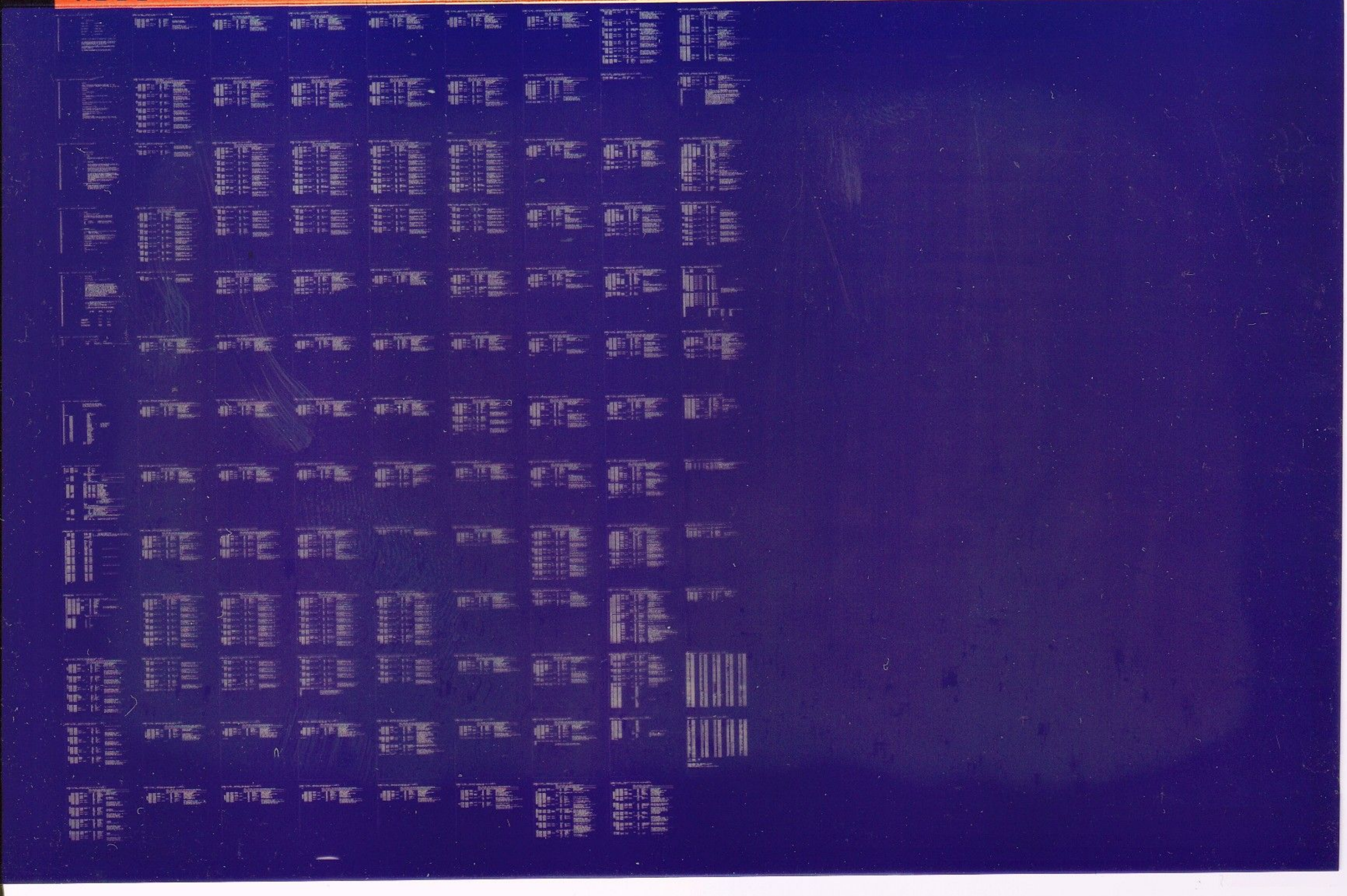
KD11-Z

11/44 TRAPS
CKKABB0

AH-F623B-MC
FICHE 1 OF 1

FEB 1981

MADE IN USA



```
                .REM %

                        IDENTIFICATION

                PRODUCT CODE:           AC-F621B-MC

                PRODUCT NAME:           CKKABB0 11/44 TRAPS

                DATE CREATED:           OCTOBER 1980

                MAINTAINER:             DIAGNOSTIC GROUP

                AUTHOR:                 DAN MILLEVILLE


                COPYRIGHT (C) 1979,1980 DIGITAL EQUIPMENT CORP., MAYNARD, MASS.

                THIS SOFTWARE IS FURNISHED TO PURCHASER UNDER A LICENSE FOR USE
                ON A SINGLE COMPUTER SYSTEM AND CAN BE COPIED (WITH INCLUSION
                OF DEC'S COPYRIGHT NOTICE) ONLY FOR USE IN SUCH SYSTEM, EXCEPT
                AS MAY OTHERWISE BE PROVIDED IN WRITING BY DEC.

                THE INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT
                NOTICE AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL
                EQUIPMENT CORPORATION.

                DEC ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF
                ITS SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DEC.
```

```
                                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

                                        11/44 STANDARD COMPUTER

                                2.2     STORAGE

                                        2.2.1 PROGRAM STORAGE - THE ROUTINE USES MEMORY
                                              FROM 0000 TO 17600.

                                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 "CKKABB0 11/44 TRAPS" AFTER THE FIRST ITERATION
                                        AND THEN PRINTS IT EVERY 15 TIMES(APROXIMATELY EVERY 15 SECONDS)
```

```
                                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 (000000) (THIS LOCATION IS ALSO THE STATUS
                                                WORD FOR THAT VECTOR ENTRANCE. BUT THIS WILL HAVE NO EFFECT
                                                ON IT ALSO BEING THE NEXT INSTRUCTION).

                                                IF A HALT OCCURS IN THE TRAP OR INTERRUPT VECTOR AREA,
                                                REGISTER SIX SHOULD BE EXAMINED TO DETERMINE ITS CONTENTS,
                                                THEN USE REGISTER SIX CONTENTS AS AN ADDRESS TO DETERMINE
                                                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 '$TESTN'(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.
```

```
                                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 '$TSTN'
                                        THIS TEST IS A SEQUENCIAL INCREMENT AND COMPARE COUNT.

                                        EXAMPLE

                                TSTA:   INC     $TSTNM          ;INCREMENT THE TEST NUMBER
                                        CMP     #A,$TSTNM       ;COMPARE FOR THE RIGHT TEST
                                        BNE     TSTA+1-12       ;IF NOT CORRECT BRACNH TO A HALT
                                        ----
                                        CODE



                                        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
```

```
258
259                             8.      MISCELLANEOUS
260
261                             8.1     EXECUTION TIME
262
263                                     1ST PASS APPROX. 2 SEC., THEREAFTER EVERY 15 SEC
264
265
266                             9.      PROGRAM DESCRIPTION
267
268                                     THIS PROGRAM CHECKS THAT ON ALL TRAP OPERATIONS REGISTER
269                                     6 IS DECREMENTED THE CORRECT AMOUNT, THAT THE CORRECT
270                                     PC IS SAVED ON THE STACK, THAT THE OLD CONDITION CODES AND
271                                     PRIORITY ARE PLACED ON THE STACK AND THAT THE NEW STATUS AND
272                                     CONDITION CODES ARE CORRECT.  BOTH THE "TRAP" AND "EMT"
273                                     TRAP INSTRUCTIONS ARE TESTED TO SEE THAT ALL COMBINATIONS WILL
274                                     TRAP.  CHECKED ALSO IS THAT ALL RESERVED INSTRUCTIONS
275                                     WILL TRAP.  VERIFICATION OF THE "TRT" INSTRUCTION (00003)
276                                     WHICH IS USED FOR SOFTWARE DEBUG ROUTINES: ODT,DDT, IS DONE.
277                                     ALSO, THE TRACE BIT IS CHECKED TO SEE IF IT CAUSES A TRAP.
278                                     THE RTI AND RTT INSTRUCTIONS ARE CHECKED. STACK OVERFLOW IS
279                                     ALSO CHECKED FOR ALL THE TRAP INSTRUCTIONS.
280                                     SPECIAL CHECKS ARE MADE TO SEE IF BUS
281                                     ERROR TRAPS OCCUR ON NON-EXISTENT MEMORY.PIRQ TRAPS ARE CHECKED AT ALL LEVELS
282
283                             10.0    RUNNING UNDER APT
284
285
286
287                                     THE EXECUTION TIMES PROVIDED IN THE APT SCRIPT THAT FOLLOWS
288                             ARE FOR EXECUTION WITH A 11/44 PROCESSOR,  CACHE,
289                             16K CORE MEMORY, AND 300 BAUD.
290                                     THE FOLLOWING IS A PROGRAM LOAD FILE USED BY APT:
291                             1. E TABLE 'A' IS USED FOR APT DUMP MODE.
292
293                             2. E TABLE 'B' IS USED FOR APT QV AND RUN TIME MODES.
294                                $ENVM=040 INDICATES THAT TYPEOUTS WILL BE SUPRESSED.
295
296
297                                     1ST PASS        LONGEST         ADDITIONAL
298                                     RUN TIME        TEST TIME       RUN TIME
299                                     5 .                 5               0
300
301
302                                     ......          E TABLES        .......
303
304
305                                                     A               B
306                             E-MODE/S-MODE                           000/000         040/001
307                             ($ENVM/$ENV)
308
309                             SWITCH REGISTER 1                       000000          000000
310                             ($SWREG)
311
312                             SWITCH REGISTER 2                       000000          000000
313                             CPU TYPE/OPTIONS                        00/0000         00/0000
```

```
                        11.0            REVISION HISTORY

                                REVISION        DATE            COMMENT

                                CKKABA          MARCH 1979      ORIGINAL RELEASE
                                CKKABB          NOVEMBER 1980   FIX DIAGNOSTIC HALT WITH CIS SWITCH IN MAINT POSITIO
                        %
```

```
                        ;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



                                .LIST ME
                                .NLIST MC,MD,CND
000000                          .ENABLE ABS
            000006              SP=%6
            000006              R6=%6
            000003              TAB=%3
            000001              LAST=%1
            000005              FIRST=%5
            000002              R2=%2
            000000              HLT=HALT
            000003              TRT=3
            000004              RTRAP5=4            ;ILLEGAL ADDRESSES
            000014              RTRAP4=14           ;FOR TRACE TRAP
            000030              RTRAP3=30           ;FOR EMULATOR TRAP
            000020              RTRAP2=20           ;FOR IOT TRAP
            000034              RTRAP1=34           ;FOR TRAP INST
            177564              TTCSR=177564
            177560              TRCSR=177560
            177564              TPS=177564
            177566              TPB=177566
            000240              BELL=240
            000240              NOP=240
            177776              STATUS=177776
            000010              TRAPA=10
            000010              RTRAP=10
            004700              ILLA=004700
            000100              ILLB=100
            177776              CC=177776
            177766              CPUERR=177766
            177413              CERMSK=177413
            177776              PSW=177776
                        .MCALL  .$APTHDR
                        .MCALL  .$APTBLS
                        .MCALL  .$ACT11
```

```
         000200                        .=200
 000200  000137  000622                JMP     BEGIN
         000210                        .=210
 000210  005037  000306                CLR     $PASS
 000214  000137  000622                JMP     BEGIN
         000300                        .=300
                               .SBTTL  ACT11 HOOKS
                               ;***********************************************************************
                               ;HOOKS REQUIRED BY ACT11
         000300                        $SVPC=.                         ;SAVE PC
         000046                        .=46
 000046  017330                        $ENDAD                          ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .$EOP
         000052                        .=52
 000052  000000                        .WORD   0                       ;;2)SET LOC.52 TO ZERO
         000300                        .=$SVPC                         ;; RESTORE PC
                               .SBTTL  APT MAILBOX-ETABLE
                               ;***********************************************************************
                               .EVEN
 000300                        $MAIL:                          ;;APT MAILBOX
 000300  000000                $MSGTY: .WORD   AMSGTY  ;;MESSAGE TYPE CODE
 000302  000000                $FATAL: .WORD   AFATAL  ;;FATAL ERROR NUMBER
 000304  000000                $TESTN: .WORD   ATESTN  ;;TEST NUMBER
 000306  000000                $PASS:  .WORD   APASS   ;;PASS COUNT
 000310  000000                $DEVCT: .WORD   ADEVCT  ;;DEVICE COUNT
 000312  000000                $UNIT:  .WORD   AUNIT   ;;I/O UNIT NUMBER
 000314  000000                $MSGAD: .WORD   AMSGAD  ;;MESSAGE ADDRESS
 000316  000000                $MSGLG: .WORD   AMSGLG  ;;MESSAGE LENGTH
 000320                        $ETABLE:                ;;APT ENVIRONMENT TABLE
 000320     000                $ENV:   .BYTE   AENV    ;;ENVIRONMENT BYTE
 000321     000                $ENVM:  .BYTE   AENVM   ;;ENVIRONMENT MODE BITS
 000322  000000                $SWREG: .WORD   ASWREG  ;;APT SWITCH REGISTER
 000324  000000                $USWR:  .WORD   AUSWR   ;;USER SWITCHES
 000326  000000                $CPUOP: .WORD   ACPUOP  ;;CPU TYPE,OPTIONS
                               ;*                      BITS 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
 000330                        $ETEND:
                               .MEXIT
                               .SBTTL  APT PARAMETER BLOCK
                               ;***********************************************************************
                               ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
                               ;***********************************************************************
         000330                        .$X=.    ;;SAVE CURRENT LOCATION
         000024                        .=24     ;;SET POWER FAIL TO POINT TO START OF PROGRAM
 000024  000200                        200      ;;FOR APT START UP
         000044                        .=44     ;;POINT TO APT INDIRECT ADDRESS PNTR.
 000044  000330                        $APTHDR  ;;POINT TO APT HEADER BLOCK
         000330                        .=.$X    ;;RESET LOCATION COUNTER
                               ;***********************************************************************
                               ;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
                               ;INTERFACE SPEC.
 000330                        $APTHD:
 000330  000000                $HIBTS: .WORD   0       ;;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
 000332  000300                $MBADR: .WORD   $MAIL   ;;ADDRESS OF APT MAILBOX (BITS 0-15)
```

APT PARAMETER BLOCK

```
000334  000005                  $TSTM:  .WORD   5       ;;RUN TIM OF LONGEST TEST
000336  000005                  $PASTM: .WORD   5       ;;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
000340  000000                  $UNITM: .WORD   0       ;;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
000342  000014                          .WORD   $ETEND-$MAIL/2 ;;LENGTH MAILBOX-ETABLE(WORDS)
  445   000304                  $TSTNM=$TESTN
  446   000302                  $ERROR=$FATAL
  447
  448   000500                          .=500
  449 000500  000000            BUFF:   0
  450 000502  000000            RCPUER: .WORD 0
  451 000504  177572            SR0:    177572
  452 000506  177573            SR0H:   177573
  453 000510  177574            SR1:    177574
  454 000512  177576            SR2:    177576
  455 000514  000250            KTVEC:  250
  456 000516  000252            KTSTA:  252
  457 000520                    ADRTAB:
  458 000520  177600            UPDR0:  177600                  ;USER PAGE DESCRIPTOR REGISTERS
  459 000522  177602            UPDR1:  177602
  460 000524  177604            UPDR2:  177604
  461 000526  177606            UPDR3:  177606
  462 000530  177610            UPDR4:  177610
  463 000532  177612            UPDR5:  177612
  464 000534  177614            UPDR6:  177614
  465 000536  177616            UPDR7:  177616
  466                           ;
  467 000540  177640            UPAR0:  177640                  ;USER PAGE ADDRESS REGISTERS
  468 000542  177642            UPAR1:  177642
  469 000544  177644            UPAR2:  177644
  470 000546  177646            UPAR3:  177646
  471 000550  177650            UPAR4:  177650
  472 000552  177652            UPAR5:  177652
  473 000554  177654            UPAR6:  177654
  474 000556  177656            UPAR7:  177656
  475                           ;
  476 000560  172300            KPDR0:  172300                  ;KERNEL PAGE DESCRIPTOR REGISTERS
  477 000562  172302            KPDR1:  172302
  478 000564  172304            KPDR2:  172304
  479 000566  172306            KPDR3:  172306
  480 000570  172310            KPDR4:  172310
  481 000572  172312            KPDR5:  172312
  482 000574  172314            KPDR6:  172314
  483 000576  172316            KPDR7:  172316
  484                           ;
  485 000600  172340            KPAR0:  172340                  ;KERNEL PAGE ADDRESS REGISTERS
  486 000602  172342            KPAR1:  172342
  487 000604  172344            KPAR2:  172344
  488 000606  172346            KPAR3:  172346
  489 000610  172350            KPAR4:  172350
  490 000612  172352            KPAR5:  172352
  491 000614  172354            KPAR6:  172354
  492 000616  172356            KPAR7:  172356
  493 000620  000616            ADREND: .-2
  494
  495
  496
```

```


    000622  012706  000500              BEGIN:  MOV     #500,%6 ;SET UP SACK BUFF
    000626  012737  177777  017356              MOV     #-1,PASSPT        ;CLEAR THE ITERATION COUNTER
    000634  023737  000042  017330              CMP      42,$ENDAD
    000642  001404                              BEQ     RESTRT
    000644  012700  017566                      MOV     #TITLE,R0
    000650  004737  020000                      JSR     PC,PRTMSG
    000654  005037  000300              RESTRT: CLR     $MSGTY
    000660  012706  000500                      MOV     #500,%6
    000664  012737  017712  000024              MOV     #PWRDWN,24        ;SET UP THE POWER DOWN VECTOR
    000672  012737  000340  000026              MOV     #340,26           ;SET UP POWER DOWN PRIORITY
    000700  012737  000006  000004              MOV     #6,4              ;SET UP TRAP VECTORS 4 & 6.
    000706  005037  000006                      CLR     6
    000712  012737  000012  000010              MOV     #12,10
    000720  005037  000012                      CLR     12
    000724  005037  000304                      CLR     $TSTNM
    000730  005037  000302                      CLR     $ERROR
    000734  012702  000300                      MOV     #$MSGTY,R2

                                        ;SPECIAL CASE OF ODD;.EVEN .BYTE AND REGISTER 6
            000000                      HERE=0

    000740  000412                              BR      TST1
    000742  000000                      K1:     0
    000744  000000                      K2:     0
    000746  000000                      K3:     0
    000750  000000                      K4:     0
    000752  000000                      K5:     0
    000754  000000                      K6:     0
    000756  052525                      K7:     052525
    000760  052400                      K10:    052400
    000762  000000                      K11:    0
    000764  000000                      K12:    0
```

```
                                        .SBTTL  TEST #1 - TEST AUTO INC AND DEC OF R6 FOR WORD AND BYTES
                                        ;*************************************************************************
                                        ;TEST 1 - TEST AUTO INC AND DEC OF R6 FOR WORD AND BYTES
                                        ;*************************************************************************
000766  005237  000304          TST1:   INC     $TESTN          ;UPDATE TEST NUMBER
000772  022737  000001  000304          CMP     #1,$TESTN       ;SEQUENCE ERROR?
001000  001137                        BNE     TST2-12 ;BR TO ERROR HALT ON SEQ ERROR
533 001002  005006                    CLR     %6
534 001004  112637  000000            MOVB    (6)+,HERE       ;SIX SHOULD INCREMENT BY TWO
535 001010  020627  000002            CMP     %6,#2
536 001014  001405                    BEQ     BR1
001016  012737  000001  000302        MOV     #1,$FATAL       ;MOVE TO MAILBOX #  *******  1  *******
001024  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001026  000000                        HALT                    ;R6 DID NOT AUTO INCREMENT BY TWO
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 764
537
538 001030  012706  001000          BR1:    MOV     #1000,%6
539 001034  114627  000000            MOVB    -(6),#HERE      ;SHOULD DECREMENT BY TWO
540 001040  020627  000776            CMP     %6,#776
541 001044  001405                    BEQ     BR2
001046  012737  000002  000302        MOV     #2,$FATAL       ;MOVE TO MAILBOX #  *******  2  *******
001054  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001056  000000                        HALT                    ;R6 DID NOT AUTO DECREMENT BY 2
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 750
542
543 001060  005006          BR2:    CLR     %6
544 001062  112626                  MOVB    (6)+,(6)+       ;DOUBLES AUTO INCREMENT OF R6
545 001064  020627  000004          CMP     %6,#4
546 001070  001405                  BEQ     BR3
001072  012737  000003  000302      MOV     #3,$FATAL       ;MOVE TO MAILBOX #  *******  3  *******
001100  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001102  000000                      HALT                    ;WRONG AUTO INCREMENT OF R6
                                                            ;TO SCOPE REPLACE HALT WITH 240
                                                            ;AND REPLACE NEXT INST WITH 736
547
548 001104  005006          BR3:    CLR     %6
549 001106  005004                  CLR     %4
550 001110  122624                  CMPB    (6)+,(4)+       ;TEST INCREMENT OF R6
551 001112  020627  000002          CMP     %6,#2
552 001116  001405                  BEQ     BR4
001120  012737  000004  000302      MOV     #4,$FATAL       ;MOVE TO MAILBOX #  *******  4  *******
001126  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001130  000000                      HALT                    ;WRONG INCREMENT OF R6
                                                            ;TO SCOPE REPLACE HALT WITH 240
                                                            ;AND REPLACE NEXT INST WITH 723
553
554 001132  005006          BR4:    CLR     %6
555 001134  005004                  CLR     %4
556 001136  122426                  CMPB    (4)+,(6)+       ;TEST INCREMENT OF R6
557 001140  020627  000002          CMP     %6,#2
558 001144  001405                  BEQ     BR5
001146  012737  000005  000302      MOV     #5,$FATAL       ;MOVE TO MAILBOX #  *******  5  *******
001154  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001156  000000                      HALT                    ;WRONG INCREMENT OF R6
                                                            ;TO SCOPE REPLACE HALT WITH 240
```

TEST #1 - TEST AUTO INC AND DEC OF R6 FOR WORD AND BYTES

```
                                                                        ;AND REPLACE NEXT INST WITH 710

    559
    560 001160  005006                  BR5:    CLR     %6
    561 001162  005004                          CLR     %4
    562 001164  122624                          CMPB    (6)+,(4)+       ;TEST INCREMENT OF R4
    563 001166  020427  000001              BR6:    CMP     %4,#1
    564 001172  001405                          BEQ     BR6
        001174  012737  000006  000302              MOV     #6,$FATAL       ;MOVE TO MAILBOX #  *******  6  *******
        001202  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        001204  000000                              HALT                    ;WRONG INCREMENT OF R4
                                                                            ;TO SCOPE REPLACE HALT WITH 240
                                                                            ;AND REPLACE NEXT INST WITH 675
    565 001206  005006                  BR6:    CLR     %6
    566 001210  005004                          CLR     %4
    567 001212  122426                          CMPB    (4)+,(6)+       ;TEST INCREMENT OF R6
    568 001214  020627  000002              BR7:    CMP     %6,#2
    569 001220  001405                          BEQ     BR7
        001222  012737  000007  000302              MOV     #7,$FATAL       ;MOVE TO MAILBOX #  *******  7  *******
        001230  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        001232  000000                              HALT                    ;WRONG INCREMENT OF R6
                                                                            ;TO SCOPE REPLACE HALT WITH 240
                                                                            ;AND REPLACE NEXT INST WITH 662
    570
    571 001234  005006                  BR7:    CLR     %6
    572 001236  005004                          CLR     %4
    573 001240  122426                          CMPB    (4)+,(6)+       ;TEST INCREMENT OF R4
    574 001242  020427  000001              BR10:   CMP     %4,#1
    575 001246  001405                          BEQ     BR10
        001250  012737  000010  000302              MOV     #10,$FATAL      ;MOVE TO MAILBOX #  *******  10  *******
        001256  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        001260  000000                              HALT                    ;WRONG INCREMENT OF R4
                                                                            ;TO SCOPE REPLACE HALT WITH 240
                                                                            ;AND REPLACE NEXT INST WITH 647
    576
    577 001262  012706  001000          BR10:   MOV     #1000,%6
    578 001266  124627  000000                  CMPB    -(6),#HERE      ;TEST DECREMENT OF R6
    579 001272  022706  000776                  CMP     #776,%6
    580 001276  001405                          BEQ     TST2
        001300  012737  000011  000302              MOV     #11,$FATAL      ;MOVE TO MAILBOX #  *******  11  *******
        001306  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        001310  000000                              HALT                    ;WRONG DECREMENT OF R6,OR WRONG $TSTNM
                                                                            ;TO SCOPE REPLACE HALT WITH 240
                                                                            ;AND REPLACE NEXT INST WITH 633
```

```
    581                                 .SBTTL  TEST #2 - TEST TRANSFER OF .BYTE USING R6
                                        ;*************************************************************************
                                        ;TEST 2 - TEST TRANSFER OF .BYTE USING R6
                                        ;*************************************************************************
    001312  005237  000304             TST2:   INC     $TESTN          ;UPDATE TEST NUMBER
    001316  022737  000002  000304             CMP     #2,$TESTN       ;SEQUENCE ERROR?
    001324  001137                             BNE     TST3-12 ;BR TO ERROR HALT ON SEQ ERROR
    582 001326  012737  123456  000752         MOV     #123456,K5
    583 001334  012737  050505  000742         MOV     #050505,K1
    584 001342  012705  000742                 MOV     #K1,%5          ;%5=(050505)K1
    585 001346  012706  000752                 MOV     #K5,%6          ;%6=(123456)K5
    586 001352  112625                         MOVB    (6)+,(5)+       ;LOW .BYTE OF R6 TO R5
    587 001354  022737  050456  000742         CMP     #050456,K1
    588 001362  001405                         BEQ     BR11
    001364  012737  000012  000302             MOV     #12,$FATAL      ;MOVE TO MAILBOX #  *******  12  *******
    001372  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    001374  000000                             HALT                    ;FALSE TRANSFER OF .BYTE
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 753
    589
    590 001376  012737  123456  000752  BR11:  MOV     #123456,K5
    591 001404  012737  050505  000742         MOV     #050505,K1
    592 001412  012705  000742                 MOV     #K1,%5          ;%5(050505)K1
    593 001416  012706  000754                 MOV     #K6,%6          ;%6(123456)K5
    594 001422  114625                         MOVB    -(6),(5)+       ;LOW .BYTE OF R6 TO R5 (DECREMENT)
    595 001424  023727  000742  050456         CMP     K1,#050456
    596 001432  001405                         BEQ     BR12
    001434  012737  000013  000302             MOV     #13,$FATAL      ;MOVE TO MAILBOX #  *******  13  *******
    001442  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    001444  000000                             HALT                    ;FALSE R6 .BYTE TRANSFER
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 727
    597
    598 001446  012737  123456  000742  BR12:  MOV     #123456,K1
    599 001454  012737  050505  000752         MOV     #050505,K5
    600 001462  012705  000742                 MOV     #K1,%5          ;(123456)
    601 001466  012706  000752                 MOV     #K5,%6          ;(050505)
    602 001472  112526                         MOVB    (5)+,(6)+       ;LOW OF R5 TO LOW OF R6
    603 001474  022737  050456  000752         CMP     #050456,K5
    604 001502  001405                         BEQ     BR13
    001504  012737  000014  000302             MOV     #14,$FATAL      ;MOVE TO MAILBOX #  *******  14  *******
    001512  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    001514  000000                             HALT                    ;FALSE R6 .BYTE TRANSFER
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 703
    605
    606 001516  012737  123456  000742  BR13:  MOV     #123456,K1
    607 001524  012737  050505  000752         MOV     #050505,K5
    608 001532  012705  000743                 MOV     #K1+1,%5        ;123456
    609 001536  012706  000752                 MOV     #K5,%6          ;050505
    610 001542  112526                         MOVB    (5)+,(6)+       ;HIGH OF R5 TO LOW OF R6
    611 001544  023727  000752  050647         CMP     K5,#050647
    612 001552  001405                         BEQ     BR14
    001554  012737  000015  000302             MOV     #15,$FATAL      ;MOVE TO MAILBOX #  *******  15  *******
    001562  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    001564  000000                             HALT                    ;FALSE R6 .BYTE TRANSFER
                                                                        ;TO SCOPE REPLACE HALT WITH 240
```

```
                                                                        ;AND REPLACE NEXT INST WITH 657
    613
    614 001566  012737  123456  000742  BR14:   MOV     #123456,K1
    615 001574  012737  050505  000752          MOV     #050505,K5
    616 001602  012705  000743                   MOV     #K1+1,%5        ;R5-123456-ODD ADDRESS
    617 001606  012706  000752                   MOV     #K5,%6          ;R6-050505--.EVEN ADDRESS
    618 001612  112625                           MOVB    (6)+,(5)+       ;LOW OF R6 TO HIGH OF R5
    619 001614  022737  042456  000742          CMP     #042456,K1
    620 001622  001405                           BEQ     TST3
        001624  012737  000016  000302          MOV     #16,$FATAL      ;MOVE TO MAILBOX #  *******  16  *******
        001632  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        001634  000000                           HALT                    ;FAILED LOW OF 6 TO HIGH OF 5,OR WRONG $TSTNM
                                                                        ;TC SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 633
```

```
                                        .SBTTL  TEST #3 - TEST BYTE OPERATION WITH SEQ ODD-EVEN ADDRESS
                                        ;*************************************************************************
                                        ;TEST 3 - TEST BYTE OPERATION WITH SEQ ODD-EVEN ADDRESS
                                        ;*************************************************************************
001636  005237  000304          TST3:   INC     $TESTN          ;UPDATE TEST NUMBER
001642  022737  000003  000304          CMP     #3,$TESTN       ;SEQUENCE ERROR?
001650  001103                        BNE     TST4-12 ;BR TO ERROR HALT ON SEQ ERROR
622 001652  123737  000756  000757    CMPB    K7,K7+1         ;SAME .WORD LOW TO HIGH
623 001660  001405                    BEQ     BR15
001662  012737  000017  000302        MOV     #17,$FATAL      ;MOVE TO MAILBOX #  *******  17  *******
001670  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001672  000000                        HALT                    ;SHOULD COMPARE LOW TO HIGH
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 766
624
625 001674  123737  000757  000756  BR15:   CMPB    K7+1,K7         ;COMPARE ODD TO .EVEN SAME .WORD
626 001702  001405                    BEQ     BR16
001704  012737  000020  000302        MOV     #20,$FATAL      ;MOVE TO MAILBOX #  *******  20  *******
001712  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001714  000000                        HALT                    ;ODD TO .EVEN .BYTE FAILURE
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 755
627
628 001716  123737  000761  000756  BR16:   CMPB    K10+1,K7        ;SEQUENTIAL .BYTES
629 001724  001405                    BEQ     BR17
001726  012737  000021  000302        MOV     #21,$FATAL      ;MOVE TO MAILBOX #  *******  21  *******
001734  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001736  000000                        HALT                    ;ODD TO .EVEN FAILED
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 744
630
631 001740  123737  000760  000754  BR17:   CMPB    K10,K6
632 001746  001405                    BEQ     BR20
001750  012737  000022  000302        MOV     #22,$FATAL      ;MOVE TO MAILBOX #  *******  22  *******
001756  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001760  000000                        HALT                    ;.EVEN TO EVEN FAILED
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 733
633 001762  123737  000757  000761  BR20:   CMPB    K7+1,K10+1
634 001770  001405                    BEQ     BR21
001772  012737  000023  000302        MOV     #23,$FATAL      ;MOVE TO MAILBOX #  *******  23  *******
002000  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002002  000000                        HALT                    ;ODD TO ODD FAILED
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 722
635
636 002004  123737  000760  000761  BR21:   CMPB    K10,K10+1
637 002012  001005                    BNE     BR22
002014  012737  000024  000302        MOV     #24,$FATAL      ;MOVE TO MAILBOX #  *******  24  *******
002022  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002024  000000                        HALT                    ;LOW TO HIGH IN SAME .WORD FAILED
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 711
638
639 002026  123737  000761  000761  BR22:   CMPB    K10+1,K10+1
640 002034  001405                    BEQ     BR23
002036  012737  000025  000302        MOV     #25,$FATAL      ;MOVE TO MAILBOX #  *******  25  *******
```

TEST #3 - TEST BYTE OPERATION WITH SEQ ODD-EVEN ADDRESS

```
        002044  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        002046  000000                          HALT                    ;HIGH TO LOW IN SAME .WORD FAILED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 700
    641
    642 002050  123737  000760  000757  BR23:   CMPB    K10,K7+1
    643 002056  001005                          BNE     TST4
        002060  012737  000026  000302          MOV     #26,$FATAL      ;MOVE TO MAILBOX #  *******  26  *******
        002066  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        002070  000000                          HALT                    ;.EVEN TO ODD FAILED,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 667
```

TEST #4 - TEST THE CC BITS

```
                                .SBTTL  TEST #4 - TEST THE CC BITS
                                ;*************************************************************************
                                ;TEST 4 - TEST THE CC BITS
                                ;*************************************************************************
002072  005237  000304  000304 TST4:   INC     $TESTN          ;UPDATE TEST NUMBER
002076  022737  000004  000304         CMP     #4,$TESTN       ;SEQUENCE ERROR?
002104  001062                        BNE     TST5-12 ;BR TO ERROR HALT ON SEQ ERROR
645 002106  000277                    SCC                     ;SET STATUS
646 002110  005037  177776            CLR     STATUS          ;CLEAR STATUS
647 002114  103005                    BCC     BR33
002116  012737  000027  000302        MOV     #27,$FATAL      ;MOVE TO MAILBOX #  *******  27  *******
002124  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002126  000000                        HALT                    ;C NOT CLEAR
                                                              ;TO SCOPE REPLACE HALT WITH 240
                                                              ;AND REPLACE NEXT INST WITH 766
648 002130                      BR33:
002130  102005                        BVC     BR34
002132  012737  000030  000302        MOV     #30,$FATAL      ;MOVE TO MAILBOX #  *******  30  *******
002140  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002142  000000                        HALT                    ;V NOT CLEAR
                                                              ;TO SCOPE REPLACE HALT WITH 240
                                                              ;AND REPLACE NEXT INST WITH 760
649 002144                      BR34:
002144  001005                        BNE     BR35
002146  012737  000031  000302        MOV     #31,$FATAL      ;MOVE TO MAILBOX #  *******  31  *******
002154  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002156  000000                        HALT                    ;Z NOT CLEAR
                                                              ;TO SCOPE REPLACE HALT WITH 240
                                                              ;AND REPLACE NEXT INST WITH 752
650 002160                      BR35:
002160  100005                        BPL     BR36
002162  012737  000032  000302        MOV     #32,$FATAL      ;MOVE TO MAILBOX #  *******  32  *******
002170  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002172  000000                        HALT                    ;N NOT CLEAR
                                                              ;TO SCOPE REPLACE HALT WITH 240
                                                              ;AND REPLACE NEXT INST WITH 744
651 002174  000257                BR36: CCC                   ;CLEAR CONDITION CODES
652 002176  052737  000017  177776    BIS     #17,STATUS      ;SET STATUS TO ONES
653
654 002204  103405                    BCS     BR37
002206  012737  000033  000302        MOV     #33,$FATAL      ;MOVE TO MAILBOX #  *******  33  *******
002214  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002216  000000                        HALT                    ;C NOT SET
                                                              ;TO SCOPE REPLACE HALT WITH 240
                                                              ;AND REPLACE NEXT INST WITH 732
655 002220                      BR37:
002220  102405                        BVS     BR40
002222  012737  000034  000302        MOV     #34,$FATAL      ;MOVE TO MAILBOX #  *******  34  *******
002230  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002232  000000                        HALT                    ;V NOT SET
                                                              ;TO SCOPE REPLACE HALT WITH 240
                                                              ;AND REPLACE NEXT INST WITH 724
656 002234                      BR40:
002234  001405                        BEQ     BR41
002236  012737  000035  000302        MOV     #35,$FATAL      ;MOVE TO MAILBOX #  *******  35  *******
002244  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002246  000000                        HALT                    ;Z NOT SET
```

TEST #4 - TEST THE CC BITS

```
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 716
    657 002250                          BR41:
        002250  100405                          BMI     TST5
        002252  012737  000036  000302          MOV     #36,$FATAL      ;MOVE TO MAILBOX #  *******  36  *******
        002260  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        002262  000000                          HALT                    ;N NOT SET,OR WRONG $TSTNM
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 710
```

```
                                        .SBTTL  TEST #5 - TEST THAT A TRAP OCCURS ON A RESERVED INS
                                        ;*************************************************************************
                                        ;TEST 5 - TEST THAT A TRAP OCCURS ON A RESERVED INS
                                        ;*************************************************************************
002264  005237  000304                  TST5:   INC     $TESTN          ;UPDATE TEST NUMBER
002270  022737  000005  000304                  CMP     #5,$TESTN       ;SEQUENCE ERROR?
002276  001006                                  BNE     RETA            ;BR TO ERROR HALT ON SEQ ERROR
659 002300  012706  000500                      MOV     #BUFF,SP        ;STACK POINTER SETUP
660 002304  012737  002326  000010              MOV     #RETAH,RTRAP    ;RETURN LOCATION
661 002312  000010                              TRAPA                   ;RESERVED INSTRUCTION, SHOULD TRAP
662 002314                              RETA:
002314  012737  000037  000302                  MOV     #37,$FATAL      ;MOVE TO MAILBOX #  *******  37  *******
002322  005212                                  INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002324  000000                                  HALT                    ;RESERVE INSTRUCTION DIDN'T TRAP,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 764

663 002326                              RETAH:
```

```
                                        .SBTTL  TEST #6 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;*************************************************************************
                                        ;TEST 6 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;*************************************************************************
002326  005237  000304          TST6:   INC     $TESTN          ;UPDATE TEST NUMBER
002332  022737  000006  000304          CMP     #6,$TESTN       ;SEQUENCE ERROR?
002340  001011                        BNE     TST7-12 ;BR TO ERROR HALT ON SEQ ERROR
665 002342  012706  000500              MOV     #BUFF,SP        ;STACK POINTER SETUP
666 002346  012737  002356  000010      MOV     #RETB,RTRAP     ;RETURN POINTER
667 002354  000010                      TRAPA                   ;RESERVED INSTRUCTION
668 002356  020627  000474          RETB:   CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
669 002362  001405                      BEQ     TST7
002364  012737  000040  000302          MOV     #40,$FATAL      ;MOVE TO MAILBOX #  *******  40  *******
002372  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002374  000000                        HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 761
```

TEST #7 - TEST THAT PROPER P.C. IS SAVED

```
                                        .SBTTL  TEST #7 - TEST THAT PROPER P.C. IS SAVED
                                        ;*************************************************************************
                                        ;TEST 7 - TEST THAT PROPER P.C. IS SAVED
                                        ;*************************************************************************
 002376  005237  000304                 TST7:   INC     $TESTN          ;UPDATE TEST NUMBER
 002402  022737  000007  000304                 CMP     #7,$TESTN       ;SEQUENCE ERROR?
 002410  001012                                BNE     TST10-12        ;BR TO ERROR HALT ON SEQ ERROR
671 002412  012706  000500                     MOV     #BUFF,SP        ;STACK POINTER SETUP
672 002416  012737  002426  000010             MOV     #RETC,RTRAP     ;RETURN FROM TRAP POINTER
673 002424  000010                     INSTC:  TRAPA                   ;TRAP ON THIS INSTRUCTION
674 002426  022737  002426  000474     RETC:   CMP     #.,BUFF-4       ;CHECK FOR INCREMENTED P.C.
675 002434  001405                             BEQ     TST10
 002436  012737  000041  000302                 MOV     #41,$FATAL      ;MOVE TO MAILBOX #  *******  41  *******
 002444  005212                                INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 002446  000000                                HALT                    ;INCORRECT P.C.,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 760
```

TEST #10 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK

```
676                                             .SBTTL  TEST #10 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                                ;******************************************************************************
                                                ;TEST 10 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                                ;******************************************************************************
     002450  005237  000304                     TST10:  INC     $TESTN          ;UPDATE TEST NUMBER
     002454  022737  000010  000304                     CMP     #10,$TESTN      ;SEQUENCE ERROR?
     002462  001040                                    BNE     TST11-12        ;BR TO ERROR HALT ON SEQ ERROR
677  002464  012706  000500                            MOV     #BUFF,SP        ;SET UP
678  002470  012737  002506  000010                    MOV     #RETD,RTRAP     ;SET UP
679  002476  005037  177776                            CLR     CC              ;CLEAR CC AND PRIORITY
680  002502  000257                                    CCC
681  002504  000010                                    TRAPA                   ;TRAP
682  002506  023727  000476  000000             RETD:  CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
683  002514  001405                                    BEQ     1$
     002516  012737  000042  000302                    MOV     #42,$FATAL      ;MOVE TO MAILBOX #  *******  42  *******
     002524  005212                                    INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     002526  000000                                    HALT                    ;INCORRECT STATUS
                                                                               ;TO SCOPE REPLACE HALT WITH 240
                                                                               ;AND REPLACE NEXT INST WITH 755
684  002530  012706  000500                     1$:    MOV     #BUFF,SP        ;SET UP
685  002534  012737  002554  000010                    MOV     #RETE,RTRAP     ;SET UP
686  002542  012737  000357  177776                    MOV     #357,CC         ;SET PRIORITY
687  002550  000277                                    SCC                     ;SET CC
688  002552  000010                                    TRAPA                   ;TRAP
689  002554  023727  000476  000357             RETE:  CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
690  002562  001405                                    BEQ     TST11
     002564  012737  000043  000302                    MOV     #43,$FATAL      ;MOVE TO MAILBOX #  *******  43  *******
     002572  005212                                    INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     002574  000000                                    HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
                                                                               ;TO SCOPE REPLACE HALT WITH 240
                                                                               ;AND REPLACE NEXT INST WITH 732
```

TEST #11 - TEST THAT "NEW" STATUS IS CORRECT

```
                                        .SBTTL  TEST #11 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*************************************************************************
                                        ;TEST 11 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*************************************************************************
002576  005237  000304                  TST11:  INC     $TESTN          ;UPDATE TEST NUMBER
002602  022737  000011  000304                  CMP     #11,$TESTN      ;SEQUENCE ERROR?
002610  001121                          .       BNE     STPP            ;BR TO ERROR HALT ON SEQ ERROR
692 002612  012706  000500                      MOV     #BUFF,SP
693 002616  012737  002632  000010              MOV     #RETF,RTRAP
694 002624  005037  000012                      CLR     RTRAP+2         ;CLEAR FUTURE PRIORITY AND CC
695 002630  000010                          .   TRAPA
696 002632                              RETF:                           ;TEST FOR "C" CLEARED
697 002632  100005                          .   BPL     1$
002634  012737  000044  000302                  MOV     #44,$FATAL      ;MOVE TO MAILBOX #  *******  44  *******
002642  005212                          .       INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002644  000000                          .       HALT                    ;N NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 761
698 002646                              1$:
002646  001005                          .       BNE     2$
002650  012737  000045  000302                  MOV     #45,$FATAL      ;MOVE TO MAILBOX #  *******  45  *******
002656  005212                          .       INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002660  000000                          .       HALT                    ;Z NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 753
699 002662                              2$:
002662  102005                          .       BVC     3$
002664  012737  000046  000302                  MOV     #46,$FATAL      ;MOVE TO MAILBOX #  *******  46  *******
002672  005212                          .       INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002674  000000                          .       HALT                    ;V NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 745
700 002676                              3$:
002676  103005                          .       BCC     4$
002700  012737  000047  000302                  MOV     #47,$FATAL      ;MOVE TO MAILBOX #  *******  47  *******
002706  005212                          .       INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002710  000000                          .       HALT                    ;C NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 737
701 002712  032737  000340  177776      4$:     BIT     #340,CC         ;TEST PRIORITY
702 002720  001405                          .   BEQ     5$
002722  012737  000050  000302                  MOV     #50,$FATAL      ;MOVE TO MAILBOX #  *******  50  *******
002730  005212                          .       INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002732  000000                          .       HALT                    ;PRIORITY NOT ZERO
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 726
703 002734  012706  000500              5$:     MOV     #BUFF,SP
704 002740  012737  002756  000010              MOV     #RETG,RTRAP
705 002746  012737  000357  000012              MOV     #357,RTRAP+2    ;SET NEW "CC" AND PRIORITY
706 002754  000010                          .   TRAPA                   ;TRAP HERE
707 002756                              RETG:
708 002756  100405                          .   BMI     1$
002760  012737  000051  000302                  MOV     #51,$FATAL      ;MOVE TO MAILBOX #  *******  51  *******
002766  005212                          .       INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002770  000000                          .       HALT                    ;N NOT SET
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 707
```

TEST #11 - TEST THAT "NEW" STATUS IS CORRECT

```
    709 002772                          1$:
        002772  001405                          BEQ     2$
        002774  012737  000052  000302          MOV     #52,$FATAL      ;MOVE TO MAILBOX #  *******  52  *******
        003002  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        003004  000000                          HALT                    ;Z NOT SET
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 701
    710 003006                          2$:
        003006  102405                          BVS     3$
        003010  012737  000053  000302          MOV     #53,$FATAL      ;MOVE TO MAILBOX #  *******  53  *******
        003016  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        003020  000000                          HALT                    ;V NOT SET
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 673
    711 003022                          3$:
        003022  103405                          BCS     4$
        003024  012737  000054  000302          MOV     #54,$FATAL      ;MOVE TO MAILBOX #  *******  54  *******
        003032  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        003034  000000                          HALT                    ;C NOT SET
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 665
    712 003036  013706  177776          4$:     MOV     CC,SP
    713 003042  042706  000017                  BIC     #17,SP
    714 003046  022706  000340                  CMP     #340,SP
    715 003052  001405                          BEQ     STPPA
        003054                          STPP:
        003054  012737  000055  000302          MOV     #55,$FATAL      ;MOVE TO MAILBOX #  *******  55  *******
        003062  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        003064  000000                          HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 651
    716 003066  012737  000012  000010  STPPA:  MOV     #12,10
    717 003074  005037  000012                  CLR     12
```

TEST #12 - TEST THAT A TRAP OCCURS FOR A "TRAP" INSTRUCTION

```
718                                     .SBTTL  TEST #12 - TEST THAT A TRAP OCCURS FOR A "TRAP" INSTRUCTION
                                        ;*************************************************************************
                                        ;TEST 12 - TEST THAT A TRAP OCCURS FOR A "TRAP" INSTRUCTION
                                        ;*************************************************************************
003100  005237  000304                  TST12:  INC     $TESTN          ;UPDATE TEST NUMBER
003104  022737  000012  000304                  CMP     #12,$TESTN      ;SEQUENCE ERROR?
003112  001013                                 BNE     TST13-12        ;BR TO ERROR HALT ON SEQ ERROR
719 003114  012737  000012  000010             MOV     #12,10
720 003122  005037  000012                     CLR     12
721 003126  012706  000500                     MOV     #BUFF,SP        ;STACK POINTER SETUP
722 003132  012737  003154  000034             MOV     #RETA1,RTRAP1   ;RETURN LOCATION
723 003140  104400                             TRAP                    ;RESERVED INSTRUCTION, SHOULD TRAP
724 003142  012737  000056  000302             MOV     #56,$FATAL      ;MOVE TO MAILBOX #  *******  56  *******
003150  005212                                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
003152  000000                                 HALT                    ;TRAP DIDN'T TRAP,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 757
725 003154                              RETA1:
```

TEST #13 - TEST DEC OF STACK POINTER ON A TRAP OPERATION

```
                                        .SBTTL  TEST #13 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;******************************************************************************
                                        ;TEST 13 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;******************************************************************************
 003154  005237  000304                 TST13:  INC     $TESTN          ;UPDATE TEST NUMBER
 003160  022737  000013  000304                 CMP     #13,$TESTN      ;SEQUENCE ERROR?
 003166  001011                                 BNE     TST14-12        ;BR TO ERROR HALT ON SEQ ERROR
727 003170  012706  000500                      MOV     #BUFF,SP        ;STACK POINTER SETUP
728 003174  012737  003204  000034              MOV     #RETB1,RTRAP1   ;RETURN POINTER
729 003202  104400                              TRAP                    ;RESERVED INSTRUCTION
730 003204  020627  000474          RETB1:      CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
731 003210  001405                              BEQ     TST14
 003212  012737  000057  000302                 MOV     #57,$FATAL      ;MOVE TO MAILBOX #  *******  57  *******
 003220  005212                                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 003222  000000                                 HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 761
```

TEST #14 - TEST THAT PROPER P.C. IS SAVED

```
    732                                     .SBTTL  TEST #14 - TEST THAT PROPER P.C. IS SAVED
                                            ;*****************************************************************************
                                            ;TEST 14 - TEST THAT PROPER P.C. IS SAVED
                                            ;*****************************************************************************
     003224  005237  000304                 TST14:  INC     $TESTN          ;UPDATE TEST NUMBER
     003230  022737  000014  000304                 CMP     #14,$TESTN      ;SEQUENCE ERROR?
     003236  001012                                BNE     TST15-12        ;BR TO ERROR HALT ON SEQ ERROR
733  003240  012706  000500                        MOV     #BUFF,SP        ;STACK POINTER SETUP
734  003244  012737  003254  000034                MOV     #RETC1,RTRAP1   ;RETURN FROM TRAP POINTER
735  003252  104400                                TRAP                    ;TRAP ON THIS INSTRUCTION
736  003254  022737  003254  000474 RETC1:  CMP     #.,BUFF-4       ;CHECK INCREMENTED P.C.
737  003262  001405                                BEQ     TST15
     003264  012737  000060  000302                MOV     #60,$FATAL      ;MOVE TO MAILBOX #  *******  60  *******
     003272  005212                                INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     003274  000000                                HALT                    ;INCORRECT P.C.,OR WRONG $TSTNM
                                                                            ;TO SCOPE REPLACE HALT WITH 240
                                                                            ;AND REPLACE NEXT INST WITH 760
```

```
738                                     .SBTTL  TEST #15 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;*****************************************************************************
                                        ;TEST 15 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;*****************************************************************************
     003276  005237  000304            TST15:  INC     $TESTN          ;UPDATE TEST NUMBER
     003302  022737  000015  000304            CMP     #15,$TESTN      ;SEQUENCE ERROR?
     003310  001037                            BNE     TST16-12        ;BR TO ERROR HALT ON SEQ ERROR
739  003312  012706  000500                    MOV     #BUFF,SP        ;SET UP
740  003316  012737  003334  000034            MOV     #RETD1,RTRAP1   ;SET UP
741  003324  005037  177776                    CLR     CC              ;CLEAR CC AND PRIORITY
742  003330  000257                            CCC
743  003332  104400                            TRAP                    ;TRAP
744  003334  023727  000476  000000  RETD1:    CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
745  003342  001405                            BEQ     1$
     003344  012737  000061  000302            MOV     #61,$FATAL      ;MOVE TO MAILBOX #  *******  61  *******
     003352  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     003354  000000                            HALT                    ;INCORRECT STATUS
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 755
746  003356  012706  000500            1$:     MOV     #BUFF,SP        ;SET UP
747  003362  012737  003400  000034            MOV     #RETE1,RTRAP1   ;SET UP
748  003370  012737  000357  177776            MOV     #357,CC         ;SET PRIORITY
749  003376  104400                            TRAP                    ;SET CC
750  003400  023727  000476  000357  RETE1:    CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
751  003406  001405                            BEQ     TST16
     003410  012737  000062  000302            MOV     #62,$FATAL      ;MOVE TO MAILBOX #  *******  62  *******
     003416  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     003420  000000                            HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 733
```

TEST #16 - TEST THAT "NEW" STATUS IS CORRECT

```
    752                                 .SBTTL  TEST #16 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;******************************************************************************
                                        ;TEST 16 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;******************************************************************************
     003422  005237  000304             TST16:  INC     $TESTN          ;UPDATE TEST NUMBER
     003426  022737  000016  000304             CMP     #16,$TESTN      ;SEQUENCE ERROR?
     003434  001121                     .       BNE     TST17-12        ;BR TO ERROR HALT ON SEQ ERROR
    753 003436  012706  000500                  MOV     #BUFF,SP
    754 003442  012737  003456  000034          MOV     #RETF1,RTRAP1
    755 003450  005037  000036                  CLR     RTRAP1+2        ;CLEAR FUTURE PRIORITY AND CC
    756 003454  104400                          TRAP
    757 003456                          RETF1:                          ;TEST FOR "C" CLEARED
    758 003456  100005                          BPL     1$
     003460  012737  000063  000302             MOV     #63,$FATAL      ;MOVE TO MAILBOX #  *******  63  *******
     003466  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     003470  000000                             HALT                    ;C NOT CLEARED
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 761
    759 003472                          1$:
     003472  001005                             BNE     2$
     003474  012737  000064  000302             MOV     #64,$FATAL      ;MOVE TO MAILBOX #  *******  64  *******
     003502  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     003504  000000                             HALT                    ;Z NOT CLEARED
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 753
    760 003506                          2$:
     003506  102005                             BVC     3$
     003510  012737  000065  000302             MOV     #65,$FATAL      ;MOVE TO MAILBOX #  *******  65  *******
     003516  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     003520  000000                             HALT                    ;V NOT CLEARED
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 745
    761 003522                          3$:
     003522  103005                             BCC     4$
     003524  012737  000066  000302             MOV     #66,$FATAL      ;MOVE TO MAILBOX #  *******  66  *******
     003532  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     003534  000000                             HALT                    ;C NOT CLEARED
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 737
    762 003536  032737  000340  177776  4$:     BIT     #340,CC         ;TEST PRIORITY
    763 003544  001405                          BEQ     5$
     003546  012737  000067  000302             MOV     #67,$FATAL      ;MOVE TO MAILBOX #  *******  67  *******
     003554  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     003556  000000                             HALT                    ;PRIORITY NOT ZERO
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 726
    764 003560  012706  000500          5$:     MOV     #BUFF,SP
    765 003564  012737  003602  000034          MOV     #RETG1,RTRAP1
    766 003572  012737  000357  000036          MOV     #357,RTRAP1+2   ;SET NEW "CC" AND PRIORITY
    767 003600  104400                          TRAP                    ;TRAP HERE
    768 003602                          RETG1:
    769 003602  100405                          BMI     1$
     003604  012737  000070  000302             MOV     #70,$FATAL      ;MOVE TO MAILBOX #  *******  70  *******
     003612  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     003614  000000                             HALT                    ;N NOT SET
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 707
```

TEST #16 - TEST THAT "NEW" STATUS IS CORRECT

```
    770 003616                          1$:
        003616  001405                          BEQ     2$
        003620  012737  000071  000302          MOV     #71,$FATAL      ;MOVE TO MAILBOX #  *******  71  *******
        003626  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        003630  000000                          HALT                    ;Z NOT SET
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 701
    771 003632                          2$:
        003632  102405                          BVS     3$
        003634  012737  000072  000302          MOV     #72,$FATAL      ;MOVE TO MAILBOX #  *******  72  *******
        003642  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        003644  000000                          HALT                    ;V NOT SET
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 673
    772 003646                          3$:
        003646  103405                          BCS     4$
        003650  012737  000073  000302          MOV     #73,$FATAL      ;MOVE TO MAILBOX #  *******  73  *******
        003656  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        003660  000000                          HALT                    ;C NOT SET
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 665
    773 003662  013706  177776          4$:     MOV     CC,SP
    774 003666  042706  000017                  BIC     #17,SP
    775 003672  022706  000340                  CMP     #340,SP
    776 003676  001405                          BEQ     TST17
        003700  012737  000074  000302          MOV     #74,$FATAL      ;MOVE TO MAILBOX #  *******  74  *******
        003706  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        003710  000000                          HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 651
```

TEST #17 - TEST THAT ALL COMB "TRAP" WILL CAUSE A TRAP

```
    777                                         .SBTTL  TEST #17 - TEST THAT ALL COMB  "TRAP" WILL CAUSE A TRAP
                                                ;*****************************************************************************
                                                ;TEST 17 - TEST THAT ALL COMB  "TRAP" WILL CAUSE A TRAP
                                                ;*****************************************************************************
     003712  005237  000304                     TST17:  INC     $TESTN          ;UPDATE TEST NUMBER
     003716  022737  000017  000304                     CMP     #17,$TESTN      ;SEQUENCE ERROR?
     003724  001011                                     BNE     BR45            ;BR TO ERROR HALT ON SEQ ERROR
778  003726  012737  104400  003746                     MOV     #TRAP,RB1       ;INITIALIZE BASE TRAP INSTRUCTION
779  003734  012737  003762  000034                     MOV     #RA1,34         ;RETURN FROM TRAP TO RA1
780  003742  012706  000500                     RC1:    MOV     #BUFF,SP        ;SET UP STACK POINTER
781  003746  104400                             RB1:    TRAP                    ;TRAP INST WILL BE MODIFIED TO TRAP+377
782  003750                                     BR45:
     003750  012737  000075  000302                     MOV     #75,$FATAL      ;MOVE TO MAILBOX #  *******  75  *******
     003756  005212                                     INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     003760  000000                                     HALT                    ;PREVIOUS INST FAILED TO TRAP,OR WRONG $TSTNM
                                                                                 ;TO SCOPE REPLACE HALT WITH 240
                                                                                 ;AND REPLACE NEXT INST WITH 761
783  003762  005237  003746                     RA1:    INC     RB1             ;INCREMENT TRAP INSTRUCTION
784  003766  022737  104777  003746                     CMP     #104777,RB1     ;TRAP+377 TO UPPER LIMIT
785  003774  103362                                     BHIS    RC1             ;HAVE WE TESTED ALL
786  003776  012737  000036  000034                     MOV     #36,34
787  004004  005037  000036                             CLR     36
```

```
                                        .SBTTL  TEST #20 - TEST THAT A TRAP OCCURES ON AN "IOT" INSTRUCTION
                                        ;*****************************************************************************
                                        ;TEST 20 - TEST THAT A TRAP OCCURES ON AN "IOT" INSTRUCTION
                                        ;*****************************************************************************
                                        ;
004010  005237  000304          TST20:  INC     $TESTN          ;UPDATE TEST NUMBER
004014  022737  000020  000304          CMP     #20,$TESTN      ;SEQUENCE ERROR?
004022  001006                        BNE     TST21-12        ;BR TO ERROR HALT ON SEQ ERROR
004024  012706  000500                MOV     #BUFF,SP        ;STACK POINTER SETUP
004030  012737  004052  000020        MOV     #RETA2,RTRAP2   ;RETURN LOCATION
004036  000004                        IOT                     ;RESERVE INSTRUCTION, SHOULD TRAP
004040  012737  000076  000302        MOV     #76,$FATAL      ;MOVE TO MAILBOX #  *******  76  *******
004046  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
004050  000000                        HALT                    ;IOT DIDN'T TRAP,OR WRONG $TSTNM
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 764

004052                          RETA2:
```

```
794                                     .SBTTL  TEST #21 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;*************************************************************************
                                        ;TEST 21 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;*************************************************************************
    004052  005237  000304              TST21:  INC     $TESTN          ;UPDATE TEST NUMBER
    004056  022737  000021  000304              CMP     #21,$TESTN      ;SEQUENCE ERROR?
    004064  001011                              BNE     TST22-12        ;BR TO ERROR HALT ON SEQ ERROR
795 004066  012706  000500                      MOV     #BUFF,SP        ;STACK POINTER SETUP
796 004072  012737  004102  000020              MOV     #RETB2,RTRAP2   ;RETURN POINTER
797 004100  000004                              IOT                     ;RESERVED INSTRUCTION
798 004102  020627  000474          RETB2:      CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
799 004106  001405                              BEQ     TST22
    004110  012737  000077  000302              MOV     #77,$FATAL      ;MOVE TO MAILBOX #  *******  77  *******
    004116  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    004120  000000                              HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 761
```

```
                                  .SBTTL  TEST #22 - TEST THAT PROPER P.C. IS SAVED
                                  ;*************************************************************************
                                  ;TEST 22 - TEST THAT PROPER P.C. IS SAVED
                                  ;*************************************************************************
004122 005237 000304              TST22:  INC     $TESTN          ;UPDATE TEST NUMBER
004126 022737 000022 000304               CMP     #22,$TESTN      ;SEQUENCE ERROR?
004134 001012                             BNE     TST23-12        ;BR TO ERROR HALT ON SEQ ERROR
004136 012706 000500                      MOV     #BUFF,SP        ;STACK POINTER SETUP
004142 012737 004152 000020               MOV     #RETC2,RTRAP2   ;RETURN FROM TRAP POINTER
004150 000004                             IOT                     ;TRAP ON THIS INSTRUCTION
004152 022737 004152 000474       RETC2:  CMP     #.,BUFF-4       ;CHECK FOR INCREMENTED P.C.
004160 001405                             BEQ     TST23
004162 012737 000100 000302               MOV     #100,$FATAL     ;MOVE TO MAILBOX #  *******  100  *******
004170 005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
004172 000000                             HALT                    ;INCORRECT P.C.,OR WRONG $TSTNM
                                                                  ;TO SCOPE REPLACE HALT WITH 240
                                                                  ;AND REPLACE NEXT INST WITH 760
```

```
806                                     .SBTTL  TEST #23 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;*****************************************************************************
                                        ;TEST 23 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;*****************************************************************************
     004174  005237  000304            TST23:  INC     $TESTN          ;UPDATE TEST NUMBER
     004200  022737  000023  000304            CMP     #23,$TESTN      ;SEQUENCE ERROR?
     004206  001040                           BNE     TST24-12        ;BR TO ERROR HALT ON SEQ ERROR
807  004210  012706  000500                   MOV     #BUFF,SP        ;SET UP
808  004214  012737  004232  000020           MOV     #RETD2,RTRAP2   ;SET UP
809  004222  005037  177776                   CLR     CC              ;CLEAR CC AND PRIORITY
810  004226  000257                           CCC
811  004230  000004                           IOT                     ;TRAP
812  004232  023727  000476  000000  RETD2:   CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
813  004240  001405                           BEQ     1$
     004242  012737  000101  000302           MOV     #101,$FATAL     ;MOVE TO MAILBOX #  *******  101  *******
     004250  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     004252  000000                           HALT                    ;INCORRECT STATUS
                                                                      ;TO SCOPE REPLACE HALT WITH 240
                                                                      ;AND REPLACE NEXT INST WITH 755
814  004254  012706  000500            1$:    MOV     #BUFF,SP        ;SET UP
815  004260  012737  004300  000020           MOV     #RETE2,RTRAP2   ;SET UP
816  004266  012737  000357  177776           MOV     #357,CC         ;SET PRIORITY
817  004274  000277                           SCC                     ;SET CC
818  004276  000004                           IOT                     ;TRAP
819  004300  023727  000476  000357  RETE2:   CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
820  004306  001405                           BEQ     TST24
     004310  012737  000102  000302           MOV     #102,$FATAL     ;MOVE TO MAILBOX #  *******  102  *******
     004316  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     004320  000000                           HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
                                                                      ;TO SCOPE REPLACE HALT WITH 240
                                                                      ;AND REPLACE NEXT INST WITH 732
```

```
TEST #24 - TEST THAT "NEW" STATUS IS CORRECT
    821                                 .SBTTL  TEST #24 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*************************************************************************
                                        ;TEST 24 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*************************************************************************
     004322  005237  000304            TST24:  INC     $TESTN          ;UPDATE TEST NUMBER
     004326  022737  000024  000304            CMP     #24,$TESTN      ;SEQUENCE ERROR?
     004334  001121                    1$:     BNE     BR46            ;BR TO ERROR HALT ON SEQ ERROR
    822 004336  012706  000500                MOV     #BUFF,SP
    823 004342  012737  004356  000020        MOV     #RETF2,RTRAP2
    824 004350  005037  000022                CLR     RTRAP2+2        ;CLEAR FUTURE PRIORITY AND CC
    825 004354  000004                        IOT
    826 004356                          RETF2:                          ;TEST FOR "C" CLEARED
    827 004356  100005                        BPL     1$
     004360  012737  000103  000302          MOV     #103,$FATAL     ;MOVE TO MAILBOX #  *******  103  *******
     004366  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     004370  000000                          HALT                    ;N NOT CLEARED
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 761
    828 004372                          1$:
     004372  001005                          BNE     2$
     004374  012737  000104  000302          MOV     #104,$FATAL     ;MOVE TO MAILBOX #  *******  104  *******
     004402  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     004404  000000                          HALT                    ;Z NOT CLEARED
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 753
    829 004406                          2$:
     004406  102005                          BVC     3$
     004410  012737  000105  000302          MOV     #105,$FATAL     ;MOVE TO MAILBOX #  *******  105  *******
     004416  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     004420  000000                          HALT                    ;V NOT CLEARED
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 745
    830 004422                          3$:
     004422  103005                          BCC     4$
     004424  012737  000106  000302          MOV     #106,$FATAL     ;MOVE TO MAILBOX #  *******  106  *******
     004432  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     004434  000000                          HALT                    ;C NOT CLEARED
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 737
    831 004436  032737  000340  177776  4$:     BIT     #340,CC         ;TEST PRIORITY
    832 004444  001405                          BEQ     5$
     004446  012737  000107  000302          MOV     #107,$FATAL     ;MOVE TO MAILBOX #  *******  107  *******
     004454  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     004456  000000                          HALT                    ;PRIORITY NOT ZERO
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 726
    833 004460  012706  000500          5$:     MOV     #BUFF,SP
    834 004464  012737  004502  000020        MOV     #RETG2,RTRAP2
    835 004472  012737  000357  000022        MOV     #357,RTRAP2+2   ;SET NEW "CC" AND PRIORITY
    836 004500  000004                        IOT                     ;TRAP HERE
    837 004502                          RETG2:
    838 004502  100405                        BMI     1$
     004504  012737  000110  000302          MOV     #110,$FATAL     ;MOVE TO MAILBOX #  *******  110  *******
     004512  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     004514  000000                          HALT                    ;N NOT SET
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 707
```

TEST #24 - TEST THAT "NEW" STATUS IS CORRECT

```
839 004516                          1$:
    004516  001405                        BEQ     2$
    004520  012737  000111  000302        MOV     #111,$FATAL     ;MOVE TO MAILBOX #  *******  111  *******
    004526  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    004530  000000                        HALT                    ;Z NOT SET
                                                                  ;TO SCOPE REPLACE HALT WITH 240
                                                                  ;AND REPLACE NEXT INST WITH 701
840 004532                          2$:
    004532  102405                        BVS     3$
    004534  012737  000112  000302        MOV     #112,$FATAL     ;MOVE TO MAILBOX #  *******  112  *******
    004542  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    004544  000000                        HALT                    ;V NOT SET
                                                                  ;TO SCOPE REPLACE HALT WITH 240
                                                                  ;AND REPLACE NEXT INST WITH 673
841 004546                          3$:
    004546  103405                        BCS     4$
    004550  012737  000113  000302        MOV     #113,$FATAL     ;MOVE TO MAILBOX #  *******  113  *******
    004556  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    004560  000000                        HALT                    ;C NOT SET
                                                                  ;TO SCOPE REPLACE HALT WITH 240
                                                                  ;AND REPLACE NEXT INST WITH 665
842 004562  013706  177776          4$:   MOV     CC,SP
843 004566  042706  000017              BIC     #17,SP
844 004572  022706  000340              CMP     #340,SP
845 004576  001405                      BEQ     BR46A
    004600                          BR46:
    004600  012737  000114  000302        MOV     #114,$FATAL     ;MOVE TO MAILBOX #  *******  114  *******
    004606  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    004610  000000                        HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
                                                                  ;TO SCOPE REPLACE HALT WITH 240
                                                                  ;AND REPLACE NEXT INST WITH 651
846 004612  012737  000022  000020  BR46A: MOV     #22,20          ;.+2
847 004620  005037  000022              CLR     22              ;HALT
```

TEST #25 - TEST THAT A TRAP OCCURS ON AN EMT INS

```
848                                     .SBTTL  TEST #25 - TEST THAT A TRAP OCCURS ON AN EMT  INS
                                        ;*************************************************************************
                                        ;TEST 25 - TEST THAT A TRAP OCCURS ON AN EMT  INS
                                        ;*************************************************************************
     004624  005237  000304             TST25:  INC     $TESTN          ;UPDATE TEST NUMBER
     004630  022737  000025  000304             CMP     #25,$TESTN      ;SEQUENCE ERROR?
     004636  001006                            BNE     TST26-12        ;BR TO ERROR HALT ON SEQ ERROR
849  004640  012706  000500                    MOV     #BUFF,SP        ;STACK POINTER SETUP
850  004644  012737  004666  000030            MOV     #RETA3,RTRAP3   ;RETURN LOCATION
851  004652  104000                            EMT                     ;RESERVE INSTRUCTIOM, SHOULD TRAP
852  004654  012737  000115  000302            MOV     #115,$FATAL     ;MOVE TO MAILBOX #  *******  115  *******
     004662  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     004664  000000                            HALT                    ;EMT DIDN'T TRAP,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 764

853  004666                             RETA3:
```

```
                                        .SBTTL  TEST #26 - TEST DEC OF STACK POINTER ON A TRAP OPER
                                        ;*************************************************************************
                                        ;TEST 26 - TEST DEC OF STACK POINTER ON A TRAP OPER
                                        ;*************************************************************************
004666  005237  000304          TST26:  INC     $TESTN          ;UPDATE TEST NUMBER
004672  022737  000026  000304          CMP     #26,$TESTN      ;SEQUENCE ERROR?
004700  001011                        BNE     TST27-12        ;BR TO ERROR HALT ON SEQ ERROR
004702  012706  000500                  MOV     #BUFF,SP        ;STACK POINTER SETUP
004706  012737  004716  000030          MOV     #RETB3,RTRAP3   ;RETURN POINTER
004714  104000                        EMT                     ;RESERVED INSTRUCTION
004716  020627  000474          RETB3:  CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
004722  001405                        BEQ     TST27
004724  012737  000116  000302          MOV     #116,$FATAL     ;MOVE TO MAILBOX #  *******  116  *******
004732  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
004734  000000                        HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 761
```

TEST #27 - TEST THAT PROPER P.C. IS SAVED

```
860                                     .SBTTL  TEST #27 - TEST THAT PROPER P.C. IS SAVED
                                        ;*************************************************************************
                                        ;TEST 27 - TEST THAT PROPER P.C. IS SAVED
                                        ;*************************************************************************
004736  005237  000304                  TST27:  INC     $TESTN          ;UPDATE TEST NUMBER
004742  022737  000027  000304                  CMP     #27,$TESTN      ;SEQUENCE ERROR?
004750  001012                                  BNE     TST30-12        ;BR TO ERROR HALT ON SEQ ERROR
861 004752  012706  000500                      MOV     #BUFF,SP        ;STACK POINTER SETUP
862 004756  012737  004766  000030              MOV     #RETC3,RTRAP3   ;RTURN FROM TRAP POINTER
863 004764  104000                              EMT                     ;TRAP ON THIS INSTRICTION
864 004766  022737  004766  000474  RETC3:      CMP     #.,BUFF-4       ;CHECK FOR INCREMENTED P.C.
865 004774  001405                              BEQ     TST30
004776  012737  000117  000302                  MOV     #117,$FATAL     ;MOVE TO MAILBOX #  *******  117  *******
005004  005212                                  INC     (R2)            ;SET MSGTYP TO FATAL ERROR
005006  000000                                  HALT                    ;INCORRECT P.C.,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 760
```

```
                                        .SBTTL  TEST #30 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;*****************************************************************************
                                        ;TEST 30 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;*****************************************************************************
 005010  005237  000304                 TST30:  INC     $TESTN          ;UPDATE TEST NUMBER
 005014  022737  000030  000304                 CMP     #30,$TESTN      ;SEQUENCE ERROR?
 005022  001040                                 BNE     TST31-12        ;BR TO ERROR HALT ON SEQ ERROR
867 005024  012706  000500                      MOV     #BUFF,SP        ;SET UP
868 005030  012737  005046  000030              MOV     #RETD3,RTRAP3   ;SET UP
869 005036  005037  177776                      CLR     CC              ;CLEAR CC AND PRIORITY
870 005042  000257                              CCC
871 005044  104000                              EMT                     ;TRAP
872 005046  023727  000476  000000  RETD3:      CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
873 005054  001405                              BEQ     1$
 005056  012737  000120  000302                 MOV     #120,$FATAL     ;MOVE TO MAILBOX #  *******  120  *******
 005064  005212                                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 005066  000000                                 HALT                    ;INCORRECT STATUS
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 755
874 005070  012706  000500                 1$:  MOV     #BUFF,SP        ;SET UP
875 005074  012737  005114  000030              MOV     #RETE3,RTRAP3   ;SET UP
876 005102  012737  000357  177776              MOV     #357,CC         ;SET PRIORITY
877 005110  000277                              SCC                     ;SET CC
878 005112  104000                              EMT                     ;TRAP
879 005114  023727  000476  000357  RETE3:      CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
880 005122  001405                              BEQ     TST31
 005124  012737  000121  000302                 MOV     #121,$FATAL     ;MOVE TO MAILBOX #  *******  121  *******
 005132  005212                                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 005134  000000                                 HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 732
```

TEST #31 - TEST THAT "NEW" STATUS IS CORRECT

```
                                        .SBTTL  TEST #31 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*************************************************************************
                                        ;TEST 31 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*************************************************************************
                                        ;
005136  005237  000304          TST31:  INC     $TESTN          ;UPDATE TEST NUMBER
005142  022737  000031  000304          CMP     #31,$TESTN      ;SEQUENCE ERROR?
005150  001117                        BNE     TST32-12        ;BR TO ERROR HALT ON SEQ ERROR
005152  012706  000500                MOV     #BUFF,SP
005156  012737  005172  000030        MOV     #RETF3,RTRAP3
005164  005037  000032                CLR     RTRAP3+2        ;CLEAR FUTURE PRIORITY AND CC
005170  104000                        EMT
005172                          RETF3:                          ;TEST FOR "C" CLEARED
005172  100005                        BPL     1$
005174  012737  000122  000302        MOV     #122,$FATAL     ;MOVE TO MAILBOX #  *******  122  *******
005202  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
005204  000000                        HALT                    ;C NOT CLEARED
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 761
005206                          1$:
005206  001005                        BNE     2$
005210  012737  000123  000302        MOV     #123,$FATAL     ;MOVE TO MAILBOX #  *******  123  *******
005216  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
005220  000000                        HALT                    ;Z NOT CLEARED
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 753
005222                          2$:
005222  102005                        BVC     3$
005224  012737  000124  000302        MOV     #124,$FATAL     ;MOVE TO MAILBOX #  *******  124  *******
005232  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
005234  000000                        HALT                    ;V NOT CLEARED
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 745
005236                          3$:
005236  103005                        BCC     4$
005240  012737  000125  000302        MOV     #125,$FATAL     ;MOVE TO MAILBOX #  *******  125  *******
005246  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
005250  000000                        HALT                    ;C NOT CLEARED
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 737
005252  032737  000340  177776  4$:   BIT     #340,CC         ;TEST PRIORITY
005260  001405                        BEQ     5$
005262  012737  000126  000302        MOV     #126,$FATAL     ;MOVE TO MAILBOX #  *******  126  *******
005270  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
005272  000000                        HALT                    ;PRIORITY NOT ZERO
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 726
005274  012706  000500          5$:   MOV     #BUFF,SP
005300  012737  005316  000030        MOV     #RETG3,RTRAP3
005306  012737  000357  000032        MOV     #357,RTRAP3+2   ;SET NEW "CC" AND PRIORITY
005314  104000                        EMT                     ;TRAP HERE
005316                          RETG3:
005316  100405                        BMI     1$
005320  012737  000127  000302        MOV     #127,$FATAL     ;MOVE TO MAILBOX #  *******  127  *******
005326  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
005330  000000                        HALT                    ;N NOT SET
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 707
```

TEST #31 - TEST THAT "NEW" STATUS IS CORRECT

```
899 005332                          1$:
    005332  001405                        BEQ     2$
    005334  012737  000130  000302        MOV     #130,$FATAL     ;MOVE TO MAILBOX #  *******  130  *******
    005342  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    005344  000000                        HALT                    ;Z NOT SET
                                                                  ;TO SCOPE REPLACE HALT WITH 240
                                                                  ;AND REPLACE NEXT INST WITH 701
900 005346                          2$:
    005346  102405                        BVS     3$
    005350  012737  000131  000302        MOV     #131,$FATAL     ;MOVE TO MAILBOX #  *******  131  *******
    005356  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    005360  000000                        HALT                    ;V NOT SET
                                                                  ;TO SCOPE REPLACE HALT WITH 240
                                                                  ;AND REPLACE NEXT INST WITH 673
901 005362                          3$:
    005362  103405                        BCS     4$
    005364  012737  000132  000302        MOV     #132,$FATAL     ;MOVE TO MAILBOX #  *******  132  *******
    005372  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    005374  000000                        HALT                    ;C NOT SET
                                                                  ;TO SCOPE REPLACE HALT WITH 240
                                                                  ;AND REPLACE NEXT INST WITH 665
902 005376  000257                  4$:   CCC
903 005400  022737  000340  177776        CMP     #340,CC
904 005406  001405                        BEQ     TST32
    005410  012737  000133  000302        MOV     #133,$FATAL     ;MOVE TO MAILBOX #  *******  133  *******
    005416  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    005420  000000                        HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
                                                                  ;TO SCOPE REPLACE HALT WITH 240
                                                                  ;AND REPLACE NEXT INST WITH 653
```

```
    905                                         .SBTTL  TEST #32 - TEST THAT ALL COMB  EMT WILL CAUSE A TRAP
                                                ;*************************************************************************
                                                ;TEST 32 - TEST THAT ALL COMB  EMT WILL CAUSE A TRAP
                                                ;*************************************************************************
    005422  005237  000304                      TST32:  INC     $TESTN          ;UPDATE TEST NUMBER
    005426  022737  000032  000304                      CMP     #32,$TESTN      ;SEQUENCE ERROR?
    005434  001011                                      BNE     BR47            ;BR TO ERROR HALT ON SEQ ERROR
    906 005436  012737  104000  005456                MOV     #EMT,RB         ;INITIALIZE BASE EMT INSTRUCTION
    907 005444  012737  005472  000030                MOV     #RA,30          ;RETURN FROM TRAP TO RA
    908 005452  012706  000500                  RC:     MOV     #BUFF,SP        ;SET UP STACK POINTER
    909 005456  104000                          RB:     EMT                     ;TRAP INST. WILL BE MODIFIED TO EMT+377
    910 005460                                  BR47:
    005460  012737  000134  000302                      MOV     #134,$FATAL     ;MOVE TO MAILBOX #  *******  134  *******
    005466  005212                                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    005470  000000                                      HALT                    ;PREVIOUS INST FAILED TO TRAP,OR WRONG $TSTNM
                                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                                ;AND REPLACE NEXT INST WITH 761
    911 005472  005237  005456                  RA:     INC     RB              ;INCREMENT TRAP INSTRUCTION
    912 005476  022737  104377  005456                CMP     #104377,RB      ;EMT+377 TO EMT?
    913 005504  103362                                  BHIS    RC              ;HAVE WE TESTED ALL
    914                                                                         ;YES
    915 005506  012737  000032  000030                MOV     #32,30          ;/.+
    916 005514  005037  000032                        CLR     32              ;HALT
```

TEST #33 - TEST THAT A TRAP OCCURES ON AN "TRACE-TRT" INS

```
    917                                     .SBTTL  TEST #33 - TEST THAT A TRAP OCCURES ON AN "TRACE-TRT" INS
                                            ;*****************************************************************************
                                            ;TEST 33 - TEST THAT A TRAP OCCURES ON AN "TRACE-TRT" INS
                                            ;*****************************************************************************
                                            ;
    005520  005237  000304                  TST33:  INC     $TESTN          ;UPDATE TEST NUMBER
    005524  022737  000033  000304                  CMP     #33,$TESTN      ;SEQUENCE ERROR?
    005532  001006                          .       BNE     TST34-12        ;BR TO ERROR HALT ON SEQ ERROR
    918 005534  012706  000500                      MOV     #BUFF,SP        ;STACK POINTER SETUP
    919 005540  012737  005562  000014              MOV     #RETA4,RTRAP4   ;RETURN LOCATION
    920 005546  000003                      .       TRT                     ;RESERVED INSTRUCTION, SHOULD TRAP
    921 005550  012737  000135  000302              MOV     #135,$FATAL     ;MOVE TO MAILBOX #  *******  135  *******
    005556  005212                          .       INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    005560  000000                          .       HALT                    ;TRT DIDN'T TRAP,OR WRONG $TSTNM
                                                                            ;TO SCOPE REPLACE HALT WITH 240
                                                                            ;AND REPLACE NEXT INST WITH 764
    922 005562                              RETA4:
```

TEST #34 - TEST DEC OF STACK POINTER ON A TRAP OPERATION

```
923                                             .SBTTL  TEST #34 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                                ;*************************************************************************
                                                ;TEST 34 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                                ;*************************************************************************
     005562  005237  000304                     TST34:  INC     $TESTN          ;UPDATE TEST NUMBER
     005566  022737  000034  000304                     CMP     #34,$TESTN      ;SEQUENCE ERROR?
     005574  001011                                     BNE     TST35-12        ;BR TO ERROR HALT ON SEQ ERROR
924  005576  012706  000500                            MOV     #BUFF,SP        ;STACK POINTER SETUP
925  005602  012737  005612  000014                     MOV     #RETB4,RTRAP4   ;RETURN POINTER
926  005610  000003                                     TRT                     ;RESERVED INSTRUCTION
927  005612  020627  000474                     RETB4:  CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
928  005616  001405                                     BEQ     TST35
     005620  012737  000136  000302                     MOV     #136,$FATAL     ;MOVE TO MAILBOX #  *******  136  *******
     005626  005212                                     INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     005630  000000                                     HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
                                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                                ;AND REPLACE NEXT INST WITH 761
```

```
                                        .SBTTL  TEST #35 - TEST THAT PROPER P.C. IS SAVED
                                        ;*****************************************************************************
                                        ;TEST 35 - TEST THAT PROPER P.C. IS SAVED
                                        ;*****************************************************************************
 005632  005237  000304                 TST35:  INC     $TESTN          ;UPDATE TEST NUMBER
 005636  022737  000035  000304                 CMP     #35,$TESTN      ;SEQUENCE ERROR?
 005644  001012                                 BNE     TST36-12        ;BR TO ERROR HALT ON SEQ ERROR
930 005646  012706  000500                      MOV     #BUFF,SP        ;STACK POINTER SETUP
931 005652  012737  005662  000014              MOV     #RETC4,RTRAP4   ;RETURN FROM TRAP POINTER
932 005660  000003                              TRT                     ;TRAP ON THIS INSTRUCTION
933 005662  022737  005662  000474  RETC4:     CMP     #.,BUFF-4       ;CHECK FOR INCREMENTED P.C.
934 005670  001405                             BEQ     TST36
 005672  012737  000137  000302                 MOV     #137,$FATAL     ;MOVE TO MAILBOX #  *******  137  *******
 005700  005212                                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 005702  000000                                 HALT                    ;INCORRECT P.C.,OR WRONG $TSTNM
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 760
```

```
                                        .SBTTL  TEST #36 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;*****************************************************************************
                                        ;TEST 36 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;*****************************************************************************
005704  005237  000304                  TST36:  INC     $TESTN          ;UPDATE TEST NUMBER
005710  022737  000036  000304                  CMP     #36,$TESTN      ;SEQUENCE ERROR?
005716  001040                                  BNE     TST37-12        ;BR TO ERROR HALT ON SEQ ERROR
936 005720  012706  000500                      MOV     #BUFF,SP        ;SET UP
937 005724  012737  005742  000014              MOV     #RETD4,RTRAP4   ;SET UP
938 005732  005037  177776                      CLR     CC              ;CLEAR CC AND PRIORITY
939 005736  000257                              CCC
940 005740  000003                              TRT                     ;TRAP
941 005742  023727  000476  000000  RETD4:      CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
942                                                                     ;TEST FOR ALL ZEROS
943 005750  001405                              BEQ     1$
005752  012737  000140  000302                  MOV     #140,$FATAL     ;MOVE TO MAILBOX #  *******  140  *******
005760  005212                                  INC     (R2)            ;SET MSGTYP TO FATAL ERROR
005762  000000                                  HALT                    ;INCORRECT STATUS
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 755
944 005764  012706  000500          1$:         MOV     #BUFF,SP        ;SET UP
945 005770  012737  006010  000014              MOV     #RETE4,RTRAP4   ;SET UP
946 005776  012737  000357  177776              MOV     #357,CC         ;SET PRIORITY
947 006004  000277                              SCC                     ;SET-SET CC
948 006006  000003                              TRT                     ;TRAP
949 006010  023727  000476  000357  RETE4:      CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
950 006016  001405                              BEQ     TST37
006020  012737  000141  000302                  MOV     #141,$FATAL     ;MOVE TO MAILBOX #  *******  141  *******
006026  005212                                  INC     (R2)            ;SET MSGTYP TO FATAL ERROR
006030  000000                                  HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 732
```

```
TEST #37 - TEST THAT "NEW" STATUS IS CORRECT
    951                                 .SBTTL  TEST #37 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*****************************************************************************
                                        ;TEST 37 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*****************************************************************************
                                        ;
      006032  005237  000304            TST37:  INC     $TESTN          ;UPDATE TEST NUMBER
      006036  022737  000037  000304            CMP     #37,$TESTN      ;SEQUENCE ERROR?
      006044  001121                            BNE     BR51            ;BR TO ERROR HALT ON SEQ ERROR
    952 006046  012706  000500                  MOV     #BUFF,SP
    953 006052  012737  006066  000014          MOV     #RETF4,RTRAP4
    954 006060  005037  000016                  CLR     RTRAP4+2        ;CLEAR FUTURE PRIORITY AND CC
    955 006064  000003                          TRT
    956 006066                          RETF4:                          ;TEST FOR "C" CLEARED
    957 006066  100005                          BPL     1$
      006070  012737  000142  000302            MOV     #142,$FATAL     ;MOVE TO MAILBOX #  *******  142  *******
      006076  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      006100  000000                            HALT                    ;C NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 761
    958 006102                          1$:
      006102  001005                            BNE     2$
      006104  012737  000143  000302            MOV     #143,$FATAL     ;MOVE TO MAILBOX #  *******  143  *******
      006112  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      006114  000000                            HALT                    ;Z NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 753
    959 006116                          2$:
      006116  102005                            BVC     3$
      006120  012737  000144  000302            MOV     #144,$FATAL     ;MOVE TO MAILBOX #  *******  144  *******
      006126  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      006130  000000                            HALT                    ;V NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 745
    960 006132                          3$:
      006132  103005                            BCC     4$
      006134  012737  000145  000302            MOV     #145,$FATAL     ;MOVE TO MAILBOX #  *******  145  *******
      006142  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      006144  000000                            HALT                    ;C NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 737
    961 006146  032737  000340  177776  4$:     BIT     #340,CC         ;TEST PRIORITY
    962 006154  001405                          BEQ     5$
      006156  012737  000146  000302            MOV     #146,$FATAL     ;MOVE TO MAILBOX #  *******  146  *******
      006164  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      006166  000000                            HALT                    ;PRIORITY NOT ZERO
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 726
    963 006170  012706  000500          5$:     MOV     #BUFF,SP
    964 006174  012737  006212  000014          MOV     #RETG4,RTRAP4
    965 006202  012737  000357  000016          MOV     #357,RTRAP4+2   ;SET NEW "CC" AND PRIORITY
    966 006210  000003                          TRT                     ;TRAP HERE
    967 006212                          RETG4:
    968 006212  100405                          BMI     1$
      006214  012737  000147  000302            MOV     #147,$FATAL     ;MOVE TO MAILBOX #  *******  147  *******
      006222  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      006224  000000                            HALT                    ;N NOT SET
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 707
```

```
969 006226                          1$:
    006226  001405                          BEQ     2$
    006230  012737  000150  000302          MOV     #150,$FATAL     ;MOVE TO MAILBOX #  *******  150  *******
    006236  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    006240  000000                          HALT                    ;Z NOT SET
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 701
970 006242                          2$:
    006242  102405                          BVS     3$
    006244  012737  000151  000302          MOV     #151,$FATAL     ;MOVE TO MAILBOX #  *******  151  *******
    006252  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    006254  000000                          HALT                    ;V NOT SET
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 673
971 006256                          3$:
    006256  103405                          BCS     4$
    006260  012737  000152  000302          MOV     #152,$FATAL     ;MOVE TO MAILBOX #  *******  152  *******
    006266  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    006270  000000                          HALT                    ;C NOT SET
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 665
972 006272  013706  177776          4$:     MOV     CC,SP
973 006276  042706  000017                  BIC     #17,SP
974 006302  022706  000340                  CMP     #340,SP
975 006306  001405                          BEQ     BR51A
    006310                          BR51:
    006310  012737  000153  000302          MOV     #153,$FATAL     ;MOVE TO MAILBOX #  *******  153  *******
    006316  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
    006320  000000                          HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 651
976 006322  012737  000016  000014  BR51A: MOV     #16,14
977 006330  005037  000016                  CLR     16
978
979                                 ;PDP-11 ILLEGAL AND ADDRESS INSTRUCTION TEST
980                                 ;ALL INSTRUCTIONS THAT ARE ILLEGAL
981                                 ;SHOULD TRAP TO LOCATION 10, AND THE
982                                 ;PC THAT POINTS TO THE TRAPPING INSTRUCTION
983                                 ;SHOULD BE PLACED ON THE STACK
984
```

```
    985                                 .SBTTL  TEST #40 - TEST THAT A TRAP OCCURS ON AN ILLEGAL INS
                                        ;*************************************************************************
                                        ;TEST 40 - TEST THAT A TRAP OCCURS ON AN ILLEGAL INS
                                        ;*************************************************************************
        006334  005237  000304          TST40:  INC     $TESTN          ;UPDATE TEST NUMBER
        006340  022737  000040  000304          CMP     #40,$TESTN      ;SEQUENCE ERROR?
        006346  001006                  BNE     TST41-12        ;BR TO ERROR HALT ON SEQ ERROR
    986 006350  012706  000500          MOV     #BUFF,SP        ;STACK POINTER SETUP
    987 006354  012737  006376  000010  MOV     #RETA5,RTRAP    ;RETURN LOCATION
    988 006362  000100                  JMP     %0              ;ILLEGAL INSTRUCTION, SHOULD TRAP
    989 006364  012737  000154  000302  MOV     #154,$FATAL     ;MOVE TO MAILBOX #  *******  154  *******
        006372  005212                  INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        006374  000000                  HALT                    ;ILLEGAL INSTRUCTION DIDN'T TRAP,OR WRONG $TSTNM
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 764
    990 006376                          RETA5:
```

TEST #41 - TEST DEC OF STACK POINTER ON A TRAP OPERATION

```
 991                                    .SBTTL  TEST #41 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;*****************************************************************************
                                        ;TEST 41 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;*****************************************************************************
     006376  005237  000304             TST41:  INC     $TESTN          ;UPDATE TEST NUMBER
     006402  022737  000041  000304             CMP     #41,$TESTN      ;SEQUENCE ERROR?
     006410  001011                            BNE     TST42-12        ;BR TO ERROR HALT ON SEQ ERROR
 992 006412  012706  000500                    MOV     #BUFF,SP        ;STACK POINTER SETUP
 993 006416  012737  006426  000010          MOV     #RETB5,RTRAP    ;RETURN POINTER
 994 006424  000100                         JMP     %0              ;RESERVED INSTRUCTION
 995 006426  020627  000474             RETB5:  CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
 996 006432  001405                         BEQ     TST42
     006434  012737  000155  000302          MOV     #155,$FATAL     ;MOVE TO MAILBOX #  *******  155  *******
     006442  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     006444  000000                         HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 761
```

TEST #42 - TEST THAT PROPER P.C. IS SAVED

```
    997                                 .SBTTL  TEST #42 - TEST THAT PROPER P.C. IS SAVED
                                        ;*************************************************************************
                                        ;TEST 42 - TEST THAT PROPER P.C. IS SAVED
                                        ;*************************************************************************
        006446  005237  000304          TST42:  INC     $TESTN          ;UPDATE TEST NUMBER
        006452  022737  000042  000304          CMP     #42,$TESTN      ;SEQUENCE ERROR?
        006460  001012                  TST43-12
    998 006462  012706  000500                  MOV     #BUFF,SP        ;STACK POINTER SETUP
    999 006466  012737  006476  000010          MOV     #RETC5,RTRAP    ;RETURN FROM TRAP POINTER
   1000 006474  000100                  %0                              ;TRAP ON THIS INSTRUCTION
   1001 006476  022737  006476  000474  RETC5:  CMP     #.,BUFF-4       ;CHECK FOR INCREMENTED P.C.
   1002 006504  001405                  TST43
        006506  012737  000156  000302          MOV     #156,$FATAL     ;MOVE TO MAILBOX #  *******  156  *******
        006514  005212                  (R2)                            ;SET MSGTYP TO FATAL ERROR
        006516  000000                  HALT                            ;INCORRECT P.C.,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 760
```

TEST #43 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK

```
1003                                    .SBTTL  TEST #43 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;*****************************************************************
                                        ;TEST 43 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;*****************************************************************
     006520  005237  000304            TST43:  INC     $TESTN          ;UPDATE TEST NUMBER
     006524  022737  000043  000304            CMP     #43,$TESTN      ;SEQUENCE ERROR?
     006532  001040                           BNE     TST44-12        ;BR TO ERROR HALT ON SEQ ERROR
1004 006534  012706  000500                   MOV     #BUFF,SP        ;SET UP
1005 006540  012737  006556  000010           MOV     #RETD5,RTRAP    ;SET UP
1006 006546  005037  177776                   CLR     CC              ;CLEAR CC AND PRIORITY
1007 006552  000257                           CCC
1008 006554  000100                           JMP     %0              ;TRAP
1009 006556  023727  000476  000000  RETD5:   CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
1010 006564  001405                           BEQ     1$
     006566  012737  000157  000302           MOV     #157,$FATAL     ;MOVE TO MAILBOX #  *******  157  *******
     006574  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     006576  000000                           HALT                    ;INCORRECT STATUS
                                                                      ;TO SCOPE REPLACE HALT WITH 240
                                                                      ;AND REPLACE NEXT INST WITH 755
1011 006600  012706  000500            1$:    MOV     #BUFF,SP        ;SET UP
1012 006604  012737  006624  000010           MOV     #RETE5,RTRAP    ;SET UP
1013 006612  012737  000357  177776           MOV     #357,CC         ;SET PRIORITY
1014 006620  000277                           SCC                     ;SET CC
1015 006622  000100                           JMP     %0              ;TRAP
1016 006624  023727  000476  000357  RETE5:   CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
1017 006632  001405                           BEQ     TST44
     006634  012737  000160  000302           MOV     #160,$FATAL     ;MOVE TO MAILBOX #  *******  160  *******
     006642  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     006644  000000                           HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
                                                                      ;TO SCOPE REPLACE HALT WITH 240
                                                                      ;AND REPLACE NEXT INST WITH 732
```

```
TEST #44 - TEST THAT "NEW" STATUS IS CORRECT
   1018                                 .SBTTL  TEST #44 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*************************************************************************
                                        ;TEST 44 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*************************************************************************
        006646  005237  000304          TST44:  INC     $TESTN          ;UPDATE TEST NUMBER
        006652  022737  000044  000304          CMP     #44,$TESTN      ;SEQUENCE ERROR?
        006660  001117                          BNE     TST45-12        ;BR TO ERROR HALT ON SEQ ERROR
   1019 006662  012706  000500                  MOV     #BUFF,SP
   1020 006666  012737  006702  000010          MOV     #RETF5,RTRAP
   1021 006674  005037  000012                  CLR     RTRAP+2 ;CLEAR FUTURE PRIORITY AND CC
   1022 006700  000100                          JMP     %0
   1023 006702                          RETF5:                          ;TEST FOR "C" CLEARED
   1024 006702  100005                          BPL     1$
        006704  012737  000161  000302          MOV     #161,$FATAL     ;MOVE TO MAILBOX #  *******  161  *******
        006712  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        006714  000000                          HALT                    ;C NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 761
   1025 006716                          1$:
        006716  001005                          BNE     2$
        006720  012737  000162  000302          MOV     #162,$FATAL     ;MOVE TO MAILBOX #  *******  162  *******
        006726  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        006730  000000                          HALT                    ;Z NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 753
   1026 006732                          2$:
        006732  102005                          BVC     3$
        006734  012737  000163  000302          MOV     #163,$FATAL     ;MOVE TO MAILBOX #  *******  163  *******
        006742  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        006744  000000                          HALT                    ;V NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 745
   1027 006746                          3$:
        006746  103005                          BCC     4$
        006750  012737  000164  000302          MOV     #164,$FATAL     ;MOVE TO MAILBOX #  *******  164  *******
        006756  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        006760  000000                          HALT                    ;C NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 737
   1028 006762  032737  000357  177776  4$:     BIT     #357,CC         ;TEST PRIORITY
   1029 006770  001405                          BEQ     5$
        006772  012737  000165  000302          MOV     #165,$FATAL     ;MOVE TO MAILBOX #  *******  165  *******
        007000  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        007002  000000                          HALT                    ;PRIORITY NOT ZERO
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 726
   1030 007004  012706  000500          5$:     MOV     #BUFF,SP
   1031 007010  012737  007026  000010          MOV     #RETG5,RTRAP
   1032 007016  012737  000357  000012          MOV     #357,RTRAP+2    ;SET NEW "CC" AND PRIORITY
   1033 007024  000100                          JMP     %0              ;TRAP HERE
   1034 007026                          RETG5:
   1035 007026  100405                          BMI     1$
        007030  012737  000166  000302          MOV     #166,$FATAL     ;MOVE TO MAILBOX #  *******  166  *******
        007036  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        007040  000000                          HALT                    ;N NOT SET
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 707
```

TEST #44 - TEST THAT "NEW" STATUS IS CORRECT

```
1036 007042                                1$:
     007042  001405                              BEQ     2$
     007044  012737  000167  000302              MOV     #167,$FATAL     ;MOVE TO MAILBOX #  *******  167  *******
     007052  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007054  000000                              HALT                    ;Z NOT SET
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 701
1037 007056                                2$:
     007056  102405                              BVS     3$
     007060  012737  000170  000302              MOV     #170,$FATAL     ;MOVE TO MAILBOX #  *******  170  *******
     007066  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007070  000000                              HALT                    ;V NOT SET
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 673
1038 007072                                3$:
     007072  103405                              BCS     4$
     007074  012737  000171  000302              MOV     #171,$FATAL     ;MOVE TO MAILBOX #  *******  171  *******
     007102  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007104  000000                              HALT                    ;C NOT SET
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 665
1039 007106  013706  177776             4$:     MOV     CC,SP
1040 007112  022706  000357                     CMP     #357,SP
1041 007116  001405                             BEQ     TST45
     007120  012737  000172  000302              MOV     #172,$FATAL     ;MOVE TO MAILBOX #  *******  172  *******
     007126  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007130  000000                              HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 653
```

TEST #45 - TEST THAT A TRAP OCCURES ON ALL ILLEGAL INS

```
1042                                    .SBTTL  TEST #45 - TEST THAT A TRAP OCCURES ON ALL ILLEGAL INS
                                        ;******************************************************************************
                                        ;TEST 45 - TEST THAT A TRAP OCCURES ON ALL ILLEGAL INS
                                        ;******************************************************************************
     007132  005237  000304            TST45:  INC     $TESTN          ;UPDATE TEST NUMBER
     007136  022737  000045  000304            CMP     #45,$TESTN      ;SEQUENCE ERROR?
     007144  001006                            BNE     TST46-12        ;BR TO ERROR HALT ON SEQ ERROR
1043 007146  012706  000500                    MOV     #BUFF,SP        ;STACK POINTER SETUP
1044 007152  012737  007174  000010            MOV     #RETH5,RTRAP    ;RETURN LOCATION
1045 007160  004000                            JSR     %0,%0           ;RESERVED INS, SHOULD TRAP
1046 007162  012737  000173  000302            MOV     #173,$FATAL     ;MOVE TO MAILBOX #  *******  173  *******
     007170  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007172  000000                            HALT                    ;DIDN'T TRAP,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 764
1047 007174                             RETH5:
```

```
1048                                    .SBTTL  TEST #46 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;******************************************************************************
                                        ;TEST 46 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;******************************************************************************
007174  005237  000304          TST46:  INC     $TESTN          ;UPDATE TEST NUMBER
007200  022737  000046  000304          CMP     #46,$TESTN      ;SEQUENCE ERROR?
007206  001011                        BNE     TST47-12        ;BR TO ERROR HALT ON SEQ ERROR
1049 007210  012706  000500          MOV     #BUFF,SP        ;STACK POINTER SETUP
1050 007214  012737  007224  000010  MOV     #RETJ,RTRAP     ;RETURN POINTER
1051 007222  004000                  JSR     %0,%0           ;RESERVED INS
1052 007224  020627  000474    RETJ:  CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
1053 007230  001405                  BEQ     TST47
007232  012737  000174  000302        MOV     #174,$FATAL     ;MOVE TO MAILBOX #  *******  174  *******
007240  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
007242  000000                        HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 761
```

TEST #47 - TEST THAT PROPER P.C. IS SAVED

```
1054                                    .SBTTL  TEST #47 - TEST THAT PROPER P.C. IS SAVED
                                        ;*************************************************************************
                                        ;TEST 47 - TEST THAT PROPER P.C. IS SAVED
                                        ;*************************************************************************
     007244  005237  000304            TST47:  INC     $TESTN          ;UPDATE TEST NUMBER
     007250  022737  000047  000304            CMP     #47,$TESTN      ;SEQUENCE ERROR?
     007256  001012                            BNE     TST50-12        ;BR TO ERROR HALT ON SEQ ERROR
1055 007260  012706  000500                    MOV     #BUFF,SP        ;STACK POINTER SETUP
1056 007264  012737  007274  000010            MOV     #RETK,RTRAP     ;RETURN FROM TRAP POINTER
1057 007272  004000                    INSTK:  JSR     %0,%0           ;TRAP ON THIS INS
1058 007274  022737  007274  000474    RETK:   CMP     #INSTK+2,BUFF-4 ;CHECK FOR INCREMENED P.C.
1059 007302  001405                            BEQ     TST50
     007304  012737  000175  000302            MOV     #175,$FATAL     ;MOVE TO MAILBOX #  *******  175  *******
     007312  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007314  000000                            HALT                    ;INCORRECT P.C.,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 760
1060
```

TEST #50 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK

```
                                        .SBTTL  TEST #50 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;******************************************************************************
                                        ;TEST 50 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;******************************************************************************
007316  005237  000304                  TST50:  INC     $TESTN          ;UPDATE TEST NUMBER
007322  022737  000050  000304                  CMP     #50,$TESTN      ;SEQUENCE ERROR?
007330  001040                                  BNE     TST51-12        ;BR TO ERROR HALT ON SEQ ERROR
007332  012706  000500                          MOV     #BUFF,SP        ;SET UP
007336  012737  007354  000010                  MOV     #RETL,RTRAP     ;SET UP
007344  005037  177776                          CLR     CC              ;CLEAR CC AND PRIORITY
007350  000257                                  CCC
007352  004000                                  JSR     %0,%0           ;TRAP
007354  023727  000476  000000          RETL:   CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
007362  001405                                  BEQ     1$
007364  012737  000176  000302                  MOV     #176,$FATAL     ;MOVE TO MAILBOX #  *******  176  *******
007372  005212                                  INC     (R2)            ;SET MSGTYP TO FATAL ERROR
007374  000000                                  HALT                    ;INCORRCT STATUS
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 755
007376  012706  000500                  1$:     MOV     #BUFF,SP        ;SET UP
007402  012737  007422  000010                  MOV     #RETM,RTRAP     ;SET UP
007410  012737  000357  177776                  MOV     #357,CC         ;SET PRIORITY
007416  000277                                  SCC                     ;SET CC
007420  004000                                  JSR     %0,%0           ;TRAP
```

TEST #50 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK

```
1075 007422  023727  000476  000357  RETM:   CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
1076 007430  001405                          BEQ     TST51
     007432  012737  000177  000302          MOV     #177,$FATAL     ;MOVE TO MAILBOX #  *******  177  *******
     007440  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007442  000000                          HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 732
```

TEST #51 - TEST THAT "NEW" STATUS IS CORRECT

```
1077                                    .SBTTL  TEST #51 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*************************************************************************
                                        ;TEST 51 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*************************************************************************
007444  005237  000304                TST51:  INC     $TESTN          ;UPDATE TEST NUMBER
007450  022737  000051  000304              CMP     #51,$TESTN      ;SEQUENCE ERROR?
007456  001116                            BNE     TST52-12        ;BR TO ERROR HALT ON SEQ ERROR
1078 007460  012706  000500               MOV     #BUFF,SP
1079 007464  012737  007500  000010       MOV     #RETN,RTRAP
1080 007472  005037  000012               CLR     RTRAP+2 ;CLEAR FUTURE PRIORITY AND CC
1081 007476  004000                       JSR     %0,%0
1082 007500                            RETN:                           ;TEST FOR "C" CLEARED
1083 007500  100005                       BPL     1$
007502  012737  000200  000302            MOV     #200,$FATAL     ;MOVE TO MAILBOX #  *******  200  *******
007510  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
007512  000000                            HALT                    ;C NOT CLEARED
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 761
1084 007514                            1$:
007514  001005                            BNE     2$
007516  012737  000201  000302            MOV     #201,$FATAL     ;MOVE TO MAILBOX #  *******  201  *******
007524  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
007526  000000                            HALT                    ;Z NOT CLEARED
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 753
1085 007530                            2$:
007530  102005                            BVC     3$
007532  012737  000202  000302            MOV     #202,$FATAL     ;MOVE TO MAILBOX #  *******  202  *******
007540  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
007542  000000                            HALT                    ;V NOT CLEARED
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 745
1086 007544                            3$:
007544  103005                            BCC     4$
007546  012737  000203  000302            MOV     #203,$FATAL     ;MOVE TO MAILBOX #  *******  203  *******
007554  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
007556  000000                            HALT                    ;C NOT CLEARED
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 737
1087 007560  013700  177776            4$:     MOV     CC,%0           ;TEMP STORAGE
1088 007564  001405                       BEQ     5$
007566  012737  000204  000302            MOV     #204,$FATAL     ;MOVE TO MAILBOX #  *******  204  *******
007574  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
007576  000000                            HALT                    ;PRIORITY NOT ZERO
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 727
1089 007600  012706  000500            5$:     MOV     #BUFF,SP
1090 007604  012737  007622  000010       MOV     #RETO,RTRAP
1091 007612  012737  000357  000012       MOV     #357,RTRAP+2    ;SET NEW "CC" AND PRIORITY
1092 007620  004000                       JSR     %0,%0           ;TRAP HERE
1093 007622                            RETO:
1094 007622  100405                       BMI     1$
007624  012737  000205  000302            MOV     #205,$FATAL     ;MOVE TO MAILBOX #  *******  205  *******
007632  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
007634  000000                            HALT                    ;N NOT SET
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 710
```

```
1095 007636                                1$:
     007636  001405                              BEQ     2$
     007640  012737  000206  000302              MOV     #206,$FATAL     ;MOVE TO MAILBOX #  *******  206  *******
     007646  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007650  000000                              HALT                    ;Z NOT SET
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 702
1096 007652                                2$:
     007652  102405                              BVS     3$
     007654  012737  000207  000302              MOV     #207,$FATAL     ;MOVE TO MAILBOX #  *******  207  *******
     007662  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007664  000000                              HALT                    ;V NOT SET
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 674
1097 007666                                3$:
     007666  103405                              BCS     4$
     007670  012737  000210  000302              MOV     #210,$FATAL     ;MOVE TO MAILBOX #  *******  210  *******
     007676  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007700  000000                              HALT                    ;C NOT SET
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 666
1098 007702  013700  177776                4$:  MOV     CC,%0
1099 007706  022700  000357                     CMP     #357,%0
1100 007712  001405                             BEQ     TST52
     007714  012737  000211  000302              MOV     #211,$FATAL     ;MOVE TO MAILBOX #  *******  211  *******
     007722  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007724  000000                              HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 654
1101
```

TEST #52 - TEST THAT A TRAP OCCURES ON AN ILLEGAL ADDRESS

```
1102                                    .SBTTL  TEST #52 - TEST THAT A TRAP OCCURES ON AN ILLEGAL ADDRESS
                                        ;*************************************************************************
                                        ;TEST 52 - TEST THAT A TRAP OCCURES ON AN ILLEGAL ADDRESS
                                        ;*************************************************************************
     007726  005237  000304            TST52:  INC     $TESTN          ;UPDATE TEST NUMBER
     007732  022737  000052  000304            CMP     #52,$TESTN      ;SEQUENCE ERROR?
     007740  001040                            BNE     ERRP1           ;BR TO ERROR HALT ON SEQ ERROR
1103 007742  005037  177766                    CLR     CPUERR          ;CLEAR CPU ERROR REGISTER
1104 007746  005737  177766                    TST     CPUERR          ;VERIFY THAT IT CLEARED
1105 007752  001405                            BEQ     1$
     007754  012737  000212  000302            MOV     #212,$FATAL     ;MOVE TO MAILBOX #  *******  212  *******
     007762  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     007764  000000                            HALT                    ;CPU ERROR REG FAILED TO CLEAR
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 765
1106 007766  012706  000500            1$:     MOV     #BUFF,SP        ;STACK POINTER SETUP
1107 007772  012737  010016  000004            MOV     #RETP,RTRAP5    ;RETURN LOCATION
1108 010000  005737  000001                    TST 1                   ;ILLEGAL ADDRESS INS, SHOULD TRAP
1109 010004  012737  000213  000302            MOV     #213,$FATAL     ;MOVE TO MAILBOX #  *******  213  *******
     010012  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     010014  000000                            HALT                    ;ILLEGAL ADDRESS DID NOT TRAP
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 751
1110 010016                             RETP:
1111 010016  013737  177766  000502            MOV CPUERR,RCPUER       ;READ AND SAVE CPU ERROR REGISTER
1112 010024  042737  177413  000502            BIC     #CERMSK,RCPUER ;MASK OFF UNUSED BITS OF CPU ERROR REG
1113 010032  022737  000100  000502            CMP     #100,RCPUER     ;ODD ADDRESS BIT SET?
1114 010040  001405                            BEQ     CERR1
     010042                             ERRP1:
     010042  012737  000214  000302            MOV     #214,$FATAL     ;MOVE TO MAILBOX #  *******  214  *******
     010050  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     010052  000000                            HALT                    ;INCORRECT CPU ERROR REG CONTENTS, OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 732
1115 010054  005037  177766            CERR1:  CLR     CPUERR          ;CLEAR ODD ADDRESS BIT
1116
```

```
1117                                    .SBTTL  TEST #53 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;*****************************************************************
                                        ;TEST 53 - TEST DEC OF STACK POINTER ON A TRAP OPERATION
                                        ;*****************************************************************
      010060  005237  000304            TST53:  INC     $TESTN          ;UPDATE TEST NUMBER
      010064  022737  000053  000304            CMP     #53,$TESTN      ;SEQUENCE ERROR?
      010072  001012                            BNE     TST54-12        ;BR TO ERROR HALT ON SEQ ERROR
1118  010074  012706  000500                    MOV     #BUFF,SP        ;STACK POINTER SETUP
1119  010100  012737  010112  000004            MOV     #RETQ,RTRAP5    ;RETURN POINTER
1120  010106  005737  000001                    TST 1                   ;RESERVED INS
1121  010112  020627  000474            RETQ:   CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
1122  010116  001405                            BEQ     TST54
      010120  012737  000215  000302            MOV     #215,$FATAL     ;MOVE TO MAILBOX #  *******  215  *******
      010126  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      010130  000000                            HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 760
```

TEST #54 - TEST THAT PROPER P.C. IS SAVED

```
                                        .SBTTL  TEST #54 - TEST THAT PROPER P.C. IS SAVED
                                        ;*************************************************************************
                                        ;TEST 54 - TEST THAT PROPER P.C. IS SAVED
                                        ;*************************************************************************
010132  005237  000304                  TST54:  INC     $TESTN          ;UPDATE TEST NUMBER
010136  022737  0C0054  000304                  CMP     #54,$TESTN      ;SEQUENCE ERROR?
010144  001013                                 BNE     TST55-12        ;BR TO ERROR HALT ON SEQ ERROR
1124 010146  012706  000500                    MOV     #BUFF,SP        ;STACK POINTER SETUP
1125 010152  012737  010164  000004            MOV     #RETR,RTRAP5    ;RETURN FROM TRAP POINTER
1126 010160  005737  000001                    TST 1                   ;TRAP ON THIS INSTRUCTION
1127 010164  022737  010164  000474  RETR:     CMP     #.,BUFF-4       ;CHECK FOR INCREMENTED P.C.
1128 010172  001405                            BEQ     TST55
010174  012737  000216  000302                MOV     #216,$FATAL     ;MOVE TO MAILBOX #  *******  216  *******
010202  005212                                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
010204  000000                                 HALT                    ;INCORRECT P.C.,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 757
```

TEST #55 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK

```
1129                                    .SBTTL  TEST #55 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;******************************************************************************
                                        ;TEST 55 - TEST THAT "OLD" CC AND PRI ARE PLACED ON STACK
                                        ;******************************************************************************
     010206  005237  000304            TST55:  INC     $TESTN          ;UPDATE TEST NUMBER
     010212  022737  000055  000304            CMP     #55,$TESTN      ;SEQUENCE ERROR?
     010220  001042                    1$      BNE     TST56-12        ;BR TO ERROR HALT ON SEQ ERROR
1130 010222  012706  000500                    MOV     #BUFF,SP        ;SET UP
1131 010226  012737  010246  000004            MOV     #RETS,RTRAP5    ;SET UP
1132 010234  005037  177776                    CLR     CC              ;CLEAR CC AND PRIORITY
1133 010240  000257                            CCC
1134 010242  005737  000001                    TST 1                   ;TRAP
1135 010246  023727  000476  000000  RETS:     CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
1136 010254  001405                            BEQ     1$
     010256  012737  000217  000302            MOV     #217,$FATAL     ;MOVE TO MAILBOX #  *******  217  *******
     010264  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     010266  000000                            HALT                    ;INCORRECT STATUS
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 754
1137 010270  012706  000500            1$:     MOV     #BUFF,SP        ;SET UP
1138 010274  012737  010316  000004            MOV     #RETT,RTRAP5    ;SET UP
1139 010302  012737  000357  177776            MOV     #357,CC         ;SET PRIORITY
1140 010310  000277                            SCC                     ;SET CC
1141 010312  005737  000001                    TST 1                   ;TRAP
1142 010316  023727  000476  000357  RETT:     CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
1143 010324  001405                            BEQ     TST56
     010326  012737  000220  000302            MOV     #220,$FATAL     ;MOVE TO MAILBOX #  *******  220  *******
     010334  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     010336  000000                            HALT                    ;INCORRCT STATUS ON STACK,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 730
```

```
TEST #56 - TEST THAT "NEW" STATUS IS CORRECT
 1144                                   .SBTTL  TEST #56 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*****************************************************************************
                                        ;TEST 56 - TEST THAT "NEW" STATUS IS CORRECT
                                        ;*****************************************************************************
      010340  005237  000304            TST56:  INC     $TESTN          ;UPDATE TEST NUMBER
      010344  022737  000056  000304            CMP     #56,$TESTN      ;SEQUENCE ERROR?
      010352  001121                    1$:     BNE     TST57-12        ;BR TO ERROR HALT ON SEQ ERROR
 1145 010354  012706  000500                    MOV     #BUFF,SP
 1146 010360  012737  010376  000004            MOV     #RETU,RTRAP5
 1147 010366  005037  000006                    CLR     RTRAP5+2        ;CLEAR FUTURE PRIORITY AND CC
 1148 010372  005737  000001                    TST 1                   ;TRAP HERE
 1149 010376                            RETU:                           ;TEST FOR "C" CLEARED
 1150 010376  100005                            BPL     1$
      010400  012737  000221  000302            MOV     #221,$FATAL     ;MOVE TO MAILBOX #  *******  221  *******
      010406  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      010410  000000                            HALT                    ;C NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 760
 1151 010412                            1$:
      010412  001005                            BNE     2$
      010414  012737  000222  000302            MOV     #222,$FATAL     ;MOVE TO MAILBOX #  *******  222  *******
      010422  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      010424  000000                            HALT                    ;Z NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 752
 1152 010426                            2$:
      010426  102005                            BVC     3$
      010430  012737  000223  000302            MOV     #223,$FATAL     ;MOVE TO MAILBOX #  *******  223  *******
      010436  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      010440  000000                            HALT                    ;V NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 744
 1153 010442                            3$:
      010442  103005                    BCC     4$
      010444  012737  000224  000302            MOV     #224,$FATAL     ;MOVE TO MAILBOX #  *******  224  *******
      010452  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      010454  000000                            HALT                    ;C NOT CLEARED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 736
 1154 010456  032737  000357  177776  4$:     BIT     #357,CC         ;TEST PRIORITY FOR ZERO
 1155 010464  001405                            BEQ     5$
      010466  012737  000225  000302            MOV     #225,$FATAL     ;MOVE TO MAILBOX #  *******  225  *******
      010474  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      010476  000000                            HALT                    ;PRIORITY NOT ZERO
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 725
 1156 010500  012706  000500            5$:     MOV     #BUFF,SP
 1157 010504  012737  010524  000004            MOV     #RETV,RTRAP5
 1158 010512  012737  000357  000006            MOV     #357,RTRAP5+2   ;SET NEW "CC" AND PRIORITY
 1159 010520  005737  000001                    TST 1                   ;TRACE HERE
 1160 010524                            RETV:
 1161 010524  100405                            BMI     1$
      010526  012737  000226  000302            MOV     #226,$FATAL     ;MOVE TO MAILBOX #  *******  226  *******
      010534  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      010536  000000                            HALT                    ;N NOT SET
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 705
```

```
1162 010540                                1$:
     010540  001405                              BEQ     2$
     010542  012737  000227  000302              MOV     #227,$FATAL     ;MOVE TO MAILBOX #  *******  227  *******
     010550  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     010552  000000                              HALT                    ;Z NOT SET
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 677
1163 010554                                2$:
     010554  102405                              BVS     3$
     010556  012737  000230  000302              MOV     #230,$FATAL     ;MOVE TO MAILBOX #  *******  230  *******
     010564  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     010566  000000                              HALT                    ;V NOT SET
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 671
1164 010570                                3$:
     010570  103405                              BCS     4$
     010572  012737  000231  000302              MOV     #231,$FATAL     ;MOVE TO MAILBOX #  *******  231  *******
     010600  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     010602  000000                              HALT                    ;C NOT SET
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 663
1165 010604  013700  177776          4$:         MOV     CC,%0
1166 010610  022700  000357                      CMP     #357,%0
1167 010614  001405                              BEQ     TST57
     010616  012737  000232  000302              MOV     #232,$FATAL     ;MOVE TO MAILBOX #  *******  232  *******
     010624  005212                              INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     010626  000000                              HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 651
```

```
1168                                    .SBTTL  TEST #57 - TEST THAT DEC R6 TO A VALUE LESS  400 TRAPS
                                        ;******************************************************************************
                                        ;TEST 57 - TEST THAT DEC R6 TO A VALUE LESS  400 TRAPS
                                        ;******************************************************************************
     010630  005237  000304            TST57:  INC     $TESTN          ;UPDATE TEST NUMBER
     010634  022737  000057  000304            CMP     #57,$TESTN      ;SEQUENCE ERROR?
     010642  001027                           BNE     ERRP2           ;BR TO ERROR HALT ON SEQ ERROR
1169 010644  005037  177766                    CLR     CPUERR          ;CLEAR CPU ERROR REGISTER
1170 010650  012706  000150                    MOV     #150,%6         ;R6 = 150
1171 010654  012737  010676  000004           MOV     #TDEC1,4        ;STACK OVERFLOW TRAP POINTER
1172 010662  005746                           TST     -(6)            ;WITH R6 = 150 SHOULD TRAP
1173 010664  012737  000233  000302           MOV     #233,$FATAL     ;MOVE TO MAILBOX #  *******  233  *******
     010672  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     010674  000000                           HALT                    ;SHOULD HAVE TRAPPED,OR WRONG $TSTNM
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 762
1174 010676                             TDEC1:
1175 010676  013737  177766  000502           MOV     CPUERR,RCPUER   ;SAVE CPU ERROR REGISTER
1176 010704  042737  177413  000502           BIC     #CERMSK,RCPUER  ;MASK OFF UNUSED CPU ERROR REG BITS
1177 010712  022737  000004  000502           CMP     #4,RCPUER       ;IS YELLOW ZONE BIT SET?
1178 010720  001405                           BEQ     CERR2
     010722                             ERRP2:
     010722  012737  000234  000302           MOV     #234,$FATAL     ;MOVE TO MAILBOX #  *******  234  *******
     010730  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     010732  000000                           HALT                    ;INCORRECT CPU ERROR REGISTER CONTENTS, OR WRONG $TSTNM
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 743
1179 010734  005037  177766             CERR2:  CLR     CPUERR          ;CLEAR YELLOW ZONE BIT
1180
```

TEST #60 - TEST FOR DEC OF R6 ON OVERFLOW TRAP

```
1181                                            .SBTTL  TEST #60 - TEST FOR DEC OF R6 ON OVERFLOW TRAP
                                                ;*****************************************************************
                                                ;TEST 60 - TEST FOR DEC OF R6 ON OVERFLOW TRAP
                                                ;*****************************************************************
     010740  005237  000304                     TST60:  INC     $TESTN          ;UPDATE TEST NUMBER
     010744  022737  000060  000304                     CMP     #60,$TESTN      ;SEQUENCE ERROR?
     010752  001011                                    BNE     TST61-12        ;BR TO ERROR HALT ON SEQ ERROR
1182 010754  012706  000150                            MOV     #150,%6         ;R6 = 150
1183 010760  012737  010770  000004                     MOV     #TDEC2,4        ;TRAP POINTER
1184 010766  005746                                    TST     -(6)            ;WITH R6 = 150 SHOULD TRAP
1185 010770  020627  000142                     TDEC2:  CMP     %6,#142         ;DID R6 DECREMENT
1186 010774  001405                                    BEQ     TST61
     010776  012737  000235  000302                     MOV     #235,$FATAL     ;MOVE TO MAILBOX #  *******  235  *******
     011004  005212                                    INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     011006  000000                                    HALT                    ;R6 NOT = 142,OR WRONG $TSTNM
                                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                                ;AND REPLACE NEXT INST WITH 761
1187
```

```
                                        .SBTTL  TEST #61 - TEST DIFFERENT TYPES OF OVERFLOW
                                        ;*************************************************************************
                                        ;TEST 61 - TEST DIFFERENT TYPES OF OVERFLOW
                                        ;*************************************************************************
011010  005237  000304                  TST61:  INC     $TESTN          ;UPDATE TEST NUMBER
011014  022737  000061  000304                  CMP     #61,$TESTN      ;SEQUENCE ERROR?
011022  001043                                  BNE     TST62-12        ;BR TO ERROR HALT ON SEQ ERROR
1190 011024  012706  000150                    MOV     #150,%6
1191 011030  005037  000146                    CLR     146             ;STATUS WORD OF LOC 10
1192 011034  012737  011044  000004           MOV     #TDEC3,4        ;RETURN TO LOC 4
1193 011042  005246                            INC     -(6)
1194 011044  005737  000146            TDEC3:  TST     146
1195 011050  001005                            BNE     1$
011052  012737  000236  000302                MOV     #236,$FATAL     ;MOVE TO MAILBOX #  *******  236  *******
011060  005212                                INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011062  000000                                HALT                    ;INCREMENT OPERATION NOT INHIBITED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 757
1196 011064  012705  001000            1$:     MOV     #1000,%5
1197 011070  012706  000400                    MOV     #400,%6
1198 011074  012737  011116  000004           MOV     #TDEC4,4
1199 011102  124645                            CMPB    -(6),-(5)
1200 011104  012737  000237  000302           MOV     #237,$FATAL     ;MOVE TO MAILBOX #  *******  237  *******
011112  005212                                INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011114  000000                                HALT                    ;STACK = 400 AND DECREMENTED, SHOULD TRAP
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 742
1201 011116  012706  000400            TDEC4:  MOV     #400,%6
1202 011122  012737  011144  000004           MOV     #TDEC7,4
1203 011130  134546                            BITB    -(5),-(6)
1204 011132                            TDEC6:
011132  012737  000240  000302                MOV     #240,$FATAL     ;MOVE TO MAILBOX #  *******  240  *******
011140  005212                                INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011142  000000                                HALT                    ;NO STACK OVERFLOW,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 727
1205 011144                            TDEC7:
1215
```

```
1216                                    .SBTTL  TEST #62 - TEST THAT AN 10 CAUSES AN OVERFLOW TRAP
                                        ;******************************************************************************
                                        ;TEST 62 - TEST THAT AN 10 CAUSES AN OVERFLOW TRAP
                                        ;******************************************************************************
011144  005237  000304                TST62:  INC     $TESTN          ;UPDATE TEST NUMBER
011150  022737  000062  000304                CMP     #62,$TESTN      ;SEQUENCE ERROR?
011156  001011                               BNE     VDEC2           ;BR TO ERROR HALT ON SEQ ERROR
011160  012706  000400                        MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011164  012737  011202  000010               MOV     #VDEC2,10       ;SET UP 10 VECTOR
011172  012737  011214  000004               MOV     #VDEC1,4        ;SET UP OVERFLOW VECTOR
011200  000010                               10                      ;THIS TRAP SHOULD CAUSE OVERFLOW
011202                                  VDEC2:
011202  012737  000241  000302               MOV     #241,$FATAL     ;MOVE TO MAILBOX #  *******  241  *******
011210  005212                               INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011212  000000                               HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 761
011214  012737  000012  000010  VDEC1:  MOV     #10+2,10
```

TEST #63 - TEST THAT AN IOT CAUSES AN OVERFLOW TRAP

```
1217                                    .SBTTL  TEST #63 - TEST THAT AN IOT CAUSES AN OVERFLOW TRAP
                                        ;*************************************************************************
                                        ;TEST 63 - TEST THAT AN IOT CAUSES AN OVERFLOW TRAP
                                        ;*************************************************************************
011222  005237  000304                  TST63:  INC     $TESTN          ;UPDATE TEST NUMBER
011226  022737  000063  000304                  CMP     #63,$TESTN      ;SEQUENCE ERROR?
011234  001011                                  BNE     VDEC4           ;BR TO ERROR HALT ON SEQ ERROR
011236  012706  000400                          MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011242  012737  011260  000020                  MOV     #VDEC4,20       ;SET UP IOT VECTOR
011250  012737  011272  000004                  MOV     #VDEC3,4        ;SET UP OVERFLOW VECTOR
011256  000004                                  IOT                     ;THIS TRAP SHOULD CAUSE OVERFLOW
011260                                  VDEC4:
011260  012737  000242  000302                  MOV     #242,$FATAL     ;MOVE TO MAILBOX #  *******  242  *******
011266  005212                                  INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011270  000000                                  HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 761
011272  012737  000022  000020  VDEC3:  MOV     #20+2,20
```

TEST #64 - TEST THAT AN EMT CAUSES AN OVERFLOW TRAP

```
1218                                    .SBTTL  TEST #64 - TEST THAT AN EMT CAUSES AN OVERFLOW TRAP
                                        ;*****************************************************************************
                                        ;TEST 64 - TEST THAT AN EMT CAUSES AN OVERFLOW TRAP
                                        ;*****************************************************************************
011300  005237  000304          TST64:  INC     $TESTN          ;UPDATE TEST NUMBER
011304  022737  000064  000304          CMP     #54,$TESTN      ;SEQUENCE ERROR?
011312  001011                        BNE     VDEC6           ;BR TO ERROR HALT ON SEQ ERROR
011314  012706  000400                MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011320  012737  011336  000030        MOV     #VDEC6,30       ;SET UP EMT VECTOR
011326  012737  011350  000004        MOV     #VDEC5,4        ;SET UP OVERFLOW VECTOR
011334  104000                        EMT                     ;THIS TRAP SHOULD CAUSE OVERFLOW
011336                          VDEC6:
011336  012737  000243  000302        MOV     #243,$FATAL     ;MOVE TO MAILBOX #  *******  243  *******
011344  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011346  000000                        HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 761
011350  012737  000032  000030  VDEC5:  MOV     #30+2,30
```

```
1219                                    .SBTTL  TEST #65 - TEST THAT AN TRAP CAUSES AN OVERFLOW TRAP
                                        ;******************************************************************************
                                        ;TEST 65 - TEST THAT AN TRAP CAUSES AN OVERFLOW TRAP
                                        ;******************************************************************************
                                        ;
011356  005237  000304          TST65:  INC     $TESTN          ;UPDATE TEST NUMBER
011362  022737  000065  000304          CMP     #65,$TESTN      ;SEQUENCE ERROR?
011370  001011                        BNE     VDEC8           ;BR TO ERROR HALT ON SEQ ERROR
011372  012706  000400                MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011376  012737  011414  000034        MOV     #VDEC8,34       ;SET UP TRAP VECTOR
011404  012737  011426  000004        MOV     #VDEC7,4        ;SET UP OVERFLOW VECTOR
011412  104400                        TRAP                    ;THIS TRAP SHOULD CAUSE OVERFLOW
011414                          VDEC8:
011414  012737  000244  000302        MOV     #244,$FATAL     ;MOVE TO MAILBOX #  *******  244  *******
011422  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011424  000000                        HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 761
011426  012737  000036  000034  VDEC7:  MOV     #34+2,34
```

TEST #66 - TEST THAT AN TRT CAUSES AN OVERFLOW TRAP

```
1220                                    .SBTTL  TEST #66 - TEST THAT AN TRT CAUSES AN OVERFLOW TRAP
                                        ;*************************************************************************
                                        ;TEST 66 - TEST THAT AN TRT CAUSES AN OVERFLOW TRAP
                                        ;*************************************************************************
011434  005237  000304                  TST66:  INC     $TESTN          ;UPDATE TEST NUMBER
011440  022737  000066  000304                  CMP     #66,$TESTN      ;SEQUENCE ERROR?
011446  001011                                  BNE     VDEC10          ;BR TO ERROR HALT ON SEQ ERROR
011450  012706  000400                          MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011454  012737  011472  000014                  MOV     #VDEC10,14      ;SET UP TRT VECTOR
011462  012737  011504  000004                  MOV     #VDEC9,4        ;SET UP OVERFLOW VECTOR
011470  000003                                  TRT                     ;THIS TRAP SHOULD CAUSE OVERFLOW
011472                                  VDEC10:
011472  012737  000245  000302                  MOV     #245,$FATAL     ;MOVE TO MAILBOX #  *******  245  *******
011500  005212                                  INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011502  000000                                  HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 761
011504  012737  000016  000014  VDEC9:  MOV     #14+2,14
```

```
1221                                    .SBTTL  TEST #67 - TEST THAT AN ILLA CAUSES AN OVERFLOW TRAP
                                        ;******************************************************************************
                                        ;TEST 67 - TEST THAT AN ILLA CAUSES AN OVERFLOW TRAP
                                        ;******************************************************************************
011512  005237  000304                TST67:  INC     $TESTN          ;UPDATE TEST NUMBER
011516  022737  000067  000304              CMP     #67,$TESTN      ;SEQUENCE ERROR?
011524  001011                            BNE     VDEC11          ;BR TO ERROR HALT ON SEQ ERROR
011526  012706  000400                      MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011532  012737  011550  000010            MOV     #VDEC11,10      ;SET UP ILLA VECTOR
011540  012737  011562  000004            MOV     #VDEC12,4       ;SET UP OVERFLOW VECTOR
011546  004700                            ILLA                    ;THIS TRAP SHOULD CAUSE OVERFLOW
011550                                  VDEC11:
011550  012737  000246  000302            MOV     #246,$FATAL     ;MOVE TO MAILBOX #  *******  246  *******
011556  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011560  000000                            HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 761
011562  012737  000012  000010  VDEC12: MOV     #10+2,10
1222 011570  020627  000370            CMP     %6,#370         ;STACK PUSHED FOUR WORDS?
1223 011574  001405                    BEQ     TST70
011576  012737  000247  000302            MOV     #247,$FATAL     ;MOVE TO MAILBOX #  *******  247  *******
011604  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011606  000000                            HALT                    ;CORRECT # (4) OF WORDS WERE NOT PUSHED ONTO STACK
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 746
```

```
1224                                    .SBTTL  TEST #70 - TEST THAT AN ILLB CAUSES AN OVERFLOW TRAP
                                        ;******************************************************************************
                                        ;TEST 70 - TEST THAT AN ILLB CAUSES AN OVERFLOW TRAP
                                        ;******************************************************************************
011610  005237  000304                TST70:  INC     $TESTN          ;UPDATE TEST NUMBER
011614  022737  000070  000304              CMP     #70,$TESTN      ;SEQUENCE ERROR?
011622  001011                            BNE     VDEC13          ;BR TO ERROR HALT ON SEQ ERROR
011624  012706  000400                      MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011630  012737  011646  000010            MOV     #VDEC13,10      ;SET UP ILLB VECTOR
011636  012737  011660  000004            MOV     #VDEC14,4       ;SET UP OVERFLOW VECTOR
011644  000100                            ILLB                    ;THIS TRAP SHOULD CAUSE OVERFLOW
011646                                  VDEC13:
011646  012737  000250  000302            MOV     #250,$FATAL     ;MOVE TO MAILBOX #  *******  250  *******
011654  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011656  000000                            HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 761
011660  012737  000012  000010  VDEC14: MOV     #10+2,10
1225
```

```
1226                                    .SBTTL  TEST #71 - TEST FOR FALSE OVERFLOW TRAP
                                        ;******************************************************************************
                                        ;TEST 71 - TEST FOR FALSE OVERFLOW TRAP
                                        ;******************************************************************************
     011666  005237  000304            TST71:  INC     $TESTN          ;UPDATE TEST NUMBER
     011672  022737  000071  000304            CMP     #71,$TESTN      ;SEQUENCE ERROR?
     011700  001023                            BNE     FOVER           ;BR TO ERROR HALT ON SEQ ERROR
1227
1228 011702  012737  011750  000004            MOV     #FOVER,4        ;SET UP OVERFLOW POINTER
1229 011710  012706  001002                      MOV     #1002,%6
1230 011714  005746                              TST     -(6)            ;SHOULD NOT OVERFLOW
1231 011716  012706  002002                      MOV     #2002,%6
1232 011722  005746                              TST     -(6)            ;SHOULD NOT OVERFLOW
1233 011724  012706  004002                      MOV     #4002,%6
1234 011730  005746                              TST     -(6)            ;SHOULD NOT OVERFLOW
1235 011732  012706  010002                      MOV     #10002,%6
1236 011736  005746                              TST     -(6)
1237 011740  012706  020000                      MOV     #20000,%6       ;SHOULD NOT OVERFLOW
1238 011744  005746                              TST     -(6)
1239 011746  000405                              BR      STP
     011750                             FOVER:
     011750  012737  000251  000302            MOV     #251,$FATAL     ;MOVE TO MAILBOX #  *******  251  *******
     011756  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     011760  000000                            HALT                    ;IT OVERFLOWED,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 747
1240 011762  012737  000006  000004  STP:     MOV     #6,4
1241 011770  005037  000006                    CLR     6
```

TEST #72 - TEST THAT BIT 4 PSW WILL CAUSE A TRAP TO 14

```
1242                                    .SBTTL  TEST #72 - TEST THAT BIT 4 PSW WILL CAUSE A TRAP TO 14
                                        ;*****************************************************************************
                                        ;TEST 72 - TEST THAT BIT 4 PSW WILL CAUSE A TRAP TO 14
                                        ;*****************************************************************************
     011774  005237  000304           TST72:  INC     $TESTN          ;UPDATE TEST NUMBER
     012000  022737  000072  000304           CMP     #72,$TESTN      ;SEQUENCE ERROR?
     012006  001013                         BNE     TST73-12        ;BR TO ERROR HALT ON SEQ ERROR
1243 012010  012706  000500                 MOV     #BUFF,SP
1244 012014  012737  012050  000014         MOV     #RETAT,RTRAP4   ;SET UP TO TRAP TO 14
1245 012022  012746  000020                 MOV     #20,-(SP)       ;PUSH T BIT
1246 012026  012746  012034                 MOV     #.+6,-(SP)      ;PUSH PC
1247 012032  000002                         RTI                     ;SET T BIT
1248 012034  000240                         NOP                     ;TRAP HERE
1249 012036  012737  000252  000302         MOV     #252,$FATAL     ;MOVE TO MAILBOX #  *******  252  *******
     012044  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     012046  000000                         HALT                    ;TRACE BIT DID NOT TRAP!,OR WRONG $TESTN
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 757
1250 012050                             RETAT:
```

```
1251                                    .SBTTL  TEST #73 - TEST  STACK POINTER DECREMENTS
                                        ;*************************************************************************
                                        ;TEST 73 - TEST  STACK POINTER DECREMENTS
                                        ;*************************************************************************
     012050  005237  000304             TST73:  INC     $TESTN          ;UPDATE TEST NUMBER
     012054  022737  000073  000304             CMP     #73,$TESTN      ;SEQUENCE ERROR?
     012062  001023                             BNE     TST74-12        ;BR TO ERROR HALT ON SEQ ERROR
1252 012064  012706  000500                     MOV     #BUFF,SP
1253 012070  012737  012124  000014             MOV     #RETBT,RTRAP4
1254 012076  012746  000020                     MOV     #20,-(SP)       ;PUSH T BIT
1255 012102  012746  012110                     MOV     #.+6,-(SP)      ;PUSH PC
1256 012106  000002                             RTI                     ;SET T BIT
1257 012110  000240                             NOP                     ;TRAP HERE
1258 012112  012737  000253  000302             MOV     #253,$FATAL     ;MOVE TO MAILBOX #  *******  253  *******
     012120  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     012122  000000                             HALT                    ;TRACE BIT DID NOT TRAP!
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 757
1259 012124  020627  000474             RETBT:  CMP     SP,#BUFF-4
1260 012130  001405                             BEQ     TST74
     012132  012737  000254  000302             MOV     #254,$FATAL     ;MOVE TO MAILBOX #  *******  254  *******
     012140  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     012142  000000                             HALT                    ;STACK POINTER WAS NOT PUSHED BY TRAP,OR WRONG $TESTN
                                                                         ;TO SCOPE REPLACE HALT WITH 240
                                                                         ;AND REPLACE NEXT INST WITH 747
```

TEST #74 - TEST FOR PROPER PC ON STACK

```
1261                                            .SBTTL  TEST #74 - TEST  FOR PROPER PC ON STACK
                                                ;******************************************************************************
                                                ;TEST 74 - TEST  FOR PROPER PC ON STACK
                                                ;******************************************************************************
     012144  005237  000304                     TST74:  INC     $TESTN          ;UPDATE TEST NUMBER
     012150  022737  000074  000304                     CMP     #74,$TESTN      ;SEQUENCE ERROR?
     012156  001016                             TST75-12
1262 012160  012706  000500                             MOV     #BUFF,SP
1263 012164  012737  012204  000014                     MOV     #RETCT,RTRAP4
1264 012172  012746  000020                             MOV     #20,-(SP)       ;PUSH T BIT
1265 012176  012746  012204                             MOV     #.+6,-(SP)      ;PUSH PC
1266 012202  000002                                     RTI                     ;SET T BIT
1267                                                                            ;TRAP HERE
1268 012204  022737  012204  000474  RETCT:  CMP     #.,BUFF-4
1269 012212  001405                             BEQ     TST75
     012214  012737  000255  000302                     MOV     #255,$FATAL     ;MOVE TO MAILBOX #  *******  255  *******
     012222  005212                                     INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     012224  000000                                     HALT                    ;CORRECT PC WAS NOT SAVED ON STACK,OR WRONG $TESTN
                                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                                ;AND REPLACE NEXT INST WITH 754
1270
1271
```

TEST #75 - TEST THAT RTT POPS T- BIT

```
1272                                    .SBTTL  TEST #75 - TEST  THAT RTT POPS T- BIT
                                        ;******************************************************************************
                                        ;TEST 75 - TEST  THAT RTT POPS T- BIT
                                        ;******************************************************************************
     012226  005237  000304            TST75:  INC     $TESTN          ;UPDATE TEST NUMBER
     012232  022737  000075  000304            CMP     #75,$TESTN      ;SEQUENCE ERROR?
     012240  001015                            BNE     TST76-12        ;BR TO ERROR HALT ON SEQ ERROR
1273
1274 012242  012706  000500                    MOV     #BUFF,SP
1275 012246  005001                            CLR     R1              ;CLEAR R1
1276 012250  012746  000020                    MOV     #20,-(SP)
1277 012254  012746  012270                    MOV     #RTT1,-(SP)
1278 012260  012737  012306  000014            MOV     #RTT2,14
1279 012266  000006                            RTT
1280 012270  000240                    RTT1:   NOP
1281 012272  001405                            BEQ     TST76
     012274  012737  000256  000302            MOV     #256,$FATAL     ;MOVE TO MAILBOX #  *******  256  *******
     012302  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     012304  000000                            HALT                    ;T-BIT DID NOT TRAP,OR WRONG $TESTN
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 755
1282
1283 012306                            RTT2:
```

```
                                        .SBTTL  TEST #76 - TEST  THAT RTT ALLOWS ONE INST. BEFORE TRAP
                                        ;*************************************************************************
                                        ;TEST 76 - TEST  THAT RTT ALLOWS ONE INST. BEFORE TRAP
                                        ;*************************************************************************
012306  005237  000304                  TST76:  INC     $TESTN          ;UPDATE TEST NUMBER
012312  022737  000076  000304                  CMP     #76,$TESTN      ;SEQUENCE ERROR?
012320  001031                                  BNE     TST77-12        ;BR TO ERROR HALT ON SEQ ERROR
1285 012322  012705  177777                    MOV     #177777,%5
1286 012326  012706  000500            RTT5:   MOV     #BUFF,SP
1287 012332  012746  000020                    MOV     #20,-(SP)
1288 012336  012746  012354                    MOV     #RTT3,-(SP)
1289 012342  012737  012374  000014          MOV     #RTT4,14
1290 012350  005001                            CLR     R1              ;CLEAR R0
1291 012352  000006                            RTT                     ;SET T-BIT
1292 012354  005201            RTT3:   INC     R1
1293 012356  005205                    INC     %5
1294 012360  001762                    BEQ     RTT5            ;DO THIS TEST NO MORE THAN 2 TIMES
1295 012362  012737  000257  000302          MOV     #257,$FATAL     ;MOVE TO MAILBOX #  *******  257  *******
012370  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
012372  000000                            HALT                    ;DID NOT TRAP
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 752
1296 012374  005301            RTT4:   DEC     R1              ;SEE IF RTT ALLOWS 1 INST.
1297 012376  001407                    BEQ     RTT6
1298 012400  005205                    INC     %5              ;DO THIS TEST NO MORE THAN TWO TIMES
1299 012402  001751                    BEQ     RTT5
012404  012737  000260  000302          MOV     #260,$FATAL     ;MOVE TO MAILBOX #  *******  260  *******
012412  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
012414  000000                            HALT                    ;RTT DID NOT ALLOW 1 INST.,OR WRONG $TESTN
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 741
1300 012416                    RTT6:
```

```
1301                                    .SBTTL  TEST #77 - TEST  THAT RTI DOES NOT ALLOW 1 INST.
                                        ;*************************************************************************
                                        ;TEST 77 - TEST  THAT RTI DOES NOT ALLOW 1 INST.
                                        ;*************************************************************************
     012416  005237  000304             TST77:  INC     $TESTN          ;UPDATE TEST NUMBER
     012422  022737  000077  000304             CMP     #77,$TESTN      ;SEQUENCE ERROR?
     012430  001023                     BNE     TST100-12       ;BR TO ERROR HALT ON SEQ ERROR
1302 012432  012706  000500             MOV     #BUFF,SP
1303 012436  012746  000020             MOV     #20,-(SP)
1304 012442  012746  012460             MOV     #RTI1,-(SP)
1305 012446  012737  012474  000014     MOV     #RTI2,14
1306 012454  005001                     CLR     R1
1307 012456  000002                     RTI                     ;SET T-BIT
1308 012460  005201                     RTI1:   INC     R1              ;RTI SHOULD NOT ALLOW THIS
1309 012462  012737  000261  000302     MOV     #261,$FATAL     ;MOVE TO MAILBOX #  *******  261  *******
     012470  005212                     INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     012472  000000                     HALT                    ;T- BIT DID NOT CAUSE TRAP
                                                                 ;TO SCOPE REPLACE HALT WITH 240
                                                                 ;AND REPLACE NEXT INST WITH 756
1310 012474  005701                     RTI2:   TST     R1
1311                                                             ;RTI SHOULD NOT ALLOW 1 INST. BEFORE TRAP
1312 012476  001405                     BEQ     TST100
     012500  012737  000262  000302     MOV     #262,$FATAL     ;MOVE TO MAILBOX #  *******  262  *******
     012506  005212                     INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     012510  000000                     HALT                    ;RTI DID ALLOW 1 INST. BEFORE TRAP,OR WRONG $TESTN
                                                                 ;TO SCOPE REPLACE HALT WITH 240
                                                                 ;AND REPLACE NEXT INST WITH 747
1313
```

```
TEST #100 - DOES THE PROCESSOR TRAP WHEN %7 IS ODD?
   1314                                 .SBTTL  TEST #100 - DOES THE PROCESSOR TRAP WHEN %7 IS ODD?
                                        ;*****************************************************************************
                                        ;TEST 100 - DOES THE PROCESSOR TRAP WHEN %7 IS ODD?
                                        ;*****************************************************************************
        012512  005237  000304         TST100: INC     $TESTN          ;UPDATE TEST NUMBER
        012516  022737  000100  000304         CMP     #100,$TESTN     ;SEQUENCE ERROR?
        012524  001120                        BNE     TST101-12       ;BR TO ERROR HALT ON SEQ ERROR
   1315 012526  012706  000500                MOV     #BUFF,%6        ;SET UP STACK POINTER
   1316 012532  012737  012556  000004        MOV     #R7TR1,4        ;RETURN FROM TRAP
   1317 012540  012707  000001                MOV     #1,%7           ;PC EQUALS ONE
   1318 012544  012737  000263  000302        MOV     #263,$FATAL     ;MOVE TO MAILBOX #  *******  263  *******
        012552  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        012554  000000                        HALT                    ;ODD ADDRESS SHOULD HAVE TRAPPED
                                                                       ;TO SCOPE REPLACE HALT WITH 240
                                                                       ;AND REPLACE NEXT INST WITH 763
   1319 012556  022737  000001  000474  R7TR1:  CMP     #1,BUFF-4
   1320 012564  001405                        BEQ     1$
        012566  012737  000264  000302        MOV     #264,$FATAL     ;MOVE TO MAILBOX #  *******  264  *******
        012574  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        012576  000000                        HALT                    ;CORRECT PC WAS NOT SAVED ON STACK
                                                                       ;TO SCOPE REPLACE HALT WITH 240
                                                                       ;AND REPLACE NEXT INST WITH 752
   1321
   1322 012600  012706  000500         1$:     MOV     #BUFF,%6        ;STACK POINTER
   1323 012604  012737  012626  000004        MOV     #R7TR2,4
   1324 012612  005207                        INC     %7              ;PC BECOMES ODD
   1325 012614                          R7TR2A:
        012614  012737  000265  000302        MOV     #265,$FATAL     ;MOVE TO MAILBOX #  *******  265  *******
        012622  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        012624  000000                        HALT                    ;
                                                                       ;TO SCOPE REPLACE HALT WITH 240
                                                                       ;AND REPLACE NEXT INST WITH 737
   1326 012626  022737  012615  000474  R7TR2:  CMP     #R7TR2A+1,BUFF-4
   1327 012634  001405                        BEQ     1$
        012636  012737  000266  000302        MOV     #266,$FATAL     ;MOVE TO MAILBOX #  *******  266  *******
        012644  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        012646  000000                        HALT                    ;CORRECT PC NOT ON STACK
                                                                       ;TO SCOPE REPLACE HALT WITH 240
                                                                       ;AND REPLACE NEXT INST WITH 726
   1328 012650  012706  000500         1$:     MOV     #BUFF,%6
   1329 012654  012737  012676  000004        MOV     #R7TR3,4
   1330 012662  005307                  BR60:   DEC     %7              ;MAKE PC ODD
   1331 012664  012737  000267  000302        MOV     #267,$FATAL     ;MOVE TO MAILBOX #  *******  267  *******
        012672  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        012674  000000                        HALT                    ;SHOULD TRAP
                                                                       ;TO SCOPE REPLACE HALT WITH 240
                                                                       ;AND REPLACE NEXT INST WITH 713
   1332 012676  022737  012663  000474  R7TR3:  CMP     #BR60+1,BUFF-4  ;CHECK VALUE OF PC ON STACK
   1333 012704  001405                        BEQ     1$
        012706  012737  000270  000302        MOV     #270,$FATAL     ;MOVE TO MAILBOX #  *******  270  *******
        012714  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
        012716  000000                        HALT                    ;WRONG VALUE ON STACK
                                                                       ;TO SCOPE REPLACE HALT WITH 240
                                                                       ;AND REPLACE NEXT INST WITH 702
   1334
   1335 012720  012706  000500         1$:     MOV     #BUFF,%6
   1336 012724  012737  012750  000004        MOV     #R7TR4,4
```

TEST #100 - DOES THE PROCESSOR TRAP WHEN %7 IS ODD?

```
1337 012732  000261                        SEC                     ;CARRY EQUALS A 1
1338 012734  006107                        ROL     %7              ;PC BECOMES ODD
1339 012736                          TR4A:
     012736  012737  000271  000302        MOV     #271,$FATAL     ;MOVE TO MAILBOX #  *******  271  *******
     012744  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     012746  000000                        HALT                    ;ODD ADDRESS DIDN'T TRAP
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 666
1340 012750  012737  000006  000004  R7TR4:  MOV     #6,4            ;RESET UP A HALT FOR TRAP
1341 012756  022737  025675  000474        CMP     #<2*TR4A+1>,BUFF-4 ;CHECK FOR VALUE ON STACK
1342 012764  001405                        BEQ     TST101
     012766  012737  000272  000302        MOV     #272,$FATAL     ;MOVE TO MAILBOX #  *******  272  *******
     012774  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     012776  000000                        HALT                    ;WRONG VALUE ON STACK,OR WRONG $TSTNM
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 652
```

```
1343                                            .SBTTL  TEST #101 - TEST  THAT TRACE BIT TRAPS  INHIB ON TRAP INST
                                                ;*************************************************************************
                                                ;TEST 101 - TEST  THAT TRACE BIT TRAPS  INHIB ON TRAP INST
                                                ;*************************************************************************
     013000  005237  000304                     TST101: INC     $TESTN          ;UPDATE TEST NUMBER
     013004  022737  000101  000304                     CMP     #101,$TESTN     ;SEQUENCE ERROR?
     013012  001027                                     BNE     BR70            ;BR TO ERROR HALT ON SEQ ERROR
1344
1345 013014  012706  000500                             MOV     #BUFF,%6
1346 013020  012737  013060  000014                     MOV     #TRACE,14       ;TRACE TRAP
1347 013026  005027  000016                             CLR     #16
1348 013032  005027  000022                             CLR     #22
1349 013036  012737  013104  000020                     MOV     #TONT1,20       ;IOT TRAP
1350 013044  012746  000020                             MOV     #20,-(SP)       ;PUSH T BIT
1351 013050  012746  013056                             MOV     #.+6,-(SP)      ;PUSH PC
1352 013054  000006                                     RTT
1353 013056  000004                                     IOT                     ;TRAP, NEW CC HAVE TRACE RESET
1354 013060                                     TRACE:
     013060  012737  000273  000302                     MOV     #273,$FATAL     ;MOVE TO MAILBOX #  *******  273  *******
     013066  005212                                     INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     013070  000000                                     HALT                    ;TRACE TRAP WAS NOT INHIBITED
                                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                                ;AND REPLACE NEXT INST WITH 750
1355 013072                                     BR70:
     013072  012737  000274  000302                     MOV     #274,$FATAL     ;MOVE TO MAILBOX #  *******  274  *******
     013100  005212                                     INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     013102  000000                                     HALT                    ;WRONG TSTNM,OR WRONG $TSTNM
                                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                                ;AND REPLACE NEXT INST WITH 743
1356 013104  012737  000016  000014             TONT1:  MOV     #16,14
1357 013112  012737  000022  000020                     MOV     #22,20
```

```
                                        .SBTTL  TEST #102 - TEST THAT THE TRACE BIT IS SAVED IN THE STACK
                                        ;*************************************************************************
                                        ;TEST 102 - TEST THAT THE TRACE BIT IS SAVED IN THE STACK
                                        ;*************************************************************************
013120  005237  000304                  TST102: INC     $TESTN          ;UPDATE TEST NUMBER
013124  022737  000102  000304                  CMP     #102,$TESTN     ;SEQUENCE ERROR?
013132  001020                                 BNE     STP3            ;BR TO ERROR HALT ON SEQ ERROR
1359 013134  012706  000500                    MOV     #BUFF,%6        ;SET UP STACK POINTER
1360 013140  012737  013164  000014            MOV     #TRC1,14        ;TRACE TRAP RETURN
1361 013146  005037  000016                    CLR     16
1362 013152  012746  000020                    MOV     #20,-(SP)       ;SET THE T BIT
1363 013156  012746  013164                    MOV     #TRC1,-(SP)
1364 013162  000002                            RTI
1365 013164  033727  000476  000020    TRC1:   BIT     BUFF-2,#20      ;CHECK FOR T BIT ON STACK
1366 013172  001005                            BNE     STP3D
013174                                  STP3:
013174  012737  000275  000302                  MOV     #275,$FATAL     ;MOVE TO MAILBOX #  *******  275  *******
013202  005212                                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
013204  000000                                 HALT                    ;T BIT NOT SAVED ON THE STACK,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 752
1367 013206  012737  000016  000014    STP3D:  MOV     #16,14
1368
1369
1370                                    ;THIS ROUTINE TEST THAT NO LEGAL ADDRESS TRAPS.
1371                                    ;AND THAT AN ILLEGAL ADDRESS TRAPS TO LOCATION 4
```

TEST #103 - TEST NON-EXISTENT ADDRESS TRAPS

```
1372                                    .SBTTL  TEST #103 - TEST  NON-EXISTENT ADDRESS TRAPS
                                        ;******************************************************************************
                                        ;TEST 103 - TEST  NON-EXISTENT ADDRESS TRAPS
                                        ;******************************************************************************
013214  005237  000304                TST103: INC     $TESTN          ;UPDATE TEST NUMBER
013220  022737  000103  000304              CMP     #103,$TESTN     ;SEQUENCE ERROR?
013226  001160                            BNE     AUTO1           ;BR TO ERROR HALT ON SEQ ERROR
1373
1374                                    ;THIS ROUTINE TESTS MEMORY UNTIL IT DOES A NXM TRAP
1375 013230  000402                          BR      ADALL
1376 013232  000000                    TSL:    0
1377 013234  000000                    CORH:   0
1378 013236  005000                    ADALL:  CLR     %0
1379 013240  005037  177766                  CLR     CPUERR          ;CLEAR CPU ERROR REGISTER
1380 013244  005037  000006                  CLR     6
1381 013250  012737  013304  000004          MOV     #ATRAP,4        ;SET UP ADDRESS TRAP ENTRANCE
1382 013256  012706  000500            NOR:    MOV     #BUFF,SP
1383 013262  105720                          TSTB    (0)+            ;IF OUTSIDE OF CORE, TRAP TO 4
1384 013264  020027  160000                  CMP     %0,#160000              ;IS POINTER IN SIDE CORE
1385 013270  101772                          BLOS    NOR             ;TEST THE REST OF CORE
1386 013272                            AUTO:
013272  012737  000276  000302                MOV     #276,$FATAL     ;MOVE TO MAILBOX #  *******  276  *******
013300  005212                                INC     (R2)            ;SET MSGTYP TO FATAL ERROR
013302  000000                                HALT                    ;SHOULD HAVE TRAPED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 751
1387                                    ;RETURN HERE ON AN ADDRESS TRAP
1388 013304  010037  013234            ATRAP:  MOV     R0,CORH         ;MOVE THE FIRST NXM LOCATION IN CORH
1389 013310  013737  177766  000502          MOV     CPUERR,RCPUER   ;SAVE CPU ERROR REGISTER
1390 013316  042737  177413  000502          BIC     #CERMSK,RCPUER ;MASK OFF UNUSED ERROR REG BITS
1391 013324  020027  160000                  CMP     %0,#160000      ;WHICH CPU ERROR REG BIT SHOULD BE
1392                                                                    ;  SET - NON EXISTANT MEMORY (BIT 5)
1393                                                                    ;  OR UNIBUS TIMEOUT (BIT 4)
1394 013330  103012                          BHIS    1$              ;BRANCH IF UNIBUS TIMEOUT BIT SHOULD BE SET
1395 013332  022737  000040  000502          CMP     #40,RCPUER      ;IS NON-EXISTANT MEMORY BIT SET?
1396 013340  001417                          BEQ     2$
013342  012737  000277  000302                MOV     #277,$FATAL     ;MOVE TO MAILBOX #  *******  277  *******
013350  005212                                INC     (R2)            ;SET MSGTYP TO FATAL ERROR
013352  000000                                HALT                    ;INCORRECT CPU ERROR REG CONTENTS
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 725
1397 013354  000411                          BR 2$
1398 013356  022737  000020  000502    1$:     CMP     #20,RCPUER      ;IS UNIBUS TIMEOUT BIT SET?
1399 013364  001405                          BEQ     2$
013366  012737  000300  000302                MOV     #300,$FATAL     ;MOVE TO MAILBOX #  *******  300  *******
013374  005212                                INC     (R2)            ;SET MSGTYP TO FATAL ERROR
013376  000000                                HALT                    ;INCORRECT CPU ERROR REG CONTENTS
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 713
1400                                    ;THIS ROUTINE DOES NXM TRAPS UNTIL IT FINDS AN EXISTANT MEMORY LOCATION
1401 013400  012700  160001            2$:     MOV     #160001,R0      ;SET UP THE HIGHEST MEM LOCATION
1402 013404  005037  177766            CTRAP:  CLR     CPUERR          ;CLEAR CPU ERROR REGISTER
1403 013410  012737  013450  000004          MOV     #BTRAP,4        ;SET UP THE VECTOR
1404 013416  012706  000500                  MOV     #BUFF,SP
1405 013422  105740                          TSTB    -(R0)           ;DOES IT EXIST?
1406 013424  005200                    DTRAP:  INC     R0              ;IF YES INCREMENT IT
1407 013426  020037  013234                  CMP     R0,CORH         ;IS IT THE SAME LOCATION?
```

TEST #103 - TEST NON-EXISTENT ADDRESS TRAPS

```
1408 013432  001463                        BEQ     TRAPB
     013434  012737  000301  000302         MOV     #301,$FATAL     ;MOVE TO MAILBOX #  *******  301  *******
     013442  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     013444  000000                         HALT                    ;CONTENTS OF R0 AND CORH SHOULD HAVE BEEN EQUAL
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 670
1409                                                                ;IF THIS COMPARISON FAILS IT MEANS
1410                                                                ;THAT SOME LEGAL ADDRESS TRAPPED OR
1411                                                                ;THAT AN ILLEGAL ADDRESS DID NOT TRAP
1412 013446  000455                        BR TRAPB
1413
1414 013450  005737  177776        BTRAP:  TST STATUS
1415 013454  001405                        BEQ     3$
     013456  012737  000302  000302         MOV     #302,$FATAL     ;MOVE TO MAILBOX #  *******  302  *******
     013464  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     013466  000000                         HALT                    ;NEW PSW SHOULD HAVE BEEN ZERO
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 657
1416
1417 013470  013737  177766  000502  3$:     MOV     CPUERR,RCPUER   ;SAVE CPU ERROR REGISTER
1418 013476  042737  177413  000502         BIC     #CERMSK,RCPUER  ;MASK OFF UNUSED ERROR REG BITS
1419 013504  020027  160000                 CMP     %0,#160000      ;WHICH CPU ERROR REG BIT SHOULD BE
1420                                                                ;  SET - NON EXISTANT MEMORY (BIT 5)
1421                                                                ;  OR UNIBUS TIMEOUT (BIT 4)
1422 013510  103012                        BHIS    1$              ;BRANCH IF UNIBUS TIMEOUT BIT SHOULD BE SET
1423 013512  022737  000040  000502         CMP     #40,RCPUER      ;IS NON-EXISTANT MEMORY BIT SET?
1424 013520  001417                        BEQ     2$
     013522  012737  000303  000302         MOV     #303,$FATAL     ;MOVE TO MAILBOX #  *******  303  *******
     013530  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     013532  000000                         HALT                    ;INCORRECT CPU ERROR REG CONTENTS
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 635
1425 013534  000411                        BR 2$
1426 013536  022737  000020  000502  1$:     CMP     #20,RCPUER      ;IS UNIBUS TIMEOUT BIT SET?
1427 013544  001405                        BEQ     2$
     013546  012737  000304  000302         MOV     #304,$FATAL     ;MOVE TO MAILBOX #  *******  304  *******
     013554  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     013556  000000                         HALT                    ;INCORRECT CPU ERROR REG CONTENTS
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 623
1428 013560  023727  000474  013424  2$:     CMP     BUFF-4,#DTRAP
1429 013566  001706                        BEQ     CTRAP
     013570                         AUTO1:
     013570  012737  000305  000302         MOV     #305,$FATAL     ;MOVE TO MAILBOX #  *******  305  *******
     013576  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     013600  000000                         HALT                    ;OLD PC WAS NOT SAVED OR WRONG $TESTN
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 612
1430 013602  012737  000006  000004  TRAPB:  MOV     #6,4
1431 013610  005037  000006                 CLR     6
1432                                ;THIS ROUTINE WILL FIGURE OUT IF YOU HAVE A DL11W
1433
1434 013614  005037  013640                 CLR     PROFTE
1435 013620  012706  000500                 MOV     #BUFF,SP        ;SET UP THE STACK POINTER
1436 013624  012737  013642  000004         MOV     #DL11W,4        ;SET UP THE TRAP VECTOR
1437 013632  005737  177564                 TST     TPS             ;TEST THE PUNCH STATUS REGISTER
1438 013636  000403                        BR      DL11W1          ;BRANCH IF IT EXISTS
```

TEST #103 - TEST NON-EXISTENT ADDRESS TRAPS

```
1439 013640  000000                    PROFTE: 000000
1440 013642  005237  013640            DL11W:  INC     PROFTE          ;INCREMENT IF NO DL11W
1441 013646  012737  000006  000004    DL11W1: MOV     #6,4
1442
```

```
1443                                    .SBTTL  TEST #104 - TEST THAT A TTY INRUP CAUSES AN OVERFLOW TRAP
                                        ;******************************************************************************
                                        ;TEST 104 - TEST THAT A TTY INRUP CAUSES AN OVERFLOW TRAP
                                        ;******************************************************************************
     013654  005237  000304            TST104: INC     $TESTN          ;UPDATE TEST NUMBER
     013660  022737  000104  000304            CMP     #104,$TESTN     ;SEQUENCE ERROR?
     013666  001031                            BNE     TDEC8           ;BR TO ERROR HALT ON SEQ ERROR
1444 013670  005737  013640                    TST     PROFTE
1445 013674  001042                            BNE     R7TRX
1446 013676  000005                            RESET
1447 013700  012737  000340  177776            MOV     #340,STATUS     ;LOCK OUT INTERRUPT
1448 013706  012706  000400                    MOV     #400,%6         ;SET UP STACK TO OVERFLOW
1449 013712  012737  013764  000004            MOV     #TDEC77,4       ;SET UP OVERFLOW TRAP
1450 013720  012737  013752  000064            MOV     #TDEC8,64       ;SET UP INTERRUPT VECTOR
1451 013726  012737  000100  177564            MOV     #100,TTCSR      ;SET INTERRUPT ENABLE
1452 013734  005037  177776                    CLR     STATUS          ;ALLOW INTERRUPT TO OCCUR
1453 013740  012737  000306  000302            MOV     #306,$FATAL     ;MOVE TO MAILBOX #  *******  306  *******
     013746  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     013750  000000                            HALT                    ;NO INTERRUPT OCCURRED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 746
1454 013752                             TDEC8:
     013752  012737  000307  000302            MOV     #307,$FATAL     ;MOVE TO MAILBOX #  *******  307  *******
     013760  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     013762  000000                            HALT                    ;OVERFLOW TRAP DID NOT OCCUR OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 741
1455 013764  005037  177564            TDEC77: CLR     TTCSR           ;CLEAR INTERRUPT ENABLE
1456 013770  012737  000006  000004            MOV     #6,4
1457 013776  005037  000006                    CLR     6
1458 014002                             R7TRX:
```

TEST #105 - TEST THAT A TRAP OCCURS BEFORE INRUPT

```
1459                                    .SBTTL  TEST #105 - TEST THAT A TRAP OCCURS BEFORE INRUPT
                                        ;*****************************************************************************
                                        ;TEST 105 - TEST THAT A TRAP OCCURS BEFORE INRUPT
                                        ;*****************************************************************************
                                        ;
     014002  005237  000304             TST105: INC     $TESTN          ;UPDATE TEST NUMBER
     014006  022737  000105  000304             CMP     #105,$TESTN     ;SEQUENCE ERROR?
     014014  001037                             BNE     TR2             ;BR TO ERROR HALT ON SEQ ERROR
1460 014016  005737  013640                     TST     PROFTE
1461 014022  001046                             BNE     NODL
1462 014024  012706  000500                     MOV     #BUFF,%6
1463 014030  012737  000340  177776             MOV     #340,STATUS     ;SET TO A HIGH PRIORITY LEVEL
1464 014036  012737  014102  000064             MOV     #TR0,64
1465 014044  012737  000100  177564             MOV     #100,TTCSR      ;INTERRUPT FOR TTY PUNCH/PRINTER
1466 014052  012737  014126  000034             MOV     #BR71,34        ;TRAP VECTOR
1467 014060  012737  014114  000064             MOV     #TR2,64         ;TTY VECTOR
1468 014066  012737  000340  000036             MOV     #340,36         ;IF TRAP TRAPS, MOVE 340 TO PRIORITY
1469 014074  005037  177776                     CLR     STATUS          ;SHOULD INTERRUPT AT END OF CLR INST
1470 014100  104400                             TRAP                    ;TTY INTERRUPT SHOULD OVERRIDE TRAP
1471 014102                             TR0:
     014102  012737  000310  000302             MOV     #310,$FATAL     ;MOVE TO MAILBOX #  *******  310  *******
     014110  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     014112  000000                             HALT                    ;NEITHER TRAP NOR INRUPT OCCURED
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 740
1472 014114                             TR2:
     014114  012737  000311  000302             MOV     #311,$FATAL     ;MOVE TO MAILBOX #  *******  311  *******
     014122  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     014124  000000                             HALT                    ;INRUPT OCCURRED FIRST,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 733
1473 014126  005037  000036             BR71:   CLR     36
1474 014132  042737  000100  177564             BIC     #100,TTCSR
1475 014140                             NODL:
```

TEST #106 - TEST THAT A PENDING INRUP, INRUP BETWEEN TRAPS

```
1476                                    .SBTTL  TEST #106 - TEST THAT A PENDING INRUP, INRUP BETWEEN TRAPS
                                        ;*************************************************************************
                                        ;TEST 106 - TEST THAT A PENDING INRUP, INRUP BETWEEN TRAPS
                                        ;*************************************************************************
     014140  005237  000304             TST106: INC     $TESTN          ;UPDATE TEST NUMBER
     014144  022737  000106  000304             CMP     #106,$TESTN     ;SEQUENCE ERROR?
     014152  001031                            BNE     TR5             ;BR TO ERROR HALT ON SEQ ERROR
1477 014154  005737  013640                    TST     PROFTE
1478 014160  001046                            BNE     NODL1
1479 014162  012706  000500                    MOV     #BUFF,%6
1480 014166  012737  000340  177776          MOV     #340,$STATUS
1481 014174  012737  000100  177564          MOV     #100,TTCSR
1482 014202  012737  014234  000034          MOV     #TR3,34         ;TRAP
1483 014210  012737  014250  000064          MOV     #TR4,64         ;TTY OUTPUT
1484 014216  012737  014236  000020          MOV     #TR5,20         ;IOT
1485 014224  012737  000340  000022          MOV     #340,22         ;IOT PRIORITY
1486 014232  104400                          TRAP                    ;THE ACT OF TRAPPING LOWER PRIORITY
1487 014234  000004                    TR3:    IOT                     ;INTERRUPT SHOULD OCCUR IN PLACE OF IOT TRAP
1488 014236                            TR5:
     014236  012737  000312  000302          MOV     #312,$FATAL     ;MOVE TO MAILBOX #  *******  312  *******
     014244  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     014246  000000                            HALT                    ;NO INTERRUPT BETWEEN TRAPS,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 741
1489 014250  005037  000022            TR4:    CLR     22              ;CLR IOT PRIORITY
1490 014254  012737  000036  000034          MOV     #36,34
1491 014262  012737  000066  000064          MOV     #66,64
1492 014270  012737  000022  000020          MOV     #22,20
1493 014276                            NODL1:
1494
```

```
1495                                    .SBTTL  TEST #107 - TEST THAT "RESET" GOES TO OUTSIDE WORLD
                                        ;*****************************************************************************
                                        ;TEST 107 - TEST THAT "RESET" GOES TO OUTSIDE WORLD
                                        ;*****************************************************************************
     014276  005237  000304             TST107: INC     $TESTN          ;UPDATE TEST NUMBER
     014302  022737  000107  000304             CMP     #107,$TESTN     ;SEQUENCE ERROR?
     014310  001027                             BNE     TST110-12       ;BR TO ERROR HALT ON SEQ ERROR
1496 014312  005737  013640                     TST     PROFTE
1497 014316  001031                             BNE     NODL2
1498 014320  012737  000100  177564           MOV     #100,TTCSR      ;SET INTERRUPT ENABLE
1499 014326  012737  000100  177560           MOV     #100,TRCSR      ;SET INTERRUPT ENABLE
1500 014334  000005                           RESET                   ;SHOULD CLEAR INTERRUPT ENABLE
1501 014336  032737  000100  177564           BIT     #100,TTCSR      ;TEST FOR CLEAR
1502 014344  001405                           BEQ     1$
     014346  012737  000313  000302           MOV     #313,$FATAL     ;MOVE TO MAILBOX #  *******  313  *******
     014354  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     014356  000000                           HALT                    ;RESET FAILED TO CLEAR TTCSR
                                                                      ;TO SCOPE REPLACE HALT WITH 240
                                                                      ;AND REPLACE NEXT INST WITH 754
1503 014360  032737  000100  177560  1$:      BIT     #100,TRCSR      ;TEST FOR CLEAR
1504 014366  001405                           BEQ     TST110
     014370  012737  000314  000302           MOV     #314,$FATAL     ;MOVE TO MAILBOX #  *******  314  *******
     014376  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     014400  000000                           HALT                    ;RESET FAILED TO CLEAR TRCSR,OR WRONG $TSTNM
                                                                      ;TO SCOPE REPLACE HALT WITH 240
                                                                      ;AND REPLACE NEXT INST WITH 743
1505 014402                             NODL2:
```

```
1506                                    .SBTTL  TEST #110 - TEST THAT RESET HAS NO EFFECT ON  TRACE TRAP
                                        ;*************************************************************************
                                        ;TEST 110 - TEST THAT RESET HAS NO EFFECT ON  TRACE TRAP
                                        ;*************************************************************************
                                        ;
     014402  005237  000304             TST110: INC     $TESTN          ;UPDATE TEST NUMBER
     014406  022737  000110  000304             CMP     #110,$TESTN     ;SEQUENCE ERROR?
     014414  001014                             BNE     RESET3          ;BR TO ERROR HALT ON SEQ ERROR
1507 014416  012706  000500                     MOV     #BUFF,%6        ;SET STACK
1508 014422  012737  014460  000014             MOV     #RESET2,14      ;SET UP TRACE VECTOR
1509 014430  012746  000020                     MOV     #20,-(R6)       ;SET THE T-BIT ON STACK
1510 014434  012746  014442                     MOV     #1$,-(R6)       ;MOVE NEW PC ON STACK
1511 014440  000006                             RTT
1512 014442  000005                     1$:     RESET                   ;SHOULD HAVE NO EFFECT
1513 014444  000005                             RESET                   ;NO EFFECT
1514 014446                             RESET3:
     014446  012737  000315  000302             MOV     #315,$FATAL     ;MOVE TO MAILBOX #  *******  315  *******
     014454  005212                             INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     014456  000000                             HALT                    ;TRACE TRAP FAILED,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 756
1515 014460  005037  177776             RESET2: CLR     STATUS          ;CLEAR TRACK
1516 014464  005037  000016                     CLR     16              ;TRACE STATUS
1517 014470  012737  000016  000014             MOV     #16,14
1518
```

TEST #111 - TEST THAT WHEN TTY INRUPTS IT POPS NEW STATUS

```
1519                                    .SBTTL  TEST #111 - TEST THAT WHEN TTY INRUPTS IT POPS NEW STATUS
                                        ;*****************************************************************************
                                        ;TEST 111 - TEST THAT WHEN TTY INRUPTS IT POPS NEW STATUS
                                        ;*****************************************************************************
     014476  005237  000304            TST111: INC     $TESTN          ;UPDATE TEST NUMBER
     014502  022737  000111  000304            CMP     #111,$TESTN     ;SEQUENCE ERROR?
     014510  001051                            BNE     TTY11           ;BR TO ERROR HALT ON SEQ ERROR
1520 014512  005737  013640                    TST     PROFTE
1521 014516  001055                            BNE     NODL3
1522 014520  000005                            RESET
1523 014522  012706  000500                    MOV     #BUFF,%6        ;SET UP STACK
1524 014526  012737  014552  000064            MOV     #TTY3,64        ;INTERRUPT VECTOR
1525 014534  005037  177776                    CLR     STATUS          ;DROP PROCESSOR PRIORITY
1526 014540  012737  000357  000066            MOV     #357,66         ;HIGH PRIORITY ON INTERRUPT
1527 014546  005137  177564                    COM     TTCSR           ;SHOULD SET INTERRUPT ENABLE & INTERRUPT
1528 014552  023727  177776  000357  TTY3:     CMP     STATUS,#357
1529 014560  001405                            BEQ     1$
     014562  012737  000316  000302            MOV     #316,$FATAL     ;MOVE TO MAILBOX #  *******  316  *******
     014570  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     014572  000000                            HALT                    ;INTERRUPT DID NOT POP CORRECT STATUS
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 746
1530 014574  000005                    1$:     RESET                   ;CLR NTERRUPT ENABLE
1531 014576  012706  000500                    MOV     #BUFF,%6        ;STACK SET UP
1532 014602  012737  014626  000064            MOV     #TTY4,64        ;INTERRUPT VECTOR
1533 014610  005037  000066                    CLR     66              ;CLR NEW STATUS
1534 014614  012737  000157  177776            MOV     #157,STATUS     ;PROCESSOR STATUS
1535 014622  005137  177564                    COM     TTCSR           ;SET INTERRUPT ENABLE
1536 014626  005737  177776            TTY4:   TST     STATUS
1537 014632  001405                            BEQ     TTT37
     014634                             TTY11:
     014634  012737  000317  000302            MOV     #317,$FATAL     ;MOVE TO MAILBOX #  *******  317  *******
     014642  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     014644  000000                            HALT                    ;INCORRECT STATUS,OR WRONG $TSTNM
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 721
1538 014646  005037  177564            TTT37:  CLR     TTCSR
1539 014652                            NODL3:
1540
```

TEST #112 - TEST THE 'WAIT' INSTRUCTION

```
1541                                    .SBTTL  TEST #112 - TEST THE 'WAIT' INSTRUCTION
                                        ;*************************************************************************
                                        ;TEST 112 - TEST THE 'WAIT' INSTRUCTION
                                        ;*************************************************************************
     014652  005237  000304             TST112: INC     $TESTN          ;UPDATE TEST NUMBER
     014656  022737  000112  000304             CMP     #112,$TESTN     ;SEQUENCE ERROR?
     014664  001060                             BNE     WATE5           ;BR TO ERROR HALT ON SEQ ERROR
1542 014666  005737  013640                     TST PROFTE
1543 014672  001064                             BNE NODL4
1544 014674  042737  000100  177564           BIC     #100,TPS        ;CLEAR INTERRUPT ENABLE
1545 014702  012706  000500                   MOV     #BUFF,SP        ;SET UP THE STACK
1546 014706  012737  014776  000064           MOV     #WATE,64        ;SET UP THE INTERRUPT VECTOR
1547 014714  005037  000066                   CLR     66
1548 014720  105737  177564           WATE1:  TSTB    TPS             ;WAIT FOR READY
1549 014724  100375                           BPL     WATE1           ;TO BE UP
1550 014726  012737  000015  177566           MOV     #15,TPB         ;DO A CARRIAGE RETURN
1551 014734  105737  177564           WATE2:  TSTB    TPS             ;WAIT FOR READY TO COME UP
1552 014740  100375                           BPL     WATE2
1553 014742  012737  000015  177566           MOV     #15,TPB         ;DO ANOTHER CARRIAGE RETURN
1554 014750  052737  000100  177564           BIS     #100,TPS        ;SET THE INTERRUPT ENABLE
1555 014756  005037  177776                   CLR     STATUS          ;CLEAR THE PSW
1556 014762  000001                   WATE3:  WAIT                    ;WAIT FOR THE INTERRUPT
1557 014764  012737  000320  000302           MOV     #320,$FATAL     ;MOVE TO MAILBOX #  *******  320  *******
     014772  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     014774  000000                           HALT                    ;WAIT INSTRUCTION DID NOT LOOP
                                                                      ;TO SCOPE REPLACE HALT WITH 240
                                                                      ;AND REPLACE NEXT INST WITH 733
1558 014776  005737  177776           WATE:   TST     STATUS  ;IS THE PSW CORRECT?
1559 015002  001405                           BEQ     1$
     015004  012737  000321  000302           MOV     #321,$FATAL     ;MOVE TO MAILBOX #  *******  321  *******
     015012  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     015014  000000                           HALT                    ;NEW PSW SHOULD HAVE BEEN ZERO
                                                                      ;TO SCOPE REPLACE HALT WITH 240
                                                                      ;AND REPLACE NEXT INST WITH 723
1560 015016  023727  000474  014764   1$:     CMP     BUFF-4,#WATE3+2 ;IS THE OLD PC SAVED
1561 015024  001405                           BEQ     WATE4
     015026                           WATE5:
     015026  012737  000322  000302           MOV     #322,$FATAL     ;MOVE TO MAILBOX #  *******  322  *******
     015034  005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     015036  000000                           HALT                    ;OLD PC WAS NOT SAVED OR WRONG $TESTN
                                                                      ;TO SCOPE REPLACE HALT WITH 240
                                                                      ;AND REPLACE NEXT INST WITH 712
1562 015040  005037  177564           WATE4:  CLR     TPS             ;CLEAR INTERRUPT ENABLE
1563 015044                           NODL4:
1564
```

TEST #113 - TEST THAT ALL RESERVED INS TRAP

```
                                        .SBTTL  TEST #113 - TEST THAT ALL RESERVED INS TRAP
                                        ;*************************************************************************
                                        ;TEST 113 - TEST THAT ALL RESERVED INS TRAP
                                        ;*************************************************************************
 015044  005237  000304         TST113: INC     $TESTN          ;UPDATE TEST NUMBER
 015050  022737  000113  000304         CMP     #113,$TESTN     ;SEQUENCE ERROR?
 015056  001157                        BNE     RET4            ;BR TO ERROR HALT ON SEQ ERROR
1566 015060  012737  015106  000244    MOV     #TRAP244,244    ; SET UP TO SEE IF
1567 015066  013737  000010  015136    MOV     10,TENSAV       ;  THIS PROCESSOR HAS THE
1568 015074  012737  015116  000010    MOV     #TRAP10,10      ;  FLOATING POINT OPTION
1569 015102  170007                    .WORD   170007          ; AN ILLEGAL FPP INSTRUCTION
1570 015104  000416                    BR      TSFCIS
1571 015106                    TRAP244:                        ; IF FPP IN--
1572 015106  013737  015546  015552    MOV     FPP,FINISH      ;  RESET END OF TABLE POINTER
1573 015114  000002                    RTI                     ; AND RETURN
1574 015116                    TRAP10:                         ; LEAVE THE TABLE ALONE
1575 015116  005737  000306            TST     $PASS           ;FIRST PASS??
1576 015122  001004                    BNE     1$              ;BRANCH IF NO
1577 015124  012700  017616            MOV     #MSGNFP,R0
1578 015130  004737  020000            JSR     PC,PRTMSG       ;PRINT MESSAGE POINTED TO BY R0
1579 015134  000002            1$:     RTI                     ; RETURN
1580 015136  000000            TENSAV: .WORD   0               ; A PLACE TO STORE CONTENTS OF 10
1581 015140  000000            SAVSTK: .WORD   0               ;LOCATION TO SAVE STACK POINTER
1582 015142                    TSFCIS:                 ;SEE IF PROCESSOR HAS CIS OPTION
1583 015142  012737  015232  000004    MOV     #AROUND,4       ;SET TIME OUT TRAP VECTOR
1584
1585 015150  012737  015202  000010    MOV     #TNCIS,10       ;SET UP RESERVE INST TRAP VECTOR
1586 015156  012700  160000            MOV     #160000,R0      ;POINT R0 TO NON-EXISTED MEMORY LOC.
1587 015162  010637  015140            MOV     SP,SAVSTK       ;MOVE STACK POINTER VALUE TO SAVSTK AND
1588 015166  162737  000004  015140    SUB     #4,SAVSTK       ;CORRECT TO SHOW 2 EXPECTED PUSHES
1589 015174  076020                    .WORD   76020           ;CIS INST = L2DR (DESTROYS CONTENTS OF R0,R1,R2,R3)
1590 015176  000000                    HALT                    ;CIS INST FAILED TO TRAP
1591 015200  000432                    BR      ADJNC
1592 015202                    TNCIS:  ;NO CIS OPTION,EXPECTED TRAP ETHER  TO 4 OR 10 DID NOT HAPPEN
1593
1594 015202  005737  000306            TST     $PASS           ;FIRST PASS
1595 015206  001004                    BNE     1$
1596 015210  012700  017661            MOV     #MSGNCIS,R0
1597 015214  004737  020000            JSR     PC,PRTMSG       ;PRINT MESSAGE POINTED TO BY R0
1598 015220  012703  015442    1$:     MOV     #TABLE1,TAB
1599 015224  062716  000002            ADD     #2,(SP)         ;CORRECT POINTER TO AFTER THE HALT
1600 015230  000002                    RTI                     ;RETURN
1601 015232  012703  015472    AROUND: MOV     #TABLE,TAB      ;CIS OPTION PRESENT
1602 015236  020637  015140            CMP     SP,SAVSTK       ;SEE IF 2 WORDS WERE PUSHED ON THE STACK
1603 015242  001406                    BEQ     1$              ;BRANCH IF SO - CIS SWITCH IN NORMAL POSITION
1604 015244  012700  017360            MOV     #CISMSG,R0      ;MOVE ADDRS OF CIS SWITCH IN MAINTENANCE POSITION TO R0
1605 015250  004737  020000            JSR     PC,PRTMSG       ;GO PRINT THIS MESSAGE
1606 015254  000000                    HALT                    ;HALT, ALLOWING USER TO PUT SWITCH IN NORMAL POSITION
1607 015256  000731                    BR      TSFCIS          ;GO BACK TO CHECK AGAIN
1608 015260  062716  000002    1$:     ADD     #2,(SP)         ;CORRECT POINTER TO AFTER THE HALT
1609 015264  000002                    RTI                     ;RETURN
1610 015266  012737  000246  000244    MOV     #246,244        ;  RESTORE THE TRAP VECTOR
1611 015274  013737  015136  000010    MOV     TENSAV,10       ; RESTORE THE ILLEGAL INST. VECTOR
1612 015302  012305            GIN1:   MOV     (TAB)+,FIRST    ;FIRST OR CURRENT INSTRUCTION
1613 015304  012301                    MOV     (TAB)+,LAST     ;LAST INSTRUCTION OR GROUP
1614 015306  020537  015552            CMP     FIRST,FINISH    ;TESTED ALL
1615 015312  001525                    BEQ     GIN3            ;YES BRANCH
```

TEST #113 - TEST THAT ALL RESERVED INS TRAP

```
1616 015314  010537  015554                 MOV     FIRST,INST      ;SET UP INST
1617 015320  005237  015554          GIN2:  INC     INST
1618 015324  012737  015346  000010        MOV     #RET,10         ;SET UP RETURN FROM TRAP
1619 015332  012706  000500                 MOV     #BUFF,SP        ;SET UP STACK POINTER
1620 015336  005037  177776                 CLR     CC              ;CLEAR PRIORITY
1621 015342  000137  015554                 JMP     INST            ;EXECUTE RESERVED INSTRUCTION
1622
1623                                 ;TRAPPING SHOULD SEND YOU HERE
1624 015346  020627  000474          RET:   CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
1625 015352  001405                 BEQ     RET1
1626 015354  012737  000323  000302        MOV     #323,$FATAL     ;MOVE TO MAILBOX #  *******  323  *******
     015362  005212                 INC     (R2)                    ;SET MSGTYP TO FATAL ERROR
     015364  000000                 HALT                            ;WRONG DECREMENT
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 634
1627 015366  023727  000474  015556  RET1:  CMP     BUFF-4,#INST+2  ;LOC OF INST UNINCREMENTED
1628 015374  001405                 BEQ     RET2
1629 015376  012737  000324  000302        MOV     #324,$FATAL     ;MOVE TO MAILBOX #  *******  324  *******
     015404  005212                 INC     (R2)                    ;SET MSGTYP TO FATAL ERROR
     015406  000000                 HALT                            ;INST INC ON TRAP
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 623
1630 015410  005737  000476          RET2:  TST     BUFF-2
1631 015414  001405                 BEQ     RET3
     015416                          RET4:
     015416  012737  000325  000302        MOV     #325,$FATAL     ;MOVE TO MAILBOX #  *******  325  *******
     015424  005212                 INC     (R2)                    ;SET MSGTYP TO FATAL ERROR
     015426  000000                 HALT                            ;CONDITION CODES SET ON TRAP OR WRONG $TSTNM
                                                                     ;TO SCOPE REPLACE HALT WITH 240
                                                                     ;AND REPLACE NEXT INST WITH 613
1632 015430  023701  015554          RET3:  CMP     INST,LAST
1633 015434  001722                 BEQ     GIN1            ;SET UP NEW GROUP
1634 015436  000137  015320         JMP     GIN2            ;FINISH OLD GROUP
1635
1636 015442  076017                 TABLE1: 76017           ;CIS INSTRUCTIONS
1637 015444  076032                         76032
1638 015446  076037                         76037
1639 015450  076045                         76045
1640 015452  076047                         76047
1641 015454  076077                         76077
1642 015456  076117                         76117
1643 015460  076132                         76132
1644 015462  076137                         76137
1645 015464  076145                         76145
1646 015466  076147                         76147
1647 015470  076177                         76177
1648 015472  000007                 TABLE:  7
1649 015474  000077                         77
1650 015476  000207                         207             ;RTS,RT1,JMP
1651 015500  000227                         227
1652 015502  007077                         7077
1653 015504  007777                         7777
1654 015506  075037                         075037
1655 015510  076017                         76017
1656 015512  076032                         76032
1657 015514  076037                         76037
1658 015516  076045                         76045
```

TEST #113 - TEST THAT ALL RESERVED INS TRAP

```
1659 015520  076047                        76047
1660 015522  076132                        76132
1661 015524  076137                        76137
1662 015526  076145                        76145
1663 015530  076147                        76147
1664 015532  076077                        76077
1665 015534  076117                        76117
1666 015536  106377                        106377
1667 015540  106477                        106477
1668 015542  106677                        106677
1669 015544  107777                        107777
1670 015546  167777                FPP:    167777          ;  START OF THE FPP INSTRUCTIONS
1671 015550  177777                        177777
1672 015552  015552                FINISH: .               ;END FLAG
1673 015554  000000                INST:   HALT            ;WILL CONTINUE RESERVED INST
1674 015556  000000                        HALT            ;SHOULD TRAP TO LOC 10
1675 015560  000000                        HALT            ;LOC 10 SHOULD SEND YOU TO
1676 015562  000000                        HALT            ;RET
1677 015564  000000                        HALT
1678
1679 015566                        GIN3:
```

TEST #114 - TEST ILLEGAL HALT

```
1680                                    .SBTTL  TEST #114 - TEST ILLEGAL HALT
                                        ;******************************************************************************
                                        ;TEST 114 - TEST ILLEGAL HALT
                                        ;******************************************************************************
     015566  005237  000304            TST114: INC     $TESTN          ;UPDATE TEST NUMBER
     015572  022737  000114  000304            CMP     #114,$TESTN     ;SEQUENCE ERROR?
     015600  001073                            BNE     CERIH           ;BR TO ERROR HALT ON SEQ ERROR
1681 015602  012706  000500                    MOV     #BUFF,SP        ;STACK POINTER SETUP
1682 015606  005037  177766                    CLR     CPUERR          ;CLEAR CPU ERROR REGISTER
1683 015612  012737  015646  000004            MOV     #1$,RTRAP5      ;SETUP TRAP RETURN
1684 015620  052737  040000  177776            BIS     #040000,PSW     ;GO TO SUPER MODE
1685 015626  000000                            HALT                    ;EXECUTE INST UNDER TEST
1686                                   ;FAILURE, NO TRAP
1687 015630  105037  177777                    CLRB    PSW+1           ;GO BACK TO KERNEL
1688 015634  012737  000326  000302            MOV     #326,$FATAL     ;MOVE TO MAILBOX #  *******  326  *******
     015642  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     015644  000000                            HALT                    ;HALT IN SUPER MODE FAILED TO TRAP
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 755
1689 015646                             1$:
1690 015646  013737  177766  000502            MOV     CPUERR,RCPUER   ;READ AND SAVE CPU ERROR REGISTER
1691 015654  042737  177413  000502            BIC     #CERMSK,RCPUER  ;MASK OFF UNUSED CPU ERR REG BITS
1692 015662  022737  000200  000502            CMP     #200,RCPUER     ;IS ILLEGAL HALT BIT SET?
1693 015670  001405                            BEQ     2$
     015672  012737  000327  000302            MOV     #327,$FATAL     ;MOVE TO MAILBOX #  *******  327  *******
     015700  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     015702  000000                            HALT                    ;INCORRECT CPU ERR REG CONTENTS
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 736
1694 015704  005037  177766             2$:    CLR     CPUERR          ;CLEAR CPU ERR REG
1695 015710  012737  015744  000004            MOV     #3$,RTRAP5      ;SETUP TRAP RETURN
1696 015716  052737  140000  177776            BIS     #140000,PSW     ;GO TO USER MODE
1697 015724  000000                            HALT
1698                                   ;FAILURE, NO TRAP
1699 015726  105037  177777                    CLRB    PSW+1           ;GO BACK TO KERNEL
1700 015732  012737  000330  000302            MOV     #330,$FATAL     ;MOVE TO MAILBOX #  *******  330  *******
     015740  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     015742  000000                            HALT                    ;HALT IN USER MODE FAILED TO TRAP
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 716
1701 015744                             3$:
1702 015744  013737  177766  000502            MOV     CPUERR,RCPUER   ;SAVE CPU ERROR REGISTER
1703 015752  042737  177413  000502            BIC     #CERMSK,RCPUER  ;MASK OFF UNUSED CPU ERR REG BITS
1704 015760  022737  000200  000502            CMP     #200,RCPUER     ;IS ILLEGAL HALT BIT SET?
1705 015766  001405                            BEQ     DONE
     015770                             CERIH:
     015770  012737  000331  000302            MOV     #331,$FATAL     ;MOVE TO MAILBOX #  *******  331  *******
     015776  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     016000  000000                            HALT                    ;INCORRECT CPU ERR REG CONTENTS
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 677
1706 016002                             DONE:
1707 016002  005037  177766                    CLR     CPUERR
1708 016006  105037  177777                    CLRB    PSW+1           ;GO BACK TO KERNEL MODE
```

```
                                        .SBTTL  TEST #115 - TEST SPL INST. FOR NOP IN USER/SUPER MODES
                                        ;*************************************************************************
                                        ;TEST 115 - TEST SPL INST. FOR NOP IN USER/SUPER MODES
                                        ;*************************************************************************
016012  005237  000304          TST115: INC     $TESTN          ;UPDATE TEST NUMBER
016016  022737  000115  000304          CMP     #115,$TESTN     ;SEQUENCE ERROR?
016024  001125                        BNE     SEQ             ;BR TO ERROR HALT ON SEQ ERROR
1710 016026  012706  000500            MOV     #BUFF,SP        ;SETUP STACK
1711 016032  052737  040000  177776    BIS     #040000,PSW     ;GO TO SUPER MODE
1712 016040  000277                    SCC                     ;SET CC
1713 016042  000231                    SPL     1               ;SPL SHOULD=NOP IN USER/SUPER MODES
1714 016044  000232                    SPL     2
1715 016046  000233                    SPL     3
1716 016050  000234                    SPL     4
1717 016052  000235                    SPL     5
1718 016054  000236                    SPL     6
1719 016056  000237                    SPL     7
1720 016060  013737  177776  016742    MOV     PSW,SPSW        ;SAVE PSW
1721 016066  023727  016742  040017    CMP     SPSW,#040017    ;VARIFY THAT PSW HAS NOT CHANGED
1722 016074  001407                    BEQ     1$
1723 016076  105037  177777            CLRB    PSW+1           ;GO BACK TO KERNEL
1724 016102  012737  000332  000302    MOV     #332,$FATAL     ;MOVE TO MAILBOX #  *******  332  *******
016110  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
016112  000000                        HALT                    ;PRIORTY LEVELS CHANGE
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 744
1725 016114  012737  040340  177776  1$:     MOV     #040340,PSW     ;SET PRIORTY TO 7
1726 016122  000257                    CCC                     ;CLEAR CONDITION CODES
1727 016124  000230                    SPL     0               ;SPL SHOULD=NOP IN SUPERVISOR MODE
1728 016126  013737  177776  016742    MOV     PSW,SPSW        ;SAVE PSW
1729 016134  023727  016742  040340    CMP     SPSW,#040340    ;VARIFY THAT PSW PRIORTY AND CONDITION CODES HAVE NOT CHANGE
1730 016142  001407                    BEQ     2$
1731 016144  105037  177777            CLRB    PSW+1           ;GO BACK TO KERNEL
1732 016150  012737  000333  000302    MOV     #333,$FATAL     ;MOVE TO MAILBOX #  *******  333  *******
016156  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
016160  000000                        HALT                    ;SPL INSTRUCTION CHANDED PSW SHOULD BE NOP
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 721
1733 016162  012737  140000  177776  2$:     MOV     #140000,PSW     ;GO TO USER MODE
1734 016170  000277                    SCC                     ;SET CC
1735 016172  000231                    SPL     1               ;SPL SHOULD=NOP IN USER MODE
1736 016174  000232                    SPL     2
1737 016176  000233                    SPL     3
1738 016200  000234                    SPL     4
1739 016202  000235                    SPL     5
1740 016204  000236                    SPL     6
1741 016206  000237                    SPL     7
1742 016210  013737  177776  016742    MOV     PSW,SPSW        ;SAVE PSW
1743 016216  023727  016742  140017    CMP     SPSW,#140017    ;VARIFY THAT PSW HAS NOT CHANGED
1744 016224  001407                    BEQ     3$
1745 016226  105037  177777            CLRB    PSW+1           ;GO BACK TO KERNEL
1746 016232  012737  000334  000302    MOV     #334,$FATAL     ;MOVE TO MAILBOX #  *******  334  *******
016240  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
016242  000000                        HALT                    ;PRIORTY LEVELS HAS CHANGED
                                                                ;TO SCOPE REPLACE HALT WITH 240
```

```
                                                                        ;AND REPLACE NEXT INST WITH 670
 1747 016244  012737  140340  177776  3$:     MOV     #140340,PSW     ;SET PRIORTY TO 7
 1748 016252  000257                          CCC                     ;CLEAR CONDITION CODES
 1749 016254  000230                          SPL     0               ;SPL SHOULD=NOP IN USER MODE
 1750 016256  013737  177776  016742          MOV     PSW,SPSW        ;SAVE PSW
 1751 016264  023727  016742  140340          CMP     SPSW,#140340    ;VARIFY THAT PSW PRIORTY AND CONDITION CODES HAVE NOT CHANGE
 1752 016272  001407                          BEQ     FSPL
 1753 016274  105037  177777                  CLRB    PSW+1           ;GO BACK TO KERNEL
 1754 016300                          SEQ:
      016300  012737  000335  000302          MOV     #335,$FATAL     ;MOVE TO MAILBOX #  *******  335  *******
      016306  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
      016310  000000                          HALT                    ;SPL INST.CHANGED PSW OR WRONG TEST#
                                                                      ;TO SCOPE REPLACE HALT WITH 240
                                                                      ;AND REPLACE NEXT INST WITH 645
 1755 016312                          FSPL:
 1756 016312  105037  177777                  CLRB    PSW+1           ;GO BACK TO KERNEL
 1757                                         ;THIS TEST VARIFIES FOR ALL COMBINATIONS OF PIR AND PROCESSOR
 1758                                         ;PRIORTY LEVELS THAT REQUESTS ARE GRANTED (TRAP TO 240 OCCURS
 1759                                         ;BY THE PROCESSOR,ONLY WHEN THE PIR IS AT A HIGHER LEVEL THAN
 1760                                         ;THE PROCESSOR.
 1761                                         ;THE CONTENTS OF SPIR,SPSW AND TRP240 SHOULD BE EXAMINED ON ERROR.
 1762                                         ;SPIR BITS 2-0 CONTAINS ONE LESS THAN THE PIR REQUEST LEVEL AT
 1763                                         ;THE TIME OF ERROR.SPSW BITS 2-0 CONTAINS THE PROCESSOR PRIORTY
 1764                                         ;AT THE TIME OF ERROR.TRP240 INDICATES WHETHER OR NOT A TRAP WAS
 1765                                         ;EXPECTED (1= EXPECTING TRAP TO 240)
 1766                                         ;THE SPL INSTRUCTION IS USED TO SETUP PROCESSOR PRIORTY.
 1767                                         ;NOTE: THIS IS THE FIRST REAL TEST OF THE SPL INST.
 1768                                         ;ON ERROR,IF EXPECTED PIRQ TRAP DID NOT OCCURE VARIFY SPL
 1769                                         ;OPERATION BY COMPARING SPSW BITS<2-0> WITH PSW PRIORTY
 1770                                         ;BITS<7-5>.ON ERROR IF AN UNSPECTED PIRQ TRAP OCCURED
 1771                                         ;VARIFY SPL OPERATION BY COMPARING SPSW BITS<2-0> WITH
 1772                                         ;PROCESSOR PSW<7-5> ON STACK.
 1773
```

```
1774                                    .SBTTL  TEST #116 -  TEST PIRQ LEVELS AND SPL INSTRUCTION
                                        ;*************************************************************************
                                        ;TEST 116 -  TEST PIRQ LEVELS AND SPL INSTRUCTION
                                        ;*************************************************************************
016316  005237  000304                  TST116: INC     $TESTN          ;UPDATE TEST NUMBER
016322  022737  000116  000304                CMP     #116,$TESTN     ;SEQUENCE ERROR?
016330  001154                              BNE     PTRP            ;BR TO ERROR HALT ON SEQ ERROR
1775 016332  005037  016744                CLR     PIRPSW
1776 016336  012737  016676  000000        MOV     #ZTRP,0         ;SET LOCATION ZERO TRAP VEC
1777 016344  012737  000340  000002        MOV     #340,2
1778 016352  012737  016712  000004        MOV     #T4TRP,4        ;SET UP FAILURE TRAP VEC
1779 016360  012737  000340  000006        MOV     #340,6
1780 016366  012737  016726  000024        MOV     #T24TRP,24      ;SETUP POWER FAIL VEC
1781 016374  012737  000340  000026        MOV     #340,26
1782 016402  012737  016640  000240        MOV     #PQTRP,PIRVC1   ;SETUP PIRQ VEC
1783 016410  012737  000340  000242        MOV     #340,PIRVC2     ;SET 242 TO PRIORTY 7
1789 016416  012706  000500          MLOOP: MOV     #BUFF,SP        ;SETUP STACK
1790 016422  052737  000340  177776        BIS     #340,PSW        ;SET PROCESSOR PRIORTY TO 7
1791                                    ;COMPUTE EXPECTED RESULT
1792 016430  013700  016744                MOV     PIRPSW,R0
1793 016434  042700  177707                BIC     #177707,R0      ;SETUP SPIR
1794 016440  006200                        ASR     R0
1795 016442  006200                        ASR     R0
1796 016444  006200                        ASR     R0
1797 016446  010037  016740                MOV     R0,SPIR         ;SAVE R0 IN SPIR
1798 016452  013700  016744                MOV     PIRPSW,R0
1799 016456  042700  177770                BIC     #177770,R0      ;SETUP SPSW
1800 016462  010037  016742                MOV     R0,SPSW
1801 016466  023737  016740  016742        CMP     SPIR,SPSW
1802 016474  002003                        BGE     2$              ;BRANCH IF PIR > PSW
1803 016476  005037  016746                CLR     TRP240          ;CLEAR FLAG
1804 016502  000403                        BR      3$
1805 016504  012737  177777  016746  2$:   MOV     #177777,TRP240  ;SET FLAG
1806 016512  004737  016750          3$:   JSR     PC,SETPIRQ      ;SETUP PIRQ BASE ON THE # IN SPIR
1807                                    ;SET PSW PRIORTY BASE ON THE # IN SPSW
1808 016516  042737  000007  016532        BIC     #7,1$           ;CLEAR LSB 3 BITS OF SPL INST.AT 1$
1809 016524  053737  016742  016532        BIS     SPSW,1$         ;SET LSB 3 BITS OF SPL INST.TO DESIDED PROC. PRI.
1810 016532  000230                  1$:   SPL     0       ;THE ACTUAL PRIORTY SET INTO THE PSW IS CONTROLLED BY
1811                                                            ;THE PREVIOUS TWO INSTRUCTION.
1812 016534  000240                        NOP
1813 016536  005737  016746                TST     TRP240
1814 016542  001405                        BEQ     NXTST
016544  012737  000336  000302            MOV     #336,$FATAL     ;MOVE TO MAILBOX #  *******  336  *******
016552  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
016554  000000                            HALT                    ;EXPECTED PIRQ TRAP BUT DID NOT GET IT
                                                                    ;TO SCOPE REPLACE HALT WITH 240
                                                                    ;AND REPLACE NEXT INST WITH 717
1815 016556  000240                  NXTST: NOP                    ;SET UP FOR PASS COUNT
1816
1817
1818 016560  005237  016744                INC     PIRPSW          ;SETUP FOR NEXT PASS THROUGH LOOP
1819 016564  023727  016744  000070        CMP     PIRPSW,#70
1820 016572  002711                        BLT     MLOOP           ;BRANCH TO MLOOP IF COUNT IS LESS THAN 70
1821 016574  005037  177772                CLR     PIRQ            ;DONE WITH LOOPING PIRQ REQUESTS
1822 016600  012737  000006  000004        MOV     #6,4            ;RESTORE RETURNS
```

TEST #116 - TEST PIRQ LEVELS AND SPL INSTRUCTION

```
1823 016606  005037  000006                    CLR     6
1824 016612  005037  000000                    CLR     0
1825 016616  012737  017712  000024            MOV     #PWRDWN,24
1826 016624  012737  000242  000240            MOV     #242,240
1827 016632  005037  000242                    CLR     242
1828 016636  000542                            BR      TST117
1829 016640  005737  016746          PQTRP:    TST     TRP240          ;PRIORTY TRAP SERVICE
1830 016644  001344                            BNE     NXTST
     016646  012737  000337  000302            MOV     #337,$FATAL     ;MOVE TO MAILBOX #  *******  337  *******
     016654  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     016656  000000                            HALT                    ;EXPECTED NO PIRQ TRAP,BUT GOT ONE
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 656
1831 016660  000736                            BR      NXTST
1835 016662                          PTRP:
     016662  012737  000340  000302            MOV     #340,$FATAL     ;MOVE TO MAILBOX #  *******  340  *******
     016670  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     016672  000000                            HALT                    ; WRONG TEST NUMBER
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 616
1839 016674  000523                            BR      TST117
1840 016676                          ZTRP:
1841 016676  012737  000341  000302            MOV     #341,$FATAL     ;MOVE TO MAILBOX #  *******  341  *******
     016704  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     016706  000000                            HALT                    ;UNSPECTED TRAP TO ZERO OCCURED DURING PIRQ TST
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 642
1842 016710  000722                            BR      NXTST
1843 016712                          T4TRP:
1844 016712  012737  000342  000302            MOV     #342,$FATAL     ;MOVE TO MAILBOX #  *******  342  *******
     016720  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     016722  000000                            HALT                    ;UNSPECTED TRAP TO 4 DURING PIRQ TESTING
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 634
1845 016724  000714                            BR      NXTST
1846 016726                          T24TRP:
1847 016726  012737  000343  000302            MOV     #343,$FATAL     ;MOVE TO MAILBOX #  *******  343  *******
     016734  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     016736  000000                            HALT                    ;UNSPECTED POWER FAIL TRAP DURING PIRQ TESTING
                                                                        ;TO SCOPE REPLACE HALT WITH 240
                                                                        ;AND REPLACE NEXT INST WITH 626
1848 016740  000000                    SPIR:   .WORD   0
1849 016742  000000                    SPSW:   .WORD   0
1850 016744  000000                    PIRPSW: .WORD   0
```

TEST #116 - TEST PIRQ LEVELS AND SPL INSTRUCTION

```
1852          177772                          PIRQ=177772
1853          000240                          PIRVC1=240
1854          000242                          PIRVC2=242
1855 016746   000000                          TRP240: .WORD   0
1856
1857
1858 016750                           SETPIRQ:
1859 016750   023727  016740  000000           CMP     SPIR,#0
1860 016756   001435                           BEQ     1$
1861 016760   023727  016740  000001           CMP     SPIR,#1
1862 016766   001435                           BEQ     2$
1863 016770   023727  016740  000002           CMP     SPIR,#2
1864 016776   001435                           BEQ     3$
1865 017000   023727  016740  000003           CMP     SPIR,#3
1866 017006   001435                           BEQ     4$
1867 017010   023727  016740  000004           CMP     SPIR,#4
1868 017016   001435                           BEQ     5$
1869 017020   023727  016740  000005           CMP     SPIR,#5
1870 017026   001435                           BEQ     6$
1871 017030   023727  016740  000006           CMP     SPIR,#6
1872 017036   001435                           BEQ     7$
1873 017040   012737  000344  000302           MOV     #344,$FATAL     ;MOVE TO MAILBOX #  *******  344  *******
     017046   005212                           INC     (R2)            ;SET MSGTYP TO FATAL ERROR
     017050   000000                           HALT                    ;# IN SPIR DOES NOT MAKE SENSE OR SPIR NOT=0-6
                                                                      ;TO SCOPE REPLACE HALT WITH 240
                                                                      ;AND REPLACE NEXT INST WITH 561
1874 017052   012737  001000  177772  1$:      MOV     #1000,PIRQ
1875 017060   000430                           BR      10$
1876 017062   012737  002000  177772  2$:      MOV     #2000,PIRQ
1877 017070   000424                           BR      10$
1878 017072   012737  004000  177772  3$:      MOV     #4000,PIRQ
1879 017100   000420                           BR      10$
1880 017102   012737  010000  177772  4$:      MOV     #10000,PIRQ
1881 017110   000414                           BR      10$
1882 017112   012737  020000  177772  5$:      MOV     #20000,PIRQ
1883 017120   000410                           BR      10$
1884 017122   012737  040000  177772  6$:      MOV     #40000,PIRQ
1885 017130   000404                           BR      10$
1886 017132   012737  100000  177772  7$:      MOV     #100000,PIRQ
1887 017140   000400                           BR      10$
1888 017142   000207                  10$:     RTS     PC
1889
1890
1891                                          ;TABLE FOR PIRQ SETUP
1892                                          ;SPIR   PIR LEVEL       SETPIRQ         # LOADED INTO PIRQ REG R0
1893                                          ;0000       1           BIT9            1000
1894                                          ;0001       2           BIT10           2000
1895                                          ;0002       3           BIT11           4000
1896                                          ;0003       4           BIT12           10000
1897                                          ;0004       5           BIT13           20000
1898                                          ;0005       6           BIT14           40000
1899                                          ;0006       7           BIT15           100000
```

```
1900                                    .SBTTL  TEST #117 - CHK ODD ADRS TRAP WITH SP AT ODD ADRS ON RTI
                                        ;******************************************************************************
                                        ;TEST 117 - CHK ODD ADRS TRAP WITH SP AT ODD ADRS ON RTI
                                        ;******************************************************************************
017144  005237  000304                TST117: INC     $TESTN          ;UPDATE TEST NUMBER
017150  022737  000117  000304              CMP     #117,$TESTN     ;SEQUENCE ERROR?
017156  001026                            BNE     OATSE           ;BR TO ERROR HALT ON SEQ ERROR
1901 017160  012737  140000  177776       MOV     #140000,177776  ;SET CURRENT MODE TO USER
1902 017166  012706  000001               MOV     #1,SP           ;PUT ODD ADDRESS IN STACK POINTER
1903 017172  012737  017210  000004       MOV     #1$,4           ;TRAPS TO 1$
1904 017200  012737  000340  000006       MOV     #340,6          ;PRIORITY TO 7
1905 017206  000002                       RTI                     ;TEST RTI - SHOULD ODD ADDRESS TRAP TO 4
1906 017210  022737  030340  177776 1$:   CMP     #30340,177776   ;SEE IF PREVIOUS MODE USER AND PRIORITY 7 LOADED
1907 017216  001413                       BEQ     END             ;BRANCH OUT IF OK
1908                                    ;******************************************************************************
1909                                    ;IF SWR CONTAINS 30000, YOU ARE MISSING ECO #6.
1910                                    ;******************************************************************************
1911 017220  012737  000345  000302       MOV     #345,$FATAL     ;MOVE TO MAILBOX #  *******  345  *******
017226  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
017230  000000                            HALT                    ;PSW NOT PROPERLY LOADED
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 752
1912 017232  000405                       BR      END             ;BRANCH TO END ROUTINE
1913 017234                             OATSE:
017234  012737  000346  000302           MOV     #346,$FATAL     ;MOVE TO MAILBOX #  *******  346  *******
017242  005212                            INC     (R2)            ;SET MSGTYP TO FATAL ERROR
017244  000000                            HALT                    ;WRONG $TSTNM
                                                                ;TO SCOPE REPLACE HALT WITH 240
                                                                ;AND REPLACE NEXT INST WITH 744
```

END OF PASS ROUTINE

```
1915                                                .SBTTL  END OF PASS ROUTINE
1916 017246  005237  000306          END:           INC     $PASS
1917 017252  105237  017356                         INCB    PASSPT          ;SHOULD PRINT THIS PASS?
1918 017256  001020                                 BNE     ACT             ;NO
1919 017260  132737  000040  000321                 BITB    #40,$ENVM       ;WILL APT ALLOW PRINTING?
1920 017266  001014                                 BNE     ACT             ;NO
1921 017270  023727  000042  017330                 CMP     42,#$ENDAD
1922 017276  001410                                 BEQ     ACT
1923 017300  012700  017503                         MOV     #MSG,R0         ;GET MSG ADDR.
1924 017304  004737  020000                         JSR     PC,PRTMSG       ;PRINT MESSAGE POINTED TO BY R0
1925 017310  000005                                 RESET
1926 017312  012737  177761  017356                 MOV     #177761,PASSPT  ;DO IT ABOUT 15 DECIMAL TIMES
1927 017320  013700  000042          ACT:           MOV     42,R0           ;CHECK ACT
1928 017324  001405                                 BEQ     GOAGIN          ;KEEP GOING
1929 017326  000005                                 RESET
1930 017330  004710                  $ENDAD:        JSR     PC,(R0)         ;ACT HOOKS
1931 017332  000240                                 NOP
1932 017334  000240                                 NOP
1933 017336  000240                                 NOP
1934 017340  012737  000012  000010  GOAGIN:        MOV     #12,10
1935 017346  005037  000012                         CLR     12
1936 017352  000137  000654                         JMP     RESTRT          ;DO NEXT PASS
1937 017356  177777                  PASSPT:        -1
```

```
                                                .SBTTL  ASCII MESSAGES
017360      015     012     103  CISMSG: .ASCII  <15><12>.CIS SWITCH IS IN THE MAINTENANCE POSITION.<15><12>
017435      120     125     124          .ASCIZ  .PUT IN NORMAL POSITION AND CONTINUE.<15><12>
017503      015     012     105  MSG:    .ASCIZ  <15><12>.END OF CKKABB0 11/44 TRAPS.
017540      015     012     103  PNAME:  .ASCIZ <15><12>+CKKABB0 11/44 TRAPS+
017566      015     012     103  TITLE:  .ASCIZ <15><12>+CKKABB0 11/44 TRAPS+<15><12>
017616      015     012     116  MSGNFP: .ASCIZ  <15><12>.NO FLOATING POINT OPTION PRESENT.
017661      015     012     116  MSGNCIS:.ASCIZ  <15><12>.NO CIS OPTION PRESENT .
                                                .EVEN
```

POWER DOWN AND POWER UP ROUTINES

```
                                                .SBTTL  POWER DOWN AND POWER UP ROUTINES
017712  012737  017722  000024  PWRDWN: MOV     #PWRUP,24
017720  000000                          HALT
017722  012737  017712  000024  PWRUP:  MOV     #PWRDWN,24
017730  012706  000500                  MOV     #BUFF,SP
017734  132737  000040  000321          BITB    #40,$ENVM       ;WILL APT ALLOW PRINTING?
017742  001004                          BNE     PFRES           ;NO
017744  012700  017760                  MOV     #MSGPWF,R0      ;GET MSG ADDR.
017750  004737  020000                  JSR     PC,PRTMSG       ;PRINT MESSAGE POINTED TO BY R0
017754  000137  000654          PFRES:  JMP     RESTRT
017760     015     012     120  MSGPWF: .ASCIZ  <15><12>.POWER FAILED!.
```

SUBROUTINE TO PRINT A MESSAGE

```
 1959                                                .SBTTL  SUBROUTINE TO PRINT A MESSAGE
 1960 020000  132737  000040  000321  PRTMSG: BITB    #40,$ENVM       ;WILL APT ALLOW PRINTING?
 1961 020006  001011                          BNE     1$              ;BRANCH IF NO
 1962 020010  105737  177564          2$:     TSTB    TPS             ;TTY READY
 1963 020014  100375                          BPL     2$              ;NO WAIT
 1964 020016  112037  177566                  MOVB    (R0)+,TPB       ;PRINT CHARACTER
 1965 020022  001372                          BNE     2$              ;NEXT IF NOT DONE.
 1966 020024  105737  177564          3$:     TSTB    TPS
 1967 020030  100375                          BPL     3$
 1968 020032  000207                  1$:     RTS     PC
 1969         000001                          .END
```

SYMBOL TABLE

```
ABASE = 000000        BEGIN   000622        FOVER   011750        PASSPT  017356        RETE4   006010
ACDW1 = 000000        BELL  = 000240        FPP     015546        PFRES   017754        RETE5   006624
ACDW2 = 000000        BR1     001030        FSPL    016312        PIRPSW  016744        RETF    002632
ACPUOP= 000000        BR10    001262        GIN1    015302        PIRQ  = 177772        RETF1   003456
ACT     017320        BR11    001376        GIN2    015320        PIRVC1= 000240        RETF2   004356
ADALL   013236        BR12    001446        GIN3    015566        PIRVC2= 000242        RETF3   005172
ADDW0 = 000000        BR13    001516        GOAGIN  017340        PNAME   017540        RETF4   006066
ADDW1 = 000000        BR14    001566        HERE  = 000000        PQTRP   016640        RETF5   006702
ADDW10= 000000        BR15    001674        HLT   = 000000        PROFTE  013640        RETG    002756
ADDW11= 000000        BR16    001716        ILLA  = 004700        PRTMSG  020000        RETG1   003602
ADDW12= 000000        BR17    001740        ILLB  = 000100        PSW   = 177776        RETG2   004502
ADDW13= 000000        BR2     001060        INST    015554        PTRP    016662        RETG3   005316
ADDW14= 000000        BR20    001762        INSTC   002424        PWRDWN  017712        RETG4   006212
ADDW15= 000000        BR21    002004        INSTK   007272        PWRUP   017722        RETG5   007026
ADDW2 = 000000        BR22    002026        KPAR0   000600        RA      005472        RETH5   007174
ADDW3 = 000000        BR23    002050        KPAR1   000602        RA1     003762        RETJ    007224
ADDW4 = 000000        BR3     001104        KPAR2   000604        RB      005456        RETK    007274
ADDW5 = 000000        BR33    002130        KPAR3   000606        RB1     003746        RETL    007354
ADDW6 = 000000        BR34    002144        KPAR4   000610        RC      005452        RETM    007422
ADDW7 = 000000        BR35    002160        KPAR5   000612        RCPUER  000502        RETN    007500
ADDW8 = 000000        BR36    002174        KPAR6   000614        RC1     003742        RETO    007622
ADDW9 = 000000        BR37    002220        KPAR7   000616        RESET2  014460        RETP    010016
ADEVCT= 000000        BR4     001132        KPDR0   000560        RESET3  014446        RETQ    010112
ADEVM = 000000        BR40    002234        KPDR1   000562        RESTRT  000654        RETR    010164
ADJNC   015266        BR41    002250        KPDR2   000564        RET     015346        RETS    010246
ADREND  000620        BR45    003750        KPDR3   000566        RETA    002314        RETT    010316
ADRTAB  000520        BR46    004600        KPDR4   000570        RETAH   002326        RETU    010376
AENV  = 000000        BR46A   004612        KPDR5   000572        RETAT   012050        RETV    010524
AENVM = 000000        BR47    005460        KPDR6   000574        RETA1   003154        RET1    015366
AFATAL= 000000        BR5     001160        KPDR7   000576        RETA2   004052        RET2    015410
AMADR1= 000000        BR51    006310        KTSTA   000516        RETA3   004666        RET3    015430
AMADR2= 000000        BR51A   006322        KTVEC   000514        RETA4   005562        RET4    015416
AMADR3= 000000        BR6     001206        K1      000742        RETA5   006376        RTI1    012460
AMADR4= 000000        BR60    012662        K10     000760        RETB    002356        RTI2    012474
AMAMS1= 000000        BR7     001234        K11     000762        RETBT   012124        RTRAP = 000010
AMAMS2= 000000        BR70    013072        K12     000764        RETB1   003204        RTRAP1= 000034
AMAMS3= 000000        BR71    014126        K2      000744        RETB2   004102        RTRAP2= 000020
AMAMS4= 000000        BTRAP   013450        K3      000746        RETB3   004716        RTRAP3= 000030
AMSGAD= 000000        BUFF    000500        K4      000750        RETB4   005612        RTRAP4= 000014
AMSGLG= 000000        CC    = 177776        K5      000752        RETB5   006426        RTRAP5= 000004
AMSGTY= 000000        CERIH   015770        K6      000754        RETC    002426        RTT1    012270
AMTYP1= 000000        CERMSK= 177413        K7      000756        RETCT   012204        RTT2    012306
AMTYP2= 000000        CERR1   010054        LAST  =%000001        RETC1   003254        RTT3    012354
AMTYP3= 000000        CERR2   010734        MLOOP   016416        RETC2   004152        RTT4    012374
AMTYP4= 000000        CISMSG  017360        MSG     017503        RETC3   004766        RTT5    012326
APASS = 000000        CORH    013234        MSGNCI  017661        RETC4   005662        RTT6    012416
APRIOR= 000000        CPUERR= 177766        MSGNFP  017616        RETC5   006476        R6    =%000006
AROUND  015232        CTRAP   013404        MSGPWF  017760        RETD    002506        R7TRX   014002
ASWREG= 000000        DL11W   013642        NODL    014140        RETD1   003334        R7TR1   012556
ATESTN= 000000        DL11W1  013646        NODL1   014276        RETD2   004232        R7TR2   012626
ATRAP   013304        DONE    016002        NODL2   014402        RETD3   005046        R7TR2A  012614
AUNIT = 000000        DTRAP   013424        NODL3   014652        RETD4   005742        R7TR3   012676
AUSWR = 000000        END     017246        NODL4   015044        RETD5   006556        R7TR4   012750
AUTO    013272        ERRP1   010042        NOP   = 000240        RETE    002554        SAVSTK  015140
AUTO1   013570        ERRP2   010722        NOR     013256        RETE1   003400        SEQ     016300
AVECT1= 000000        FINISH  015552        NXTST   016556        RETE2   004300        SETPIR  016750
AVECT2= 000000        FIRST =%000005        OATSE   017234        RETE3   005114        SPIR    016740
```

SYMBOL TABLE

```
SPSW    016742          TR4A    012736          TST32   005422          TST77   012416          WATE2   014734
SR0     000504          TR5     014236          TST33   005520          TTCSR = 177564          WATE3   014762
SR0H    000506          TSFCIS  015142          TST34   005562          TTT37   014646          WATE4   015040
SR1     000510          TSL     013232          TST35   005632          TTY11   014634          WATE5   015026
SR2     000512          TST1    000766          TST36   005704          TTY3    014552          ZTRP    016676
STATUS= 177776          TST10   002450          TST37   006032          TTY4    014626          $APTHD  000330
STP     011762          TST100  012512          TST4    002072          T24TRP  016726          $CPUOP  000326
STPP    003054          TST101  013000          TST40   006334          T4TRP   016712          $DEVCT  000310
STPPA   003066          TST102  013120          TST41   006376          UPAR0   000540          $ENDAD  017330
STP3    013174          TST103  013214          TST42   006446          UPAR1   000542          $ENV    000320
STP3D   013206          TST104  013654          TST43   006520          UPAR2   000544          $ENVM   000321
TAB   =%000003          TST105  014002          TST44   006646          UPAR3   000546          $ERN  = 000347
TABLE   015472          TST106  014140          TST45   007132          UPAR4   000550          $ERROR= 000302
TABLE1  015442          TST107  014276          TST46   007174          UPAR5   000552          $ETABL  000320
TDEC1   010676          TST11   002576          TST47   007244          UPAR6   000554          $ETEND  000330
TDEC2   010770          TST110  014402          TST5    002264          UPAR7   000556          $FATAL  000302
TDEC3   011044          TST111  014476          TST50   007316          UPDR0   000520          $HIBTS  000330
TDEC4   011116          TST112  014652          TST51   007444          UPDR1   000522          $MAIL   000300
TDEC6   011132          TST113  015044          TST52   007726          UPDR2   000524          $MBADR  000332
TDEC7   011144          TST114  015566          TST53   010060          UPDR3   000526          $MSGAD  000314
TDEC77  013764          TST115  016012          TST54   010132          UPDR4   000530          $MSGLG  000316
TDEC8   013752          TST116  016316          TST55   010206          UPDR5   000532          $MSGTY  000300
TENSAV  015136          TST117  017144          TST56   010340          UPDR6   000534          $PASS   000306
TITLE   017566          TST12   003100          TST57   010630          UPDR7   000536          $PASTM  000336
TNCIS   015202          TST13   003154          TST6    002326          VDEC1   011214          $SVPC = 000300
TONT1   013104          TST14   003224          TST60   010740          VDEC10  011472          $SWR  = 000000
TPB   = 177566          TST15   003276          TST61   011010          VDEC11  011550          $SWREG  000322
TPS   = 177564          TST16   003422          TST62   011144          VDEC12  011562          $TESTN  000304
TRACE   013060          TST17   003712          TST63   011222          VDEC13  011646          $TN   = 000120
TRAPA = 000010          TST2    001312          TST64   011300          VDEC14  011660          $TSTM   000334
TRAPB   013602          TST20   004010          TST65   011356          VDEC2   011202          $TSTNM= 000304
TRAP10  015116          TST21   004052          TST66   011434          VDEC3   011272          $UNIT   000312
TRAP24  015106          TST22   004122          TST67   011512          VDEC4   011260          $UNITM  000340
TRCSR = 177560          TST23   004174          TST7    002376          VDEC5   011350          $USWR   000324
TRC1    013164          TST24   004322          TST70   011610          VDEC6   011336          $X    = 017160
TRP240  016746          TST25   004624          TST71   011666          VDEC7   011426          $XX   = 177745
TRT   = 000003          TST26   004666          TST72   011774          VDEC8   011414          $XXX  = 000744
TR0     014102          TST27   004736          TST73   012050          VDEC9   011504          $Y    = 016332
TR2     014114          TST3    001636          TST74   012144          WATE    014776          $YY   = 016416
TR3     014234          TST30   005010          TST75   012226          WATE1   014720          .$X   = 000330
TR4     014250          TST31   005136          TST76   012306

. ABS.  020034      000
        000000      001
ERRORS DETECTED:  0


VIRTUAL MEMORY USED:  7800 WORDS  ( 31 PAGES)
DYNAMIC MEMORY:  8730 WORDS  ( 33 PAGES)
ELAPSED TIME:  00:03:45
CKKABB.BIN,CKKABB.SEQ/-SP/NL:TOC=CKKABB.MLB/ML,CKKABB.P11
```