUMBER
2485 012574 022737 000101 000304 CMP #101, @STESTN ; SEQUENCE ERROR?
2486 012602 001027 BNE BR70 ; BR TO ERROR HALT ON SEQ ERROR
2487
2488 012604 012706 000500 MOV #BUFF, %6
2489 012610 012767 012650 165176 MOV #TRACE, 14 ; TRACE TRAP
2490 012616 005027 000016 CLR #16
2491 012622 005027 000022 CLR #22
2492 012626 012767 012674 165164 MOV #TONT1, 20 ; IOT TRAP
2493 012634 012746 000020 MOV #20, -(SP) ; PUSH T BIT
2494 012640 012746 012646 MOV #.+6, -(SP) ; PUSH PC
2495 012644 000006 RTT
2496 012646 000004 IOT ; TRAP, NEW CC HAVE TRACE RESET
2497 012650 TRACE:
2498 012650 012737 000270 000302 MOV #270, @SFATAL ; MOVE TO MAILBOX # ***** 270 *****
2499 012656 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
2500 012660 000000 HALT ; TRACE TRAP WAS NOT INHIBITED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 750
2501
2502
2503 012662 BR70:
2504 012662 012737 000271 000302 MOV #271, @SFATAL ; MOVE TO MAILBOX # ***** 271 *****
2505 012670 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
2506 012672 000000 HALT ; WRONG TSTNM, OR WRONG $TSTNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 743
2507
2508
2509 012674 012767 000016 165112 TONT1: MOV #16, 14
2510 012702 012767 000022 165110 MOV #22, 20
2511 ;*****
2512 ;TEST 102 TEST THAT THE TRACE BIT IS SAVED IN THE STACK
2513 ;*****
2514 012710 005237 000304 TST102: INC @STESTN ; UPDATE TEST NUMBER
2515 012714 022737 000102 000304 CMP #102, @STESTN ; SEQUENCE ERROR?
2516 012722 001020 BNE STP3 ; BR TO ERROR HALT ON SEQ ERROR
2517 012724 012706 000500 MOV #BUFF, %6 ; SET UP STACK POINTER
2518 012730 012767 012754 165056 MOV #TRC1, 14 ; TRACE TRAP RETURN
2519 012736 005067 165054 CLR 16
2520 012742 012746 000020 MOV #20, -(SP) ; SET THE T BIT
2521 012746 012746 012754 MOV #TRC1, -(SP)
2522 012752 000002 RTI

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.MAIN. MACY11 27(1006) 22-OCT-76 12:41 PAGE 49
DFKABB.P11 19-NOV-75 07:55 T102 TEST THAT THE TRACE BIT IS SAVED IN THE STACK SEQ 0051

2523 012754 036727 165516 000020 TRC1: BIT      BUFF-2,#20      ;CHECK FOR T BIT ON STACK
2524 012762 001005                BNE      STP3D
2525 012764                STP3:
2526 012764 012737 000272 000302      MOV      #272,@#$FATAL ;MOVE TO MAILBOX # ***** 272 *****
2527 012772 005212                INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2528 012774 000000                HALT           ;T BIT NOT SAVED ON THE STACK,OR WRONG $TSTNM
2529
2530
2531 012776 012767 000016 165010 STP3D: MOV      #16,14
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;THIS ROUTINE TEST THAT NO LEGAL ADDRESS TRAPS.
;AND THAT AN ILLEGAL ADDRESS TRAPS TO LOCATION 4
;*****
;TEST 103 TEST NON-EXISTENT ADDRESS TRAPS
;*****
013004 005237 000304          TST103: INC     @#$TESTN ;UPDATE TEST NUMBER
013010 022737 000103 000304   CMP      #103,@#$TESTN ;SEQUENCE ERROR?
013016 001063                BNE      AUTO1         ;BR TO ERROR HALT ON SEQ ERROR

;THIS ROUTINE TESTS MEMORY UNTIL IT DOES A NXM TRAP
013020 000402                BR       ADALL
013022 000000                TSL:    0
013024 000000                CORH:   0
013026 005000                ADALL:  CLR     %0
013030 005067 164752          CLR     6
013034 012767 013070 164742   MOV     #ATRAP,4      ;SET UP ADDRESS TRAP ENTRANCE
013042 012706 000500          NOR:    MOV     #BUFF,$P
013046 105720                TSTB    (0)+         ;IF OUTSIDE OF CORE, TRAP TO 4
013050 020027 160000          CMP     %0,#160000   ;IS POINTER IN SIDE CORE
013054 101772                BLOS    NOR          ;TEST THE REST OF CORE
013056 012737 000273 000302   AUTO:   MOV     #273,@#$FATAL ;MOVE TO MAILBOX # ***** 273 *****
013064 005212                INC     (R2)         ;SET MSGTYP TO FATAL ERROR
013066 000000                HALT           ;SHOULD HAVE TRAPED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 753

;RETURN HERE ON AN ADDRESS TRAP
013070 010067 177730          ATRAP: MOV     RO,CORH ;MOVE THE FIRST NXM LOCATION IN CORH
;THIS ROUTINE DOES NXM TRAPS UNTIL IT FINDS AN EXISTANT MEMORY LOCATION
013074 012700 160001          MOV     #160001,RO  ;SET UP THE HIGHEST MEM LOCATION
013100 012767 013136 164676   CTRAP: MOV     #BTRAP,4 ;SET UP THE VECTOR
013106 012706 000500          MOV     #BUFF,$P
013112 105740                TSTB    -(RO)       ;DOES IT EXIST?
013114 005200                DTRAP: INC     RO    ;IF YES INCREMENT IT
013116 020067 177702          CMP     RO,CORH    ;IS IT THE SAME LOCATION?
013122 001426                BEQ     TRAPB
013124 012737 000274 000302   MOV     #274,@#$FATAL ;MOVE TO MAILBOX # ***** 274 *****
013132 005212                INC     (R2)         ;SET MSGTYP TO FATAL ERROR
013134 000000                HALT           ;CONTENTS OF RO AND CORH SHOULD HAVE BEEN EQUAL
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 730
; IF THIS COMPARISON FAILS IT MEANS
; THAT SOME LEGAL ADDRESS TRAPPED OR
; THAT AN ILLEGAL ADDRESS DID NOT TRAP

013136 005767 164634          BTRAP: TST     STATUS

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2579 013142 001405          BEQ      1$
2580 013144 012737 000275 000302  MOV     #275, @#$FATAL ;MOVE TO MAILBOX # ***** 275 *****
2581 013152 005212          INC     (R2)           ;SET MSGTYP TO FATAL ERROR
2582 013154 000000          HALT                    ;NEW PSW SHOULD HAVE BEEN ZERO
2583                                     ; TO SCOPE REPLACE HALT W/ 240
2584                                     ; AND REPLACE NEXT INST W/ 720
2585 013156 026727 165312 013114 1$:    CMP     BUFF-4, #DTRAP
2586 013164 001745          BEQ     CTRAP
2587 013166                                     AUTO1:
2588 013166 012737 000276 000302  MOV     #276, @#$FATAL ;MOVE TO MAILBOX # ***** 276 *****
2589 013174 005212          INC     (R2)           ;SET MSGTYP TO FATAL ERROR
2590 013176 000000          HALT                    ;OLD PC WAS NOT SAVED OR WRONG $TESTN
2591                                     ; TO SCOPE REPLACE HALT W/ 240
2592                                     ; AND REPLACE NEXT INST W/ 707
2593 013200 012767 000006 164576  TRAPB: MOV     #6, 4
2594 013206 005067 164574          CLR     6
2595                                     ;THIS ROUTINE WILL FIGURE OUT IF YOU HAVE A DL11W
2596
2597 013212 005067 000020          CLR     PROFTE
2598 013216 012706 000500          MOV     #BUFF, SP      ;SET UP THE STACK POINTER
2599 013222 012767 013240 164554  MOV     #DL11W, 4      ;SET UP THE TRAP VECTOR
2600 013230 005767 164330          TST     TPS            ;TEST THE PUNCH STATUS REGISTER
2601 013234 000403          BR     DL11W1         ;BRANCH IF IT EXISTS
2602 013236 000000          PROFTE: 000000
2603 013240 005267 177772          DL11W: INC     PROFTE  ;INCREMENT IF NO DL11W
2604 013244 012767 000006 164532  DL11W1: MOV     #6, 4
2605
2606                                     ;*****
2607                                     ;TEST 104 TEST THAT A TTY INTERRUPT CAUSES AN OVERFLOW TRAP
2608                                     ;*****
2609 013252 005237 000304          TST104: INC     @#$TESTN ;UPDATE TEST NUMBER
2610 013256 022737 000104 000304  CMP     #104, @#$TESTN ;SEQUENCE ERROR?
2611 013264 001031          BNE     TDEC8         ;BR TO ERROR HALT ON SEQ ERROR
2612 013266 005767 177744          TST     PROFTE
2613 013272 001042          BNE     R7TRX
2614 013274 000005          RESET
2615 013276 012767 000340 164472  MOV     #340, STATUS  ;LOCK OUT INTERRUPT
2616 013304 012706 000400          MOV     #400, %6      ;SET UP STACK TO OVERFLOW
2617 013310 012767 013362 164466  MOV     #TDEC77, 4     ;SET UP OVERFLOW TRAP
2618 013316 012767 013350 164540  MOV     #TDEC8, 64     ;SET UP INTERRUPT VECTOR
2619 013324 012767 000100 164232  MOV     #100, TTCSR   ;SET INTERRUPT ENABLE
2620 013332 005067 164440          CLR     STATUS        ;ALLOW INTERRUPT TO OCCUR
2621 013336 012737 000277 000302  MOV     #277, @#$FATAL ;MOVE TO MAILBOX # ***** 277 *****
2622 013344 005212          INC     (R2)           ;SET MSGTYP TO FATAL ERROR
2623 013346 000000          HALT                    ;NO INTERRUPT OCCURRED
2624                                     ; TO SCOPE REPLACE HALT W/ 240
2625                                     ; AND REPLACE NEXT INST W/ 746
2626 013350                                     TDEC8:
2627 013350 012737 000300 000302  MOV     #300, @#$FATAL ;MOVE TO MAILBOX # ***** 300 *****
2628 013356 005212          INC     (R2)           ;SET MSGTYP TO FATAL ERROR
2629 013360 000000          HALT                    ;OVERFLOW TRAP DID NOT OCCUR OR WRONG $STNM
2630                                     ; TO SCOPE REPLACE HALT W/ 240
2631                                     ; AND REPLACE NEXT INST W/ 741
2632 013362 005067 164176          TDEC77: CLR     TTCSR  ;CLEAR INTERRUPT ENABLE
2633 013366 012767 000006 164410  MOV     #6, 4
2634 013374 005067 164406          CLR     6
    
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2635 013400 R7TRX:
2636 ;*****
2637 ;TEST 105 TEST THAT A PENDING INTERRUPT OCCURS BEFORE TRAP
2638 ;*****
2639 013400 005237 000304 TST105: INC @#$STESTN ;UPDATE TEST NUMBER
2640 013404 022737 000105 000304 CMP #105,@#$STESTN ;SEQUENCE ERROR?
2641 013412 001037 BNE BR71 ;BR TO ERROR HALT ON SEQ ERROR
2642 013414 005767 177616 TST PROFTE
2643 013420 001046 BNE NODL
2644 013422 012706 000500 MOV #BUFF,%6
2645 013426 012767 000340 164342 MOV #340,$STATUS ;SET TO A HIGH PRIORITY LEVEL
2646 013434 012767 013500 164422 MOV #TR0,64
2647 013442 012767 000100 164114 MOV #100,TTCSR ;INTERRUPT FOR TTY PUNCH/PRINTER
2648 013450 012767 013512 164356 MOV #BR71,34 ;TRAP VECTOR
2649 013456 012767 013524 164400 MOV #TR2,64 ;TTY VECTOR
2650 013464 012767 000340 164344 MOV #340,36 ;IF TRAP TRAPS, MOVE 340 TO PRIORITY
2651 013472 005067 164300 CLR STATUS ;SHOULD INTERRUPT AT END OF CLR INST
2652 013476 104400 TRAP ;TTY INTERRUPT SHOULD OVERRIDE TRAP
2653 013500
2654 013500 012737 000301 000302 TR0: MOV #301,@#$FATAL ;MOVE TO MAILBOX # ***** 301 *****
2655 013506 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2656 013510 000000 HALT ;TTY SHOULDN'T HAVE INTERRUPTED
2657 ; TO SCOPE REPLACE HALT W/ 240
2658 ; AND REPLACE NEXT INST W/ 740
2659 013512
2660 013512 012737 000302 000302 BR71: MOV #302,@#$FATAL ;MOVE TO MAILBOX # ***** 302 *****
2661 013520 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2662 013522 000000 HALT ;TRAP OCCURRED FIRST OR WRONG $STNM
2663 ; TO SCOPE REPLACE HALT W/ 240
2664 ; AND REPLACE NEXT INST W/ 733
2665 013524 005067 164306 TR2: CLR 36
2666 013530 042767 000100 164026 BIC #100,TTCSR
2667 013536
2668 NODL:
2669 ;*****
2670 ;TEST 106 TEST THAT A PENDING INTERRUPT, INTERRUPTS BETWEEN TRAPS
2671 ;*****
2671 013536 005237 000304 TST106: INC @#$STESTN ;UPDATE TEST NUMBER
2672 013542 022737 000106 000304 CMP #106,@#$STESTN ;SEQUENCE ERROR?
2673 013550 001031 BNE TR5 ;BR TO ERROR HALT ON SEQ ERROR
2674 013552 005767 177460 TST PROFTE
2675 013556 001046 BNE NODL1
2676 013560 012706 000500 MOV #BUFF,%6
2677 013564 012767 000340 164204 MOV #340,$STATUS
2678 013572 012767 000100 163764 MOV #100,TTCSR
2679 013600 012767 013632 164226 MOV #TR3,34 ;TRAP
2680 013606 012767 013646 164250 MOV #TR4,64 ;TTY OUTPUT
2681 013614 012767 013634 164176 MOV #TR5,20 ;IOT
2682 013622 012767 000340 164172 MOV #340,22 ;IOT PRIORITY
2683 013630 104400 TRAP ;THE ACT OF TRAPPING LOWER PRIORITY
2684 013632 000004 TR3: IOT ;INTERRUPT SHOULD OCCUR IN PLACE OF IOT TRAP
2685 013634 TR5:
2686 013634 012737 000303 000302 MOV #303,@#$FATAL ;MOVE TO MAILBOX # ***** 303 *****
2687 013642 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2688 013644 000000 HALT ;NO INTERRUPT BETWEEN TRAPS OR WRONG $STNM
2689 ; TO SCOPE REPLACE HALT W/ 240
2690 ; AND REPLACE NEXT INST W/ 741

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2691 013646 005067 164150 TR4: CLR 22 ;CLR IOT PRIORITY
2692 013652 012767 000036 164154 MOV #36,34
2693 013660 012767 000013 164176 MOV #66,64
2694 013666 012767 000022 164124 MOV #22,20
2695 013674
2696
2697
2698 ;*****
2699 ;TEST 107 TEST THAT "RESET" GOES TO OUTSIDE WORLD
2700 013674 005237 000304 TST107: INC @#$STESTN ;UPDATE TEST NUMBER
2701 013700 022737 000107 000304 CMP #107,@#$STESTN ;SEQUENCE ERROR?
2702 013706 001027 BNE TST110-12 ;BR TO ERROR HALT ON SEQ ERROR
2703 013710 005767 177322 TST PROFTE
2704 013714 001031 BNE NODL2
2705 013716 012767 000100 163640 MOV #100,TTCSR ;SET INTERRUPT ENABLE
2706 013724 012767 000100 163626 MOV #100,TRCSR ;SET INTERRUPT ENABLE
2707 013732 000005 RESET ;SHOULD CLEAR INTERRUPT ENABLE
2708 013734 032767 000100 163622 BIT #100,TTCSR ;TEST FOR CLEAR
2709 013742 001405 BEQ 1$
2710 013744 012737 000304 000302 MOV #304,@#$FATAL ;MOVE TO MAILBOX # ***** 304 *****
2711 013752 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2712 013754 000000 HALT ;RESET FAILED TO CLEAR TTCSR
2713 ; TO SCOPE REPLACE HALT W/ 240
2714 ; AND REPLACE NEXT INST W/ 754
2715 013756 032767 000100 163574 1$: BIT #100,TRCSR ;TEST FOR CLEAR
2716 013764 001405 BEQ TST110
2717 013766 012737 000305 000302 MOV #305,@#$FATAL ;MOVE TO MAILBOX # ***** 305 *****
2718 013774 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2719 013776 000000 HALT ;RESET FAILED TO CLEAR TRCSR,OR WRONG $STSTM
2720 ; TO SCOPE REPLACE HALT W/ 240
2721 ; AND REPLACE NEXT INST W/ 743
2722 014000 NODL2:
2723 ;*****
2724 ;TEST 110 TEST THAT RESET HAS NO EFFECT ON THE TRACE TRAP
2725 ;*****
2726 014000 005237 000304 TST110: INC @#$STESTN ;UPDATE TEST NUMBER
2727 014004 022737 000110 000304 CMP #110,@#$STESTN ;SEQUENCE ERROR?
2728 014012 001014 BNE RESET3 ;BR TO ERROR HALT ON SEQ ERROR
2729 014014 012706 000500 MOV #BUFF,%6 ;SET STACK
2730 014020 012767 014056 163766 MOV #RESET2,14 ;SET UP TRACE VECTOR
2731 014026 012746 000020 MOV #20,-(R6) ;SET THE T-BIT ON STACK
2732 014032 012746 014040 MOV #1$,-(R6) ;MOVE NEW PC ON STACK
2733 014036 000006 RTT
2734 014040 000005 1$: RESET ;SHOULD HAVE NO EFFECT
2735 014042 000005 RESET ;NO EFFECT
2736 014044
2737 014044 012737 000306 000302 RESET3: MOV #306,@#$FATAL ;MOVE TO MAILBOX # ***** 306 *****
2738 014052 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2739 014054 000000 HALT ;TRACE TRAP FAILED,OR WRONG $STSTM
2740 ; TO SCOPE REPLACE HALT W/ 240
2741 ; AND REPLACE NEXT INST W/ 756
2742 014056 005067 163714 RESET2: CLR STATUS ;CLEAR TRACK
2743 014062 005067 163730 CLR 16 ;TRACE STATUS
2744 014066 012767 000016 163720 MOV #16,14
2745
2746 ;*****

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2747 :TEST 111 TEST THAT WHEN TTY INTERRUPTS IT POPS NEW STATUS
2748 :*****
2749 014074 005237 000304 000304 †ST111: INC @#STESTN ;UPDATE TEST NUMBER
2750 014100 022737 000111 000304 CMP #111,@#STESTN ;SEQUENCE ERROR?
2751 014106 001051 BNE TTY11 ;BR TO ERROR HALT ON SEQ ERROR
2752 014110 005767 177122 TST PROFTE
2753 014114 001055 BNE NODL3
2754 014116 000005 RESET
2755 014120 012706 000500 MOV #BUFF,%6 ;SET UP STACK
2756 014124 012767 014150 163732 MOV #TTY3,64 ;INTERRUPT VECTOR
2757 014132 005067 163640 CLR STATUS ;DROP PROCESSOR PRIORITY
2758 014136 012767 000357 163722 MOV #357,66 ;HIGH PRIORITY ON INTERRUPT
2759 014144 005167 163414 COM TTCSR ;SHOULD SET INTERRUPT ENABLE & INTERRUPT
2760 014150 026727 163622 000357 TTY3: CMP STATUS,#357
2761 014156 001405 BEQ IS
2762 014160 012737 000307 000302 MOV #307,@#SFATAL ;MOVE TO MAILBOX # ***** 307 *****
2763 014166 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2764 014170 000000 HALT ;INTERRUPT DID NOT POP CORRECT STATUS
2765 ; TO SCOPE REPLACE HALT W/ 240
2766 ; AND REPLACE NEXT INST W/ 746
2767 014172 000005 IS: RESET ;CLR INTERRUPT ENABLE
2768 014174 012706 000500 MOV #BUFF,%6 ;STACK SET UP
2769 014200 012767 014224 163656 MOV #TTY4,64 ;INTERRUPT VECTOR
2770 014206 005067 163654 CLR 66 ;CLR NEW STATUS
2771 014212 012767 000157 163556 MOV #157,STATUS ;PROCESSOR STATUS
2772 014220 005167 163340 COM TTCSR ;SET INTERRUPT ENABLE
2773 014224 005767 163546 TTY4: TST STATUS
2774 014230 001405 BEQ TTT37
2775 014232 TTY11:
2776 014232 012737 000310 000302 MOV #310,@#SFATAL ;MOVE TO MAILBOX # ***** 310 *****
2777 014240 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2778 014242 000000 HALT ;INCORRECT STATUS,OR WRONG $TSTNM
2779 ; TO SCOPE REPLACE HALT W/ 240
2780 ; AND REPLACE NEXT INST W/ 721
2781 014244 005067 163314 TTT37: CLR TTCSR
2782 014250 NODL3:
2783 ;*****
2784 ;TEST 112 TEST THE 'WAIT' INSTRUCTION
2785 :*****
2786 014250 005237 000304 000304 †ST112: INC @#STESTN ;UPDATE TEST NUMBER
2787 014254 022737 000112 000304 CMP #112,@#STESTN ;SEQUENCE ERROR?
2788 014262 001055 BNE STP4 ;BR TO ERROR HALT ON SEQ ERROR
2789 014264 042767 000100 163272 BIC #100,TPS ;CLEAR INTERRUPT ENABLE
2790 014272 012706 000500 MOV #BUFF,SP ;SET UP THE STACK
2791 014276 012767 014366 163560 MOV #WATE,64 ;SET UP THE INTERRUPT VECTOR
2792 014304 005067 163556 CLR 66
2793 014310 105767 163250 WATE1: TSTB TPS ;WAIT FOR READY
2794 014314 100375 BPL WATE1 ;TO BE UP
2795 014316 012767 000015 163242 MOV #15,TPB ;DO A CARRIAGE RETURN
2796 014324 105767 163234 WATE2: TSTB TPS ;WAIT FOR READY TO COME UP
2797 014330 100375 BPL WATE2
2798 014332 012767 000015 163226 MOV #15,TPB ;DO ANOTHER CARRIAGE RETURN
2799 014340 052767 000100 163216 BIS #100,TPS ;SET THE INTERRUPT ENABLE
2800 014346 005067 163424 CLR STATUS ;CLEAR THE PSW
2801 014352 000001 WATE3: WAIT ;WAIT FOR THE INTERRUPT

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 DFKABB.P11 19-NOV-75 07:55 T112 TEST THE 'WAIT' INSTRUCTION

SEQ 0056

2803	014354	012737	000311	000302		MOV	#311, @#SFATAL	: MOVE TO MAILBOX # ***** 311 *****
2804	014362	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR
2805	014364	000000				HALT		: WAIT INSTRUCTION DID NOT LOOP
2806								: TO SCOPE REPLACE HALT W/ 240
2807								: AND REPLACE NEXT INST W/ 736
2808	014366	005767	163404		WATE:	TST	STATUS	: IS THE PSW CORRECT?
2809	014372	001405				BEQ	IS	
2810	014374	012737	000312	000302		MOV	#312, @#SFATAL	: MOVE TO MAILBOX # ***** 312 *****
2811	014402	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR
2812	014404	000000				HALT		: NEW PSW SHOULD HAVE BEEN ZERO
2813								: TO SCOPE REPLACE HALT W/ 240
2814								: AND REPLACE NEXT INST W/ 726
2815	014406	026727	164062	014354	IS:	CMP	BUFF-4, #WATE3+2	: IS THE OLD PC SAVED
2816	014414	001405				BEQ	STP4E	
2817	014416				STP4:			
2818	014416	012737	000313	000302		MOV	#313, @#SFATAL	: MOVE TO MAILBOX # ***** 313 *****
2819	014424	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR
2820	014426	000000				HALT		: OLD PC WAS NOT SAVED OR WRONG \$TESTN
2821								: TO SCOPE REPLACE HALT W/ 240
2822								: AND REPLACE NEXT INST W/ 715
2823	014430	012767	000066	163426	STP4E:	MOV	#66, 64	
2824								
2825	014436	004767	001272			JSR	%7, CLRALL	: CLEAR ALL KT11-D REGISTERS
2826	014442	012777	077406	164106		MOV	#77406, @KPDRO	: MAP KERNEL 0 TO BANK 0, RW, 4K
2827	014450	004767	001346			JSR	PC, KERN7	: MAP KERNEL PAR/PDR 7 TO EXT BANK
2828	014454	012777	014510	164030		MOV	#INT25, @KTVEC	: SETUP RETURN VECTOR
2829	014462	005077	164026			CLR	@KTSTA	
2830	014466	012704	020000			MOV	#20000, R4	: USE R4 TO REFERENCE NR KERNEL 1
2831	014472	005277	164004			INC	@SRO	: TURN ON KT11-D
2832	014476	005724			ADR25:	TST	(R4)+	: REFERENCE NR KERNEL 1
2833	014500	000000			ADR25A:	HALT		: SHOULD HAVE ABORTED ALREADY
2834	014502	005077	163774			CLR	@SRO	: TURN OFF KT11-D
2835	014506	000442				BR	DON25	
2836	014510	017701	163766		INT25:	MOV	@SRO, R1	: SAVE CONTENTS OF SRO
2837	014514	005377	163762			DEC	@SRO	: TURN OFF KT11-D
2838	014520	022701	100003			CMP	#100003, R1	: CHECK SAVED CONTENTS OF SRO
2839	014524	001401				BEQ	+.4	
2840	014526	000000				HLT		: SRO INCORRECT AFTER NR ABORT
2841								: (SEE SAVED CONTENTS IN R1)
2842	014530	022777	014476	163752		CMP	#ADR25, @SR2	: CK SR2
2843	014536	001401				BEQ	+.4	
2844	014540	000000				HLT		: SR2 INCORRECT-SHOULD CONTAIN ADDRESS
2845								: OF LAST FETCH BEFORE THE ABORT
2846	014542	005077	163742			CLR	@SR2	: TRY TO WRITE INTO SR2
2847	014546	022777	014476	163734		CMP	#ADR25, @SR2	: SR2 SHOULD BE READ ONLY
2848	014554	001401				BEQ	+.4	
2849	014556	000000				HLT		: SR2 NOT READ ONLY
2850	014560	022777	077506	163770		CMP	#77506, @KPDRO	
2851	014566	001401				BEQ	+.4	
2852	014570	000000				HLT		: KERNEL PDR 0 INCORRECT
2853								: W BIT SHOULD HAVE BEEN SET BY THE STACK WRITE
2854	014572	005777	163762			TST	@KPDRO1	
2855	014576	001401				BEQ	+.4	
2856	014600	000000				HLT		: KERNEL PDR 1 INCORRECT
2857	014602	021627	014500			CMP	(R6), #ADR25A	: CHECK VALUE PUSHED ON STACK
2858	014606	001401				BEQ	+.4	

Address	Instruction	Comments
2859	HLT	
2860	CMP (R6)+, (R6)+	: INCORRECT VALUE ON STACK
2861	CLR	: RESTORE STACK
2862	MOV	: CHANGE TRAP VECTOR TO CAUSE A
2863		: HALT ON A FALSE TRAP
2864		
2865		
2866	JSR %7, RWALL	: MAP ALL PAGES RW, 4K, BANK 0
2867	MOV #4, @KPDR1	: MAP KERNEL 1 NR, 1 PAGE
2868	JSR PC, KERN7	: MAP KERNEL PAR/PDR 7 TO EXT BANK
2869	MOV #RET33, @KTVEC	: SETUP ABORT RETURN
2870	CLR	
2871	INC @KTSTA	
2872	JSR @SRO	: TURN ON KT11-D
2873	TST @#30000	: REFERENCE NR KERNEL 1 - SHOULD ABORT
2874	HALT	: NO NR ABORT
2875	CMP #140003, @SRO	: CHECK SRO
2876	BEQ .+4	
2877	HLT	: SRO INCORRECT - SHOULD SHOW KERNEL
2878	CLR @SRO	: PAGE 1, AND BOTH NR + PL EPRORS SET
2879	MOV	
2880		: RESTORE TRAP CATCHER
2881		
2882	JSR %7, CLRALL	: CLEAR ALL KT11-D REGISTERS
2883	JSR PC, KERN7	: MAP KERNEL PAR/PDR 7 TO EXT BANK
2884	MOV #77406, @KPDRO	: MAP KERNEL 0 RW, RK, BANK0
2885	MOV #77402, @KPDR1	: MAP KERNEL 1 NAM, KSZ K, BANK0
2886	MOV #INT40, @KTVEC	: SETUP RETURN VECTOR
2887	CLR	
2888	INC @KTSTA	
2889	JSR @#37776, @#37776	: TURN ON KT11-D
2890	CLR @SRO	: REFERENCE KERNEL 1 - 1ST ABORT
2891	HLT	: TURN OFF KT11-D
2892	BR	: REFERENCE TO KERNEL 1
2893	BIC #1, @SRO	: DIDN'T ABORT
2894	CMP #20002, @SRO	: TURN OFF KT11-D
2895	BEQ .+4	: CHECK SRO
2896	HLT	: SRO INCORRECT AFTER NAM ABORT
2897	MOV #INT40A, @KTVEC	: SETUP NEW RETURN VECTOR
2898	CMP (R6)+, (R6)+	: RESTORE STACK POINTER
2899	MOV #37776, R2	: SETUP R2 TO REFERENCE KERNEL 1
2900	BIS #1, @SRO	: TURN ON KT11-D
2901	MOV (R2)+, -(R2)	: REFERENCE KERNEL 1 -2ND ABORT
2902	CLR @SRO	: TURN OFF KT11-D
2903	HLT	: 2ND REFERENCE TO KERNEL 1
2904	BR	: DIDN'T ABORT
2905	BIC #1, @SRO	: TURN OFF KT11-D
2906	CMP #20002, @SRO	: CHECK SRO
2907	BEQ .+4	
2908	HLT	: SRO INCORRECT AFTER 2ND NAM ABORT
2909	CMP #ADR40, @SR2	: CHECK SR2
2910	BEQ .+4	
2911	HLT	: SR2 DOESN'T CONTAIN VALUE FROM 1ST ABORT
2912	CMP (R6), #ADR40A	: CHECK ADDRESS PUSHED ON STACK
2913	BEQ .+4	
2914	HLT	: INCORRECT ADDRESS ON STACK

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SEQ 0058

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2915 015112 022626          CMP      (R6)+,(R6)+      ;RESTORE STACK POINTER
2916 015114 012777 015150 163370  MOV      #INT40B,AKTVEC  ;CHANGE RETURN ADDRESS
2917 015122 005077 163354          CLR      ASRO            ;CLEAR NAM ERROR BIT-SHOULD
2918                                ;"UNLOCK" ERROR TRACKING
2919 015126 012702 037776          MOV      #37776,R2      ;SETUP R2 TO REFERENCE KERNEL 1
2920 015132 005277 163344          INC      ASRO            ;TURN ON KT11-D
2921 015136 012242          ADR40B: MOV      (R2)+,-(R2) ;3RD NAM REFERENCE, ERROR BIT WAS CLEARED
2922 015140 005077 163336          ADR40C: CLR      ASRO            ;TURN OFF KT11-D
2923 015144 000000          HLT                                ;3RD REFERENCE TO KERNEL 1
2924 015146 000422          BR      ASRO            ;DIDN'T ABORT
2925 015150 042777 000001 163324  INT40B: BIC      #1,ASRO      ;TURN OFF KT11-D
2926 015156 022777 020002 163316  CMP      #20002,ASRO     ;CHECK SRO
2927 015164 001401          BEQ      .+4
2928 015166 000000          HLT                                ;SRO INCORRECT
2929 015170 022777 015136 163312  CMP      #ADR40B,ASR2    ;CHECK SR2
2930 015176 001401          BEQ      .+4
2931 015200 000000          HLT                                ;SR2 INCORRECT - SHOULD CONTAIN
2932                                ;LAST FETCH ADDRESS BEFORE ABORT
2933 015202 022716 015140          CMP      #ADR40C,(SP)    ;CHECK STACK
2934 015206 001401          BEQ      .+4
2935 015210 000000          HLT                                ;PC ON STACK INCORRECT
2936 015212 022626          CMP      (R6)+,(R6)+    ;RESTORE STACK POINTER
2937 015214 005077 163262          DONE40: CLR     ASRO      ;CLEAR ERROR BIT
2938 015220 005077 163270          CLR     AKTSTA          ;CHANGE TRAP RETURN TO CAUSE A HALT
2939 015224 016777 163264 163260  MOV      KTSTA,AKTVEC    ;ON A FALSE INTERRUPT
  
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2940
2941
2942
2943
2944 015232 005237 000304          ;*****
2945 015236 022737 000113 000304  ;TEST 113 TEST THAT ALL RESERVED INSTRUCTIONS TRAP
2946 015244 001137          ;*****
2947 015246 042767 000100 162310  ;*****
2948 015254 012703 015570          ;*****
2949 015260 012305          TST113: INC     ASSTESTN    ;UPDATE TEST NUMBER
2950 015262 012301          CMP      #113,ASSTESTN  ;SEQUENCE ERROR?
2951 015264 020567 000324          BNE     RET4            ;BR TO ERROR HALT ON SEQ ERROR
2952 015270 001415          BIC     #100,TPS
2953 015272 010567 000320          MOV     #TABLE,TAB     ;TABLE POINTER
2954 015276 005267 000314          GIN1:  MOV     (TAB)+,FIRST ;FIRST OR CURRENT INSTRUCTION
2955 015302 012767 015474 162500  MOV     #TAB,FINISH    ;LAST INSTRUCTION OR GROUP
2956 015310 012706 000500          CMP     FIRST,FINISH   ;TESTED ALL
2957 015314 005067 162456          BEQ     GIN3            ;YES BRANCH
2958 015320 000167 000272          MOV     FIRST,INST     ;SET UP INST
2959 015324 005237 000306          GIN2:  INC     INST
2960 015330 105267 000116          MOV     #RET,10        ;SET UP RETURN FROM TRAP
2961 015334 001027          MOV     #BUFF,SP      ;SET UP STACK POINTER
2962 015336 132767 000040 162755  CLR     CC              ;CLEAR PRIORITY
2963 015344 001023          JMP     INST           ;EXECUTE RESERVED INSTRUCTION
2964 015346 023727 000042 015424  GIN3:  INC     AS$PASS
2965 015354 001417          INCB   PASSPT          ;SHOULD PRINT THIS PASS?
2966 015356 012700 015454          BNE     ACT            ;NO
2967 015362 105737 177564          BITB   #40,$ENVM      ;WILL APT ALLOW PRINTING?
2968 015366 100375          BNE     ACT            ;NO
2969 015370 112037 177566          CMP     AS#42,$SENDAD
2970 015374 001372          BEQ     ACT
2971                                ;GET MSG ADDR.
2972                                ;TTY READY
2973                                ;NO WAIT
2974                                ;PRINT CHARACTER
2975                                ;NEXT IF NOT DONE.
  
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 DFKABB.P11 19-NOV-75 07:55 T113 TEST THAT ALL RESERVED INSTRUCTIONS TRAP

SEQ 0059

2971	015376	105737	177564		WAIT1:	TSTB	@#TPS	
2972	015402	100375				BPL	WAIT1	
2973	015404	000005				RESET		
2974	015406	012767	177761	000036		MOV	#177761,PASSPT	;DO IT ABOUT 15 DECIMAL TIMES
2975	015414	013700	000042		ACT:	MOV	@#42,RO	;CHECK ACT
2976	015420	001405				BEQ	GOAGIN	;KEEP GOING
2977	015422	000005				RESET		
2978	015424	004710			SENDAD:	JSR	PC,(RO)	;ACT HOOKS
2979	015426	000240				NOP		
2980	015430	000240				NOP		
2981	015432	000240				NOP		
2982	015434	012767	000012	162346	GOAGIN:	MOV	#12,10	
2983	015442	005067	162344			CLR	12	
2984	015446	000167	163154			JMP	RESTRT	;DO NEXT PASS
2985	015452	177777			PASSPT:	-1		
2986	015454	005015	047105	020104	MSG:	.ASCIZ	<15><12>.END OF DFKAB .	
2987	015462	043117	042040	045506				
2988	015470	041101	000040					
2989								
2990								;TRAPPING SHOULD SEND YOU HERE
2991	015474	020627	000474		RET:	CMP	SP,#BUFF-4	;TEST DECREMENT OF SP
2992	015500	001405				BEQ	RET1	
2993	015502	012737	000314	000302		MOV	#314,@#SFATAL	;MOVE TO MAILBOX # ***** 314 *****
2994	015510	005212				INC	(R2)	;SET MSGTYP TO FATAL ERROR
2995	015512	000000				HALT		;WRONG DECREMENT
2996								; TO SCOPE REPLACE HALT W/ 240
2997								; AND REPLACE NEXT INST W/ 654
2998	015514	026727	162754	015620	RET1:	CMP	BUFF-4,#INST+2	;LOC OF INST UNINCREMATED
2999	015522	001405				BEQ	RET2	
3000	015524	012737	000315	000302		MOV	#315,@#SFATAL	;MOVE TO MAILBOX # ***** 315 *****
3001	015532	005212				INC	(R2)	;SET MSGTYP TO FATAL ERROR
3002	015534	000000				HALT		;INST INC ON TRAP
3003								; TO SCOPE REPLACE HALT W/ 240
3004								; AND REPLACE NEXT INST W/ 643
3005	015536	005767	162734		RET2:	TST	BUFF-2	
3006	015542	001405				BEQ	RET3	
3007	015544				RET4:			
3008	015544	012737	000316	000302		MOV	#316,@#SFATAL	;MOVE TO MAILBOX # ***** 316 *****
3009	015552	005212				INC	(R2)	;SET MSGTYP TO FATAL ERROR
3010	015554	000000				HALT		;CONDITION CODES SET ON TRAP OR WRONG \$TSTNM
3011								; TO SCOPE REPLACE HALT W/ 240
3012								; AND REPLACE NEXT INST W/ 633
3013	015556	026701	000034		RET3:	CMP	INST, LAST	
3014	015562	001636				BEQ	GIN1	;SET UP NEW GROUP
3015	015564	000167	177506			JMP	GIN2	;FINISH OLD GROUP
3016								;END OF INSTRUCTION GROUP
3017	015570	000006			TABLE:	6		;END OF OPERATE
3018	015572	000077				77		
3019	015574	000207				207		
3020	015576	000227				227		;RTS,RT1,JMP
3021	015600	006777				6777		
3022	015602	007777				7777		
3023	015604	075037				075037		
3024	015606	076777				76777		
3025	015610	167777				167777		
3026	015612	177777				177777		

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3027 015614 015614          FINISH: .           ;END FLAG
3028 015616 000000          INST:  HALT         ;WILL CONTINUE RESERVED INST
3029 015620 000000          HALT         ;SHOULD TRAP TO LOC 10
3030 015622 000000          HALT         ;LOC 10 SHOULD SEND YOU TO
3031 015624 000000          HALT         ;RET
3032 015626 000000          HALT
3033 015630 012767 015640 162166 PWRDWN: MOV      #PWRUP,24
3034 015636 000000          HALT
3035
3036 015640 012767 015630 162156 PWRUP: MOV      #PWRDWN,24
3037 015646 012706 000500          MOV      #BUFF,SP
3038 015652 132767 000040 162441 BITB      #40,$ENVM      ;WILL APT ALLOW PRINTING?
3039 015660 001013          BNE      PFRES      ;NO
3040 015662 012700 015714          MOV      #MSGPWF,RO ;GET MSG ADDR.
3041 015666 105737 177564          PWAIT: TSTB     @#TPS ;TTY READY
3042 015672 100375          BPL      PWAIT      ;NO WAIT
3043 015674 112037 177566          MOVVB   (RO)+,@#TPB ;PRINT CHARACTER
3044 015700 001372          BNE      PWAIT      ;NEXT IF NOT DONE.
3045 015702 105737 177564          PWAIT1: TSTB    @#TPS
3046 015706 100375          BPL      PWAIT1
3047 015710 000167 162712          PFRES: JMP      RESTRT
3048 015714 005015 047520 042527 MSGPWF: .ASCIZ <15><12>.POWER FAILED!.
3049 015722 020122 040506 046111
3050 015730 042105 000041
3051 015734 005077 162542          CLRALL: CLR     @SR0
3052 015740 005000          CLR     RO
3053 015742 012701 000040          MOV     #32,R1      ;COUNT OF REGISTERS TO BE CLEARED
3054 015746 005070 000516          CLR    @ADRTAB(RO) ;CLEAR REGISTERS THRU ADDRESS TABLE
3055 015752 005720          TST    (RO)+
3056 015754 077104          SOB    R1,CLRRLP   ;MOVE POINTER
3057 015756 000207          RTS     %7         ;LOOP TILL DONE
3058
3059          ;SUBROUTINE TO MAKE ALL PAGES RW, BANK 0, 4K, UP
3060 015760 005077 162516          RWALL: CLR     @SR0
3061 015764 012701 000516          MOV     #ADRTAB,R1 ;R1 POINTS TO ADDRESS TABLE
3062 015770 012700 000010          RWL1:  MOV     #10,RO ;RO IS COUNTER
3063 015774 005071 000020          RWL2:  CLR     @20(R1) ;CLEAR PAR
3064 016000 012731 077406          MOV     #77406,@(R1)+ ;SET PDR RW, 4K
3065 016004 077005          SOB    RO,RWL2
3066 016006 062701 000020          ADD     #20,R1
3067 016012 020127 000616          CMP     R1,#ADREND ;POINTER TO NEXT GROUP
3068 016016 002764          BLT    RWL1
3069 016020 000207          RTS     %7
3070          ;MAP KERNEL PAR/PDR 7 TO EXTERNAL BANK
3071 016022 012777 007600 162564 KERN7: MOV     #7600,@KPAR7
3072 016030 012777 077406 162536          MOV     #77406,@KPDR7
3073 016036 000207          RTS     PC
3074 000001          .END
    
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ABASE = 000000	254			
ACDW1 = 000000	254			
ACDW2 = 000000	254			
ACPUOP = 000000	254	269		
ACT 015414	2961	2963	2965	2975#
ADALL 013026	2544	2547#		
ADDW0 = 000000	254			
ADDW1 = 000000	254			
ADDW10 = 000000	254			
ADDW11 = 000000	254			
ADDW12 = 000000	254			
ADDW13 = 000000	254			
ADDW14 = 000000	254			
ADDW15 = 000000	254			
ADDW2 = 000000	254			
ADDW3 = 000000	254			
ADDW4 = 000000	254			
ADDW5 = 000000	254			
ADDW6 = 000000	254			
ADDW7 = 000000	254			
ADDW8 = 000000	254			
ADDW9 = 000000	254			
ADEVCT = 000000	254	260		
ADEVN = 000000	254			
ADREND 000616	347#	3067		
ADRTAB 000516	311#	3054*	3061	
ADR25 014476	2832#	2842	2847	
ADR25A 014500	2833#	2857		
ADR40 014756	2889#	2909		
ADR40A 015040	2902#	2912		
ADR40B 015136	2921#	2929		
ADR40C 015140	2922#	2933		
AENV = 000000	254	265		
AENVN = 000000	254	266		
AFATAL = 000000	254	257		
AMADR1 = 000000	254			
AMADR2 = 000000	254			
AMADR3 = 000000	254			
AMADR4 = 000000	254			
AMAMS1 = 000000	254			
AMAMS2 = 000000	254			
AMAMS3 = 000000	254			
AMAMS4 = 000000	254			
AMSGAD = 000000	254	262		
AMSGLG = 000000	254	263		
AMSGTY = 000000	254	256		
AMTYP1 = 000000	254			
AMTYP2 = 000000	254			
AMTYP3 = 000000	254			
AMTYP4 = 000000	254			
APASS = 000000	254	259		
APRIOR = 000000	254			
ASWREG = 000000	254	267		
ATESTN = 000000	254	258		
ATRAP 013070	2549	2561#		
AUNIT = 000000	254	261		

AUSWR = 000000	254	268												
AUTO 013056	2554#													
AUTO1 013166	2541	2587#												
AVECT1= 000000	254													
AVECT2= 000000	254													
BEGIN 000620	236	239	352#											
BELL = 000240	227#													
BR1 000754	383	390#												
BR10 001206	457	454#												
BR11 001322	485	492#												
BR12 001372	498	505#												
BR13 001442	511	518#												
BR14 001512	524	531#												
BR15 001620	550	557#												
BR16 001642	558	565#												
BR17 001664	566	573#												
BR2 001004	393	400#												
BR20 001706	574	580#												
BR21 001730	581	588#												
BR22 001752	589	596#												
BR23 001774	597	604#												
BR3 001030	403	410#												
BR33 002054	621	627#												
BR34 002070	628	634#												
BR35 002104	635	641#												
BR36 002120	642	648#												
BR37 002144	651	657#												
BR4 001056	414	421#												
BR40 002160	658	664#												
BR41 002174	665	671#												
BR45 003674	1014	1019#												
BR46 004524	1112	1188#												
BR46A 004536	1187	1194#												
BR47 005404	1363	1368#												
BR5 001104	425	432#												
BR51 006234	1463	1539#												
BR51A 006246	1538	1545#												
BR6 001132	436	442#												
BR60 012452	2449#	2455												
BR7 001160	446	453#												
BR70 012662	2486	2503#												
BR71 013512	2641	2648	2659#											
BTRAP 013136	2564	2578#												
BUFF 000500	304#	684	700	703	716	719	732	737	744	749	762	801	853	
	868	871	884	887	900	905	912	916	929	968	1017	1036	1051	
	1054	1067	1070	1083	1088	1095	1100	1113	1152	1202	1217	1220	1233	
	1236	1249	1254	1261	1266	1279	1318	1366	1386	1401	1404	1417	1420	
	1433	1438	1446	1451	1464	1503	1560	1575	1578	1591	1594	1607	1612	
	1619	1624	1637	1676	1722	1737	1740	1753	1756	1770	1775	1782	1787	
	1800	1839	1886	1901	1904	1917	1920	1933	1938	1945	1950	1963	2002	
	2272	2290	2301	2314	2320	2336	2358	2388	2415	2423	2431	2440	2447	
	2455	2463	2474	2488	2517	2523	2550	2565	2585	2598	2644	2676	2729	
	2755	2768	2791	2815	2956	2991	2998	3005	3037					
CC = 177776	234#	734*	746*	794	833	902*	914*	961	1000	1085*	1097*	1145	1184	
	1251*	1263*	1311	1351	1435*	1448*	1496	1535	1609*	1621*	1669	1708	1772*	
	1784*	1832	1871	1935*	1947*	1995	2034	2957*						

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0064

K6	000700	369#	495	573						
K7	000702	370#	549	557	565	580	604			
MSG	015454	2966	2986#							
MSGPWF	015714	3040	3048#							
NODL	013536	2643	2667#							
NODL1	013674	2675	2695#							
NODL2	014000	2704	2722#							
NODL3	014250	2753	2782#							
NOP	= 000240	228#								
NOR	013042	2550#	2553							
PASSPT	015452	352*	2960*	2974*	2985#					
PFRES	015710	3039	3047#							
PROFTE	013236	2597*	2602#	2603*	2612	2642	2674	2703	2752	
PWAIT	015666	3041#	3042	3044						
PWAIT1	015702	3045#	3046							
PWRDWN	015630	354	3033#	3036						
PWRUP	015640	3033	3036#							
RA	005416	1365	1374#							
RA1	003706	1016	1025#							
RB	005402	1364*	1367#	1374*	1375					
RB1	003672	1015*	1018#	1025*	1026					
RC	005376	1366#	1376							
RC1	003666	1017#	1027							
RESET2	014056	2730	2742#							
RESET3	014044	2728	2736#							
RESTR1	000626	353#	2984	3047						
RET	015474	2955	2991#							
RETA	002240	683	687#							
RETAH	002252	685	693#							
RETAT	011640	2273	2283#							
RETA1	003100	854	861#							
RETA2	003776	1037	1044#							
RETA3	004612	1203	1210#							
RETA4	005506	1387	1394#							
RETA5	006322	1561	1568#							
RETB	002302	701	703#							
RETB1	011714	2291	2301#							
RETB2	003130	869	871#							
RETB3	004026	1052	1054#							
RETB4	004642	1218	1220#							
RETB5	005536	1402	1404#							
RETB6	006352	1576	1578#							
RETC	002352	717	719#							
RETC1	011774	2315	2320#							
RETC2	003200	885	887#							
RETC3	004076	1068	1070#							
RETC4	004712	1234	1236#							
RETC5	005606	1418	1420#							
RETC6	006422	1592	1594#							
RETD	002432	733	737#							
RETD1	003260	901	905#							
RETD2	004156	1084	1088#							
RETD3	004772	1250	1254#							
RETD4	005666	1434	1438#							
RETD5	006502	1608	1612#							
RETE	002500	745	749#							

RETE1	003324	913	916#
RETE2	004224	1096	1100#
RETE3	005040	1262	1266#
RETE4	005734	1447	1451#
RETE5	006550	1620	1624#
RETF	002556	763	766#
RETF1	003402	930	933#
RETF2	004302	1114	1117#
RETF3	005116	1280	1283#
RETF4	006012	1465	1468#
RETF5	006626	1638	1641#
RETG	002702	802	805#
RETG1	003526	969	972#
RETG2	004426	1153	1156#
RETG3	005242	1319	1322#
RETG4	006136	1504	1507#
RETG5	006752	1677	1680#
RETH5	007120	1723	1730#
RETJ	007150	1738	1740#
RETK	007220	1754	1756#
RETL	007300	1771	1775#
RETM	007346	1783	1787#
RETN	007424	1801	1804#
RETO	007546	1840	1843#
RETP	007716	1887	1894#
RETO	007750	1902	1904#
RETR	010022	1918	1920#
RETS	010104	1934	1938#
RETT	010154	1946	1950#
RETU	010234	1964	1967#
RETV	010362	2003	2006#
RET1	015514	2992	2998#
RET2	015536	2999	3005#
RET3	015556	3006	3013#
RET33	014670	2869	2874#
RET4	015544	2946	3007#
RTI1	012250	2390	2394#
RTI2	012264	2391	2400#
RTRAP =	000010	231#	685*
RTRAP1 =	000034	222#	854*
RTRAP2 =	000020	221#	1037*
RTRAP3 =	000030	220#	1203*
RTRAP4 =	000014	219#	1387*
RTRAPS =	000004	218#	1561*
		1771#	1783*
		2003#	2004*
RTT1	012060	2339	2342#
RTT2	012076	2340	2350#
RTT3	012144	2360	2364#
RTT4	012164	2361	2372#
RTT5	012116	2358#	2366
RTT6	012206	2373	2381#
RWALL	015760	2866	3060#
RWL1	015770	3062#	3068
RWL2	015774	3063#	3065
R7TRX	013400	2613	2635#

701*	717*	733*	745*	763*	764*	802*	803*
869*	885*	901*	913*	930*	931*	969*	970*
1052*	1068*	1084*	1096*	1114*	1115*	1153*	1154*
1218*	1234*	1250*	1262*	1280*	1281*	1319*	1320*
1402*	1418*	1434*	1447*	1465*	1466*	1504*	1505*
1576*	1592*	1608*	1620*	1638*	1639*	1677*	1678*
1801*	1802*	1840*	1841*	1887*	1902*	1918*	1934*
						2273*	2291*
						1723*	1738*
						1946*	1964*
							2315*
							1754*
							1965*

2375

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SEQ 0067

TST111	014074	2749#		
TST112	014250	2787#		
TST113	015232	2944#		
TST12	003024	848#		
TST13	003100	850	865#	
TST14	003150	867	872	881#
TST15	003222	883	888	897#
TST16	003346	899	917	926#
TST17	003638	928	1003	1012#
TST2	001236	379	467	476#
TST20	003734	1033#		
TST21	003776	1035	1048#	
TST22	004046	1050	1055	1064#
TST23	004120	1066	1071	1080#
TST24	004246	1082	1101	1110#
TST25	004550	1199#		
TST26	004612	1201	1214#	
TST27	004662	1216	1221	1230#
TST3	001562	478	537	546#
TST30	004734	1232	1237	1246#
TST31	005062	1248	1267	1276#
TST32	005346	1278	1352	1361#
TST33	005444	1383#		
TST34	005506	1385	1398#	
TST35	005556	1400	1405	1414#
TST36	005630	1416	1421	1430#
TST37	005756	1432	1452	1461#
TST4	002016	548	605	616#
TST40	006260	1557#		
TST41	006322	1559	1572#	
TST42	006372	1574	1579	1588#
TST43	006444	1590	1595	1604#
TST44	006572	1606	1625	1634#
TST45	007056	1636	1710	1719#
TST46	007120	1721	1734#	
TST47	007170	1736	1741	1750#
TST5	002210	618	672	681#
TST50	007242	1752	1757	1767#
TST51	007370	1769	1788	1797#
TST52	007652	1799	1873	1883#
TST53	007716	1885	1898#	
TST54	007770	1900	1905	1914#
TST55	010044	1916	1921	1930#
TST56	010176	1932	1951	1960#
TST57	010466	1962	2036	2045#
TST6	002252	697#		
TST60	010530	2047	2061#	
TST61	010600	2063	2068	2078#
TST62	010734	2080	2115#	
TST63	011012	2132#		
TST64	011070	2149#		
TST65	011146	2166#		
TST66	011224	2183#		
TST67	011302	2200#		
TST7	002322	699	704	713#
TST70	011400	2215	2224#	

TST71	011456	2242#																		
TST72	011564	2259#																		
TST73	011640	2271#	2287#																	
TST74	011734	2289#	2302#	2311#																
TST75	012016	2313#	2321#	2332#																
TST76	012076	2334#	2343#	2354#																
TST77	012206	2356#	2385#																	
TTCSR =	177564	2323#	2619*	2632*	2647*	2666*	2678*	2705*	2708	2759*	2772*	2781*								
TTT37	014244	2774#	2781#																	
TTY11	014232	2751#	2775#																	
TTY3	014150	2756#	2760#																	
TTY4	014224	2769#	2773#																	
UPAR0	000536	321#																		
UPAR1	000540	322#																		
UPAR2	000542	323#																		
UPAR3	000544	324#																		
UPAR4	000546	325#																		
UPAR5	000550	326#																		
UPAR6	000552	327#																		
UPAR7	000554	328#																		
UPDR0	000516	312#																		
UPDR1	000520	313#																		
UPDR2	000522	314#																		
UPDR3	000524	315#																		
UPDR4	000526	316#																		
UPDR5	000530	317#																		
UPDR6	000532	318#																		
UPDR7	000534	319#																		
VDEC1	011004	2120#	2128#																	
VDEC10	011262	2185#	2187#	2190#																
VDEC11	011340	2202#	2204#	2207#																
VDEC12	011352	2205#	2213#																	
VDEC13	011436	2226#	2228#	2231#																
VDEC14	011450	2229#	2237#																	
VDEC2	010772	2117#	2119#	2122#																
VDEC3	011062	2137#	2145#																	
VDEC4	011050	2134#	2136#	2139#																
VDEC5	011140	2154#	2162#																	
VDEC6	011126	2151#	2153#	2156#																
VDEC7	011216	2171#	2179#																	
VDEC8	011204	2168#	2170#	2173#																
VDEC9	011274	2188#	2196#																	
WAIT	015362	2967#	2968#	2970																
WAIT1	015376	2971#	2972#																	
WATE	014366	2792#	2808#																	
WATE1	014310	2794#	2795#																	
WATE2	014324	2797#	2798#																	
WATE3	014352	2802#	2815#																	
SAPTHD	000330	287#	293#																	
SCPUOP	000326	269#																		
SDEVCT	000310	260#																		
SENDAD	015424	247#	2964	2978#																
SENV	000320	265#																		
SENVN	000321	266#	2962	3038																
SEVN =	000317	1#	384	385#	394	395#	404	405#	415	416#	426	427#	437	438#						
		447	448#	458	459#	468	469#	486	487#	499	500#	512	513#	525						

CROSS REFERENCE TABLE -- USER SYMBOLS

526*	538	539*	551	552*	559	560*	567	568*	575	576*	582	583*
590	591*	598	599*	606	607*	622	623*	629	630*	636	637*	643
644*	652	653*	659	660*	666	667*	673	674*	688	689*	705	706*
721	722*	729	740*	751	752*	768	769*	775	776*	782	783*	789
790*	796	797*	807	808*	814	815*	821	822*	828	829*	838	839*
856	857*	873	874*	889	890*	907	908*	918	919*	935	936*	942
943*	949	950*	956	957*	963	964*	974	975*	981	982*	988	989*
995	996*	1004	1005*	1020	1021*	1039	1040*	1056	1057*	1072	1073*	1090
1091*	1102	1103*	1119	1120*	1126	1127*	1133	1134*	1140	1141*	1147	1148*
1158	1159*	1165	1166*	1172	1173*	1179	1180*	1189	1190*	1205	1206*	1222
1223*	1238	1239*	1256	1257*	1268	1269*	1285	1286*	1292	1293*	1299	1300*
1306	1307*	1313	1314*	1324	1325*	1331	1332*	1338	1339*	1345	1346*	1353
1354*	1369	1370*	1389	1390*	1406	1407*	1422	1423*	1441	1442*	1453	1454*
1470	1471*	1477	1478*	1484	1485*	1491	1492*	1498	1499*	1509	1510*	1516
1517*	1523	1524*	1530	1531*	1540	1541*	1563	1564*	1580	1581*	1596	1597*
1614	1615*	1626	1627*	1643	1644*	1650	1651*	1657	1658*	1664	1665*	1671
1672*	1682	1683*	1689	1690*	1696	1697*	1703	1704*	1711	1712*	1725	1726*
1742	1743*	1758	1759*	1777	1778*	1789	1790*	1806	1807*	1813	1814*	1820
1821*	1827	1828*	1834	1835*	1845	1846*	1852	1853*	1859	1860*	1866	1867*
1874	1875*	1889	1890*	1906	1907*	1922	1923*	1940	1941*	1952	1953*	1969
1970*	1976	1977*	1983	1984*	1990	1991*	1997	1998*	2008	2009*	2015	2016*
2022	2023*	2029	2030*	2037	2038*	2051	2052*	2069	2070*	2087	2088*	2096
2097*	2105	2106*	2123	2124*	2140	2141*	2157	2158*	2174	2175*	2191	2192*
2208	2209*	2216	2217*	2232	2233*	2259	2260*	2278	2279*	2296	2297*	2303
2304*	2322	2323*	2344	2345*	2367	2368*	2376	2377*	2395	2396*	2403	2404*
2418	2419*	2425	2426*	2435	2436*	2442	2443*	2450	2451*	2457	2458*	2468
2469*	2476	2477*	2498	2499*	2504	2505*	2526	2527*	2555	2556*	2570	2571*
2580	2581*	2588	2589*	2621	2622*	2627	2628*	2654	2655*	2660	2661*	2686
2687*	2710	2711*	2717	2718*	2737	2738*	2762	2763*	2776	2777*	2803	2804*
2810	2811*	2818	2819*	2993	2994*	3000	3001*	3008	3009*			
301*	357*											
264*												
276*	299											
257*	301	384*	394*	404*	415*	426*	437*	447*	458*	468*	486*	499*
512*	525*	538*	551*	559*	567*	575*	582*	590*	598*	606*	622*	629*
636*	643*	652*	659*	666*	673*	688*	705*	721*	739*	751*	768*	775*
782*	789*	796*	807*	814*	821*	828*	838*	856*	873*	889*	907*	918*
935*	942*	949*	956*	963*	974*	981*	988*	995*	1004*	1020*	1039*	1056*
1072*	1090*	1102*	1119*	1126*	1133*	1140*	1147*	1158*	1165*	1172*	1179*	1189*
1205*	1222*	1238*	1256*	1268*	1285*	1292*	1299*	1306*	1313*	1324*	1331*	1338*
1345*	1353*	1369*	1389*	1406*	1422*	1441*	1453*	1470*	1477*	1484*	1491*	1498*
1509*	1516*	1523*	1530*	1540*	1563*	1580*	1596*	1614*	1626*	1643*	1650*	1657*
1664*	1671*	1682*	1689*	1696*	1703*	1711*	1725*	1742*	1758*	1777*	1789*	1806*
1813*	1820*	1827*	1834*	1845*	1852*	1859*	1866*	1874*	1889*	1906*	1922*	1940*
1952*	1969*	1976*	1983*	1990*	1997*	2008*	2015*	2022*	2029*	2037*	2051*	2069*
2087*	2096*	2105*	2123*	2140*	2157*	2174*	2191*	2208*	2216*	2232*	2259*	2278*
2296*	2303*	2322*	2344*	2367*	2376*	2395*	2403*	2418*	2425*	2435*	2442*	2450*
2457*	2468*	2476*	2498*	2504*	2526*	2555*	2570*	2580*	2588*	2621*	2627*	2654*
2660*	2686*	2710*	2717*	2737*	2762*	2776*	2803*	2810*	2818*	2993*	3000*	3008*
294*												
255*	295	299										
295*												
262*												
263*												
256*	353*	358										
238*	259*	2959*										

\$ERROR= 000302
 \$ETABL 000320
 \$ETEND 000330
 \$FATAL 000302

\$HIBTS 000330
 \$MAIL 000300
 \$MBADR 000332
 \$MSGAD 000314
 \$MSGLC 000316
 \$MSGTY 000300
 \$PASS 000306

SPASTM 000336
SSVPC = 000300
SSWR = 000000
SSWREG 000322
STESTN 000304

297#													
245#	250												
1#													
267#													
258#	300	377*	378	476*	477	546*	547	616*	617	681*	682	697*	
698	713*	714	729*	730	759*	760	848*	849	865*	866	881*	882	
897*	898	926*	927	1012*	1013	1033*	1034	1048*	1049	1064*	1065	1080*	
1081	1110*	1111	1199*	1200	1214*	1215	1230*	1231	1246*	1247	1276*	1277	
1361*	1362	1383*	1384	1398*	1399	1414*	1415	1430*	1431	1461*	1462	1557*	
1558	1572*	1573	1588*	1589	1604*	1605	1634*	1635	1719*	1720	1734*	1735	
1750*	1751	1767*	1768	1797*	1798	1883*	1884	1898*	1899	1914*	1915	1930*	
1931	1960*	1961	2045*	2046	2061*	2062	2078*	2079	2115*	2116	2132*	2133	
2149*	2150	2166*	2167	2183*	2184	2200*	2201	2224*	2225	2242*	2243	2269*	
2270	2287*	2288	2311*	2312	2332*	2333	2354*	2355	2385*	2386	2412*	2413	
2484*	2485	2514*	2515	2539*	2540	2609*	2610	2639*	2640	2671*	2672	2700*	
2701	2726*	2727	2749*	2750	2787*	2788	2944*	2945					

STN = 000114

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845	851#	862	868#	872	878	884#	888	894	900#	917	923	929#	
1003	1009	1015#	1030	1036#	1045	1051#	1055	1061	1067#	1071	1077	1083#	
1101	1107	1113#	1196	1202#	1211	1217#	1221	1227	1233#	1237	1243	1249#	
1267	1273	1279#	1352	1358#	1364#	1380	1386#	1395	1401#	1405	1411	1417#	
1421	1427	1433#	1452	1458#	1464#	1554	1560#	1569	1575#	1579	1585	1591#	
1595	1601	1607#	1625	1631#	1637#	1710	1716#	1722#	1731	1737#	1741	1747#	
1753#	1757	1764	1770#	1788	1794	1800#	1873	1880	1886#	1895	1901#	1905	
1911	1917#	1921	1927	1933#	1951	1957	1963#	2036	2042	2048#	2058	2064#	
2068	2075	2081#	2112	2118#	2129	2135#	2146	2152#	2163	2169#	2180	2186#	
2197	2203#	2215	2221	2227#	2239	2245#	2266	2272#	2284	2290#	2302	2308#	
2314#	2321	2329	2335#	2343	2351	2357#	2382	2388#	2402	2409#	2415#	2475	
2481	2487#	2511	2517#	2536	2542#	2606	2612#	2636	2642#	2668	2674#	2697	
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STSTM 000334
STSTN= 000304
SUNIT 000312
SUNITM 000340
SUSWR 000324
SX = 015246

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300#	356*												
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380#	387	397	407	418	429	440	450	461	471	479#	489	502	
515	528	541	549#	554	562	570	578	585	593	601	609	619#	
625	632	639	646	655	662	669	676	684#	691	700#	708	716#	
724	732#	742	754	762#	771	778	785	792	799	810	817	824	
831	841	851#	859	868#	876	884#	892	900#	910	921	929#	938	
945	952	959	966	977	984	991	998	1007	1015#	1023	1036#	1042	
1051#	1059	1067#	1075	1083#	1093	1105	1113#	1122	1129	1136	1143	1150	
1161	1168	1175	1182	1192	1202#	1208	1217#	1225	1233#	1241	1249#	1259	
1271	1279#	1288	1295	1302	1309	1316	1327	1334	1341	1348	1356	1364#	
1372	1386#	1392	1401#	1409	1417#	1425	1433#	1444	1456	1464#	1473	1480	
1487	1494	1501	1512	1519	1526	1533	1543	1560#	1566	1575#	1583	1591#	
1599	1607#	1617	1629	1637#	1646	1653	1660	1667	1674	1685	1692	1699	
1706	1714	1722#	1728	1737#	1745	1753#	1761	1770#	1780	1792	1800#	1809	
1816	1823	1830	1837	1848	1855	1862	1869	1877	1886#	1892	1901#	1909	
1917#	1925	1933#	1943	1955	1963#	1972	1979	1986	1993	2000	2011	2018	
2025	2032	2040	2048#	2054	2064#	2072	2081#	2090	2099	2108	2118#	2126	
2135#	2143	2152#	2160	2169#	2177	2186#	2194	2203#	2211	2219	2227#	2235	
2245#	2262	2272#	2281	2290#	2299	2306	2314#	2325	2335#	2347	2357#	2370	
2379	2388#	2398	2406	2415#	2421	2428	2438	2445	2453	2460	2471	2479	
2487#	2501	2507	2517#	2529	2542#	2558	2573	2583	2591	2612#	2624	2630	

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0071

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	541#	554#	562#	570#	578#	585#	593#	601#	609#	625#	632#	639#	646#
	655#	662#	669#	676#	691#	708#	724#	742#	754#	771#	778#	785#	792#
	799#	810#	817#	824#	831#	841#	859#	876#	892#	910#	921#	938#	945#
	952#	959#	966#	977#	984#	991#	998#	1007#	1023#	1042#	1059#	1075#	1093#
	1105#	1122#	1129#	1136#	1143#	1150#	1161#	1168#	1175#	1182#	1192#	1208#	1225#
	1241#	1259#	1271#	1288#	1295#	1302#	1309#	1316#	1327#	1334#	1341#	1348#	1356#
	1372#	1392#	1409#	1425#	1444#	1456#	1473#	1480#	1487#	1494#	1501#	1512#	1519#
	1526#	1533#	1543#	1566#	1583#	1599#	1617#	1629#	1646#	1653#	1660#	1667#	1674#
	1685#	1692#	1699#	1706#	1714#	1728#	1745#	1761#	1780#	1792#	1809#	1816#	1823#
	1830#	1837#	1848#	1855#	1862#	1869#	1877#	1892#	1909#	1925#	1943#	1955#	1972#
	1979#	1986#	1993#	2000#	2011#	2018#	2025#	2032#	2040#	2054#	2072#	2090#	2099#
	2108#	2126#	2143#	2160#	2177#	2194#	2211#	2219#	2235#	2262#	2281#	2299#	2306#
	2325#	2347#	2370#	2379#	2398#	2406#	2421#	2428#	2438#	2445#	2453#	2460#	2471#
	2479#	2501#	2507#	2529#	2558#	2573#	2583#	2591#	2624#	2630#	2657#	2663#	2689#
\$XXX = 000633	2713#	2720#	2740#	2765#	2779#	2806#	2813#	2821#	2996#	3003#	3011#		
	387#	397#	407#	418#	429#	440#	450#	461#	471#	489#	502#	515#	528#
	541#	554#	562#	570#	578#	585#	593#	601#	609#	625#	632#	639#	646#
	655#	662#	669#	676#	691#	708#	724#	742#	754#	771#	778#	785#	792#
	799#	810#	817#	824#	831#	841#	859#	876#	892#	910#	921#	938#	945#
	952#	959#	966#	977#	984#	991#	998#	1007#	1023#	1042#	1059#	1075#	1093#
	1105#	1122#	1129#	1136#	1143#	1150#	1161#	1168#	1175#	1182#	1192#	1208#	1225#
	1241#	1259#	1271#	1288#	1295#	1302#	1309#	1316#	1327#	1334#	1341#	1348#	1356#
	1372#	1392#	1409#	1425#	1444#	1456#	1473#	1480#	1487#	1494#	1501#	1512#	1519#
	1526#	1533#	1543#	1566#	1583#	1599#	1617#	1629#	1646#	1653#	1660#	1667#	1674#
	1685#	1692#	1699#	1706#	1714#	1728#	1745#	1761#	1780#	1792#	1809#	1816#	1823#
	1830#	1837#	1848#	1855#	1862#	1869#	1877#	1892#	1909#	1925#	1943#	1955#	1972#
	1979#	1986#	1993#	2000#	2011#	2018#	2025#	2032#	2040#	2054#	2072#	2090#	2099#
	2108#	2126#	2143#	2160#	2177#	2194#	2211#	2219#	2235#	2262#	2281#	2299#	2306#
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	235#	237#	240#	245	246#	248#	250#	283	284#	286#	288#	303#	347
	380	387	397	407	418	429	440	450	461	471	479	489	502
	515	528	541	549	554	562	570	578	585	593	601	609	619
	625	632	639	646	655	662	669	676	684	691	700	708	716
	719	724	732	742	754	762	771	778	785	792	799	810	817
	824	831	841	851	859	868	876	884	887	892	900	910	921
	929	938	945	952	959	966	977	984	991	998	1007	1015	1023
	1036	1042	1051	1059	1067	1070	1075	1083	1093	1105	1113	1122	1129
	1136	1143	1150	1161	1168	1175	1182	1192	1202	1208	1217	1225	1233
	1236	1241	1249	1259	1271	1279	1288	1295	1302	1309	1316	1327	1334
	1341	1348	1356	1364	1372	1386	1392	1401	1409	1417	1420	1425	1433
	1444	1456	1464	1473	1480	1487	1494	1501	1512	1519	1526	1533	1543
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	1972	1979	1986	1993	2000	2011	2018	2025	2032	2040	2048	2054	2064
	2072	2081	2090	2099	2108	2118	2126	2135	2143	2152	2160	2169	2177
	2186	2194	2203	2211	2219	2227	2235	2245	2262	2272	2275	2281	2290
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	2398	2406	2415	2421	2428	2438	2445	2453	2460	2471	2479	2487	2494
	2501	2507	2517	2529	2542	2558	2573	2583	2591	2612	2624	2630	2642

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0072

2657	2663	2674	2689	2703	2713	2720	2729	2740	2752	2765	2779	2790
2806	2813	2821	2839	2843	2848	2851	2855	2858	2875	2895	2907	2910
2913	2927	2930	2934	2947	2996	3003	3011	3027				
283#	288											

.SX = 000330

ERROR	1#	383	393	403	414	425	436	446	457	467	485	498	511	524	537
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	671	687	704	720	738	750	767	773	780	787	795	806	812	819	826
	836	856	872	888	906	917	934	940	947	954	962	973	979	986	993
	1003	1019	1039	1055	1071	1089	1101	1118	1124	1131	1138	1146	1157	1163	1170
	1177	1187	1205	1221	1237	1255	1267	1284	1290	1297	1304	1312	1323	1329	1336
	1343	1352	1368	1389	1405	1421	1440	1452	1469	1475	1482	1489	1497	1508	1514
	1521	1528	1538	1563	1579	1595	1613	1625	1642	1648	1655	1662	1670	1681	1687
	1694	1701	1710	1725	1741	1757	1776	1788	1805	1811	1818	1825	1833	1844	1850
	1857	1864	1873	1889	1905	1921	1939	1951	1968	1974	1981	1988	1996	2007	2013
	2020	2027	2036	2051	2068	2086	2096	2104	2122	2139	2156	2173	2190	2207	2215
	2231	2257	2278	2296	2302	2321	2343	2367	2375	2395	2402	2418	2424	2434	2441
	2450	2456	2467	2475	2497	2503	2524	2554	2569	2579	2586	2621	2626	2653	2659
	2685	2709	2716	2736	2761	2774	2803	2809	2816	2993	3000	3006			
LOOP	1#	387	397	407	418	429	440	450	461	471	489	502	515	528	541
	554	562	570	578	585	593	601	609	625	632	639	646	655	662	669
	676	691	708	724	742	754	771	778	785	792	799	810	817	824	831
	841	859	876	892	910	921	938	945	952	959	966	977	984	991	998
	1007	1023	1042	1059	1075	1093	1105	1122	1129	1136	1143	1150	1161	1168	1175
	1182	1192	1208	1225	1241	1259	1271	1288	1295	1302	1309	1316	1327	1334	1341
	1348	1356	1372	1392	1409	1425	1444	1456	1473	1480	1487	1494	1501	1512	1519
	1526	1533	1543	1566	1583	1599	1617	1629	1646	1653	1660	1667	1674	1685	1692
	1699	1706	1714	1728	1745	1761	1780	1792	1809	1816	1823	1830	1837	1848	1855
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	2025	2032	2040	2054	2072	2090	2099	2108	2126	2143	2160	2177	2194	2211	2219
	2235	2262	2281	2299	2306	2325	2347	2370	2379	2398	2406	2421	2428	2438	2445
	2453	2460	2471	2479	2501	2507	2529	2558	2573	2583	2591	2624	2630	2657	2663
	2689	2713	2720	2740	2765	2779	2806	2813	2821	2996	3003	3011			
NEWTST	1#	374	473	543	613	678	694	710	726	756	845	862	878	894	923
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	1927	1957	2042	2058	2075	2112	2129	2146	2163	2180	2197	2221	2239	2266	2284
	2308	2329	2351	2382	2409	2481	2511	2536	2606	2636	2668	2697	2723	2746	2784
	2941														
STARS	1#	243	253	280	282	284	374	376	473	475	543	545	613	615	678
	680	694	696	710	712	726	728	756	758	845	847	862	864	878	880
	894	896	923	925	1009	1011	1030	1032	1045	1047	1061	1063	1077	1079	1107
	1109	1196	1198	1211	1213	1227	1229	1243	1245	1273	1275	1358	1360	1380	1382
	1395	1397	1411	1413	1427	1429	1458	1460	1554	1556	1569	1571	1585	1587	1601
	1603	1631	1633	1716	1718	1731	1733	1747	1749	1764	1766	1794	1796	1880	1882
	1895	1897	1911	1913	1927	1929	1957	1959	2042	2044	2058	2060	2075	2077	2112
	2114	2129	2131	2146	2148	2163	2165	2180	2182	2197	2199	2221	2223	2239	2241
	2266	2268	2284	2286	2308	2310	2329	2331	2351	2353	2382	2384	2409	2411	2481
	2483	2511	2513	2536	2538	2606	2608	2636	2638	2668	2670	2697	2699	2723	2725
	2746	2748	2784	2786	2941	2943									
	2111#	2112	2129	2146	2163	2180	2197	2221							
VTRP	1#	384	394	404	415	426	437	447	458	468	486	499	512	525	538
SSERCD	551	559	567	575	582	590	598	606	622	629	636	643	652	659	666
	673	688	705	721	739	751	768	775	782	789	796	807	814	821	828
	838	856	873	889	907	918	935	942	949	956	963	974	981	988	995
	1004	1020	1039	1056	1072	1090	1102	1119	1126	1133	1140	1147	1158	1165	1172
	1179	1189	1205	1222	1238	1256	1268	1285	1292	1299	1306	1313	1324	1331	1338
	1345	1353	1369	1389	1406	1422	1441	1453	1470	1477	1484	1491	1498	1509	1516
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	1696	1703	1711	1725	1742	1758	1777	1789	1806	1813	1820	1827	1834	1845	1852
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CROSS REFERENCE TABLE -- MACRO NAMES

SEQ 0074

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	2232	2259	2278	2296	2303	2322	2344	2367	2376	2395	2403	2418	2425	2435	2442
	2450	2457	2468	2476	2498	2504	2526	2555	2570	2580	2588	2621	2627	2654	2660
SSERNU	2686	2710	2717	2737	2762	2776	2803	2810	2818	2993	3000	3008			
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	673	688	705	721	739	751	768	775	782	789	796	807	814	821	828
	838	856	873	889	907	918	935	942	949	956	963	974	981	988	995
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	1179	1189	1205	1222	1238	1256	1268	1285	1292	1299	1306	1313	1324	1331	1338
	1345	1353	1369	1389	1406	1422	1441	1453	1470	1477	1484	1491	1498	1509	1516
	1523	1530	1540	1563	1580	1596	1614	1626	1643	1650	1657	1664	1671	1682	1689
	1696	1703	1711	1725	1742	1758	1777	1789	1806	1813	1820	1827	1834	1845	1852
	1859	1866	1874	1889	1906	1922	1940	1952	1969	1976	1983	1990	1997	2008	2015
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	2232	2259	2278	2296	2303	2322	2344	2367	2376	2395	2403	2418	2425	2435	2442
	2450	2457	2468	2476	2498	2504	2526	2555	2570	2580	2588	2621	2627	2654	2660
SSERRO	2686	2710	2717	2737	2762	2776	2803	2810	2818	2993	3000	3008			
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	1221	1237	1267	1352	1405	1421	1452	1579	1595	1625	1710	1741	1757	1788	1873
	1905	1921	1951	2036	2068	2215	2302	2321	2343	2402	2475	2716			
SSLOOP	1#	387	397	407	418	429	440	450	461	471	489	502	515	528	541
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	676	691	708	724	742	754	771	778	785	792	799	810	817	824	831
	841	859	876	892	910	921	938	945	952	959	966	977	984	991	998
	1007	1023	1042	1059	1075	1093	1105	1122	1129	1136	1143	1150	1161	1168	1175
	1182	1192	1208	1225	1241	1259	1271	1288	1295	1302	1309	1316	1327	1334	1341
	1348	1356	1372	1392	1409	1425	1444	1456	1473	1480	1487	1494	1501	1512	1519
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	1862	1869	1877	1892	1909	1925	1943	1955	1972	1979	1986	1993	2000	2011	2018
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	2453	2460	2471	2479	2501	2507	2529	2558	2573	2583	2591	2624	2630	2657	2663
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	1427	1458	1554	1569	1585	1601	1631	1716	1731	1747	1764	1794	1880	1895	1911
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ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

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RUN-TIME: 54 41 6 SECONDS
RUN-TIME RATIO: 130/103=1.2
CORE USED: 11K (22 PAGES)

.MAIN. MACY11 27(1006) 22-OCT-76 12:41 PAGE 75
DFKABB.P11 19-NOV-75 07:55 CROSS REFERENCE TABLE -- MACRO NAMES

SEQ 0075

