IDENTIFICATION
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PRODUCT CODE: AC-8045D-MC

PRODUCT NAME: CFKABD0 11/34 TRAPS TST

PRODUCT DATE: 03-APR-77

MAINTAINER: DIAGNOSTIC ENGINEERING

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


                                ;LISTING



                                        .LIST ME
                                        .NLIST MC,MD,CND
                                        .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                        ITRAP5=4
          000004                        RTRAP5=4                ;RESERVED INST AND 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
          000007                        TRAPA=7
          000010                        RTRAP=10
          004700                        ILLA=004700
          000100                        ILLB=100
          177776                        CC=177776
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          000200                        .=200
000200    000167  000414                JMP     BEGIN
          000210                        .=210
000210    005037  000306                CLR     @#$PASS
000214    000167  000400                JMP     BEGIN
          000300                        .=300
                                ;*****************************************************************************

                                .SBTTL  ACT11 HOOKS
                                ;HOOKS REQUIRED BY ACT11
          000300                        $SVPC=.                 ;SAVE PC
          000046                        .=46
000046    015530                        $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
```

```
                        .=.$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)
000334  000002          $TSTM:  .WORD   2       ;;RUN TIM OF LONGEST TEST
000336  000002          $PASTM: .WORD   2       ;;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)
        000304          $TSTNM=$TESTN
        000302          $ERROR=$FATAL
                        ;
        000500                  .=500
000500  000000          BUFF:   0
000502  177572          $R0:    177572
000504  177573          $R0H:   177573
000506  177574          $R1:    177574
000510  177576          $R2:    177576
000512  000250          KTVEC:  250
000514  000252          KTSTA:  252
000516                  ADRTAB:
000516  177600          UPDR0:  177600                  ;USER PAGE DESCRIPTOR REGISTERS
000520  177602          UPDR1:  177602
000522  177604          UPDR2:  177604
000524  177606          UPDR3:  177606
000526  177610          UPDR4:  177610
000530  177612          UPDR5:  177612
000532  177614          UPDR6:  177614
000534  177616          UPDR7:  177616
                        ;
000536  177640          UPAR0:  177640                  ;USER PAGE ADDRESS REGISTERS
000540  177642          UPAR1:  177642
000542  177644          UPAR2:  177644
000544  177646          UPAR3:  177646
000546  177650          UPAR4:  177650
000550  177652          UPAR5:  177652
000552  177654          UPAR6:  177654
000554  177656          UPAR7:  177656
                        ;
000556  172300          KPDR0:  172300                  ;KERNEL PAGE DESCRIPTOR REGISTERS
000560  172302          KPDR1:  172302
000562  172304          KPDR2:  172304
000564  172306          KPDR3:  172306
000566  172310          KPDR4:  172310
000570  172312          KPDR5:  172312
000572  172314          KPDR6:  172314
000574  172316          KPDR7:  172316
                        ;
000576  172340          KPAR0:  172340                  ;KERNEL PAGE ADDRESS REGISTERS
000600  172342          KPAR1:  172342
000602  172344          KPAR2:  172344
000604  172346          KPAR3:  172346
000606  172350          KPAR4:  172350
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000610  172352          KPAR5:  172352
000612  172354          KPAR6:  172354
000614  172356          KPAR7:  172356
000616  000614          ADREND: .-2
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```
                                ;CLEAR THE ITERATION COUNTER
                                ;GET TITLE ADRS
                                ;TTY READY
                                ;NO WAIT
                                ;PRINT CHARACTER
                                ;NEXT IF NOT DONE
                                ;
                                ;
                                ;SET UP THE POWER DOWN VECTOR
                                ;SET UP POWER DOWN PRIORITY
                                ;SPECIAL CASE OF ODD,,EVEN ,BYTE AND REGISTER 6
                                ;*********************************************************************************
                                ;TEST 1 TEST AUTO INCREMENT AND DECREMENT OF R6 FOR WORD AND BYTES
                                ;*********************************************************************************
                                ;UPDATE TEST NUMBER
                                ;SEQUENCE ERROR?
                                ;BR TO ERROR HALT ON SEQ ERROR
                                ;SIX SHOULD INCREMENT BY TWO
                                ;MOVE TO MAILBOX #  *******  1  *******
                                ;SET MSGTYP TO FATAL ERROR
                                ;R6 DID NOT AUTO INCREMENT BY TWO
                                ; TO SCOPE REPLACE HALT W/ 240
                                ; AND REPLACE NEXT INST W/ 764
                                ;SHOULD DECREMENT BY TWO
                                ;MOVE TO MAILBOX #  *******  2  *******
                                ;SET MSGTYP TO FATAL ERROR
                                ;R6 DID NOT AUTO DECREMENT BY 2
                                ; TO SCOPE REPLACE HALT W/ 240
                                ; AND REPLACE NEXT INST W/ 750
```



```
                                ;DOUBLES AUTO INCREMENT OF R6
                                ;MOVE TO MAILBOX #  *******  3  *******
                                ;SET MSGTYP TO FATAL ERROR
                                ;WRONG AUTO INCREMENT OF R6
                                ; TO SCOPE REPLACE HALT W/ 240
                                ; AND REPLACE NEXT INST W/ 736
                                ;TEST INCREMENT OF R6
                                ;MOVE TO MAILBOX #  *******  4  *******
                                ;SET MSGTYP TO FATAL ERROR
                                ;WRONG INCREMENT OF R6
                                ; TO SCOPE REPLACE HALT W/ 240
                                ; AND REPLACE NEXT INST W/ 723
                                ;TEST INCREMENT OF R6
                                ;MOVE TO MAILBOX #  *******  5  *******
                                ;SET MSGTYP TO FATAL ERROR
                                ;WRONG INCREMENT OF R6
                                ; TO SCOPE REPLACE HALT W/ 240
                                ; AND REPLACE NEXT INST W/ 710
                                ;TEST INCREMENT OF R4
                                ;MOVE TO MAILBOX #  *******  6  *******
                                ;SET MSGTYP TO FATAL ERROR
                                ;WRONG INCREMENT OF R4
                                ; TO SCOPE REPLACE HALT W/ 240
                                ; AND REPLACE NEXT INST W/ 675
                                ;TEST INCREMENT OF R6
                                ;MOVE TO MAILBOX #  *******  7  *******
                                ;SET MSGTYP TO FATAL ERROR
                                ;WRONG INCREMENT OF R6
                                ; TO SCOPE REPLACE HALT W/ 240
                                ; AND REPLACE NEXT INST W/ 662
                                ;TEST INCREMENT OF R4
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000271  001214  020427  000001                  CMP     %4,#1
000272  001220  001405                          BEQ     BR10
000273  001222  012737  000010  000302          MOV     #10,@#$FATAL    ;MOVE TO MAILBOX #  *******  10  *******
000274  001230  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
000275  001232  000000                          HALT                    ;WRONG INCREMENT OF R4
000276                                                                  ; TO SCOPE REPLACE HALT W/ 240
000277                                                                  ; AND REPLACE NEXT INST W/ 647
000278
000279  001234  012706  001000          BR10:   MOV     #1000,%6
000280  001240  124627  000000                  CMPB    -(6),#HERE      ;TEST DECREMENT OF R6
000281  001244  022706  000776                  CMP     #776,%6
000282  001250  001405                          BEQ     TST2
000283  001252  012737  000011  000302          MOV     #11,@#$FATAL    ;MOVE TO MAILBOX #  *******  11  *******
000284  001260  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
000285  001262  000000                          HALT                    ;WRONG DECREMENT OF R6,OR WRONG $TSTNM
000286                                                                  ; TO SCOPE REPLACE HALT W/ 240
000287                                                                  ; AND REPLACE NEXT INST W/ 633
000288                                  ;*******************************************************************************
000289                                  ;TEST 2 TEST TRANSFER OF ,BYTE USING R6
000290                                  ;*******************************************************************************
000291  001264  005237  000304          TST2:   INC     @#$TESTN        ;UPDATE TEST NUMBER
000292  001270  022737  000002  000304          CMP     #2,@#$TESTN     ;SEQUENCE ERROR?
000293  001276  001137                          BNE     TST3-12 ;BR TO ERROR HALT ON SEQ ERROR
000294  001300  012767  123456  177416          MOV     #123456,K5
000295  001306  012767  050505  177400          MOV     #050505,K1
000296  001314  012705  000714                  MOV     #K1,%5          ;%5=(050505)K1
000297  001320  012706  000724                  MOV     #K5,%6          ;%6=(123456)K5
000298  001324  112625                          MOVB    (6)+,(5)+       ;LOW ,BYTE OF R6 TO R5
000299  001326  022767  050456  177360          CMP     #050456,K1
000300  001334  001405                          BEQ     BR11
000301  001336  012737  000012  000302          MOV     #12,@#$FATAL    ;MOVE TO MAILBOX #  *******  12  *******
000302  001344  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
000303  001346  000000                          HALT                    ;FALSE TRANSFER OF ,BYTE
000304                                                                  ; TO SCOPE REPLACE HALT W/ 240
000305                                                                  ; AND REPLACE NEXT INST W/ 753
000306
000307  001350  012767  123456  177346  BR11:   MOV     #123456,K5
000308  001356  012767  050505  177330          MOV     #050505,K1
000309  001364  012705  000714                  MOV     #K1,%5          ;%5(050505)K1
000310  001370  012706  000726                  MOV     #K6,%6          ;%6(123456)K5
000311  001374  114625                          MOVB    -(6),(5)+       ;LOW ,BYTE OF R6 TO R5 (DECREMENT)
000312  001376  026727  177312  050456          CMP     K1,#050456
000313  001404  001405                          BEQ     BR12
000314  001406  012737  000013  000302          MOV     #13,@#$FATAL    ;MOVE TO MAILBOX #  *******  13  *******
000315  001414  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
000316  001416  000000                          HALT                    ;FALSE R6 ,BYTE TRANSFER
000317                                                                  ; TO SCOPE REPLACE HALT W/ 240
000318                                                                  ; AND REPLACE NEXT INST W/ 727
000319
000320  001420  012767  123456  177266  BR12:   MOV     #123456,K1
000321  001426  012767  050505  177270          MOV     #050505,K5
000322  001434  012705  000714                  MOV     #K1,%5          ;(123456)
000323  001440  012706  000724                  MOV     #K5,%6          ;(050505)
000324  001444  112526                          MOVB    (5)+,(6)+       ;LOW OF R5 TO LOW OF R6
000325  001446  022767  050456  177250          CMP     #050456,K5
000326  001454  001405                          BEQ     BR13
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000327  001456  012737  000014  000302          MOV     #14,@#$FATAL    ;MOVE TO MAILBOX #  *******  14  *******
000328  001464  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
000329  001466  000000                          HALT                    ;FALSE R6 ,BYTE TRANSFER
000330                                                                  ; TO SCOPE REPLACE HALT W/ 240
000331                                                                  ; AND REPLACE NEXT INST W/ 703
000332
000333  001470  012767  123456  177216  BR13:   MOV     #123456,K1
000334  001476  012767  050505  177220          MOV     #050505,K5
000335  001504  012705  000715                  MOV     #K1+1,%5        ;123456
000336  001510  012706  000724                  MOV     #K5,%6          ;050505
000337  001514  112526                          MOVB    (5)+,(6)+       ;HIGH OF R5 TO LOW OF R6
000338  001516  026727  177202  050647          CMP     K5,#050647
000339  001524  001405                          BEQ     BR14
000340  001526  012737  000015  000302          MOV     #15,@#$FATAL    ;MOVE TO MAILBOX #  *******  15  *******
000341  001534  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
000342  001536  000000                          HALT                    ;FALSE R6 ,BYTE TRANSFER
000343                                                                  ; TO SCOPE REPLACE HALT W/ 240
000344                                                                  ; AND REPLACE NEXT INST W/ 657
000345
000346  001540  012767  123456  177146  BR14:   MOV     #123456,K1
000347  001546  012767  050505  177150          MOV     #050505,K5
000348  001554  012705  000715                  MOV     #K1+1,%5        ;R5=123456=ODD ADDRESS
000349  001560  012706  000724                  MOV     #K5,%6          ;R6=050505=-,EVEN ADDRESS
000350  001564  112625                          MOVB    (6)+,(5)+       ;LOW OF R6 TO HIGH OF R5
000351  001566  022767  042456  177120          CMP     #042456,K1
000352  001574  001405                          BEQ     TST3
000353  001576  012737  000016  000302          MOV     #16,@#$FATAL    ;MOVE TO MAILBOX #  *******  16  *******
000354  001604  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
000355  001606  000000                          HALT                    ;FAILED LOW OF 6 TO HIGH OF 5,OR WRONG $TSTNM
000356                                                                  ; TO SCOPE REPLACE HALT W/ 240
000357                                                                  ; AND REPLACE NEXT INST W/ 633
000358                                  ;*******************************************************************************
000359                                  ;TEST 3 TEST BYTE OPERATION WITH SEQUENTIAL ODD-EVEN ADDRESS
000360                                  ;*******************************************************************************
000361  001610  005237  000304          TST3:   INC     @#$TESTN        ;UPDATE TEST NUMBER
000362  001614  022737  000003  000304          CMP     #3,@#$TESTN     ;SEQUENCE ERROR?
000363  001622  001103                          BNE     TST4-12 ;BR TO ERROR HALT ON SEQ ERROR
000364  001624  126767  177100  177077          CMPB    K7,K7+1         ;SAME ,WORD LOW TO HIGH
000365  001632  001405                          BEQ     BR15
000366  001634  012737  000017  000302          MOV     #17,@#$FATAL    ;MOVE TO MAILBOX #  *******  17  *******
000367  001642  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
000368  001644  000000                          HALT                    ;SHOULD COMPARE LOW TO HIGH
000369                                                                  ; TO SCOPE REPLACE HALT W/ 240
000370                                                                  ; AND REPLACE NEXT INST W/ 766
000371
000372  001646  126767  177057  177054  BR15:   CMPB    K7+1,K7         ;COMPARE ODD TO ,EVEN SAME ,WORD
000373  001654  001405                          BEQ     BR16
000374  001656  012737  000020  000302          MOV     #20,@#$FATAL    ;MOVE TO MAILBOX #  *******  20  *******
000375  001664  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
000376  001666  000000                          HALT                    ;ODD TO ,EVEN ,BYTE FAILURE
000377                                                                  ; TO SCOPE REPLACE HALT W/ 240
000378                                                                  ; AND REPLACE NEXT INST W/ 755
000379
000380  001670  126767  177037  177032  BR16:   CMPB    K10+1,K7        ;SEQUENTIAL ,BYTES
000381  001676  001405                          BEQ     BR17
000382  001700  012737  000021  000302          MOV     #21,@#$FATAL    ;MOVE TO MAILBOX #  *******  21  *******
```

```
001706  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001710  000000                          HALT                    ;ODD TO ,EVEN FAILED
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 744

001712  126767  177014  177006  BR17:   CMPB    K10,K6
001720  001405                          BEQ     BR20
001722  012737  000022  000302          MOV     #22,@#$FATAL    ;MOVE TO MAILBOX #  *******  22  *******
001730  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001732  000000                          HALT                    ;,EVEN TO EVEN FAILED
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 733

001734  126767  176771  176771  BR20:   CMPB    K7+1,K10+1
001742  001405                          BEQ     BR21
001744  012737  000023  000302          MOV     #23,@#$FATAL    ;MOVE TO MAILBOX #  *******  23  *******
001752  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001754  000000                          HALT                    ;ODD TO ODD FAILED
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 722

001756  126767  176750  176747  BR21:   CMPB    K10,K10+1
001764  001005                          BNE     BR22
001766  012737  000024  000302          MOV     #24,@#$FATAL    ;MOVE TO MAILBOX #  *******  24  *******
001774  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
001776  000000                          HALT                    ;LOW TO HIGH IN SAME ,WORD FAILED
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 711

002000  126767  176727  176725  BR22:   CMPB    K10+1,K10+1
002006  001405                          BEQ     BR23
002010  012737  000025  000302          MOV     #25,@#$FATAL    ;MOVE TO MAILBOX #  *******  25  *******
002016  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002020  000000                          HALT                    ;HIGH TO LOW IN SAME ,WORD FAILED
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 700

002022  126767  176704  176701  BR23:   CMPB    K10,K7+1
002030  001005                          BNE     TST4
002032  012737  000026  000302          MOV     #26,@#$FATAL    ;MOVE TO MAILBOX #  *******  26  *******
002040  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002042  000000                          HALT                    ;,EVEN TO ODD FAILED,OR WRONG $TSTNM
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 667


                                ;*****************************************************************************
                                ;TEST 4 TEST THE CC BITS
                                ;*****************************************************************************
002044  005237  000304          TST4:   INC     @#$TESTN        ;UPDATE TEST NUMBER
002050  022737  000004  000304          CMP     #4,@#$TESTN     ;SEQUENCE ERROR?
002056  001062                          BNE     TST5-12 ;BR TO ERROR HALT ON SEQ ERROR
002060  000277                          SCC                     ;SET STATUS
002062  005067  175710                  CLR     STATUS          ;CLEAR STATUS
002066  103005                          BCC     BR33
002070  012737  000027  000302          MOV     #27,@#$FATAL    ;MOVE TO MAILBOX #  *******  27  *******
002076  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
```



```
002100  000000                          HALT                    ;C NOT CLEAR
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 766

002102                          BR33:
002102  102005                          BVC     BR34
002104  012737  000030  000302          MOV     #30,@#$FATAL    ;MOVE TO MAILBOX #  *******  30  *******
002112  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002114  000000                          HALT                    ;V NOT CLEAR
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 760

002116                          BR34:
002116  001005                          BNE     BR35
002120  012737  000031  000302          MOV     #31,@#$FATAL    ;MOVE TO MAILBOX #  *******  31  *******
002126  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002130  000000                          HALT                    ;Z NOT CLEAR
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 752

002132                          BR35:
002132  100005                          BPL     BR36
002134  012737  000032  000302          MOV     #32,@#$FATAL    ;MOVE TO MAILBOX #  *******  32  *******
002142  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002144  000000                          HALT                    ;N NOT CLEAR
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 744

002146  000257                  BR36:   CCC                     ;CLEAR CONDITION CODES
002150  052767  000017  175620          BIS     #17,STATUS      ;SET STATUS TO ONES

002156  103405                          BCS     BR37
002160  012737  000033  000302          MOV     #33,@#$FATAL    ;MOVE TO MAILBOX #  *******  33  *******
002166  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002170  000000                          HALT                    ;C NOT SET
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 732

002172                          BR37:
002172  102405                          BVS     BR40
002174  012737  000034  000302          MOV     #34,@#$FATAL    ;MOVE TO MAILBOX #  *******  34  *******
002202  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002204  000000                          HALT                    ;V NOT SET
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 724

002206                          BR40:
002206  001405                          BEQ     BR41
002210  012737  000035  000302          MOV     #35,@#$FATAL    ;MOVE TO MAILBOX #  *******  35  *******
002216  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002220  000000                          HALT                    ;Z NOT SET
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 716

002222                          BR41:
002222  100405                          BMI     TST5
002224  012737  000036  000302          MOV     #36,@#$FATAL    ;MOVE TO MAILBOX #  *******  36  *******
002232  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002234  000000                          HALT                    ;N NOT SET,OR WRONG $TSTNM
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 710

                                ;*****************************************************************************
                                ;TEST 5 TEST THAT A TRAP OCCURS ON A RESERVED INSTRUCTION
```

```
                                ;*******************************************************************************
002236  005237  000304        TST5:   INC     @#$TESTN        ;UPDATE TEST NUMBER
002242  022737  000005  000304        CMP     #5,@#$TESTN     ;SEQUENCE ERROR?
002250  001006                      BNE     RETA            ;BR TO ERROR HALT ON SEQ ERROR
002252  012706  000500              MOV     #BUFF,SP        ;STACK POINTER SETUP
002256  012767  002300  175524      MOV     #RETAH,RTRAP    ;RETURN LOCATION
002264  000007                      TRAPA                   ;RESERVED INSTRUCTION, SHOULD TRAP
002266                          RETA:
002266  012737  000037  000302      MOV     #37,@#$FATAL    ;MOVE TO MAILBOX #  *******  37  *******
002274  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002276  000000                      HALT                    ;RESERVE INSTRUCTION DIDN'T TRAP,OR WRONG $TSTNM
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 764
002300                          RETAH:
                                ;*******************************************************************************
                                ;TEST 6 TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
                                ;*******************************************************************************
002300  005237  000304        TST6:   INC     @#$TESTN        ;UPDATE TEST NUMBER
002304  022737  000006  000304        CMP     #6,@#$TESTN     ;SEQUENCE ERROR?
002312  001011                      BNE     TST7=12 ;BR TO ERROR HALT ON SEQ ERROR
002314  012706  000500              MOV     #BUFF,SP        ;STACK POINTER SETUP
002320  012767  002330  175462      MOV     #RETB,RTRAP     ;RETURN POINTER
002326  000007                      TRAPA                   ;RESERVED INSTRUCTION
002330  020627  000474        RETB: CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
002334  001405                      BEQ     TST7
002336  012737  000040  000302      MOV     #40,@#$FATAL    ;MOVE TO MAILBOX #  *******  40  *******
002344  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002346  000000                      HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 761
                                ;*******************************************************************************
                                ;TEST 7 TEST THAT PROPER P.C. IS SAVED
                                ;*******************************************************************************
002350  005237  000304        TST7:   INC     @#$TESTN        ;UPDATE TEST NUMBER
002354  022737  000007  000304        CMP     #7,@#$TESTN     ;SEQUENCE ERROR?
002362  001012                      BNE     TST10=12        ;BR TO ERROR HALT ON SEQ ERROR
002364  012706  000500              MOV     #BUFF,SP        ;STACK POINTER SETUP
002370  012767  002400  175412      MOV     #RETC,RTRAP     ;RETURN FROM TRAP POINTER
002376  000007                  INSTC:  TRAPA                   ;TRAP ON THIS INSTRUCTION
002400  022767  002400  176066  RETC:  CMP     #.,BUFF-4       ;CHECK FOR INCREMENTED P.C.
002406  001405                      BEQ     TST10
002410  012737  000041  000302      MOV     #41,@#$FATAL    ;MOVE TO MAILBOX #  *******  41  *******
002416  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002420  000000                      HALT                    ;INCORRECT P.C.,,OR WRONG $TSTNM
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 760
                                ;*******************************************************************************
                                ;TEST 10        TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
                                ;*******************************************************************************
002422  005237  000304        TST10:  INC     @#$TESTN        ;UPDATE TEST NUMBER
002426  022737  000010  000304        CMP     #10,@#$TESTN    ;SEQUENCE ERROR?
002434  001040                      BNE     TST11=12        ;BR TO ERROR HALT ON SEQ ERROR
002436  012706  000500              MOV     #BUFF,SP        ;SET UP
002442  012767  002460  175340      MOV     #RETD,RTRAP     ;SET UP
002450  005067  175322              CLR     CC              ;CLEAR CC AND PRIORITY
002454  000257                      CCC
```



```
002456  000007                      TRAPA                   ;TRAP
002460  026727  176012  000000  RETD:  CMP     BUFF=2,#0       ;TEST THAT OLD STATUS WENT TO STACK
002466  001405                      BEQ     1$
002470  012737  000042  000302      MOV     #42,@#$FATAL    ;MOVE TO MAILBOX #  *******  42  *******
002476  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002500  000000                      HALT                    ;INCORRECT STATUS
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 755
002502  012706  000500          1$:     MOV     #BUFF,SP        ;SET UP
002506  012767  002526  175274      MOV     #RETE,RTRAP     ;SET UP
002514  012767  000357  175254      MOV     #357,CC         ;SET PRIORITY
002522  000277                      SCC                     ;SET CC
002524  000007                      TRAPA                   ;TRAP
002526  026727  175744  000357  RETE:  CMP     BUFF=2,#357     ;COMPARES STATUS ON STACK
002534  001405                      BEQ     TST11
002536  012737  000043  000302      MOV     #43,@#$FATAL    ;MOVE TO MAILBOX #  *******  43  *******
002544  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002546  000000                      HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 732
                                ;*******************************************************************************
                                ;TEST 11        TEST THAT "NEW" STATUS IS CORRECT
                                ;*******************************************************************************
002550  005237  000304        TST11:  INC     @#$TESTN        ;UPDATE TEST NUMBER
002554  022737  000011  000304        CMP     #11,@#$TESTN    ;SEQUENCE ERROR?
002562  001121                      BNE     STPP            ;BR TO ERROR HALT ON SEQ ERROR
002564  012706  000500              MOV     #BUFF,SP
002570  012767  002604  175212      MOV     #RETF,RTRAP
002576  005067  175210              CLR     RTRAP+2         ;CLEAR FUTURE PRIORITY AND CC
002602  000007                      TRAPA
002604                          RETF:                           ;TEST FOR "C" CLEARED
002604  100005                      BPL     1$
002606  012737  000044  000302      MOV     #44,@#$FATAL    ;MOVE TO MAILBOX #  *******  44  *******
002614  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002616  000000                      HALT                    ;N NOT CLEARED
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 761
002620                          1$:
002620  001005                      BNE     2$
002622  012737  000045  000302      MOV     #45,@#$FATAL    ;MOVE TO MAILBOX #  *******  45  *******
002630  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002632  000000                      HALT                    ;Z NOT CLEARED
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 753
002634                          2$:
002634  102005                      BVC     3$
002636  012737  000046  000302      MOV     #46,@#$FATAL    ;MOVE TO MAILBOX #  *******  46  *******
002644  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002646  000000                      HALT                    ;V NOT CLEARED
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 745
002650                          3$:
002650  103005                      BCC     4$
002652  012737  000047  000302      MOV     #47,@#$FATAL    ;MOVE TO MAILBOX #  *******  47  *******
002660  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002662  000000                      HALT                    ;C NOT CLEARED
```

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                                                        ; TO SCOPE REPLACE HALT W/ 240
                                                        ; AND REPLACE NEXT INST W/ 737
002664  032767  000340  175104  4$:     BIT     #340,CC         ;TEST PRIORITY
002672  001405                         BEQ     5$
002674  012737  000050  000302         MOV     #50,@#$FATAL    ;MOVE TO MAILBOX #  *******  50  *******
002702  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002704  000000                         HALT                    ;PRIORITY NOT ZERO
                                                        ; TO SCOPE REPLACE HALT W/ 240
                                                        ; AND REPLACE NEXT INST W/ 726
002706  012706  000500         5$:     MOV     #BUFF,SP
002712  012767  002730  175070         MOV     #RETG,RTRAP
002720  012767  000357  175064         MOV     #357,RTRAP+2    ;SET NEW "CC" AND PRIORITY
002726  000007                         TRAPA                   ;TRAP HERE
002730                          RETG:
002730  100405                         BMI     1$
002732  012737  000051  000302         MOV     #51,@#$FATAL    ;MOVE TO MAILBOX #  *******  51  *******
002740  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002742  000000                         HALT                    ;N NOT SET
                                                        ; TO SCOPE REPLACE HALT W/ 240
                                                        ; AND REPLACE NEXT INST W/ 707
002744                          1$:
002744  001405                         BEQ     2$
002746  012737  000052  000302         MOV     #52,@#$FATAL    ;MOVE TO MAILBOX #  *******  52  *******
002754  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002756  000000                         HALT                    ;Z NOT SET
                                                        ; TO SCOPE REPLACE HALT W/ 240
                                                        ; AND REPLACE NEXT INST W/ 701
002760                          2$:
002760  102405                         BVS     3$
002762  012737  000053  000302         MOV     #53,@#$FATAL    ;MOVE TO MAILBOX #  *******  53  *******
002770  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
002772  000000                         HALT                    ;V NOT SET
                                                        ; TO SCOPE REPLACE HALT W/ 240
                                                        ; AND REPLACE NEXT INST W/ 673
002774                          3$:
002774  103405                         BCS     4$
002776  012737  000054  000302         MOV     #54,@#$FATAL    ;MOVE TO MAILBOX #  *******  54  *******
003004  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
003006  000000                         HALT                    ;C NOT SET
                                                        ; TO SCOPE REPLACE HALT W/ 240
                                                        ; AND REPLACE NEXT INST W/ 665
003010  016706  174762         4$:     MOV     CC,SP
003014  042706  000017                 BIC     #17,SP
003020  022706  000340                 CMP     #340,SP
003024  001405                         BEQ     STPPA
003026                          STPP:
003026  012737  000055  000302         MOV     #55,@#$FATAL    ;MOVE TO MAILBOX #  *******  55  *******
003034  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
003036  000000                         HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
                                                        ; TO SCOPE REPLACE HALT W/ 240
                                                        ; AND REPLACE NEXT INST W/ 651
003040  012767  000012  174742 STPPA:  MOV     #12,10
003046  005067  174740                 CLR     12
                        ;*************************************************************************
                        ;TEST 12        TEST THAT A TRAP OCCURS FOR A "TRAP" INSTRUCTION
                        ;*************************************************************************
```



```
003052  005237  000304         TST12:  INC     @#$TESTN        ;UPDATE TEST NUMBER
003056  022737  000012  000304         CMP     #12,@#$TESTN    ;SEQUENCE ERROR?
003064  001013                         BNE     TST13-12        ;BR TO ERROR HALT ON SEQ ERROR
003066  012767  000012  174714         MOV     #12,10
003074  005067  174712                 CLR     12
003100  012706  000500                 MOV     #BUFF,SP        ;STACK POINTER SETUP
003104  012767  003126  174722         MOV     #RETA1,RTRAP1   ;RETURN LOCATION
003112  104400                         TRAP                    ;RESERVED INSTRUCTION, SHOULD TRAP
003114  012737  000056  000302         MOV     #56,@#$FATAL    ;MOVE TO MAILBOX #  *******  56  *******
003122  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
003124  000000                         HALT                    ;TRAP DIDN'T TRAP,OR WRONG $TSTNM
                                                        ; TO SCOPE REPLACE HALT W/ 240
                                                        ; AND REPLACE NEXT INST W/ 757
003126                          RETA1:
                        ;*************************************************************************
                        ;TEST 13        TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
                        ;*************************************************************************
003126  005237  000304         TST13:  INC     @#$TESTN        ;UPDATE TEST NUMBER
003132  022737  000013  000304         CMP     #13,@#$TESTN    ;SEQUENCE ERROR?
003140  001011                         BNE     TST14-12        ;BR TO ERROR HALT ON SEQ ERROR
003142  012706  000500                 MOV     #BUFF,SP        ;STACK POINTER SETUP
003146  012767  003156  174660         MOV     #RETB1,RTRAP1   ;RETURN POINTER
003154  104400                         TRAP                    ;RESERVED INSTRUCTION
003156  020627  000474         RETB1:  CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
003162  001405                         BEQ     TST14
003164  012737  000057  000302         MOV     #57,@#$FATAL    ;MOVE TO MAILBOX #  *******  57  *******
003172  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
003174  000000                         HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
                                                        ; TO SCOPE REPLACE HALT W/ 240
                                                        ; AND REPLACE NEXT INST W/ 761
                        ;*************************************************************************
                        ;TEST 14        TEST THAT PROPER P,C, IS SAVED
                        ;*************************************************************************
003176  005237  000304         TST14:  INC     @#$TESTN        ;UPDATE TEST NUMBER
003202  022737  000014  000304         CMP     #14,@#$TESTN    ;SEQUENCE ERROR?
003210  001012                         BNE     TST15-12        ;BR TO ERROR HALT ON SEQ ERROR
003212  012706  000500                 MOV     #BUFF,SP        ;STACK POINTER SETUP
003216  012767  003226  174610         MOV     #RETC1,RTRAP1   ;RETURN FROM TRAP POINTER
003224  104400                         TRAP                    ;TRAP ON THIS INSTRUCTION
003226  022767  003226  175240 RETC1:  CMP     #.,BUFF-4       ;CHECK INCREMENTED P,C,
003234  001405                         BEQ     TST15
003236  012737  000060  000302         MOV     #60,@#$FATAL    ;MOVE TO MAILBOX #  *******  60  *******
003244  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
003246  000000                         HALT                    ;INCORRECT P,C,,OR WRONG $TSTNM
                                                        ; TO SCOPE REPLACE HALT W/ 240
                                                        ; AND REPLACE NEXT INST W/ 760
                        ;*************************************************************************
                        ;TEST 15        TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
                        ;*************************************************************************
003250  005237  000304         TST15:  INC     @#$TESTN        ;UPDATE TEST NUMBER
003254  022737  000015  000304         CMP     #15,@#$TESTN    ;SEQUENCE ERROR?
003262  001037                         BNE     TST16-12        ;BR TO ERROR HALT ON SEQ ERROR
003264  012706  000500                 MOV     #BUFF,SP        ;SET UP
003270  012767  003306  174536         MOV     #RETD1,RTRAP1   ;SET UP
003276  005067  174474                 CLR     CC              ;CLEAR CC AND PRIORITY
003302  000257                         CCC
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   719  003304  104400                          TRAP                    ;TRAP
   720  003306  026727  175164  000000  RETD1:  CMP     BUFF+2,#0       ;TEST THAT OLD STATUS WENT TO STACK
   721  003314  001405                          BEQ     1$
   722  003316  012737  000061  000302          MOV     #61,@#$FATAL    ;MOVE TO MAILBOX #  *******  61  *******
   723  003324  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   724  003326  000000                          HALT                    ;INCORRECT STATUS
   725                                                                  ; TO SCOPE REPLACE HALT W/ 240
   726                                                                  ; AND REPLACE NEXT INST W/ 755
   727  003330  012706  000500          1$:     MOV     #BUFF,SP        ;SET UP
   728  003334  012767  003352  174472          MOV     #RETE1,RTRAP1   ;SET UP
   729  003342  012767  000357  174426          MOV     #357,CC         ;SET PRIORITY
   730  003350  104400                          TRAP                    ;SET CC
   731  003352  026727  175120  000357  RETE1:  CMP     BUFF+2,#357     ;COMPARES STATUS ON STACK
   732  003360  001405                          BEQ     TST16
   733  003362  012737  000062  000302          MOV     #62,@#$FATAL    ;MOVE TO MAILBOX #  *******  62  *******
   734  003370  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   735  003372  000000                          HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
   736                                                                  ; TO SCOPE REPLACE HALT W/ 240
   737                                                                  ; AND REPLACE NEXT INST W/ 733
   738                                  ;*******************************************************************************
   739                                  ;TEST 16        TEST THAT "NEW" STATUS IS CORRECT
   740                                  ;*******************************************************************************
   741  003374  005237  000304  TST16:  INC     @#$TESTN        ;UPDATE TEST NUMBER
   742  003400  022737  000016  000304          CMP     #16,@#$TESTN    ;SEQUENCE ERROR?
   743  003406  001121                          BNE     TST17-12        ;BR TO ERROR HALT ON SEQ ERROR
   744  003410  012706  000500                  MOV     #BUFF,SP
   745  003414  012767  003430  174412          MOV     #RETF1,RTRAP1
   746  003422  005067  174410                  CLR     RTRAP1+2        ;CLEAR FUTURE PRIORITY AND CC
   747  003426  104400                          TRAP
   748  003430                          RETF1:                          ;TEST FOR "C" CLEARED
   749  003430  100005                          BPL     1$
   750  003432  012737  000063  000302          MOV     #63,@#$FATAL    ;MOVE TO MAILBOX #  *******  63  *******
   751  003440  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   752  003442  000000                          HALT                    ;C NOT CLEARED
   753                                                                  ; TO SCOPE REPLACE HALT W/ 240
   754                                                                  ; AND REPLACE NEXT INST W/ 761
   755  003444                          1$:
   756  003444  001005                          BNE     2$
   757  003446  012737  000064  000302          MOV     #64,@#$FATAL    ;MOVE TO MAILBOX #  *******  64  *******
   758  003454  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   759  003456  000000                          HALT                    ;Z NOT CLEARED
   760                                                                  ; TO SCOPE REPLACE HALT W/ 240
   761                                                                  ; AND REPLACE NEXT INST W/ 753
   762  003460                          2$:
   763  003460  102005                          BVC     3$
   764  003462  012737  000065  000302          MOV     #65,@#$FATAL    ;MOVE TO MAILBOX #  *******  65  *******
   765  003470  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   766  003472  000000                          HALT                    ;V NOT CLEARED
   767                                                                  ; TO SCOPE REPLACE HALT W/ 240
   768                                                                  ; AND REPLACE NEXT INST W/ 745
   769  003474                          3$:
   770  003474  103005                          BCC     4$
   771  003476  012737  000066  000302          MOV     #66,@#$FATAL    ;MOVE TO MAILBOX #  *******  66  *******
   772  003504  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   773  003506  000000                          HALT                    ;C NOT CLEARED
   774                                                                  ; TO SCOPE REPLACE HALT W/ 240
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   775                                                                  ; AND REPLACE NEXT INST W/ 737
   776  003510  032767  000340  174260  4$:     BIT     #340,CC         ;TEST PRIORITY
   777  003516  001405                          BEQ     5$
   778  003520  012737  000067  000302          MOV     #67,@#$FATAL    ;MOVE TO MAILBOX #  *******  67  *******
   779  003526  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   780  003530  000000                          HALT                    ;PRIORITY NOT ZERO
   781                                                                  ; TO SCOPE REPLACE HALT W/ 240
   782                                                                  ; AND REPLACE NEXT INST W/ 726
   783  003532  012706  000500          5$:     MOV     #BUFF,SP
   784  003536  012767  003554  174270          MOV     #RETG1,RTRAP1
   785  003544  012767  000357  174264          MOV     #357,RTRAP1+2   ;SET NEW "CC" AND PRIORITY
   786  003552  104400                          TRAP                    ;TRAP HERE
   787  003554                          RETG1:
   788  003554  100405                          BMI     1$
   789  003556  012737  000070  000302          MOV     #70,@#$FATAL    ;MOVE TO MAILBOX #  *******  70  *******
   790  003564  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   791  003566  000000                          HALT                    ;N NOT SET
   792                                                                  ; TO SCOPE REPLACE HALT W/ 240
   793                                                                  ; AND REPLACE NEXT INST W/ 707
   794  003570                          1$:
   795  003570  001405                          BEQ     2$
   796  003572  012737  000071  000302          MOV     #71,@#$FATAL    ;MOVE TO MAILBOX #  *******  71  *******
   797  003600  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   798  003602  000000                          HALT                    ;Z NOT SET
   799                                                                  ; TO SCOPE REPLACE HALT W/ 240
   800                                                                  ; AND REPLACE NEXT INST W/ 701
   801  003604                          2$:
   802  003604  102405                          BVS     3$
   803  003606  012737  000072  000302          MOV     #72,@#$FATAL    ;MOVE TO MAILBOX #  *******  72  *******
   804  003614  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   805  003616  000000                          HALT                    ;V NOT SET
   806                                                                  ; TO SCOPE REPLACE HALT W/ 240
   807                                                                  ; AND REPLACE NEXT INST W/ 673
   808  003620                          3$:
   809  003620  103405                          BCS     4$
   810  003622  012737  000073  000302          MOV     #73,@#$FATAL    ;MOVE TO MAILBOX #  *******  73  *******
   811  003630  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   812  003632  000000                          HALT                    ;C NOT SET
   813                                                                  ; TO SCOPE REPLACE HALT W/ 240
   814                                                                  ; AND REPLACE NEXT INST W/ 665
   815  003634  016706  174136          4$:     MOV     CC,SP
   816  003640  042706  000017                  BIC     #17,SP
   817  003644  022706  000340                  CMP     #340,SP
   818  003650  001405                          BEQ     TST17
   819  003652  012737  000074  000302          MOV     #74,@#$FATAL    ;MOVE TO MAILBOX #  *******  74  *******
   820  003660  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
   821  003662  000000                          HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
   822                                                                  ; TO SCOPE REPLACE HALT W/ 240
   823                                                                  ; AND REPLACE NEXT INST W/ 651
   824                                  ;*******************************************************************************
   825                                  ;TEST 17        TEST THAT ALL COMBINATION OF "TRAP" WILL CAUSE A TRAP
   826                                  ;*******************************************************************************
   827  003664  005237  000304  TST17:  INC     @#$TESTN        ;UPDATE TEST NUMBER
   828  003670  022737  000017  000304          CMP     #17,@#$TESTN    ;SEQUENCE ERROR?
   829  003676  001011                          BNE     BR45            ;BR TO ERROR HALT ON SEQ ERROR
   830  003700  012767  104400  000012          MOV     #TRAP,RB1       ;INITIALIZE BASE TRAP INSTRUCTION
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                        T17     TEST THAT ALL COMBINATION OF "TRAP" WILL CAUSE A TRAP                   SEQ 0020

 831  003706  012767  003734  174120         MOV     #RA1,34         ;RETURN FROM TRAP TO RA1
 832  003714  012706  000500         RC1:    MOV     #BUFF,SP        ;SET UP STACK POINTER
 833  003720  104400                 RB1:    TRAP                    ;TRAP INST WILL BE MODIFIED TO TRAP+377
 834  003722                         BR45:
 835  003722  012737  000075  000302         MOV     #75,@#$FATAL    ;MOVE TO MAILBOX #  *******  75  *******
 836  003730  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 837  003732  000000                         HALT                    ;PREVIOUS INST FAILED TO TRAP,OR WRONG $TSTNM
 838                                                                 ; TO SCOPE REPLACE HALT W/ 240
 839                                                                 ; AND REPLACE NEXT INST W/ 761
 840  003734  005267  177760         RA1:    INC     RB1             ;INCREMENT TRAP INSTRUCTION
 841  003740  022767  104777  177752         CMP     #104777,RB1     ;TRAP+377 TO UPPER LIMIT
 842  003746  103362                         BHIS    RC1             ;HAVE WE TESTED ALL
 843  003750  012767  000036  174056         MOV     #36,34
 844  003756  005067  174054                 CLR     36
 845                                 ;*****************************************************************************
 846                                 ;TEST 20        TEST THAT A TRAP OCCURES ON AN "IOT" INSTRUCTION
 847                                 ;*****************************************************************************
 848  003762  005237  000304         TST20:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 849  003766  022737  000020  000304         CMP     #20,@#$TESTN    ;SEQUENCE ERROR?
 850  003774  001006                         BNE     TST21-12        ;BR TO ERROR HALT ON SEQ ERROR
 851  003776  012706  000500                 MOV     #BUFF,SP        ;STACK POINTER SETUP
 852  004002  012767  004024  174010         MOV     #RETA2,RTRAP2   ;RETURN LOCATION
 853  004010  000004                         IOT                     ;RESERVE INSTRUCTION, SHOULD TRAP
 854  004012  012737  000076  000302         MOV     #76,@#$FATAL    ;MOVE TO MAILBOX #  *******  76  *******
 855  004020  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 856  004022  000000                         HALT                    ;IOT DIDN'T TRAP,OR WRONG $TSTNM
 857                                                                 ; TO SCOPE REPLACE HALT W/ 240
 858                                                                 ; AND REPLACE NEXT INST W/ 764
 859  004024                         RETA2:
 860                                 ;*****************************************************************************
 861                                 ;TEST 21        TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
 862                                 ;*****************************************************************************
 863  004024  005237  000304         TST21:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 864  004030  022737  000021  000304         CMP     #21,@#$TESTN    ;SEQUENCE ERROR?
 865  004036  001011                         BNE     TST22-12        ;BR TO ERROR HALT ON SEQ ERROR
 866  004040  012706  000500                 MOV     #BUFF,SP        ;STACK POINTER SETUP
 867  004044  012767  004054  173746         MOV     #RETB2,RTRAP2   ;RETURN POINTER
 868  004052  000004                         IOT                     ;RESERVED INSTRUCTION
 869  004054  020627  000474         RETB2:  CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
 870  004060  001405                         BEQ     TST22
 871  004062  012737  000077  000302         MOV     #77,@#$FATAL    ;MOVE TO MAILBOX #  *******  77  *******
 872  004070  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 873  004072  000000                         HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
 874                                                                 ; TO SCOPE REPLACE HALT W/ 240
 875                                                                 ; AND REPLACE NEXT INST W/ 761
 876                                 ;*****************************************************************************
 877                                 ;TEST 22        TEST THAT PROPER P,C, IS SAVED
 878                                 ;*****************************************************************************
 879  004074  005237  000304         TST22:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 880  004100  022737  000022  000304         CMP     #22,@#$TESTN    ;SEQUENCE ERROR?
 881  004106  001012                         BNE     TST23-12        ;BR TO ERROR HALT ON SEQ ERROR
 882  004110  012706  000500                 MOV     #BUFF,SP        ;STACK POINTER SETUP
 883  004114  012767  004124  173676         MOV     #RETC2,RTRAP2   ;RETURN FPOM TRAP POINTER
 884  004122  000004                         IOT                     ;TRAP ON THIS INSTRUCTION
 885  004124  022767  004124  174342 RETC2:  CMP     #.,BUFF-4       ;CHECK FOR INCREMENTED P,C,
 886  004132  001405                         BEQ     TST23
```



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                        T22     TEST THAT PROPER P,C, IS SAVED                                          SEQ 0021

 887  004134  012737  000100  000302         MOV     #100,@#$FATAL   ;MOVE TO MAILBOX #  *******  100  *******
 888  004142  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 889  004144  000000                         HALT                    ;INCORRECT P,C,,OR WRONG $TSTNM
 890                                                                 ; TO SCOPE REPLACE HALT W/ 240
 891                                                                 ; AND REPLACE NEXT INST W/ 760
 892                                 ;*****************************************************************************
 893                                 ;TEST 23        TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
 894                                 ;*****************************************************************************
 895  004146  005237  000304         TST23:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 896  004152  022737  000023  000304         CMP     #23,@#$TESTN    ;SEQUENCE ERROR?
 897  004160  001040                         BNE     TST24-12        ;BR TO ERROR HALT ON SEQ ERROR
 898  004162  012706  000500                 MOV     #BUFF,SP        ;SET UP
 899  004166  012767  004204  173624         MOV     #RETD2,RTRAP2   ;SET UP
 900  004174  005067  173576                 CLR     CC              ;CLEAR CC AND PRIORITY
 901  004200  000257                         CCC
 902  004202  000004                         IOT                     ;TRAP
 903  004204  026727  174266  000000 RETD2:  CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
 904  004212  001405                         BEQ     1$
 905  004214  012737  000101  000302         MOV     #101,@#$FATAL   ;MOVE TO MAILBOX #  *******  101  *******
 906  004222  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 907  004224  000000                         HALT                    ;INCORRECT STATUS
 908                                                                 ; TO SCOPE REPLACE HALT W/ 240
 909                                                                 ; AND REPLACE NEXT INST W/ 755
 910  004226  012706  000500         1$:     MOV     #BUFF,SP        ;SET UP
 911  004232  012767  004252  173560         MOV     #RETE2,RTRAP2   ;SET UP
 912  004240  012767  000357  173530         MOV     #357,CC         ;SET PRIORITY
 913  004246  000277                         SCC                     ;SET CC
 914  004250  000004                         IOT                     ;TRAP
 915  004252  026727  174220  000357 RETE2:  CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
 916  004260  001405                         BEQ     TST24
 917  004262  012737  000102  000302         MOV     #102,@#$FATAL   ;MOVE TO MAILBOX #  *******  102  *******
 918  004270  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 919  004272  000000                         HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
 920                                                                 ; TO SCOPE REPLACE HALT W/ 240
 921                                                                 ; AND REPLACE NEXT INST W/ 732
 922                                 ;*****************************************************************************
 923                                 ;TEST 24        TEST THAT "NEW" STATUS IS CORRECT
 924                                 ;*****************************************************************************
 925  004274  005237  000304         TST24:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 926  004300  022737  000024  000304         CMP     #24,@#$TESTN    ;SEQUENCE ERROR?
 927  004306  001121                         BNE     BR46            ;BR TO ERROR HALT ON SEQ ERROR
 928  004310  012706  000500                 MOV     #BUFF,SP
 929  004314  012767  004330  173476         MOV     #RETF2,RTRAP2
 930  004322  005067  173474                 CLR     RTRAP2+2        ;CLEAR FUTURE PRIORITY AND CC
 931  004326  000004                         IOT
 932  004330                         RETF2:                          ;TEST FOR "C" CLEARED
 933  004330  100005                         BPL     1$
 934  004332  012737  000103  000302         MOV     #103,@#$FATAL   ;MOVE TO MAILBOX #  *******  103  *******
 935  004340  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 936  004342  000000                         HALT                    ;N NOT CLEARED
 937                                                                 ; TO SCOPE REPLACE HALT W/ 240
 938                                                                 ; AND REPLACE NEXT INST W/ 761
 939  004344                         1$:
 940  004344  001005                         BNE     2$
 941  004346  012737  000104  000302         MOV     #104,@#$FATAL   ;MOVE TO MAILBOX #  *******  104  *******
 942  004354  005212                         INC     (R2)            ;SET MSGTYP TO FATAL ERROR
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  943  004356  000000                          HALT                    ;Z NOT CLEARED
  944                                                                  ; TO SCOPE REPLACE HALT W/ 240
  945                                                                  ; AND REPLACE NEXT INST W/ 753
  946  004360                          2$:
  947  004360  102005                          BVC     3$
  948  004362  012737  000105  000302         MOV     #105,@#$FATAL   ;MOVE TO MAILBOX #  *******  105  *******
  949  004370  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
  950  004372  000000                          HALT                    ;V NOT CLEARED
  951                                                                  ; TO SCOPE REPLACE HALT W/ 240
  952                                                                  ; AND REPLACE NEXT INST W/ 745
  953  004374                          3$:
  954  004374  103005                          BCC     4$
  955  004376  012737  000106  000302         MOV     #106,@#$FATAL   ;MOVE TO MAILBOX #  *******  106  *******
  956  004404  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
  957  004406  000000                          HALT                    ;C NOT CLEARED
  958                                                                  ; TO SCOPE REPLACE HALT W/ 240
  959                                                                  ; AND REPLACE NEXT INST W/ 737
  960  004410  032767  000340  173360  4$:     BIT     #340,CC         ;TEST PRIORITY
  961  004416  001405                          BEQ     5$
  962  004420  012737  000107  000302         MOV     #107,@#$FATAL   ;MOVE TO MAILBOX #  *******  107  *******
  963  004426  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
  964  004430  000000                          HALT                    ;PRIORITY NOT ZERO
  965                                                                  ; TO SCOPE REPLACE HALT W/ 240
  966                                                                  ; AND REPLACE NEXT INST W/ 726
  967  004432  012706  000500          5$:     MOV     #BUFF,SP
  968  004436  012767  004454  173354          MOV     #RETG2,RTRAP2
  969  004444  012767  000357  173350          MOV     #357,RTRAP2+2   ;SET NEW "CC" AND PRIORITY
  970  004452  000004                          IOT                     ;TRAP HERE
  971  004454                          RETG2:
  972  004454  100405                          BMI     1$
  973  004456  012737  000110  000302         MOV     #110,@#$FATAL   ;MOVE TO MAILBOX #  *******  110  *******
  974  004464  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
  975  004466  000000                          HALT                    ;N NOT SET
  976                                                                  ; TO SCOPE REPLACE HALT W/ 240
  977                                                                  ; AND REPLACE NEXT INST W/ 707
  978  004470                          1$:
  979  004470  001405                          BEQ     2$
  980  004472  012737  000111  000302         MOV     #111,@#$FATAL   ;MOVE TO MAILBOX #  *******  111  *******
  981  004500  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
  982  004502  000000                          HALT                    ;Z NOT SET
  983                                                                  ; TO SCOPE REPLACE HALT W/ 240
  984                                                                  ; AND REPLACE NEXT INST W/ 701
  985  004504                          2$:
  986  004504  102405                          BVS     3$
  987  004506  012737  000112  000302         MOV     #112,@#$FATAL   ;MOVE TO MAILBOX #  *******  112  *******
  988  004514  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
  989  004516  000000                          HALT                    ;V NOT SET
  990                                                                  ; TO SCOPE REPLACE HALT W/ 240
  991                                                                  ; AND REPLACE NEXT INST W/ 673
  992  004520                          3$:
  993  004520  103405                          BCS     4$
  994  004522  012737  000113  000302         MOV     #113,@#$FATAL   ;MOVE TO MAILBOX #  *******  113  *******
  995  004530  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
  996  004532  000000                          HALT                    ;C NOT SET
  997                                                                  ; TO SCOPE REPLACE HALT W/ 240
  998                                                                  ; AND REPLACE NEXT INST W/ 665
```



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  999  004534  016706  173236          4$:     MOV     CC,SP
 1000  004540  042706  000017                  BIC     #17,SP
 1001  004544  022706  000340                  CMP     #340,SP
 1002  004550  001405                          BEQ     BR46A
 1003  004552                          BR46:
 1004  004552  012737  000114  000302         MOV     #114,@#$FATAL   ;MOVE TO MAILBOX #  *******  114  *******
 1005  004560  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 1006  004562  000000                          HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
 1007                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1008                                                                  ; AND REPLACE NEXT INST W/ 651
 1009  004564  012767  000022  173226  BR46A:  MOV     #22,20          ;.+2
 1010  004572  005067  173224                  CLR     22              ;HALT
 1011                                  ;******************************************************************************
 1012                                  ;TEST 25        TEST THAT A TRAP OCCURS ON AN EMT  INSTRUCTION
 1013                                  ;******************************************************************************
 1014  004576  005237  000304          TST25:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 1015  004602  022737  000025  000304          CMP     #25,@#$TESTN    ;SEQUENCE ERROR?
 1016  004610  001006                          BNE     TST26-12        ;BR TO ERROR HALT ON SEQ ERROR
 1017  004612  012706  000500                  MOV     #BUFF,SP        ;STACK POINTER SETUP
 1018  004616  012767  004640  173204          MOV     #RETA3,RTRAP3   ;RETURN LOCATION
 1019  004624  104000                          EMT                     ;RESERVE INSTRUCTIOM, SHOULD TRAP
 1020  004626  012737  000115  000302         MOV     #115,@#$FATAL   ;MOVE TO MAILBOX #  *******  115  *******
 1021  004634  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 1022  004636  000000                          HALT                    ;EMT DIDN'T TRAP,OR WRONG $TSTNM
 1023                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1024                                                                  ; AND REPLACE NEXT INST W/ 764
 1025  004640                          RETA3:
 1026                                  ;******************************************************************************
 1027                                  ;TEST 26        TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
 1028                                  ;******************************************************************************
 1029  004640  005237  000304          TST26:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 1030  004644  022737  000026  000304          CMP     #26,@#$TESTN    ;SEQUENCE ERROR?
 1031  004652  001011                          BNE     TST27-12        ;BR TO ERROR HALT ON SEQ ERROR
 1032  004654  012706  000500                  MOV     #BUFF,SP        ;STACK POINTER SETUP
 1033  004660  012767  004670  173142          MOV     #RETB3,RTRAP3   ;RETURN POINTER
 1034  004666  104000                          EMT                     ;RESERVED INSTRUCTION
 1035  004670  020627  000474          RETB3:  CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
 1036  004674  001405                          BEQ     TST27
 1037  004676  012737  000116  000302         MOV     #116,@#$FATAL   ;MOVE TO MAILBOX #  *******  116  *******
 1038  004704  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 1039  004706  000000                          HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
 1040                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1041                                                                  ; AND REPLACE NEXT INST W/ 761
 1042                                  ;******************************************************************************
 1043                                  ;TEST 27        TEST THAT PROPER P.C. IS SAVED
 1044                                  ;******************************************************************************
 1045  004710  005237  000304          TST27:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 1046  004714  022737  000027  000304          CMP     #27,@#$TESTN    ;SEQUENCE ERROR?
 1047  004722  001012                          BNE     TST30-12        ;BR TO ERROR HALT ON SEQ ERROR
 1048  004724  012706  000500                  MOV     #BUFF,SP        ;STACK POINTER SETUP
 1049  004730  012767  004740  173072          MOV     #RETC3,RTRAP3   ;RTURN FROM TRAP POINTER
 1050  004736  104000                          EMT                     ;TRAP ON THIS INSTRICTION
 1051  004740  022767  004740  173526  RETC3:  CMP     #.,BUFF-4       ;CHECK FOR INCREMENTED P.C.
 1052  004746  001405                          BEQ     TST30
 1053  004750  012737  000117  000302         MOV     #117,@#$FATAL   ;MOVE TO MAILBOX #  *******  117  *******
 1054  004756  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
```

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                        T27     TEST THAT PROPER P,C, IS SAVED                                                  SEQ 0024

1055  004760  000000                      HALT                    ;INCORRECT P,C,,OR WRONG $TSTNM
1056                                      ; TO SCOPE REPLACE HALT W/ 240
1057                                      ; AND REPLACE NEXT INST W/ 760
1058                  ;*************************************************************************************
1059                  ;TEST 30        TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
1060                  ;*************************************************************************************
1061  004762  005237  000304 TST30:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1062  004766  022737  000030 000304  CMP     #30,@#$TESTN    ;SEQUENCE ERROR?
1063  004774  001040                 BNE     TST31-12        ;BR TO ERROR HALT ON SEQ ERROR
1064  004776  012706  000500         MOV     #BUFF,SP        ;SET UP
1065  005002  012767  005020 173020  MOV     #RETD3,RTRAP3   ;SET UP
1066  005010  005067  172762         CLR     CC              ;CLEAR CC AND PRIORITY
1067  005014  000257                 CCC
1068  005016  104000                 EMT                     ;TRAP
1069  005020  026727  173452 000000 RETD3:  CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
1070  005026  001405                 BEQ     1$
1071  005030  012737  000120 000302        MOV     #120,@#$FATAL   ;MOVE TO MAILBOX #  *******  120  *******
1072  005036  005212                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1073  005040  000000                 HALT                    ;INCORRECT STATUS
1074                                      ; TO SCOPE REPLACE HALT W/ 240
1075                                      ; AND REPLACE NEXT INST W/ 755
1076  005042  012706  000500 1$:     MOV     #BUFF,SP        ;SET UP
1077  005046  012767  005066 172754  MOV     #RETE3,RTRAP3   ;SET UP
1078  005054  012767  000357 172714  MOV     #357,CC         ;SET PRIORITY
1079  005062  000277                 SCC                     ;SET CC
1080  005064  104000                 EMT                     ;TRAP
1081  005066  026727  173404 000357 RETE3:  CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
1082  005074  001405                 BEQ     TST31
1083  005076  012737  000121 000302        MOV     #121,@#$FATAL   ;MOVE TO MAILBOX #  *******  121  *******
1084  005104  005212                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1085  005106  000000                 HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
1086                                      ; TO SCOPE REPLACE HALT W/ 240
1087                                      ; AND REPLACE NEXT INST W/ 732
1088                  ;*************************************************************************************
1089                  ;TEST 31        TEST THAT "NEW" STATUS IS CORRECT
1090                  ;*************************************************************************************
1091  005110  005237  000304 TST31:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1092  005114  022737  000031 000304  CMP     #31,@#$TESTN    ;SEQUENCE ERROR?
1093  005122  001117                 BNE     TST32-12        ;BR TO ERROR HALT ON SEQ ERROR
1094  005124  012706  000500         MOV     #BUFF,SP
1095  005130  012767  005144 172672  MOV     #RETF3,RTRAP3
1096  005136  005067  172670         CLR     RTRAP3+2        ;CLEAR FUTURE PRIORITY AND CC
1097  005142  104000                 EMT
1098  005144                  RETF3:                          ;TEST FOR "C" CLEARED
1099  005144  100005                 BPL     1$
1100  005146  012737  000122 000302        MOV     #122,@#$FATAL   ;MOVE TO MAILBOX #  *******  122  *******
1101  005154  005212                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1102  005156  000000                 HALT                    ;C NOT CLEARED
1103                                      ; TO SCOPE REPLACE HALT W/ 240
1104                                      ; AND REPLACE NEXT INST W/ 761
1105  005160                  1$:
1106  005160  001005                 BNE     2$
1107  005162  012737  000123 000302        MOV     #123,@#$FATAL   ;MOVE TO MAILBOX #  *******  123  *******
1108  005170  005212                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1109  005172  000000                 HALT                    ;Z NOT CLEARED
1110                                      ; TO SCOPE REPLACE HALT W/ 240
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                        T31     TEST THAT "NEW" STATUS IS CORRECT                                               SEQ 0025

1111                                      ; AND REPLACE NEXT INST W/ 753
1112  005174                  2$:
1113  005174  102005                 BVC     3$
1114  005176  012737  000124 000302        MOV     #124,@#$FATAL   ;MOVE TO MAILBOX #  *******  124  *******
1115  005204  005212                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1116  005206  000000                 HALT                    ;V NOT CLEARED
1117                                      ; TO SCOPE REPLACE HALT W/ 240
1118                                      ; AND REPLACE NEXT INST W/ 745
1119  005210                  3$:
1120  005210  103005                 BCC     4$
1121  005212  012737  000125 000302        MOV     #125,@#$FATAL   ;MOVE TO MAILBOX #  *******  125  *******
1122  005220  005212                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1123  005222  000000                 HALT                    ;C NOT CLEARED
1124                                      ; TO SCOPE REPLACE HALT W/ 240
1125                                      ; AND REPLACE NEXT INST W/ 737
1126  005224  032767  000340 172544 4$:      BIT     #340,CC         ;TEST PRIORITY
1127  005232  001405                 BEQ     5$
1128  005234  012737  000126 000302        MOV     #126,@#$FATAL   ;MOVE TO MAILBOX #  *******  126  *******
1129  005242  005212                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1130  005244  000000                 HALT                    ;PRIORITY NOT ZERO
1131                                      ; TO SCOPE REPLACE HALT W/ 240
1132                                      ; AND REPLACE NEXT INST W/ 726
1133  005246  012706  000500 5$:      MOV     #BUFF,SP
1134  005252  012767  005270 172550  MOV     #RETG3,RTRAP3
1135  005260  012767  000357 172544  MOV     #357,RTRAP3+2   ;SET NEW "CC" AND PRIORITY
1136  005266  104000                 EMT                     ;TRAP HERE
1137  005270                  RETG3:
1138  005270  100405                 BMI     1$
1139  005272  012737  000127 000302        MOV     #127,@#$FATAL   ;MOVE TO MAILBOX #  *******  127  *******
1140  005300  005212                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1141  005302  000000                 HALT                    ;N NOT SET
1142                                      ; TO SCOPE REPLACE HALT W/ 240
1143                                      ; AND REPLACE NEXT INST W/ 707
1144  005304                  1$:
1145  005304  001405                 BEQ     2$
1146  005306  012737  000130 000302        MOV     #130,@#$FATAL   ;MOVE TO MAILBOX #  *******  130  *******
1147  005314  005212                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1148  005316  000000                 HALT                    ;Z NOT SET
1149                                      ; TO SCOPE REPLACE HALT W/ 240
1150                                      ; AND REPLACE NEXT INST W/ 701
1151  005320                  2$:
1152  005320  102405                 BVS     3$
1153  005322  012737  000131 000302        MOV     #131,@#$FATAL   ;MOVE TO MAILBOX #  *******  131  *******
1154  005330  005212                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1155  005332  000000                 HALT                    ;V NOT SET
1156                                      ; TO SCOPE REPLACE HALT W/ 240
1157                                      ; AND REPLACE NEXT INST W/ 673
1158  005334                  3$:
1159  005334  103405                 BCS     4$
1160  005336  012737  000132 000302        MOV     #132,@#$FATAL   ;MOVE TO MAILBOX #  *******  132  *******
1161  005344  005212                 INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1162  005346  000000                 HALT                    ;C NOT SET
1163                                      ; TO SCOPE REPLACE HALT W/ 240
1164                                      ; AND REPLACE NEXT INST W/ 665
1165  005350  000257                 CCC
1166  005352  022767  000340 172416  CMP     #340,CC
```

```
                        T31     TEST THAT "NEW" STATUS IS CORRECT                                       SEQ 0026

1167  005360  001405                      BEQ     TST32
1168  005362  012737  000133  000302      MOV     #133,@#$FATAL   ;MOVE TO MAILBOX #  *******  133  *******
1169  005370  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1170  005372  000000                      HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
1171                                                              ; TO SCOPE REPLACE HALT W/ 240
1172                                                              ; AND REPLACE NEXT INST W/ 653
1173                          ;*************************************************************************
1174                          ;TEST 32        TEST THAT ALL COMBINATION OF EMT WILL CAUSE A TRAP
1175                          ;*************************************************************************
1176  005374  005237  000304  TST32:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1177  005400  022737  000032  000304      CMP     #32,@#$TESTN    ;SEQUENCE ERROR?
1178  005406  001011                      BNE     BR47            ;BR TO ERROR HALT ON SEQ ERROR
1179  005410  012767  104000  000012      MOV     #EMT,RB         ;INITIALIZE BASE EMT INSTRUCTION
1180  005416  012767  005444  172404      MOV     #RA,30          ;RETURN FROM TRAP TO RA
1181  005424  012706  000500  RC:     MOV     #BUFF,SP        ;SET UP STACK POINTER
1182  005430  104000          RB:     EMT                     ;TRAP INST, WILL BE MODIFIED TO EMT+377
1183  005432                  BR47:
1184  005432  012737  000134  000302      MOV     #134,@#$FATAL   ;MOVE TO MAILBOX #  *******  134  *******
1185  005440  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1186  005442  000000                      HALT                    ;PREVIOUS INST FAILED TO TRAP,OR WRONG $TSTNM
1187                                                              ; TO SCOPE REPLACE HALT W/ 240
1188                                                              ; AND REPLACE NEXT INST W/ 761
1189  005444  005267  177760  RA:     INC     RB              ;INCREMENT TRAP INSTRUCTION
1190  005450  022767  104377  177752      CMP     #104377,RB      ;EMT+377 TO EMT?
1191  005456  103362                      BHIS    RC              ;HAVE WE TESTED ALL
1192                                                              ;YES
1193  005460  012767  000032  172342      MOV     #32,30          ;/,+
1194  005466  005067  172340              CLR     32              ;HALT
1195                          ;*************************************************************************
1196                          ;TEST 33        TEST THAT A TRAP OCCURES ON AN "TRACE-TRT" INSTRUCTION
1197                          ;*************************************************************************
1198  005472  005237  000304  TST33:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1199  005476  022737  000033  000304      CMP     #33,@#$TESTN    ;SEQUENCE ERROR?
1200  005504  001006                      BNE     TST34-12        ;BR TO ERROR HALT ON SEQ ERROR
1201  005506  012706  000500              MOV     #BUFF,SP        ;STACK POINTER SETUP
1202  005512  012767  005534  172274      MOV     #RETA4,RTRAP4   ;RETURN LOCATION
1203  005520  000003                      TRT                     ;RESERVED INSTRUCTION, SHOULD TRAP
1204  005522  012737  000135  000302      MOV     #135,@#$FATAL   ;MOVE TO MAILBOX #  *******  135  *******
1205  005530  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1206  005532  000000                      HALT                    ;TRT DIDN'T TRAP,OR WRONG $TSTNM
1207                                                              ; TO SCOPE REPLACE HALT W/ 240
1208                                                              ; AND REPLACE NEXT INST W/ 764
1209  005534                  RETA4:
1210                          ;*************************************************************************
1211                          ;TEST 34        TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1212                          ;*************************************************************************
1213  005534  005237  000304  TST34:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1214  005540  022737  000034  000304      CMP     #34,@#$TESTN    ;SEQUENCE ERROR?
1215  005546  001011                      BNE     TST35-12        ;BR TO ERROR HALT ON SEQ ERROR
1216  005550  012706  000500              MOV     #BUFF,SP        ;STACK POINTER SETUP
1217  005554  012767  005564  172232      MOV     #RETB4,RTRAP4   ;RETURN POINTER
1218  005562  000003                      TRT                     ;RESERVED INSTRUCTION
1219  005564  020627  000474  RETB4:  CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
1220  005570  001405                      BEQ     TST35
1221  005572  012737  000136  000302      MOV     #136,@#$FATAL   ;MOVE TO MAILBOX #  *******  136  *******
1222  005600  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
```



```
                        T34     TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION                     SEQ 0027

1223  005602  000000                      HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
1224                                                              ; TO SCOPE REPLACE HALT W/ 240
1225                                                              ; AND REPLACE NEXT INST W/ 761
1226                          ;*************************************************************************
1227                          ;TEST 35        TEST THAT PROPER P.C, IS SAVED
1228                          ;*************************************************************************
1229  005604  005237  000304  TST35:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1230  005610  022737  000035  000304      CMP     #35,@#$TESTN    ;SEQUENCE ERROR?
1231  005616  001012                      BNE     TST36-12        ;BR TO ERROR HALT ON SEQ ERROR
1232  005620  012706  000500              MOV     #BUFF,SP        ;STACK POINTER SETUP
1233  005624  012767  005634  172162      MOV     #RETC4,RTRAP4   ;RETURN FROM TRAP POINTER
1234  005632  000003                      TPT                     ;TRAP ON THIS INSTRUCTION
1235  005634  022767  005634  172632  RETC4:  CMP     .,BUFF-4        ;CHECK FOR INCREMENTED P.C.
1236  005642  001405                      BEQ     TST36
1237  005644  012737  000137  000302      MOV     #137,@#$FATAL   ;MOVE TO MAILBOX #  *******  137  *******
1238  005652  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1239  005654  000000                      HALT                    ;INCORRECT P.C.,OR WRONG $TSTNM
1240                                                              ; TO SCOPE REPLACE HALT W/ 240
1241                                                              ; AND REPLACE NEXT INST W/ 760
1242                          ;*************************************************************************
1243                          ;TEST 36        TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
1244                          ;*************************************************************************
1245  005656  005237  000304  TST36:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1246  005662  022737  000036  000304      CMP     #36,@#$TESTN    ;SEQUENCE ERROR?
1247  005670  001040                      BNE     TST37-12        ;BR TO ERROR HALT ON SEQ ERROR
1248  005672  012706  000500              MOV     #BUFF,SP        ;SET UP
1249  005676  012767  005714  172110      MOV     #RETD4,RTRAP4   ;SET UP
1250  005704  005067  172066              CLR     CC              ;CLEAR CC AND PRIORITY
1251  005710  000257                      CCC
1252  005712  000003                      TRT                     ;TRAP
1253  005714  026727  172556  000000  RETD4:  CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
1254                                                              ;TEST FOR ALL ZEROS
1255  005722  001405                      BEQ     1$
1256  005724  012737  000140  000302      MOV     #140,@#$FATAL   ;MOVE TO MAILBOX #  *******  140  *******
1257  005732  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1258  005734  000000                      HALT                    ;INCORRECT STATUS
1259                                                              ; TO SCOPE REPLACE HALT W/ 240
1260                                                              ; AND REPLACE NEXT INST W/ 755
1261  005736  012706  000500  1$:     MOV     #BUFF,SP        ;SET UP
1262  005742  012767  005762  172044      MOV     #RETE4,RTRAP4   ;SET UP
1263  005750  012767  000357  172020      MOV     #357,CC         ;SET PRIORITY
1264  005756  000277                      SCC                     ;SET-SET CC
1265  005760  000003                      TRT                     ;TRAP
1266  005762  026727  172510  000357  RETE4:  CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
1267  005770  001405                      BEQ     TST37
1268  005772  012737  000141  000302      MOV     #141,@#$FATAL   ;MOVE TO MAILBOX #  *******  141  *******
1269  006000  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1270  006002  000000                      HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
1271                                                              ; TO SCOPE REPLACE HALT W/ 240
1272                                                              ; AND REPLACE NEXT INST W/ 732
1273                          ;*************************************************************************
1274                          ;TEST 37        TEST THAT "NEW" STATUS IS CORRECT
1275                          ;*************************************************************************
1276  006004  005237  000304  TST37:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1277  006010  022737  000037  000304      CMP     #37,@#$TESTN    ;SEQUENCE ERROR?
1278  006016  001121                      BNE     BR51            ;BR TO ERROR HALT ON SEQ ERROR
```

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1279  006020  012706  000500          T37     MOV     #BUFF,SP
1280  006024  012767  006040  171762          MOV     #RETF4,RTRAP4
1281  006032  005067  171760                  CLR     RTRAP4+2        ;CLEAR FUTURE PRIORITY AND CC
1282  006036  000003                          TRT
1283  006040                          RETF4:                          ;TEST FOR "C" CLEARED
1284  006040  100005                          BPL     1$
1285  006042  012737  000142  000302          MOV     #142,@#$FATAL   ;MOVE TO MAILBOX #  *******  142  *******
1286  006050  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1287  006052  000000                          HALT                    ;C NOT CLEARED
1288                                                                  ; TO SCOPE REPLACE HALT W/ 240
1289                                                                  ; AND REPLACE NEXT INST W/ 761
1290  006054                          1$:
1291  006054  001005                          BNE     2$
1292  006056  012737  000143  000302          MOV     #143,@#$FATAL   ;MOVE TO MAILBOX #  *******  143  *******
1293  006064  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1294  006066  000000                          HALT                    ;Z NOT CLEARED
1295                                                                  ; TO SCOPE REPLACE HALT W/ 240
1296                                                                  ; AND REPLACE NEXT INST W/ 753
1297  006070                          2$:
1298  006070  102005                          BVC     3$
1299  006072  012737  000144  000302          MOV     #144,@#$FATAL   ;MOVE TO MAILBOX #  *******  144  *******
1300  006100  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1301  006102  000000                          HALT                    ;V NOT CLEARED
1302                                                                  ; TO SCOPE REPLACE HALT W/ 240
1303                                                                  ; AND REPLACE NEXT INST W/ 745
1304  006104                          3$:
1305  006104  103005                          BCC     4$
1306  006106  012737  000145  000302          MOV     #145,@#$FATAL   ;MOVE TO MAILBOX #  *******  145  *******
1307  006114  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1308  006116  000000                          HALT                    ;C NOT CLEARED
1309                                                                  ; TO SCOPE REPLACE HALT W/ 240
1310                                                                  ; AND REPLACE NEXT INST W/ 737
1311  006120  032767  000340  171650  4$:     BIT     #340,CC         ;TEST PRIORITY
1312  006126  001405                          BEQ     5$
1313  006130  012737  000146  000302          MOV     #146,@#$FATAL   ;MOVE TO MAILBOX #  *******  146  *******
1314  006136  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1315  006140  000000                          HALT                    ;PRIORITY NOT ZERO
1316                                                                  ; TO SCOPE REPLACE HALT W/ 240
1317                                                                  ; AND REPLACE NEXT INST W/ 726
1318  006142  012706  000500          5$:     MOV     #BUFF,SP
1319  006146  012767  006164  171640          MOV     #RETG4,RTRAP4
1320  006154  012767  000357  171634          MOV     #357,RTRAP4+2   ;SET NEW "CC" AND PRIORITY
1321  006162  000003                          TRT                     ;TRAP HERE
1322  006164                          RETG4:
1323  006164  100405                          BMI     1$
1324  006166  012737  000147  000302          MOV     #147,@#$FATAL   ;MOVE TO MAILBOX #  *******  147  *******
1325  006174  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1326  006176  000000                          HALT                    ;N NOT SET
1327                                                                  ; TO SCOPE REPLACE HALT W/ 240
1328                                                                  ; AND REPLACE NEXT INST W/ 707
1329  006200                          1$:
1330  006200  001405                          BEQ     2$
1331  006202  012737  000150  000302          MOV     #150,@#$FATAL   ;MOVE TO MAILBOX #  *******  150  *******
1332  006210  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1333  006212  000000                          HALT                    ;Z NOT SET
1334                                                                  ; TO SCOPE REPLACE HALT W/ 240
```



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1335                                                                  ; AND REPLACE NEXT INST W/ 701
1336  006214                          2$:
1337  006214  102405                          BVS     3$
1338  006216  012737  000151  000302          MOV     #151,@#$FATAL   ;MOVE TO MAILBOX #  *******  151  *******
1339  006224  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1340  006226  000000                          HALT                    ;V NOT SET
1341                                                                  ; TO SCOPE REPLACE HALT W/ 240
1342                                                                  ; AND REPLACE NEXT INST W/ 673
1343  006230                          3$:
1344  006230  103405                          BCS     4$
1345  006232  012737  000152  000302          MOV     #152,@#$FATAL   ;MOVE TO MAILBOX #  *******  152  *******
1346  006240  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1347  006242  000000                          HALT                    ;C NOT SET
1348                                                                  ; TO SCOPE REPLACE HALT W/ 240
1349                                                                  ; AND REPLACE NEXT INST W/ 665
1350  006244  016706  171526          4$:     MOV     CC,SP
1351  006250  042706  000017                  BIC     #17,SP
1352  006254  022706  000340                  CMP     #340,SP
1353  006260  001405                          BEQ     BR51A
1354  006262                          BR51:
1355  006262  012737  000153  000302          MOV     #153,@#$FATAL   ;MOVE TO MAILBOX #  *******  153  *******
1356  006270  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1357  006272  000000                          HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
1358                                                                  ; TO SCOPE REPLACE HALT W/ 240
1359                                                                  ; AND REPLACE NEXT INST W/ 651
1360  006274  012767  000016  171512  BR51A: MOV     #16,14
1361  006302  005067  171510                  CLR     16
1362
1363                                  ;PDP-11 ILLEGAL AND ADDRESS INSTRUCTION TEST
1364                                  ;ALL INSTRUCTIONS THAT ARE RESERVED
1365                                  ;SHOULD TRAP TO LOCATION 4, AND THE
1366                                  ;PC THAT POINTS TO THE TRAPPING INSTRUCTION
1367                                  ;SHOULD BE PLACED ON THE STACK
1368
1369                                  ;*****************************************************************************
1370                                  ;TEST 40        TEST THAT A TRAP OCCURS ON AN ILLEGAL INSTRUCTION
1371                                  ;*****************************************************************************
1372  006306  005237  000304          TST40:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1373  006312  022737  000040  000304          CMP     #40,@#$TESTN    ;SEQUENCE ERROR?
1374  006320  001006                          BNE     TST41-12        ;BR TO ERROR HALT ON SEQ ERROR
1375  006322  012706  000500                  MOV     #BUFF,SP        ;STACK POINTER SETUP
1376  006326  012767  006350  171450          MOV     #RETA5,RTRAP5   ;RETURN LOCATION
1377  006334  000100                          JMP     %0              ;ILLEGAL INSTRUCTION, SHOULD TRAP
1378  006336  012737  000154  000302          MOV     #154,@#$FATAL   ;MOVE TO MAILBOX #  *******  154  *******
1379  006344  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1380  006346  000000                          HALT                    ;ILLEGAL INSTRUCTION DIDN'T TRAP,OR WRONG $TSTNM
1381                                                                  ; TO SCOPE REPLACE HALT W/ 240
1382                                                                  ; AND REPLACE NEXT INST W/ 764
1383  006350                          RETA5:
1384                                  ;*****************************************************************************
1385                                  ;TEST 41        TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1386                                  ;*****************************************************************************
1387  006350  005237  000304          TST41:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1388  006354  022737  000041  000304          CMP     #41,@#$TESTN    ;SEQUENCE ERROR?
1389  006362  001011                          BNE     TST42-12        ;BR TO ERROR HALT ON SEQ ERROR
1390  006364  012706  000500                  MOV     #BUFF,SP        ;STACK POINTER SETUP
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1391  006370  012767  006400  171406          MOV     #RETB5,RTRAP5   ;RETURN POINTER
1392  006376  000100                          JMP     %0              ;RESERVED INSTRUCTION
1393  006400  020627  000474          RETB5:  CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
1394  006404  001405                          BEQ     TST42
1395  006406  012737  000155  000302          MOV     #155,@#$FATAL   ;MOVE TO MAILBOX #  *******  155  *******
1396  006414  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1397  006416  000000                          HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
1398                                                                  ; TO SCOPE REPLACE HALT W/ 240
1399                                                                  ; AND REPLACE NEXT INST W/ 761
1400                                  ;*************************************************************************************
1401                                  ;TEST 42        TEST THAT PROPER P,C, IS SAVED
1402                                  ;*************************************************************************************
1403  006420  005237  000304          TST42:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1404  006424  022737  000042  000304          CMP     #42,@#$TESTN    ;SEQUENCE ERROR?
1405  006432  001012                          BNE     TST43-12        ;BR TO ERROR HALT ON SEQ ERROR
1406  006434  012706  000500                  MOV     #BUFF,SP        ;STACK POINTER SETUP
1407  006440  012767  006450  171336          MOV     #RETC5,RTRAP5   ;RETURN FROM TRAP POINTER
1408  006446  000100                          JMP     %0              ;TRAP ON THIS INSTRUCTION
1409  006450  022767  006450  172016  RETC5:  CMP     #.,BUFF-4       ;CHECK FOR INCREMENTED P,C,
1410  006456  001405                          BEQ     TST43
1411  006460  012737  000156  000302          MOV     #156,@#$FATAL   ;MOVE TO MAILBOX #  *******  156  *******
1412  006466  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1413  006470  000000                          HALT                    ;INCORRECT P,C,.OR WRONG $TSTNM
1414                                                                  ; TO SCOPE REPLACE HALT W/ 240
1415                                                                  ; AND REPLACE NEXT INST W/ 760
1416                                  ;*************************************************************************************
1417                                  ;TEST 43        TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
1418                                  ;*************************************************************************************
1419  006472  005237  000304          TST43:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1420  006476  022737  000043  000304          CMP     #43,@#$TESTN    ;SEQUENCE ERROR?
1421  006504  001040                          BNE     TST44-12        ;BR TO ERROR HALT ON SEQ ERROR
1422  006506  012706  000500                  MOV     #BUFF,SP        ;SET UP
1423  006512  012767  006530  171264          MOV     #RETD5,RTRAP5   ;SET UP
1424  006520  005067  171252                  CLR     CC              ;CLEAR CC AND PRIORITY
1425  006524  000257                          CCC
1426  006526  000100                          JMP     %0              ;TRAP
1427  006530  026727  171742  000000  RETD5:  CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
1428  006536  001405                          BEQ     1$
1429  006540  012737  000157  000302          MOV     #157,@#$FATAL   ;MOVE TO MAILBOX #  *******  157  *******
1430  006546  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1431  006550  000000                          HALT                    ;INCORRECT STATUS
1432                                                                  ; TO SCOPE REPLACE HALT W/ 240
1433                                                                  ; AND REPLACE NEXT INST W/ 755
1434  006552  012706  000500          1$:     MOV     #BUFF,SP        ;SET UP
1435  006556  012767  006576  171220          MOV     #RETE5,RTRAP5   ;SET UP
1436  006564  012767  000357  171204          MOV     #357,CC         ;SET PRIORITY
1437  006572  000277                          SCC                     ;SET CC
1438  006574  000100                          JMP     %0              ;TRAP
1439  006576  026727  171674  000357  RETE5:  CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
1440  006604  001405                          BEQ     TST44
1441  006606  012737  000160  000302          MOV     #160,@#$FATAL   ;MOVE TO MAILBOX #  *******  160  *******
1442  006614  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1443  006616  000000                          HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
1444                                                                  ; TO SCOPE REPLACE HALT W/ 240
1445                                                                  ; AND REPLACE NEXT INST W/ 732
1446                                  ;*************************************************************************************
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1447                                  ;TEST 44        TEST THAT "NEW" STATUS IS CORRECT
1448                                  ;*************************************************************************************
1449  006620  005237  000304          TST44:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1450  006624  022737  000044  000304          CMP     #44,@#$TESTN    ;SEQUENCE ERROR?
1451  006632  001117                          BNE     TST45-12        ;BR TO ERROR HALT ON SEQ ERROR
1452  006634  012706  000500                  MOV     #BUFF,SP
1453  006640  012767  006654  171136          MOV     #RETF5,RTRAP5
1454  006646  005067  171134                  CLR     RTRAP5+2        ;CLEAR FUTURE PRIORITY AND CC
1455  006652  000100                          JMP     %0
1456  006654                          RETF5:                          ;TEST FOR "C" CLEARED
1457  006654  100005                          BPL     1$
1458  006656  012737  000161  000302          MOV     #161,@#$FATAL   ;MOVE TO MAILBOX #  *******  161  *******
1459  006664  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1460  006666  000000                          HALT                    ;C NOT CLEARED
1461                                                                  ; TO SCOPE REPLACE HALT W/ 240
1462                                                                  ; AND REPLACE NEXT INST W/ 761
1463  006670                          1$:
1464  006670  001005                          BNE     2$
1465  006672  012737  000162  000302          MOV     #162,@#$FATAL   ;MOVE TO MAILBOX #  *******  162  *******
1466  006700  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1467  006702  000000                          HALT                    ;Z NOT CLEARED
1468                                                                  ; TO SCOPE REPLACE HALT W/ 240
1469                                                                  ; AND REPLACE NEXT INST W/ 753
1470  006704                          2$:
1471  006704  102005                          BVC     3$
1472  006706  012737  000163  000302          MOV     #163,@#$FATAL   ;MOVE TO MAILBOX #  *******  163  *******
1473  006714  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1474  006716  000000                          HALT                    ;V NOT CLEARED
1475                                                                  ; TO SCOPE REPLACE HALT W/ 240
1476                                                                  ; AND REPLACE NEXT INST W/ 745
1477  006720                          3$:
1478  006720  103005                          BCC     4$
1479  006722  012737  000164  000302          MOV     #164,@#$FATAL   ;MOVE TO MAILBOX #  *******  164  *******
1480  006730  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1481  006732  000000                          HALT                    ;C NOT CLEARED
1482                                                                  ; TO SCOPE REPLACE HALT W/ 240
1483                                                                  ; AND REPLACE NEXT INST W/ 737
1484  006734  032767  000357  171034  4$:     BIT     #357,CC         ;TEST PRIORITY
1485  006742  001405                          BEQ     5$
1486  006744  012737  000165  000302          MOV     #165,@#$FATAL   ;MOVE TO MAILBOX #  *******  165  *******
1487  006752  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1488  006754  000000                          HALT                    ;PRIORITY NOT ZERO
1489                                                                  ; TO SCOPE REPLACE HALT W/ 240
1490                                                                  ; AND REPLACE NEXT INST W/ 726
1491  006756  012706  000500          5$:     MOV     #BUFF,SP
1492  006762  012767  007000  171014          MOV     #RETG5,RTRAP5
1493  006770  012767  000357  171010          MOV     #357,RTRAP5+2   ;SET NEW "CC" AND PRIORITY
1494  006776  000100                          JMP     %0              ;TRAP HERE
1495  007000                          RETG5:
1496  007000  100405                          BMI     1$
1497  007002  012737  000166  000302          MOV     #166,@#$FATAL   ;MOVE TO MAILBOX #  *******  166  *******
1498  007010  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1499  007012  000000                          HALT                    ;N NOT SET
1500                                                                  ; TO SCOPE REPLACE HALT W/ 240
1501                                                                  ; AND REPLACE NEXT INST W/ 707
1502  007014                          1$:
```

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1503  007014  001405                          BEQ     2$
1504  007016  012737  000167  000302          MOV     #167,@#$FATAL   ;MOVE TO MAILBOX #  *******  167  *******
1505  007024  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1506  007026  000000                          HALT                    ;Z NOT SET
1507                                                                  ; TO SCOPE REPLACE HALT W/ 240
1508                                                                  ; AND REPLACE NEXT INST W/ 701
1509  007030                          2$:
1510  007030  102405                          BVS     3$
1511  007032  012737  000170  000302          MOV     #170,@#$FATAL   ;MOVE TO MAILBOX #  *******  170  *******
1512  007040  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1513  007042  000000                          HALT                    ;V NOT SET
1514                                                                  ; TO SCOPE REPLACE HALT W/ 240
1515                                                                  ; AND REPLACE NEXT INST W/ 673
1516  007044                          3$:
1517  007044  103405                          BCS     4$
1518  007046  012737  000171  000302          MOV     #171,@#$FATAL   ;MOVE TO MAILBOX #  *******  171  *******
1519  007054  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1520  007056  000000                          HALT                    ;C NOT SET
1521                                                                  ; TO SCOPE REPLACE HALT W/ 240
1522                                                                  ; AND REPLACE NEXT INST W/ 665
1523  007060  016706  170712          4$:     MOV     CC,SP
1524  007064  022706  000357                  CMP     #357,SP
1525  007070  001405                          BEQ     TST45
1526  007072  012737  000172  000302          MOV     #172,@#$FATAL   ;MOVE TO MAILBOX #  *******  172  *******
1527  007100  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1528  007102  000000                          HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
1529                                                                  ; TO SCOPE REPLACE HALT W/ 240
1530                                                                  ; AND REPLACE NEXT INST W/ 653
1531                                  ;*************************************************************************************
1532                                  ;TEST 45        TEST THAT A TRAP OCCURES ON ALL ILLEGAL INSTRUCION
1533                                  ;*************************************************************************************
1534  007104  005237  000304          TST45:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1535  007110  022737  000045  000304          CMP     #45,@#$TESTN    ;SEQUENCE ERROR?
1536  007116  001006                          BNE     TST46-12        ;BR TO ERROR HALT ON SEQ ERROR
1537  007120  012706  000500                  MOV     #BUFF,SP        ;STACK POINTER SETUP
1538  007124  012767  007146  170652          MOV     #RETH5,RTRAP5   ;RETURN LOCATION
1539  007132  004000                          JSR     %0,%0           ;RESERVED INSTRUCTION, SHOULD TRAP
1540  007134  012737  000173  000302          MOV     #173,@#$FATAL   ;MOVE TO MAILBOX #  *******  173  *******
1541  007142  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1542  007144  000000                          HALT                    ;DIDN'T TRAP,OR WRONG $TSTNM
1543                                                                  ; TO SCOPE REPLACE HALT W/ 240
1544                                                                  ; AND REPLACE NEXT INST W/ 764
1545  007146                          RETH5:
1546                                  ;*************************************************************************************
1547                                  ;TEST 46        TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1548                                  ;*************************************************************************************
1549  007146  005237  000304          TST46:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1550  007152  022737  000046  000304          CMP     #46,@#$TESTN    ;SEQUENCE ERROR?
1551  007160  001011                          BNE     TST47-12        ;BR TO ERROR HALT ON SEQ ERROR
1552  007162  012706  000500                  MOV     #BUFF,SP        ;STACK POINTER SETUP
1553  007166  012767  007176  170610          MOV     #RETJ,RTRAP5    ;RETURN POINTER
1554  007174  004000                          JSR     %0,%0           ;RESERVED INSTRUCTION
1555  007176  020627  000474          RETJ:   CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
1556  007202  001405                          BEQ     TST47
1557  007204  012737  000174  000302          MOV     #174,@#$FATAL   ;MOVE TO MAILBOX #  *******  174  *******
1558  007212  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
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1559  007214  000000                          HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
1560                                                                  ; TO SCOPE REPLACE HALT W/ 240
1561                                                                  ; AND REPLACE NEXT INST W/ 761
1562                                  ;*************************************************************************************
1563                                  ;TEST 47        TEST THAT PROPER P.C. IS SAVED
1564                                  ;*************************************************************************************
1565  007216  005237  000304          TST47:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1566  007222  022737  000047  000304          CMP     #47,@#$TESTN    ;SEQUENCE ERROR?
1567  007230  001012                          BNE     TST50-12        ;BR TO ERROR HALT ON SEQ ERROR
1568  007232  012706  000500                  MOV     #BUFF,SP        ;STACK POINTER SETUP
1569  007236  012767  007246  170540          MOV     #RETK,RTRAP5    ;RETURN FROM TRAP POINTER
1570  007244  004000                  INSTK:  JSR     %0,%0           ;TRAP ON THIS INSTRUCTION
1571  007246  022767  007246  171220  RETK:   CMP     #INSTK+2,BUFF-4 ;CHECK FOR INCREMENED P.C.
1572  007254  001405                          BEQ     TST50
1573  007256  012737  000175  000302          MOV     #175,@#$FATAL   ;MOVE TO MAILBOX #  *******  175  *******
1574  007264  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1575  007266  000000                          HALT                    ;INCORRECT P.C.,OR WRONG $TSTNM
1576                                                                  ; TO SCOPE REPLACE HALT W/ 240
1577                                                                  ; AND REPLACE NEXT INST W/ 760
1578
1579                                  ;*************************************************************************************
1580                                  ;TEST 50        TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
1581                                  ;*************************************************************************************
1582  007270  005237  000304          TST50:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1583  007274  022737  000050  000304          CMP     #50,@#$TESTN    ;SEQUENCE ERROR?
1584  007302  001040                          BNE     TST51-12        ;BR TO ERROR HALT ON SEQ ERROR
1585  007304  012706  000500                  MOV     #BUFF,SP        ;SET UP
1586  007310  012767  007326  170466          MOV     #RETL,RTRAP5    ;SET UP
1587  007316  005067  170454                  CLR     CC              ;CLEAR CC AND PRIORITY
1588  007322  000257                          CCC
1589  007324  004000                          JSR     %0,%0           ;TRAP
1590  007326  026727  171144  000000  RETL:   CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
1591  007334  001405                          BEQ     1$
1592  007336  012737  000176  000302          MOV     #176,@#$FATAL   ;MOVE TO MAILBOX #  *******  176  *******
1593  007344  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1594  007346  000000                          HALT                    ;INCORRCT STATUS
1595                                                                  ; TO SCOPE REPLACE HALT W/ 240
1596                                                                  ; AND REPLACE NEXT INST W/ 755
1597  007350  012706  000500          1$:     MOV     #BUFF,SP        ;SET UP
1598  007354  012767  007374  170422          MOV     #RETM,RTRAP5    ;SET UP
1599  007362  012767  000357  170406          MOV     #357,CC         ;SET PRIORITY
1600  007370  000277                          SCC                     ;SET CC
1601  007372  004000                          JSR     %0,%0           ;TRAP
1602  007374  026727  171076  000357  RETM:   CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
1603  007402  001405                          BEQ     TST51
1604  007404  012737  000177  000302          MOV     #177,@#$FATAL   ;MOVE TO MAILBOX #  *******  177  *******
1605  007412  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
1606  007414  000000                          HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $TSTNM
1607                                                                  ; TO SCOPE REPLACE HALT W/ 240
1608                                                                  ; AND REPLACE NEXT INST W/ 732
1609                                  ;*************************************************************************************
1610                                  ;TEST 51        TEST THAT "NEW" STATUS IS CORRECT
1611                                  ;*************************************************************************************
1612  007416  005237  000304          TST51:  INC     @#$TESTN        ;UPDATE TEST NUMBER
1613  007422  022737  000051  000304          CMP     #51,@#$TESTN    ;SEQUENCE ERROR?
1614  007430  001116                          BNE     TST52-12        ;BR TO ERROR HALT ON SEQ ERROR
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1615  007432  012706  000500                  T51:    MOV     #BUFF,SP
1616  007436  012767  007452  170340                  MOV     #RETN,RTRAP5
1617  007444  005067  170336                          CLR     RTRAP5+2        ;CLEAR FUTURE PRIORITY AND CC
1618  007450  004000                          JSR     %0,%0
1619  007452                          RETN:                                   ;TEST FOR "C" CLEARED
1620  007452  100005                          BPL     1$
1621  007454  012737  000200  000302                  MOV     #200,@#$FATAL   ;MOVE TO MAILBOX #  *******  200  *******
1622  007462  005212                          INC     (P2)                    ;SET MSGTYP TO FATAL ERROR
1623  007464  000000                          HALT                            ;C NOT CLEARED
1624                                                                          ; TO SCOPE REPLACE HALT W/ 240
1625                                                                          ; AND REPLACE NEXT INST W/ 761
1626  007466                          1$:
1627  007466  001005                          BNE     2$
1628  007470  012737  000201  000302                  MOV     #201,@#$FATAL   ;MOVE TO MAILBOX #  *******  201  *******
1629  007476  005212                          INC     (P2)                    ;SET MSGTYP TO FATAL ERROR
1630  007500  000000                          HALT                            ;Z NOT CLEARED
1631                                                                          ; TO SCOPE REPLACE HALT W/ 240
1632                                                                          ; AND REPLACE NEXT INST W/ 753
1633  007502                          2$:
1634  007502  102005                          BVC     3$
1635  007504  012737  000202  000302                  MOV     #202,@#$FATAL   ;MOVE TO MAILBOX #  *******  202  *******
1636  007512  005212                          INC     (P2)                    ;SET MSGTYP TO FATAL ERROR
1637  007514  000000                          HALT                            ;V NOT CLEARED
1638                                                                          ; TO SCOPE REPLACE HALT W/ 240
1639                                                                          ; AND REPLACE NEXT INST W/ 745
1640  007516                          3$:
1641  007516  103005                          BCC     4$
1642  007520  012737  000203  000302                  MOV     #203,@#$FATAL   ;MOVE TO MAILBOX #  *******  203  *******
1643  007526  005212                          INC     (R2)                    ;SET MSGTYP TO FATAL ERROR
1644  007530  000000                          HALT                            ;C NOT CLEARED
1645                                                                          ; TO SCOPE REPLACE HALT W/ 240
1646                                                                          ; AND REPLACE NEXT INST W/ 737
1647  007532  016700  170240          4$:     MOV     CC,%0                   ;TEMP STORAGE
1648  007536  001405                          BEQ     5$
1649  007540  012737  000204  000302                  MOV     #204,@#$FATAL   ;MOVE TO MAILBOX #  *******  204  *******
1650  007546  005212                          INC     (P2)                    ;SET MSGTYP TO FATAL ERROR
1651  007550  000000                          HALT                            ;PRIORITY NOT ZERO
1652                                                                          ; TO SCOPE REPLACE HALT W/ 240
1653                                                                          ; AND REPLACE NEXT INST W/ 727
1654  007552  012706  000500          5$:     MOV     #BUFF,SP
1655  007556  012767  007574  170220                  MOV     #RETO,RTRAP5
1656  007564  012767  000357  170214                  MOV     #357,RTRAP5+2   ;SET NEW "CC" AND PRIORITY
1657  007572  004000                          JSR     %0,%0                   ;TRAP HERE
1658  007574                          RETO:
1659  007574  100405                          BMI     1$
1660  007576  012737  000205  000302                  MOV     #205,@#$FATAL   ;MOVE TO MAILBOX #  *******  205  *******
1661  007604  005212                          INC     (R2)                    ;SET MSGTYP TO FATAL ERROR
1662  007606  000000                          HALT                            ;N NOT SET
1663                                                                          ; TO SCOPE REPLACE HALT W/ 240
1664                                                                          ; AND REPLACE NEXT INST W/ 710
1665  007610                          1$:
1666  007610  001405                          BEQ     2$
1667  007612  012737  000206  000302                  MOV     #206,@#$FATAL   ;MOVE TO MAILBOX #  *******  206  *******
1668  007620  005212                          INC     (R2)                    ;SET MSGTYP TO FATAL ERROR
1669  007622  000000                          HALT                            ;Z NOT SET
1670                                                                          ; TO SCOPE REPLACE HALT W/ 240
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1671                                                                          ; AND REPLACE NEXT INST W/ 702
1672  007624                          2$:
1673  007624  102405                          BVS     3$
1674  007626  012737  000207  000302                  MOV     #207,@#$FATAL   ;MOVE TO MAILBOX #  *******  207  *******
1675  007634  005212                          INC     (R2)                    ;SET MSGTYP TO FATAL ERROR
1676  007636  000000                          HALT                            ;V NOT SET
1677                                                                          ; TO SCOPE REPLACE HALT W/ 240
1678                                                                          ; AND REPLACE NEXT INST W/ 674
1679  007640                          3$:
1680  007640  103405                          BCS     4$
1681  007642  012737  000210  000302                  MOV     #210,@#$FATAL   ;MOVE TO MAILBOX #  *******  210  *******
1682  007650  005212                          INC     (R2)                    ;SET MSGTYP TO FATAL ERROR
1683  007652  000000                          HALT                            ;C NOT SET
1684                                                                          ; TO SCOPE REPLACE HALT W/ 240
1685                                                                          ; AND REPLACE NEXT INST W/ 666
1686  007654  016700  170116          4$:     MOV     CC,%0
1687  007660  022700  000357                  CMP     #357,%0
1688  007664  001405                          BEQ     TST52
1689  007666  012737  000211  000302                  MOV     #211,@#$FATAL   ;MOVE TO MAILBOX #  *******  211  *******
1690  007674  005212                          INC     (R2)                    ;SET MSGTYP TO FATAL ERROR
1691  007676  000000                          HALT                            ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
1692                                                                          ; TO SCOPE REPLACE HALT W/ 240
1693                                                                          ; AND REPLACE NEXT INST W/ 654
1694
1695                                  ;*****************************************************************************
1696                                  ;TEST 52        TEST THAT A TRAP OCCURES ON AN ILLEGAL ADDRESS
1697                                  ;*****************************************************************************
1698  007700  005237  000304          TST52:  INC     @#$TESTN                ;UPDATE TEST NUMBER
1699  007704  022737  000052  000304          CMP     #52,@#$TESTN            ;SEQUENCE ERROR?
1700  007712  001007                          BNE     TST53-12                ;BR TO ERROR HALT ON SEQ ERROR
1701  007714  012706  000500                  MOV     #BUFF,SP                ;STACK POINTER SETUP
1702  007720  012767  007744  170056          MOV     #RETP,RTRAP5            ;RETURN LOCATION
1703  007726  005767  170047                  TST 1                           ;ILLEGAL ADDRESS INSTRUCTION, SHOULD TRAP
1704  007732  012737  000212  000302          MOV     #212,@#$FATAL   ;MOVE TO MAILBOX #  *******  212  *******
1705  007740  005212                          INC     (R2)                    ;SET MSGTYP TO FATAL ERROR
1706  007742  000000                          HALT                            ;ILLEGAL ADDRESS DID NOT TRAP,OR WRONG $TSTNM
1707                                                                          ; TO SCOPE REPLACE HALT W/ 240
1708                                                                          ; AND REPLACE NEXT INST W/ 763
1709  007744                          RETP:
1710                                  ;*****************************************************************************
1711                                  ;TEST 53        TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1712                                  ;*****************************************************************************
1713  007744  005237  000304          TST53:  INC     @#$TESTN                ;UPDATE TEST NUMBER
1714  007750  022737  000053  000304          CMP     #53,@#$TESTN            ;SEQUENCE ERROR?
1715  007756  001012                          BNE     TST54-12                ;BR TO ERROR HALT ON SEQ ERROR
1716  007760  012706  000500                  MOV     #BUFF,SP                ;STACK POINTER SETUP
1717  007764  012767  007776  170012          MOV     #RETQ,RTRAP5            ;RETURN POINTER
1718  007772  005767  170003                  TST 1                           ;RESERVED INSTRUCTION
1719  007776  020627  000474          RETQ:   CMP     SP,#BUFF-4              ;TEST DECREMENT OF SP
1720  010002  001405                          BEQ     TST54
1721  010004  012737  000213  000302          MOV     #213,@#$FATAL   ;MOVE TO MAILBOX #  *******  213  *******
1722  010012  005212                          INC     (R2)                    ;SET MSGTYP TO FATAL ERROR
1723  010014  000000                          HALT                            ;NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
1724                                                                          ; TO SCOPE REPLACE HALT W/ 240
1725                                                                          ; AND REPLACE NEXT INST W/ 760
1726                                  ;*****************************************************************************
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                                        ;TEST 54        TEST THAT PROPER P.C. IS SAVED
                                        ;*************************************************************************
010016  005237  000304          TST54:  INC     @#$TESTN        ;UPDATE TEST NUMBER
010022  022737  000054  000304          CMP     #54,@#$TESTN    ;SEQUENCE ERROR?
010030  001013                        BNE     TST55-12        ;BR TO ERROR HALT ON SEQ ERROR
010032  012706  000500                MOV     #BUFF,SP        ;STACK POINTER SETUP
010036  012767  010050  167740        MOV     #RETR,RTRAP5    ;RETURN FROM TRAP POINTER
010044  005767  167731                TST 1                   ;TRAP ON THIS INSTRUCTION
010050  022767  010050  170416  RETR: CMP     #.,BUFF-4       ;CHECK FOR INCREMENTED P.C.
010056  001405                        BEQ     TST55
010060  012737  000214  000302        MOV     #214,@#$FATAL   ;MOVE TO MAILBOX #  *******  214  *******
010066  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
010070  000000                        HALT                    ;INCORRECT P.C.,,OR WRONG $TSTNM
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 757
                                        ;*************************************************************************
                                        ;TEST 55        TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
                                        ;*************************************************************************
010072  005237  000304          TST55:  INC     @#$TESTN        ;UPDATE TEST NUMBER
010076  022737  000055  000304          CMP     #55,@#$TESTN    ;SEQUENCE ERROR?
010104  001042                        BNE     TST56-12        ;BR TO ERROR HALT ON SEQ ERROR
010106  012706  000500                MOV     #BUFF,SP        ;SET UP
010112  012767  010132  167664        MOV     #RETS,RTRAP5    ;SET UP
010120  005067  167652                CLR     CC              ;CLEAR CC AND PRIORITY
010124  000257                        CCC
010126  005767  167647                TST 1                   ;TRAP
010132  026727  170340  000000  RETS: CMP     BUFF-2,#0       ;TEST THAT OLD STATUS WENT TO STACK
010140  001405                        BEQ     1$
010142  012737  000215  000302        MOV     #215,@#$FATAL   ;MOVE TO MAILBOX #  *******  215  *******
010150  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
010152  000000                        HALT                    ;INCORRECT STATUS
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 754
010154  012706  000500          1$:     MOV     #BUFF,SP        ;SET UP
010160  012767  010202  167616        MOV     #RETT,RTRAP5    ;SET UP
010166  012767  000357  167602        MOV     #357,CC         ;SET PRIORITY
010174  000277                        SCC                     ;SET CC
010176  005767  167577                TST 1                   ;TRAP
010202  026727  170270  000357  RETT: CMP     BUFF-2,#357     ;COMPARES STATUS ON STACK
010210  001405                        BEQ     TST56
010212  012737  000216  000302        MOV     #216,@#$FATAL   ;MOVE TO MAILBOX #  *******  216  *******
010220  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
010222  000000                        HALT                    ;INCORRCT STATUS ON STACK,OR WRONG $TSTNM
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 730
                                        ;*************************************************************************
                                        ;TEST 56        TEST THAT "NEW" STATUS IS CORRECT
                                        ;*************************************************************************
010224  005237  000304          TST56:  INC     @#$TESTN        ;UPDATE TEST NUMBER
010230  022737  000056  000304          CMP     #56,@#$TESTN    ;SEQUENCE ERROR?
010236  001121                        BNE     TST57-12        ;BR TO ERROR HALT ON SEQ ERROR
010240  012706  000500                MOV     #BUFF,SP
010244  012767  010262  167532        MOV     #RETU,RTRAP5
010252  005067  167530                CLR     RTRAP5+2        ;CLEAR FUTURE PRIORITY AND CC
010256  005767  167517                TST 1                   ;TRAP HERE
010262                          RETU:                           ;TEST FOR "C" CLEARED
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010262  100005                        BPL     1$
010264  012737  000217  000302        MOV     #217,@#$FATAL   ;MOVE TO MAILBOX #  *******  217  *******
010272  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
010274  000000                        HALT                    ;C NOT CLEARED
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 760
010276                          1$:
010276  001005                        BNE     2$
010300  012737  000220  000302        MOV     #220,@#$FATAL   ;MOVE TO MAILBOX #  *******  220  *******
010306  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
010310  000000                        HALT                    ;Z NOT CLEARED
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 752
010312                          2$:
010312  102005                        BVC     3$
010314  012737  000221  000302        MOV     #221,@#$FATAL   ;MOVE TO MAILBOX #  *******  221  *******
010322  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
010324  000000                        HALT                    ;V NOT CLEARED
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 744
010326                          3$:
010326  103005                        BCC     4$
010330  012737  000222  000302        MOV     #222,@#$FATAL   ;MOVE TO MAILBOX #  *******  222  *******
010336  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
010340  000000                        HALT                    ;C NOT CLEARED
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 736
010342  032767  000357  167426  4$:     BIT     #357,CC         ;TEST PRIORITY FOR ZERO
010350  001405                        BEQ     5$
010352  012737  000223  000302        MOV     #223,@#$FATAL   ;MOVE TO MAILBOX #  *******  223  *******
010360  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
010362  000000                        HALT                    ;PRIORITY NOT ZERO
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 725
010364  012706  000500          5$:     MOV     #BUFF,SP
010370  012767  010410  167406        MOV     #RETV,RTRAP5
010376  012767  000357  167402        MOV     #357,RTRAP5+2   ;SET NEW "CC" AND PRIORITY
010404  005767  167371                TST 1                   ;TRACE HERE
010410                          RETV:
010410  100405                        BMI     1$
010412  012737  000224  000302        MOV     #224,@#$FATAL   ;MOVE TO MAILBOX #  *******  224  *******
010420  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
010422  000000                        HALT                    ;N NOT SET
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 705
010424                          1$:
010424  001405                        BEQ     2$
010426  012737  000225  000302        MOV     #225,@#$FATAL   ;MOVE TO MAILBOX #  *******  225  *******
010434  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
010436  000000                        HALT                    ;Z NOT SET
                                                                ; TO SCOPE REPLACE HALT W/ 240
                                                                ; AND REPLACE NEXT INST W/ 677
010440                          2$:
010440  102405                        BVS     3$
010442  012737  000226  000302        MOV     #226,@#$FATAL   ;MOVE TO MAILBOX #  *******  226  *******
010450  005212                        INC     (R2)            ;SET MSGTYP TO FATAL ERROR
```

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 1839  010452  000000                          HALT                    ;V NOT SET
 1840                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1841                                                                  ; AND REPLACE NEXT INST W/ 671
 1842  010454                          3$:
 1843  010454  103405                          BCS     4$
 1844  010456  012737  000227  000302          MOV     #227,@#$FATAL   ;MOVE TO MAILBOX #  *******  227  *******
 1845  010464  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 1846  010466  000000                          HALT                    ;C NOT SET
 1847                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1848                                                                  ; AND REPLACE NEXT INST W/ 663
 1849  010470  016700  167302          4$:     MOV     CC,%0
 1850  010474  022700  000357                  CMP     #357,%0
 1851  010500  001405                          BEQ     TST57
 1852  010502  012737  000230  000302          MOV     #230,@#$FATAL   ;MOVE TO MAILBOX #  *******  230  *******
 1853  010510  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 1854  010512  000000                          HALT                    ;PRIORITY WAS CHANGED,OR WRONG $TSTNM
 1855                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1856                                                                  ; AND REPLACE NEXT INST W/ 651
 1857                                  ;*******************************************************************************
 1858                                  ;TEST 57        TEST THAT DECREMENT R6 TO A VALUE LESS THAN 400 TRAPS
 1859                                  ;*******************************************************************************
 1860  010514  005237  000304          TST57:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 1861  010520  022737  000057  000304          CMP     #57,@#$TESTN    ;SEQUENCE ERROR?
 1862  010526  001006                          BNE     TST60-12        ;BR TO ERROR HALT ON SEQ ERROR
 1863  010530  012706  000150                  MOV     #150,%6         ;R6 = 150
 1864  010534  012767  010556  167242          MOV     #TDEC1,4        ;STACK OVERFLOW TRAP POINTER
 1865  010542  005746                          TST     -(6)            ;WITH R6 = 150 SHOULD TRAP
 1866  010544  012737  000231  000302          MOV     #231,@#$FATAL   ;MOVE TO MAILBOX #  *******  231  *******
 1867  010552  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 1868  010554  000000                          HALT                    ;SHOULD HAVE TRAPPED,OR WRONG $TSTNM
 1869                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1870                                                                  ; AND REPLACE NEXT INST W/ 764
 1871  010556                          TDEC1:
 1872
 1873                                  ;*******************************************************************************
 1874                                  ;TEST 60        TEST FOR DECREMENT OF R6 ON OVERFLOW TRAP
 1875                                  ;*******************************************************************************
 1876  010556  005237  000304          TST60:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 1877  010562  022737  000060  000304          CMP     #60,@#$TESTN    ;SEQUENCE ERROR?
 1878  010570  001011                          BNE     TST61-12        ;BR TO ERROR HALT ON SEQ ERROR
 1879  010572  012706  000150                  MOV     #150,%6         ;R6 = 150
 1880  010576  012767  010606  167200          MOV     #TDEC2,4        ;TRAP POINTER
 1881  010604  005746                          TST     -(6)            ;WITH R6 = 150 SHOULD TRAP
 1882  010606  020627  000142          TDEC2:  CMP     %6,#142         ;DID R6 DECREMENT
 1883  010612  001405                          BEQ     TST61
 1884  010614  012737  000232  000302          MOV     #232,@#$FATAL   ;MOVE TO MAILBOX #  *******  232  *******
 1885  010622  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 1886  010624  000000                          HALT                    ;R6 NOT = 142,OR WRONG $TSTNM
 1887                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1888                                                                  ; AND REPLACE NEXT INST W/ 761
 1889
```



```
 1890                                  ;*******************************************************************************
 1891                                  ;TEST 61        TEST DIFFERENT TYPES OF OVERFLOW
 1892                                  ;*******************************************************************************
 1893  010626  005237  000304          TST61:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 1894  010632  022737  000061  000304          CMP     #61,@#$TESTN    ;SEQUENCE ERROR?
 1895  010640  001043                          BNE     TST62-12        ;BR TO ERROR HALT ON SEQ ERROR
 1896  010642  012706  000150                  MOV     #150,%6
 1897  010646  005067  167274                  CLR     146             ;STATUS WORD OF LOC 10
 1898  010652  012767  010662  167124          MOV     #TDEC3,4        ;RETURN TO LOC 4
 1899  010660  005246                          INC     -(6)
 1900  010662  005767  167260          TDEC3:  TST     146
 1901  010666  001005                          BNE     1$
 1902  010670  012737  000233  000302          MOV     #233,@#$FATAL   ;MOVE TO MAILBOX #  *******  233  *******
 1903  010676  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 1904  010700  000000                          HALT                    ;INCREMENT OPERATION NOT INHIBITED
 1905                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1906                                                                  ; AND REPLACE NEXT INST W/ 757
 1907  010702  012705  001000          1$:     MOV     #1000,%5
 1908  010706  012706  000400                  MOV     #400,%6
 1909  010712  012767  010734  167064          MOV     #TDEC4,4
 1910  010720  124645                          CMPB    -(6),-(5)
 1911  010722  012737  000234  000302          MOV     #234,@#$FATAL   ;MOVE TO MAILBOX #  *******  234  *******
 1912  010730  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 1913  010732  000000                          HALT                    ;STACK = 400 AND DECREMENTED, SHOULD TRAP
 1914                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1915                                                                  ; AND REPLACE NEXT INST W/ 742
 1916  010734  012706  000400          TDEC4:  MOV     #400,%6
 1917  010740  012767  010762  167036          MOV     #TDEC7,4
 1918  010746  134546                          BITB    -(5),-(6)
 1919  010750                          TDEC6:
 1920  010750  012737  000235  000302          MOV     #235,@#$FATAL   ;MOVE TO MAILBOX #  *******  235  *******
 1921  010756  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 1922  010760  000000                          HALT                    ;NO STACK OVERFLOW,OR WRONG $TSTNM
 1923                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1924                                                                  ; AND REPLACE NEXT INST W/ 727
 1925  010762                          TDEC7:
 1926
 1927                                  ;*******************************************************************************
 1928                                  ;TEST 62        TEST THAT AN 7 CAUSES AN OVERFLOW TRAP
 1929                                  ;*******************************************************************************
 1930  010762  005237  000304          TST62:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 1931  010766  022737  000062  000304          CMP     #62,@#$TESTN    ;SEQUENCE ERROR?
 1932  010774  001011                          BNE     VDEC2           ;BR TO ERROR HALT ON SEQ ERROR
 1933  010776  012706  000400                  MOV     #400,%6         ;SET UP STACK TO OVERFLOW
 1934  011002  012767  011020  167000          MOV     #VDEC2,10       ;SET UP 7 VECTOR
 1935  011010  012767  011032  166766          MOV     #VDEC1,4        ;SET UP OVERFLOW VECTOR
 1936  011016  000007                          7                       ;THIS TRAP SHOULD CAUSE OVERFLOW
 1937  011020                          VDEC2:
 1938  011020  012737  000236  000302          MOV     #236,@#$FATAL   ;MOVE TO MAILBOX #  *******  236  *******
 1939  011026  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 1940  011030  000000                          HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
 1941                                                                  ; TO SCOPE REPLACE HALT W/ 240
 1942                                                                  ; AND REPLACE NEXT INST W/ 761
 1943  011032  012767  000012  166750  VDEC1:  MOV     #10+2,10
 1944                                  ;*******************************************************************************
 1945                                  ;TEST 63        TEST THAT AN IOT CAUSES AN OVERFLOW TRAP
```

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                                ;*******************************************************************************
011040  005237  000304          TST63: INC     @#$TESTN        ;UPDATE TEST NUMBER
011044  022737  000063  000304        CMP     #63,@#$TESTN    ;SEQUENCE ERROR?
011052  001011                      BNE     VDEC4           ;BR TO ERROR HALT ON SEQ ERROR
011054  012706  000400              MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011060  012767  011076  166732      MOV     #VDEC4,20       ;SET UP IOT VECTOR
011066  012767  011110  166710      MOV     #VDEC3,4        ;SET UP OVERFLOW VECTOR
011074  000004                      IOT                     ;THIS TRAP SHOULD CAUSE OVERFLOW
011076                          VDEC4:
011076  012737  000237  000302      MOV     #237,@#$FATAL   ;MOVE TO MAILBOX #  *******  237  *******
011104  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011106  000000                      HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 761
011110  012767  000022  166702  VDEC3:  MOV     #20+2,20
                                ;*******************************************************************************
                                ;TEST 64        TEST THAT AN EMT CAUSES AN OVERFLOW TRAP
                                ;*******************************************************************************
011116  005237  000304          TST64: INC     @#$TESTN        ;UPDATE TEST NUMBER
011122  022737  000064  000304        CMP     #64,@#$TESTN    ;SEQUENCE ERROR?
011130  001011                      BNE     VDEC6           ;BR TO ERROR HALT ON SEQ ERROR
011132  012706  000400              MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011136  012767  011154  166664      MOV     #VDEC6,30       ;SET UP EMT VECTOR
011144  012767  011166  166632      MOV     #VDEC5,4        ;SET UP OVERFLOW VECTOR
011152  104000                      EMT                     ;THIS TRAP SHOULD CAUSE OVERFLOW
011154                          VDEC6:
011154  012737  000240  000302      MOV     #240,@#$FATAL   ;MOVE TO MAILBOX #  *******  240  *******
011162  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011164  000000                      HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 761
011166  012767  000032  166634  VDEC5:  MOV     #30+2,30
                                ;*******************************************************************************
                                ;TEST 65        TEST THAT AN TRAP CAUSES AN OVERFLOW TRAP
                                ;*******************************************************************************
011174  005237  000304          TST65: INC     @#$TESTN        ;UPDATE TEST NUMBER
011200  022737  000065  000304        CMP     #65,@#$TESTN    ;SEQUENCE ERROR?
011206  001011                      BNE     VDEC8           ;BR TO ERROR HALT ON SEQ ERROR
011210  012706  000400              MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011214  012767  011232  166612      MOV     #VDEC8,34       ;SET UP TRAP VECTOR
011222  012767  011244  166554      MOV     #VDEC7,4        ;SET UP OVERFLOW VECTOR
011230  104400                      TRAP                    ;THIS TRAP SHOULD CAUSE OVERFLOW
011232                          VDEC8:
011232  012737  000241  000302      MOV     #241,@#$FATAL   ;MOVE TO MAILBOX #  *******  241  *******
011240  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011242  000000                      HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 761
011244  012767  000036  166562  VDEC7:  MOV     #34+2,34
                                ;*******************************************************************************
                                ;TEST 66        TEST THAT AN TRT CAUSES AN OVERFLOW TRAP
                                ;*******************************************************************************
011252  005237  000304          TST66: INC     @#$TESTN        ;UPDATE TEST NUMBER
011256  022737  000066  000304        CMP     #66,@#$TESTN    ;SEQUENCE ERROR?
011264  001011                      BNE     VDEC10          ;BR TO ERROR HALT ON SEQ ERROR
011266  012706  000400              MOV     #400,%6         ;SET UP STACK TO OVERFLOW
```



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011272  012767  011310  166514      MOV     #VDEC10,14      ;SET UP TRT VECTOR
011300  012767  011322  166476      MOV     #VDEC9,4        ;SET UP OVERFLOW VECTOR
011306  000003                      TRT                     ;THIS TRAP SHOULD CAUSE OVERFLOW
011310                          VDEC10:
011310  012737  000242  000302      MOV     #242,@#$FATAL   ;MOVE TO MAILBOX #  *******  242  *******
011316  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011320  000000                      HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 761
011322  012767  000016  166464  VDEC9:  MOV     #14+2,14
                                ;*******************************************************************************
                                ;TEST 67        TEST THAT AN ILLA CAUSES AN OVERFLOW TRAP
                                ;*******************************************************************************
011330  005237  000304          TST67: INC     @#$TESTN        ;UPDATE TEST NUMBER
011334  022737  000067  000304        CMP     #67,@#$TESTN    ;SEQUENCE ERROR?
011342  001011                      BNE     VDEC11          ;BR TO ERROR HALT ON SEQ ERROR
011344  012706  000400              MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011350  012767  011366  166426      MOV     #VDEC11,4       ;SET UP ILLA VECTOR
011356  012767  011400  166420      MOV     #VDEC12,4       ;SET UP OVERFLOW VECTOR
011364  004700                      ILLA                    ;THIS TRAP SHOULD CAUSE OVERFLOW
011366                          VDEC11:
011366  012737  000243  000302      MOV     #243,@#$FATAL   ;MOVE TO MAILBOX #  *******  243  *******
011374  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011376  000000                      HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 761
011400  012767  000006  166376  VDEC12: MOV     #4+2,4
011406  020627  000370              CMP     %6,#370         ;STACK PUSHED FOUR WORDS?
011412  001405                      BEQ     TST70
011414  012737  000244  000302      MOV     #244,@#$FATAL   ;MOVE TO MAILBOX #  *******  244  *******
011422  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011424  000000                      HALT                    ;TRAP OVERFLOW DID NOT OCCUR
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 746
                                ;*******************************************************************************
                                ;TEST 70        TEST THAT AN ILLB CAUSES AN OVERFLOW TRAP
                                ;*******************************************************************************
011426  005237  000304          TST70: INC     @#$TESTN        ;UPDATE TEST NUMBER
011432  022737  000070  000304        CMP     #70,@#$TESTN    ;SEQUENCE ERROR?
011440  001011                      BNE     VDEC13          ;BR TO ERROR HALT ON SEQ ERROR
011442  012706  000400              MOV     #400,%6         ;SET UP STACK TO OVERFLOW
011446  012767  011464  166330      MOV     #VDEC13,4       ;SET UP ILLB VECTOR
011454  012767  011476  166322      MOV     #VDEC14,4       ;SET UP OVERFLOW VECTOR
011462  000100                      ILLB                    ;THIS TRAP SHOULD CAUSE OVERFLOW
011464                          VDEC13:
011464  012737  000245  000302      MOV     #245,@#$FATAL   ;MOVE TO MAILBOX #  *******  245  *******
011472  005212                      INC     (R2)            ;SET MSGTYP TO FATAL ERROR
011474  000000                      HALT                    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
                                                            ; TO SCOPE REPLACE HALT W/ 240
                                                            ; AND REPLACE NEXT INST W/ 761
011476  012767  000006  166300  VDEC14: MOV     #4+2,4
                                ;*******************************************************************************
                                ;TEST 71        TEST FOR FALSE OVERFLOW TRAP
                                ;*******************************************************************************
011504  005237  000304          TST71: INC     @#$TESTN        ;UPDATE TEST NUMBER
```

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2058  011510  022737  000071  000304          CMP     #71,@#$TESTN    ;SEQUENCE ERROR?
2059  011516  001023                          BNE     FOVER           ;BR TO ERROR HALT ON SEQ ERROR
2060
2061  011520  012767  011566  166256          MOV     #FOVER,4        ;SET UP OVERFLOW POINTER
2062  011526  012706  001002                  MOV     #1002,%6
2063  011532  005746                          TST     -(6)            ;SHOULD NOT OVERFLOW
2064  011534  012706  002002                  MOV     #2002,%6
2065  011540  005746                          TST     -(6)            ;SHOULD NOT OVERFLOW
2066  011542  012706  004002                  MOV     #4002,%6
2067  011546  005746                          TST     -(6)            ;SHOULD NOT OVERFLOW
2068  011550  012706  010002                  MOV     #10002,%6
2069  011554  005746                          TST     -(6)
2070  011556  012706  020000                  MOV     #20000,%6       ;SHOULD NOT OVERFLOW
2071  011562  005746                          TST     -(6)
2072  011564  000405                          BR      STP
2073  011566                          FOVER:
2074  011566  012737  000246  000302          MOV     #246,@#$FATAL   ;MOVE TO MAILBOX #  *******  246  *******
2075  011574  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2076  011576  000000                          HALT                    ;IT OVERFLOWED,OR WRONG $TSTNM
2077                                                                  ; TO SCOPE REPLACE HALT W/ 240
2078                                                                  ; AND REPLACE NEXT INST W/ 747
2079  011600  012767  000006  166176  STP:    MOV     #6,4
2080  011606  005067  166174                  CLR     6
2081                                  ;*****************************************************************************
2082                                  ;TEST 72        TEST THAT BIT 4 PSW WILL CAUSE A TRAP TO 14
2083                                  ;*****************************************************************************
2084  011612  005237  000304          TST72:  INC     @#$TESTN        ;UPDATE TEST NUMBER
2085  011616  022737  000072  000304          CMP     #72,@#$TESTN    ;SEQUENCE ERROR?
2086  011624  001013                          BNE     TST73-12        ;BR TO ERROR HALT ON SEQ ERROR
2087  011626  012706  000500                  MOV     #BUFF,SP
2088  011632  012767  011666  166154          MOV     #RETAT,RTRAP4   ;SET UP TO TRAP TO 14
2089  011640  012746  000020                  MOV     #20,-(SP)       ;PUSH T BIT
2090  011644  012746  011652                  MOV     #.+6,-(SP)      ;PUSH PC
2091  011650  000002                          RTI                     ;SET T BIT
2092  011652  000240                          NOP                     ;TRAP HERE
2093  011654  012737  000247  000302          MOV     #247,@#$FATAL   ;MOVE TO MAILBOX #  *******  247  *******
2094  011662  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2095  011664  000000                          HALT                    ;TRACE BIT DID NOT TRAP!,OR WRONG $TESTN
2096                                                                  ; TO SCOPE REPLACE HALT W/ 240
2097                                                                  ; AND REPLACE NEXT INST W/ 757
2098  011666                          RETAT:
2099                                  ;*****************************************************************************
2100                                  ;TEST 73        TEST  STACK POINTER DECREMENTS
2101                                  ;*****************************************************************************
2102  011666  005237  000304          TST73:  INC     @#$TESTN        ;UPDATE TEST NUMBER
2103  011672  022737  000073  000304          CMP     #73,@#$TESTN    ;SEQUENCE ERROR?
2104  011700  001023                          BNE     TST74-12        ;BR TO ERROR HALT ON SEQ ERROR
2105  011702  012706  000500                  MOV     #BUFF,SP
2106  011706  012767  011742  166100          MOV     #RETBT,RTRAP4
2107  011714  012746  000020                  MOV     #20,-(SP)       ;PUSH T BIT
2108  011720  012746  011726                  MOV     #.+6,-(SP)      ;PUSH PC
2109  011724  000002                          RTI                     ;SET T BIT
2110  011726  000240                          NOP                     ;TRAP HERE
2111  011730  012737  000250  000302          MOV     #250,@#$FATAL   ;MOVE TO MAILBOX #  *******  250  *******
2112  011736  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2113  011740  000000                          HALT                    ;TRACE BIT DID NOT TRAP!
```



```
2114                                                                  ; TO SCOPE REPLACE HALT W/ 240
2115                                                                  ; AND REPLACE NEXT INST W/ 757
2116  011742  020627  000474          RETBT:  CMP     SP,#BUFF-4
2117  011746  001405                          BEQ     TST74
2118  011750  012737  000251  000302          MOV     #251,@#$FATAL   ;MOVE TO MAILBOX #  *******  251  *******
2119  011756  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2120  011760  000000                          HALT                    ;STACK POINTER WAS NOT PUSHED BY TRAP,OR WRONG $TESTN
2121                                                                  ; TO SCOPE REPLACE HALT W/ 240
2122                                                                  ; AND REPLACE NEXT INST W/ 747
2123                                  ;*****************************************************************************
2124                                  ;TEST 74        TEST  FOR PROPER PC ON STACK
2125                                  ;*****************************************************************************
2126  011762  005237  000304          TST74:  INC     @#$TESTN        ;UPDATE TEST NUMBER
2127  011766  022737  000074  000304          CMP     #74,@#$TESTN    ;SEQUENCE ERROR?
2128  011774  001016                          BNE     TST75-12        ;BR TO ERROR HALT ON SEQ ERROR
2129  011776  012706  000500                  MOV     #BUFF,SP
2130  012002  012767  012022  166004          MOV     #RETCT,RTRAP4
2131  012010  012746  000020                  MOV     #20,-(SP)       ;PUSH T BIT
2132  012014  012746  012022                  MOV     #.+6,-(SP)      ;PUSH PC
2133  012020  000002                          RTI                     ;SET T BIT
2134                                                                  ;TRAP HERE
2135  012022  022767  012022  166444  RETCT:  CMP     #.,BUFF-4
2136  012030  001405                          BEQ     TST75
2137  012032  012737  000252  000302          MOV     #252,@#$FATAL   ;MOVE TO MAILBOX #  *******  252  *******
2138  012040  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2139  012042  000000                          HALT                    ;CORRECT PC WAS NOT SAVED ON STACK,OR WRONG $TESTN
2140                                                                  ; TO SCOPE REPLACE HALT W/ 240
2141                                                                  ; AND REPLACE NEXT INST W/ 754
2142
2143
2144                                  ;*****************************************************************************
2145                                  ;TEST 75        TEST  THAT RTT POPS T= BIT
2146                                  ;*****************************************************************************
2147  012044  005237  000304          TST75:  INC     @#$TESTN        ;UPDATE TEST NUMBER
2148  012050  022737  000075  000304          CMP     #75,@#$TESTN    ;SEQUENCE ERROR?
2149  012056  001015                          BNE     TST76-12        ;BR TO ERROR HALT ON SEQ ERROR
2150
2151  012060  012706  000500                  MOV     #BUFF,SP
2152  012064  005001                          CLR     R1              ;CLEAR R1
2153  012066  012746  000020                  MOV     #20,-(SP)
2154  012072  012746  012106                  MOV     #RTT1,-(SP)
2155  012076  012767  012124  165710          MOV     #RTT2,14
2156  012104  000006                          RTT
2157  012106  000240                  RTT1:   NOP
2158  012110  001405                          BEQ     TST76
2159  012112  012737  000253  000302          MOV     #253,@#$FATAL   ;MOVE TO MAILBOX #  *******  253  *******
2160  012120  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2161  012122  000000                          HALT                    ;T-BIT DID NOT TRAP,OR WRONG $TESTN
2162                                                                  ; TO SCOPE REPLACE HALT W/ 240
2163                                                                  ; AND REPLACE NEXT INST W/ 755
2164
2165  012124                          RTT2:
2166                                  ;*****************************************************************************
2167                                  ;TEST 76        TEST  THAT RTT ALLOWS ONE INST, BEFORE TRAP
2168                                  ;*****************************************************************************
2169  012124  005237  000304          TST76:  INC     @#$TESTN        ;UPDATE TEST NUMBER
```

```
 2170  012130  022737  000076  000304          CMP     #76,@#$TESTN    ;SEQUENCE ERROR?
 2171  012136  001031                          BNE     TST77-12        ;BR TO ERROR HALT ON SEQ ERROR
 2172  012140  012705  177777                  MOV     #177777,%5
 2173  012144  012706  000500          RTT5:   MOV     #BUFF,SP
 2174  012150  012746  000020                  MOV     #20,-(SP)
 2175  012154  012746  012172                  MOV     #RTT3,-(SP)
 2176  012160  012767  012212  165626          MOV     #RTT4,14
 2177  012166  005001                          CLR     R1              ;CLEAR R0
 2178  012170  000006                          RTT                     ;SET T-BIT
 2179  012172  005201          RTT3:   INC     R1
 2180  012174  005205                          INC     %5
 2181  012176  001762                          BEQ     RTT5            ;DO THIS TEST NO MORE THAN 2 TIMES
 2182  012200  012737  000254  000302          MOV     #254,@#$FATAL   ;MOVE TO MAILBOX #  *******  254  *******
 2183  012206  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2184  012210  000000                          HALT                    ;DID NOT TRAP
 2185                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2186                                                                  ; AND REPLACE NEXT INST W/ 752
 2187  012212  005301          RTT4:   DEC     R1              ;SEE IF RTT ALLOWS 1 INST,
 2188  012214  001407                          BEQ     RTT6
 2189  012216  005205                          INC     %5              ;DO THIS TEST NO MORE THAN TWO TIMES
 2190  012220  001751                          BEQ     RTT5
 2191  012222  012737  000255  000302          MOV     #255,@#$FATAL   ;MOVE TO MAILBOX #  *******  255  *******
 2192  012230  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2193  012232  000000                          HALT                    ;RTT DID NOT ALLOW 1 INST,,OR WRONG $TESTN
 2194                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2195                                                                  ; AND REPLACE NEXT INST W/ 741
 2196  012234                          RTT6:
 2197                                  ;*************************************************************************************
 2198                                  ;TEST 77        TEST  THAT RTI DOES NOT ALLOW 1 INST,
 2199                                  ;*************************************************************************************
 2200  012234  005237  000304          TST77:  INC     @#$TESTN        ;UPDATE TEST NUMBER
 2201  012240  022737  000077  000304          CMP     #77,@#$TESTN    ;SEQUENCE ERROR?
 2202  012246  001023                          BNE     TST100-12       ;BR TO ERROR HALT ON SEQ ERROR
 2203  012250  012706  000500                  MOV     #BUFF,SP
 2204  012254  012746  000020                  MOV     #20,-(SP)
 2205  012260  012746  012276                  MOV     #RTI1,-(SP)
 2206  012264  012767  012312  165522          MOV     #RTI2,14
 2207  012272  005001                          CLR     R1
 2208  012274  000002                          RTI                     ;SET T-BIT
 2209  012276  005201          RTI1:   INC     R1              ;RTI SHOULD NOT ALLOW THIS
 2210  012300  012737  000256  000302          MOV     #256,@#$FATAL   ;MOVE TO MAILBOX #  *******  256  *******
 2211  012306  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2212  012310  000000                          HALT                    ;T- BIT DID NOT CAUSE TRAP
 2213                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2214                                                                  ; AND REPLACE NEXT INST W/ 756
 2215  012312  005701          RTI2:   TST     R1
 2216                                                                  ;RTI SHOULD NOT ALLOW 1 INST, BEFORE TRAP
 2217  012314  001405                          BEQ     TST100
 2218  012316  012737  000257  000302          MOV     #257,@#$FATAL   ;MOVE TO MAILBOX #  *******  257  *******
 2219  012324  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2220  012326  000000                          HALT                    ;RTI DID ALLOW 1 INST, BEFORE TRAP,OR WRONG $TESTN
 2221                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2222                                                                  ; AND REPLACE NEXT INST W/ 747
 2223
 2224                                  ;*************************************************************************************
 2225                                  ;TEST 100       DOES THE PROCESSOR TRAP WHEN %7 IS ODD?
```



```
 2226                                  ;*************************************************************************************
 2227  012330  005237  000304          TST100: INC     @#$TESTN        ;UPDATE TEST NUMBER
 2228  012334  022737  000100  000304          CMP     #100,@#$TESTN   ;SEQUENCE ERROR?
 2229  012342  001120                          BNE     TST101-12       ;BR TO ERROR HALT ON SEQ ERROR
 2230  012344  012706  000500                  MOV     #BUFF,%6        ;SET UP STACK POINTER
 2231  012350  012767  012374  165426          MOV     #R7TR1,4        ;RETURN FROM TRAP
 2232  012356  012707  000001                  MOV     #1,%7           ;PC EQUALS ONE
 2233  012362  012737  000260  000302          MOV     #260,@#$FATAL   ;MOVE TO MAILBOX #  *******  260  *******
 2234  012370  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2235  012372  000000                          HALT                    ;ODD ADDRESS SHOULD HAVE TRAPPED
 2236                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2237                                                                  ; AND REPLACE NEXT INST W/ 763
 2238  012374  022767  000001  166072  R7TR1: CMP     #1,BUFF-4
 2239  012402  001405                          BEQ     1$
 2240  012404  012737  000261  000302          MOV     #261,@#$FATAL   ;MOVE TO MAILBOX #  *******  261  *******
 2241  012412  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2242  012414  000000                          HALT                    ;CORRECT PC WAS NOT SAVED ON STACK
 2243                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2244                                                                  ; AND REPLACE NEXT INST W/ 752
 2245
 2246  012416  012706  000500          1$:     MOV     #BUFF,%6        ;STACK POINTER
 2247  012422  012767  012444  165354          MOV     #R7TR2,4
 2248  012430  005207                          INC     %7              ;PC BECOMES ODD
 2249  012432                          R7TR2A:
 2250  012432  012737  000262  000302          MOV     #262,@#$FATAL   ;MOVE TO MAILBOX #  *******  262  *******
 2251  012440  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2252  012442  000000                          HALT                    ;
 2253                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2254                                                                  ; AND REPLACE NEXT INST W/ 737
 2255  012444  022767  012433  166022  R7TR2: CMP     #R7TR2A+1,BUFF-4
 2256  012452  001405                          BEQ     1$
 2257  012454  012737  000263  000302          MOV     #263,@#$FATAL   ;MOVE TO MAILBOX #  *******  263  *******
 2258  012462  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2259  012464  000000                          HALT                    ;CORRECT PC NOT ON STACK
 2260                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2261                                                                  ; AND REPLACE NEXT INST W/ 726
 2262  012466  012706  000500          1$:     MOV     #BUFF,%6
 2263  012472  012767  012514  165304          MOV     #R7TR3,4
 2264  012500  005307                  BR60:   DEC     %7              ;MAKE PC ODD
 2265  012502  012737  000264  000302          MOV     #264,@#$FATAL   ;MOVE TO MAILBOX #  *******  264  *******
 2266  012510  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2267  012512  000000                          HALT                    ;SHOULD TRAP
 2268                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2269                                                                  ; AND REPLACE NEXT INST W/ 713
 2270  012514  022767  012501  165752  R7TR3: CMP     #BR60+1,BUFF-4  ;CHECK VALUE OF PC ON STACK
 2271  012522  001405                          BEQ     1$
 2272  012524  012737  000265  000302          MOV     #265,@#$FATAL   ;MOVE TO MAILBOX #  *******  265  *******
 2273  012532  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2274  012534  000000                          HALT                    ;WRONG VALUE ON STACK
 2275                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2276                                                                  ; AND REPLACE NEXT INST W/ 702
 2277
 2278  012536  012706  000500          1$:     MOV     #BUFF,%6
 2279  012542  012767  012566  165234          MOV     #R7TR4,4
 2280  012550  000261                          SEC                     ;CARRY EQUALS A 1
 2281  012552  006107                          ROL     %7              ;PC BECOMES ODD
```

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2282  012554                          TR4A:
2283  012554  012737  000266  000302          MOV     #266,@#$FATAL   ;MOVE TO MAILBOX #  *******  266  *******
2284  012562  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2285  012564  000000                          HALT                    ;ODD ADDRESS DIDN'T TRAP
2286                                                                  ; TO SCOPE REPLACE HALT W/ 240
2287                                                                  ; AND REPLACE NEXT INST W/ 666
2288  012566  012767  000006  165210  R7TR4:  MOV     #6,4            ;RESET UP A HALT FOR TRAP
2289  012574  022767  025331  165672          CMP     #<2*TR4A+1>,BUFF-4 ;CHECK FOR VALUE ON STACK
2290  012602  001405                          BEQ     TST101
2291  012604  012737  000267  000302          MOV     #267,@#$FATAL   ;MOVE TO MAILBOX #  *******  267  *******
2292  012612  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2293  012614  000000                          HALT                    ;WRONG VALUE ON STACK,OR WRONG $TSTNM
2294                                                                  ; TO SCOPE REPLACE HALT W/ 240
2295                                                                  ; AND REPLACE NEXT INST W/ 652
2296                                ;*************************************************************************
2297                                ;TEST 101       TEST TRAP ON TRAP THAT TRACE BIT TRAPS ARE INHIBITED ON TRAP INST
2298                                ;*************************************************************************
2299  012616  005237  000304       TST101: INC     @#$TESTN        ;UPDATE TEST NUMBER
2300  012622  022737  000101  000304          CMP     #101,@#$TESTN   ;SEQUENCE ERROR?
2301  012630  001027                          BNE     BR70            ;BR TO ERROR HALT ON SEQ ERROR
2302
2303  012632  012706  000500                  MOV     #BUFF,%6
2304  012636  012767  012676  165150          MOV     #TRACE,14       ;TRACE TRAP
2305  012644  005027  000016                  CLR     #16
2306  012650  005027  000022                  CLR     #22
2307  012654  012767  012722  165136          MOV     #TONT1,20       ;IOT TRAP
2308  012662  012746  000020                  MOV     #20,-(SP)       ;PUSH T BIT
2309  012666  012746  012674                  MOV     #.+6,-(SP)      ;PUSH PC
2310  012672  000006                          RTT
2311  012674  000004                          IOT                     ;TRAP, NEW CC HAVE TRACE RESET
2312  012676                          TRACE:
2313  012676  012737  000270  000302          MOV     #270,@#$FATAL   ;MOVE TO MAILBOX #  *******  270  *******
2314  012704  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2315  012706  000000                          HALT                    ;TRACE TRAP WAS NOT INHIBITED
2316                                                                  ; TO SCOPE REPLACE HALT W/ 240
2317                                                                  ; AND REPLACE NEXT INST W/ 750
2318  012710                          BR70:
2319  012710  012737  000271  000302          MOV     #271,@#$FATAL   ;MOVE TO MAILBOX #  *******  271  *******
2320  012716  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2321  012720  000000                          HALT                    ;WRONG TSTNM,OR WRONG $TSTNM
2322                                                                  ; TO SCOPE REPLACE HALT W/ 240
2323                                                                  ; AND REPLACE NEXT INST W/ 743
2324  012722  012767  000016  165064  TONT1:  MOV     #16,14
2325  012730  012767  000022  165062          MOV     #22,20
2326                                ;*************************************************************************
2327                                ;TEST 102       TEST THAT THE TRACE BIT IS SAVED IN THE STACK
2328                                ;*************************************************************************
2329  012736  005237  000304       TST102: INC     @#$TESTN        ;UPDATE TEST NUMBER
2330  012742  022737  000102  000304          CMP     #102,@#$TESTN   ;SEQUENCE ERROR?
2331  012750  001020                          BNE     STP3            ;BR TO ERROR HALT ON SEQ ERROR
2332  012752  012706  000500                  MOV     #BUFF,%6        ;SET UP STACK POINTER
2333  012756  012767  013002  165030          MOV     #TRC1,14        ;TRACE TRAP RETURN
2334  012764  005067  165026                  CLR     16
2335  012770  012746  000020                  MOV     #20,-(SP)       ;SET THE T BIT
2336  012774  012746  013002                  MOV     #TRC1,-(SP)
2337  013000  000002                          RTI
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2338  013002  036727  165470  000020  TRC1:   BIT     BUFF-2,#20      ;CHECK FOR T BIT ON STACK
2339  013010  001005                          BNE     STP3D
2340  013012                          STP3:
2341  013012  012737  000272  000302          MOV     #272,@#$FATAL   ;MOVE TO MAILBOX #  *******  272  *******
2342  013020  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2343  013022  000000                          HALT                    ;T BIT NOT SAVED ON THE STACK,OR WRONG $TSTNM
2344                                                                  ; TO SCOPE REPLACE HALT W/ 240
2345                                                                  ; AND REPLACE NEXT INST W/ 752
2346  013024  012767  000016  164762  STP3D:  MOV     #16,14
2347
2348
2349                                ;THIS ROUTINE TEST THAT NO LEGAL ADDRESS TRAPS,
2350                                ;AND THAT AN ILLEGAL ADDRESS TRAPS TO LOCATION 4
2351                                ;*************************************************************************
2352                                ;TEST 103       TEST  NON-EXISTENT ADDRESS TRAPS
2353                                ;*************************************************************************
2354  013032  005237  000304       TST103: INC     @#$TESTN        ;UPDATE TEST NUMBER
2355  013036  022737  000103  000304          CMP     #103,@#$TESTN   ;SEQUENCE ERROR?
2356  013044  001063                          BNE     AUTO1           ;BR TO ERROR HALT ON SEQ ERROR
2357
2358                                ;THIS ROUTINE TESTS MEMORY UNTIL IT DOES A NXM TRAP
2359  013046  000402                          BR      ADALL
2360  013050  000000                  TSL:    0
2361  013052  000000                  CORH:   0
2362  013054  005000                  ADALL:  CLR     %0
2363  013056  005067  164724                  CLR     6
2364  013062  012767  013116  164714          MOV     #ATRAP,4        ;SET UP ADDRESS TRAP ENTRANCE
2365  013070  012706  000500          NOR:    MOV     #BUFF,SP
2366  013074  105720                          TSTB    (0)+            ;IF OUTSIDE OF CORE, TRAP TO 4
2367  013076  020027  160000                  CMP     %0,#160000              ;IS POINTER IN SIDE CORE
2368  013102  101772                          BLOS    NOR             ;TEST THE REST OF CORE
2369  013104                          AUTO1:
2370  013104  012737  000273  000302          MOV     #273,@#$FATAL   ;MOVE TO MAILBOX #  *******  273  *******
2371  013112  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2372  013114  000000                          HALT                    ;SHOULD HAVE TRAPED
2373                                                                  ; TO SCOPE REPLACE HALT W/ 240
2374                                                                  ; AND REPLACE NEXT INST W/ 753
2375                                ;RETURN HERE ON AN ADDRESS TRAP
2376  013116  010067  177730          ATRAP:  MOV     R0,CORH         ;MOVE THE FIRST NXM LOCATION IN CORH
2377                                ;THIS ROUTINE DOES NXM TRAPS UNTIL IT FINDS AN EXISTANT MEMORY LOCATION
2378  013122  012700  160001                  MOV     #160001,R0      ;SET UP THE HIGHEST MEM LOCATION
2379  013126  012767  013164  164650  CTRAP:  MOV     #BTRAP,4        ;SET UP THE VECTOR
2380  013134  012706  000500                  MOV     #BUFF,SP
2381  013140  105740                          TSTB    -(R0)           ;DOES IT EXIST?
2382  013142  005200                  DTRAP:  INC     R0              ;IF YES INCREMENT IT
2383  013144  020067  177702                  CMP     R0,CORH         ;IS IT THE SAME LOCATION?
2384  013150  001426                          BEQ     TRAPB
2385  013152  012737  000274  000302          MOV     #274,@#$FATAL   ;MOVE TO MAILBOX #  *******  274  *******
2386  013160  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2387  013162  000000                          HALT                    ;CONTENTS OF R0 AND CORH SHOULD HAVE BEEN EQUAL
2388                                                                  ; TO SCOPE REPLACE HALT W/ 240
2389                                                                  ; AND REPLACE NEXT INST W/ 730
2390                                                                  ;IF THIS COMPARISON FAILS IT MEANS
2391                                                                  ;THAT SOME LEGAL ADDRESS TRAPPED OR
2392                                                                  ;THAT AN ILLEGAL ADDRESS DID NOT TRAP
2393  013164  005767  164606          BTRAP:  TST     STATUS
```

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2394  013170  001405                          BEQ     1$
2395  013172  012737  000275  000302          MOV     #275,@#$FATAL   ;MOVE TO MAILBOX #  *******  275  *******
2396  013200  005212                          INC     (P2)            ;SET MSGTYP TO FATAL ERROR
2397  013202  000000                          HALT                    ;NEW PSW SHOULD HAVE BEEN ZERO
2398                                                                  ; TO SCOPE REPLACE HALT W/ 240
2399                                                                  ; AND REPLACE NEXT INST W/ 720
2400  013204  026727  165264  013142  1$:     CMP     BUFF=4,#DTRAP
2401  013212  001745                          BEQ     CTRAP
2402  013214                                  AUTO1:
2403  013214  012737  000276  000302          MOV     #276,@#$FATAL   ;MOVE TO MAILBOX #  *******  276  *******
2404  013222  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2405  013224  000000                          HALT                    ;OLD PC WAS NOT SAVED OR WRONG $TESTN
2406                                                                  ; TO SCOPE REPLACE HALT W/ 240
2407                                                                  ; AND REPLACE NEXT INST W/ 707
2408  013226  012767  000006  164550  TRAPB:  MOV     #6,4
2409  013234  005067  164546                  CLR     6
2410                                  ;THIS ROUTINE WILL FIGURE OUT IF YOU HAVE A DL11W
2411
2412  013240  005067  000020                  CLR     PROFTE
2413  013244  012706  000500                  MOV     #BUFF,SP        ;SET UP THE STACK POINTER
2414  013250  012767  013266  164526          MOV     #DL11W,4        ;SET UP THE TRAP VECTOR
2415  013256  005767  164302                  TST     TPS             ;TEST THE PUNCH STATUS REGISTER
2416  013262  000403                          BR      DL11W1          ;BRANCH IF IT EXISTS
2417  013264  000000                  PROFTE: 000000
2418  013266  005267  177772          DL11W:  INC     PROFTE          ;INCREMENT IF NO DL11W
2419  013272  012767  000006  164504  DL11W1: MOV     #6,4
2420
2421                                  ;******************************************************************************
2422                                  ;TEST 104       TEST THAT A TTY INTERRUPT CAUSES AN OVERFLOW TRAP
2423                                  ;******************************************************************************
2424  013300  005237  000304          TST104: INC     @#$TESTN        ;UPDATE TEST NUMBER
2425  013304  022737  000104  000304          CMP     #104,@#$TESTN   ;SEQUENCE ERROR?
2426  013312  001031                          BNE     TDEC8           ;BR TO ERROR HALT ON SEQ ERROR
2427  013314  005767  177744                  TST     PROFTE
2428  013320  001042                          BNE     R7TRX
2429  013322  000005                          RESET
2430  013324  012767  000340  164444          MOV     #340,STATUS     ;LOCK OUT INTERRUPT
2431  013332  012706  000400                  MOV     #400,%6         ;SET UP STACK TO OVERFLOW
2432  013336  012767  013410  164440          MOV     #TDEC77,4       ;SET UP OVERFLOW TRAP
2433  013344  012767  013376  164512          MOV     #TDEC8,64       ;SET UP INTERRUPT VECTOR
2434  013352  012767  000100  164204          MOV     #100,TTCSR      ;SET INTERRUPT ENABLE
2435  013360  005067  164412                  CLR     STATUS          ;ALLOW INTERRUPT TO OCCUR
2436  013364  012737  000277  000302          MOV     #277,@#$FATAL   ;MOVE TO MAILBOX #  *******  277  *******
2437  013372  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2438  013374  000000                          HALT                    ;NO INTERRUPT OCCURRED
2439                                                                  ; TO SCOPE REPLACE HALT W/ 240
2440                                                                  ; AND REPLACE NEXT INST W/ 746
2441  013376                          TDEC8:
2442  013376  012737  000300  000302          MOV     #300,@#$FATAL   ;MOVE TO MAILBOX #  *******  300  *******
2443  013404  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2444  013406  000000                          HALT                    ;OVERFLOW TRAP DID NOT OCCUR OR WRONG $TSTNM
2445                                                                  ; TO SCOPE REPLACE HALT W/ 240
2446                                                                  ; AND REPLACE NEXT INST W/ 741
2447  013410  005067  164150          TDEC77: CLR     TTCSR           ;CLEAR INTERRUPT ENABLE
2448  013414  012767  000006  164362          MOV     #6,4
2449  013422  005067  164360                  CLR     6
```



```
2450  013426                          R7TRX:
2451                                  ;******************************************************************************
2452                                  ;TEST 105       TEST THAT A PENDING INTERRUPT OCCURS BEFORE TRAP
2453                                  ;******************************************************************************
2454  013426  005237  000304          TST105: INC     @#$TESTN        ;UPDATE TEST NUMBER
2455  013432  022737  000105  000304          CMP     #105,@#$TESTN   ;SEQUENCE ERROR?
2456  013440  001037                          BNE     BR71            ;BR TO ERROR HALT ON SEQ ERROR
2457  013442  005767  177616                  TST     PROFTE
2458  013446  001046                          BNE     NODL
2459  013450  012706  000500                  MOV     #BUFF,%6
2460  013454  012767  000340  164314          MOV     #340,STATUS     ;SET TO A HIGH PRIORITY LEVEL
2461  013462  012767  013526  164374          MOV     #TR0,64
2462  013470  012767  000100  164066          MOV     #100,TTCSR      ;INTERRUPT FOR TTY PUNCH/PRINTER
2463  013476  012767  013540  164330          MOV     #BR71,34        ;TRAP VECTOR
2464  013504  012767  013552  164352          MOV     #TR2,64         ;TTY VECTOR
2465  013512  012767  000340  164316          MOV     #340,36         ;IF TRAP TRAPS, MOVE 340 TO PRIORITY
2466  013520  005067  164252                  CLR     STATUS          ;SHOULD INTERRUPT AT END OF CLR INST
2467  013524  104400                          TRAP                    ;TTY INTERRUPT SHOULD OVERRIDE TRAP
2468  013526                          TR0:
2469  013526  012737  000301  000302          MOV     #301,@#$FATAL   ;MOVE TO MAILBOX #  *******  301  *******
2470  013534  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2471  013536  000000                          HALT                    ;TTY SHOULDN'T HAVE INTERRUPTED
2472                                                                  ; TO SCOPE REPLACE HALT W/ 240
2473                                                                  ; AND REPLACE NEXT INST W/ 740
2474  013540                          BR71:
2475  013540  012737  000302  000302          MOV     #302,@#$FATAL   ;MOVE TO MAILBOX #  *******  302  *******
2476  013546  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2477  013550  000000                          HALT                    ;TRAP OCCURRED FIRST,OR WRONG $TSTNM
2478                                                                  ; TO SCOPE REPLACE HALT W/ 240
2479                                                                  ; AND REPLACE NEXT INST W/ 733
2480  013552  005067  164260          TR2:    CLR     36
2481  013556  042767  000100  164000          BIC     #100,TTCSR
2482  013564                          NODL:
2483                                  ;******************************************************************************
2484                                  ;TEST 106       TEST THAT A PENDING INTERRUPT, INTERRUPTS BETWEEN TRAPS
2485                                  ;******************************************************************************
2486  013564  005237  000304          TST106: INC     @#$TESTN        ;UPDATE TEST NUMBER
2487  013570  022737  000106  000304          CMP     #106,@#$TESTN   ;SEQUENCE ERROR?
2488  013576  001031                          BNE     TR5             ;BR TO ERROR HALT ON SEQ ERROR
2489  013600  005767  177460                  TST     PROFTE
2490  013604  001046                          BNE     NODL1
2491  013606  012706  000500                  MOV     #BUFF,%6
2492  013612  012767  000340  164156          MOV     #340,STATUS
2493  013620  012767  000100  163736          MOV     #100,TTCSR
2494  013626  012767  013660  164200          MOV     #TR3,34         ;TRAP
2495  013634  012767  013674  164222          MOV     #TR4,64         ;TTY OUTPUT
2496  013642  012767  013662  164150          MOV     #TR5,20         ;IOT
2497  013650  012767  000340  164144          MOV     #340,22         ;IOT PRIORITY
2498  013656  104400                          TRAP                    ;THE ACT OF TRAPPING LOWER PRIORITY
2499  013660  000004                  TR3:    IOT                     ;INTERRUPT SHOULD OCCUR IN PLACE OF IOT TRAP
2500  013662                          TR5:
2501  013662  012737  000303  000302          MOV     #303,@#$FATAL   ;MOVE TO MAILBOX #  *******  303  *******
2502  013670  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2503  013672  000000                          HALT                    ;NO INTERRUPT BETWEEN TRAPS,OR WRONG $TSTNM
2504                                                                  ; TO SCOPE REPLACE HALT W/ 240
2505                                                                  ; AND REPLACE NEXT INST W/ 741
```

```
 2506  013674  005067  164122          TR4:    CLR     22              ;CLR IOT PRIORITY
 2507  013700  012767  000036  164126          MOV     #36,34
 2508  013706  012767  000066  164150          MOV     #66,64
 2509  013714  012767  000022  164076          MOV     #22,20
 2510  013722                          NODL1:
 2511
 2512                                  ;*************************************************************************
 2513                                  ;TEST 107       TEST THAT "RESET" GOES TO OUTSIDE WORLD
 2514                                  ;*************************************************************************
 2515  013722  005237  000304          TST107: INC     @#$TESTN        ;UPDATE TEST NUMBER
 2516  013726  022737  000107  000304          CMP     #107,@#$TESTN   ;SEQUENCE ERROR?
 2517  013734  001027                          BNE     TST110-12       ;BR TO ERROR HALT ON SEQ ERROR
 2518  013736  005767  177322                  TST     PROFTE
 2519  013742  001031                          BNE     NODL2
 2520  013744  012767  000100  163612          MOV     #100,TTCSR      ;SET INTERRUPT ENABLE
 2521  013752  012767  000100  163600          MOV     #100,TRCSR      ;SET INTERRUPT ENABLE
 2522  013760  000005                          RESET                   ;SHOULD CLEAR INTERRUPT ENABLE
 2523  013762  032767  000100  163574          BIT     #100,TTCSR      ;TEST FOR CLEAR
 2524  013770  001405                          BEQ     1$
 2525  013772  012737  000304  000302          MOV     #304,@#$FATAL   ;MOVE TO MAILBOX #  *******  304  *******
 2526  014000  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2527  014002  000000                          HALT                    ;RESET FAILED TO CLEAR TTCSR
 2528                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2529                                                                  ; AND REPLACE NEXT INST W/ 754
 2530  014004  032767  000100  163546  1$:     BIT     #100,TRCSR      ;TEST FOR CLEAR
 2531  014012  001405                          BEQ     TST110
 2532  014014  012737  000305  000302          MOV     #305,@#$FATAL   ;MOVE TO MAILBOX #  *******  305  *******
 2533  014022  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2534  014024  000000                          HALT                    ;RESET FAILED TO CLEAR TRCSR,OR WRONG $TSTNM
 2535                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2536                                                                  ; AND REPLACE NEXT INST W/ 743
 2537  014026                          NODL2:
 2538                                  ;*************************************************************************
 2539                                  ;TEST 110       TEST THAT RESET HAS NO EFFECT ON THE TRACE TRAP
 2540                                  ;*************************************************************************
 2541  014026  005237  000304          TST110: INC     @#$TESTN        ;UPDATE TEST NUMBER
 2542  014032  022737  000110  000304          CMP     #110,@#$TESTN   ;SEQUENCE ERROR?
 2543  014040  001014                          BNE     RESET3          ;BR TO ERROR HALT ON SEQ ERROR
 2544  014042  012706  000500                  MOV     #BUFF,%6        ;SET STACK
 2545  014046  012767  014104  163740          MOV     #RESET2,14      ;SET UP TRACE VECTOR
 2546  014054  012746  000020                  MOV     #20,-(R6)       ;SET THE T-BIT ON STACK
 2547  014060  012746  014066                  MOV     #1$,-(R6)       ;MOVE NEW PC ON STACK
 2548  014064  000006                          RTT
 2549  014066  000005                  1$:     RESET                   ;SHOULD HAVE NO EFFECT
 2550  014070  000005                          RESET                   ;NO EFFECT
 2551  014072                          RESET3:
 2552  014072  012737  000306  000302          MOV     #306,@#$FATAL   ;MOVE TO MAILBOX #  *******  306  *******
 2553  014100  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2554  014102  000000                          HALT                    ;TRACE TRAP FAILED,OR WRONG $TSTNM
 2555                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2556                                                                  ; AND REPLACE NEXT INST W/ 756
 2557  014104  005067  163666          RESET2: CLR     STATUS          ;CLEAR TRACK
 2558  014110  005067  163702                  CLR     16              ;TRACE STATUS
 2559  014114  012767  000016  163672          MOV     #16,14
 2560
 2561                                  ;*************************************************************************
```



```
 2562                                  ;TEST 111       TEST THAT WHEN TTY INTERRUPTS IT POPS NEW STATUS
 2563                                  ;*************************************************************************
 2564  014122  005237  000304          TST111: INC     @#$TESTN        ;UPDATE TEST NUMBER
 2565  014126  022737  000111  000304          CMP     #111,@#$TESTN   ;SEQUENCE ERROR?
 2566  014134  001051                          BNE     TTY11           ;BR TO ERROR HALT ON SEQ ERROR
 2567  014136  005767  177122                  TST     PROFTE
 2568  014142  001055                          BNE     NODL3
 2569  014144  000005                          RESET
 2570  014146  012706  000500                  MOV     #BUFF,%6        ;SET UP STACK
 2571  014152  012767  014176  163704          MOV     #TTY3,64        ;INTERRUPT VECTOR
 2572  014160  005067  163612                  CLR     STATUS          ;DROP PROCESSOR PRIORITY
 2573  014164  012767  000357  163674          MOV     #357,66         ;HIGH PRIORITY ON INTERRUPT
 2574  014172  005167  163366                  COM     TTCSR           ;SHOULD SET INTERRUPT ENABLE & INTERRUPT
 2575  014176  026727  163574  000357  TTY3:   CMP     STATUS,#357
 2576  014204  001405                          BEQ     1$
 2577  014206  012737  000307  000302          MOV     #307,@#$FATAL   ;MOVE TO MAILBOX #  *******  307  *******
 2578  014214  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2579  014216  000000                          HALT                    ;INTERRUPT DID NOT POP CORRECT STATUS
 2580                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2581                                                                  ; AND REPLACE NEXT INST W/ 746
 2582  014220  000005                  1$:     RESET                   ;CLR NTERRUPT ENABLE
 2583  014222  012706  000500                  MOV     #BUFF,%6        ;STACK SET UP
 2584  014226  012767  014252  163630          MOV     #TTY4,64        ;INTERRUPT VECTOR
 2585  014234  005067  163626                  CLR     66              ;CLR NEW STATUS
 2586  014240  012767  000157  163530          MOV     #157,STATUS     ;PROCESSOR STATUS
 2587  014246  005167  163312                  COM     TTCSR           ;SET INTERRUPT ENABLE
 2588  014252  005767  163520          TTY4:   TST     STATUS
 2589  014256  001405                          BEQ     TTT37
 2590  014260                          TTY11:
 2591  014260  012737  000310  000302          MOV     #310,@#$FATAL   ;MOVE TO MAILBOX #  *******  310  *******
 2592  014266  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
 2593  014270  000000                          HALT                    ;INCORRECT STATUS,OR WRONG $TSTNM
 2594                                                                  ; TO SCOPE REPLACE HALT W/ 240
 2595                                                                  ; AND REPLACE NEXT INST W/ 721
 2596  014272  005067  163266          TTT37:  CLR     TTCSR
 2597  014276                          NODL3:
 2598
 2599                                  ;*************************************************************************
 2600                                  ;TEST 112       TEST THE 'WAIT' INSTRUCTION
 2601                                  ;*************************************************************************
 2602  014276  005237  000304          TST112: INC     @#$TESTN        ;UPDATE TEST NUMBER
 2603  014302  022737  000112  000304          CMP     #112,@#$TESTN   ;SEQUENCE ERROR?
 2604  014310  001055                          BNE     STP4            ;BR TO ERROR HALT ON SEQ ERROR
 2605  014312  042767  000100  163244          BIC     #100,TPS        ;CLEAR INTERRUPT ENABLE
 2606  014320  012706  000500                  MOV     #BUFF,SP        ;SET UP THE STACK
 2607  014324  012767  014414  163532          MOV     #WATE,64        ;SET UP THE INTERRUPT VECTOR
 2608  014332  005067  163530                  CLR     66
 2609  014336  105767  163222          WATE1:  TSTB    TPS             ;WAIT FOR READY
 2610  014342  100375                          BPL     WATE1           ;TO BE UP
 2611  014344  012767  000015  163214          MOV     #15,TPB         ;DO A CARRIAGE RETURN
 2612  014352  105767  163206          WATE2:  TSTB    TPS             ;WAIT FOR READY TO COME UP
 2613  014356  100375                          BPL     WATE2
 2614  014360  012767  000015  163200          MOV     #15,TPB         ;DO ANOTHER CARRIAGE RETURN
 2615  014366  052767  000100  163170          BIS     #100,TPS        ;SET THE INTERRUPT ENABLE
 2616  014374  005067  163376                  CLR     STATUS          ;CLEAR THE PSW
 2617  014400  000001          WATE3:  WAIT                    ;WAIT FOR THE INTERRUPT
```

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2618  014402  012737  000311  000302          MOV     #311,@#$FATAL   ;MOVE TO MAILBOX #  *******  311  *******
2619  014410  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2620  014412  000000                          HALT                    ;WAIT INSTRUCTION DID NOT LOOP
2621                                                                  ; TO SCOPE REPLACE HALT W/ 240
2622                                                                  ; AND REPLACE NEXT INST W/ 736
2623  014414  005767  163356          WATE:   TST     STATUS  ;IS THE PSW CORRECT?
2624  014420  001405                          BEQ     1$
2625  014422  012737  000312  000302          MOV     #312,@#$FATAL   ;MOVE TO MAILBOX #  *******  312  *******
2626  014430  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2627  014432  000000                          HALT                    ;NEW PSW SHOULD HAVE BEEN ZERO
2628                                                                  ; TO SCOPE REPLACE HALT W/ 240
2629                                                                  ; AND REPLACE NEXT INST W/ 726
2630  014434  026727  164034  014402  1$:     CMP     BUFF-4,#WATE3+2 ;IS THE OLD PC SAVED
2631  014442  001405                          BEQ     STP4E
2632  014444                          STP4:
2633  014444  012737  000313  000302          MOV     #313,@#$FATAL   ;MOVE TO MAILBOX #  *******  313  *******
2634  014452  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2635  014454  000000                          HALT                    ;OLD PC WAS NOT SAVED OR WRONG $TESTN
2636                                                                  ; TO SCOPE REPLACE HALT W/ 240
2637                                                                  ; AND REPLACE NEXT INST W/ 715
2638  014456  012767  000066  163400  STP4E:  MOV     #66,64
2639
2640  014464  004767  001424                  JSR     %7,CLRALL               ;CLEAR ALL KT11-D REGISTERS
2641  014470  012777  077406  164060          MOV     #77406,@KPDR0           ;MAP KERNEL 0 TO BANK 0, RW, 4K
2642  014476  004767  001500                  JSR     PC,KERN7                ;MAP KERNEL PAR/PDR 7 TO EXT BANK
2643  014502  012777  014536  164002          MOV     #INT25,@KTVEC           ;SETUP RETURN VECTOR
2644  014510  005077  164000                  CLR     @KTSTA
2645  014514  012704  020000                  MOV     #20000,R4               ;USE R4 TO REFERENCE NR KERNEL 1
2646  014520  005277  163756                  INC     @SR0                    ;TURN ON KT11-D
2647  014524  005724                  ADR25:  TST     (R4)+                   ;REFERENCE NR KERNEL 1
2648  014526  000000                  ADR25A: HALT                            ;SHOULD HAVE ABORTED ALREADY
2649  014530  005077  163746                  CLR     @SR0                    ;TURN OFF KT11-D
2650  014534  000442                          BR      DON25
2651  014536  017701  163740          INT25:  MOV     @SR0,R1                 ;SAVE CONTENTS OF SR0
2652  014542  005377  163734                  DEC     @SR0                    ;TURN OFF KT11-D
2653  014546  022701  100003                  CMP     #100003,R1              ;CHECK SAVED CONTENTS OF SR0
2654  014552  001401                          BEQ     .+4
2655  014554  000000                          HLT                             ;SR0 INCORRECT AFTER NR ABORT
2656                                                                          ;(SEE SAVED CONTENTS IN R1)
2657  014556  022777  014524  163724          CMP     #ADR25,@SR2             ;CK SR2
2658  014564  001401                          BEQ     .+4
2659  014566  000000                          HLT                             ;SR2 INCORRECT=SHOULD CONTAIN ADDRESS
2660                                                                          ;OF LAST FETCH BEFORE THE ABORT
2661  014570  005077  163714                  CLR     @SR2                    ;TRY TO WRITE INTO SR2
2662  014574  022777  014524  163706          CMP     #ADR25,@SR2             ;SR2 SHOULD BE READ ONLY
2663  014602  001401                          BEQ     .+4
2664  014604  000000                          HLT                             ;SR2 NOT READ ONLY
2665  014606  022777  077506  163742          CMP     #77506,@KPDR0
2666  014614  001401                          BEQ     .+4
2667  014616  000000                          HLT                             ;KERNEL PDR 0 INCORRECT
2668                                                                          ;W BIT SHOULD HAVE BEEN SET BY THE STACK WRITE
2669  014620  005777  163734                  TST     @KPDR1
2670  014624  001401                          BEQ     .+4
2671  014626  000000                          HLT                             ;KERNEL PDR 1 INCORRECT
2672  014630  021627  014526                  CMP     (R6),#ADR25A            ;CHECK VALUE PUSHED ON STACK
2673  014634  001401                          BEQ     .+4
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2674  014636  000000                          HLT                             ;INCORRECT VALUE ON STACK
2675  014640  022626                          CMP     (R6)+,(R6)+             ;RESTORE STACK
2676  014642  005077  163646          DON25:  CLR     @KTSTA                  ;CHANGE TRAP VECTOR TO CAUSE A
2677  014646  016777  163642  163636          MOV     KTSTA,@KTVEC            ;HALT ON A FALSE TRAP
2678
2679
2680
2681  014654  004767  001260                  JSR     %7,RWALL                ;MAP ALL PAGES RW,4K,BANK 0
2682  014660  012777  000004  163672          MOV     #4,@KPDR1               ;MAP KERNEL 1 NR, 1 PAGE
2683  014666  004767  001310                  JSR     PC,KERN7                ;MAP KERNEL PAR/PDR 7 TO EXT BANK
2684  014672  012777  014716  163612          MOV     #RET33,@KTVEC           ;SETUP ABORT RETURN
2685  014700  005077  163610                  CLR     @KTSTA
2686  014704  005277  163572                  INC     @SR0                    ;TURN ON KT11-D
2687  014710  005737  030000                  TST     @#30000                 ;REFERENCE NR KERNEL 1 - SHOULD ABORT
2688  014714  000000                          HALT                            ;NO NR ABORT
2689  014716  022777  140003  163556  RET33:  CMP     #140003,@SR0            ;CHECK SR0
2690  014724  001401                          BEQ     .+4
2691  014726  000000                          HLT                             ;SR0 INCORRECT - SHOULD SHOW KERNEL
2692                                                                          ;PAGE 1, AND BOTH NR + PL ERRORS SET
2693  014730  005077  163546                  CLR     @SR0
2694  014734  016777  163554  163550          MOV     KTSTA,@KTVEC            ;RESTORE TRAP CATCHER
2695
2696
2697  014742  004767  001146                  JSR     %7,CLRALL               ;CLEAR ALL KT11-D REGISTERS
2698  014746  004767  001230                  JSR     PC,KERN7                ;MAP KERNEL PAR/PDR 7 TO EXT BANK
2699  014752  012777  077406  163576          MOV     #77406,@KPDR0           ;MAP KERNEL 0 RW,RK,BANK0
2700  014760  012777  077402  163572          MOV     #77402,@KPDR1           ;MAP KERNEL 1 NAM,KSZ K,BANK0
2701  014766  012777  015022  163516          MOV     #INT40,@KTVEC           ;SETUP RETURN VECTOR
2702  014774  005077  163514                  CLR     @KTSTA
2703  015000  005277  163476                  INC     @SR0                    ;TURN ON KT11-D
2704  015004  013737  037776  037776  ADR40:  MOV     @#37776,@#37776         ;REFERENCE KERNEL 1 - 1ST ABORT
2705  015012  005077  163464                  CLR     @SR0                    ;TURN OFF KT11-D
2706  015016  000000                          HLT                             ;REFERENCE TO KERNEL 1
2707  015020  000510                          BR      DONE40                  ;DIDN'T ABORT
2708  015022  042777  000001  163452  INT40:  BIC     #1,@SR0                 ;TURN OFF KT11-D
2709  015030  022777  020002  163444          CMP     #20002,@SR0             ;CHECK SR0
2710  015036  001401                          BEQ     .+4
2711  015040  000000                          HLT                             ;SR0 INCORRECT AFTER NAM ABORT
2712  015042  012777  015076  163442          MOV     #INT40A,@KTVEC          ;SETUP NEW RETURN VECTOR
2713  015050  022626                          CMP     (R6)+,(R6)+             ;RESTORE STACK POINTER
2714  015052  012702  037776                  MOV     #37776,R2               ;SETUP R2 TO REFERENCE KERNEL 1
2715  015056  052777  000001  163416          BIS     #1,@SR0                 ;TURN ON KT11-D
2716  015064  012242                          MOV     (R2)+,-(R2)             ;REFERENCE KERNEL 1 -2ND ABORT
2717  015066  005077  163410  ADR40A: CLR     @SR0            ;TURN OFF KT11-D
2718  015072  000000                          HLT                             ;2ND REFERENCE TO KERNEL 1
2719  015074  000462                          BR      DONE40                  ;DIDN'T ABORT
2720  015076  042777  000001  163376  INT40A: BIC     #1,@SR0         ;TURN OFF KT11-D
2721  015104  022777  020002  163370          CMP     #20002,@SR0             ;CHECK SR0
2722  015112  001401                          BEQ     .+4
2723  015114  000000                          HLT                             ;SR0 INCORRECT AFTER 2ND NAM ABORT
2724  015116  022777  015004  163364          CMP     #ADR40,@SR2             ;CHECK SR2
2725  015124  001401                          BEQ     .+4
2726  015126  000000                          HLT                             ;SR2 DOESN'T CONTAIN VALUE FROM 1ST ABORT
2727  015130  021627  015066                  CMP     (R6),#ADR40A            ;CHECK ADDRESS PUSHED ON STACK
2728  015134  001401                          BEQ     .+4
2729  015136  000000                          HLT                             ;INCORRECT ADDRESS ON STACK
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2730  015140  022626                          CMP     (R6)+,(R6)+             ;RESTORE STACK POINTER
2731  015142  012777  015176  163342          MOV     #INT40B,@KTVEC          ;CHANGE RETURN ADDRESS
2732  015150  005077  163326                  CLR     @SR0                    ;CLEAR NAM ERROR BIT-SHOULD
2733                                                                            ;"UNLOCK" ERROR TRACKING
2734  015154  012702  037776                  MOV     #37776,R2               ;SETUP R2 TO REFERENCE KERNEL 1
2735  015160  005277  163316                  INC     @SR0                    ;TURN ON KT11-D
2736  015164  012242                  ADR40B: MOV     (R2)+,-(R2)     ;3RD NAM REFERENCE, ERROR BIT WAS CLEARED
2737  015166  005077  163310          ADR40C: CLR     @SR0            ;TURN OFF KT11-D
2738  015172  000000                          HLT                             ;3RD REFERENCE TO KERNEL 1
2739  015174  000422                          BR      DONE40                  ;DIDN'T ABORT
2740  015176  042777  000001  163276  INT40B: BIC     #1,@SR0         ;TURN OFF KT11-D
2741  015204  022777  020002  163270          CMP     #20002,@SR0             ;CHECK SR0
2742  015212  001401                          BEQ     .+4
2743  015214  000000                          HLT                             ;SR0 INCORRECT
2744  015216  022777  015164  163264          CMP     #ADR40B,@SR2            ;CHECK SR2
2745  015224  001401                          BEQ     .+4
2746  015226  000000                          HLT                             ;SR2 INCORRECT - SHOULD CONTAIN
2747                                                                            ;LAST FETCH ADDRESS BEFORE ABORT
2748  015230  022716  015166                  CMP     #ADR40C,(SP)            ;CHECK STACK
2749  015234  001401                          BEQ     .+4
2750  015236  000000                          HLT                             ;PC ON STACK INCORRECT
2751  015240  022626                          CMP     (R6)+,(R6)+             ;RESTORE STACK POINTER
2752  015242  005077  163234          DONE40: CLR     @SR0                    ;CLEAR ERROR BIT
2753  015246  005077  163242                  CLR     @KTSTA                  ;CHANGE TRAP RETURN TO CAUSE A HALT
2754  015252  016777  163236  163232          MOV     KTSTA,@KTVEC            ;ON A FALSE INTERRUPT
2755
2756                                  ;*****************************************************************************
2757                                  ;TEST 113       TEST THAT ALL RESERVED INSTRUCTIONS TRAP
2758                                  ;*****************************************************************************
2759  015260  005237  000304          TST113: INC     @#$TESTN        ;UPDATE TEST NUMBER
2760  015264  022737  000113  000304          CMP     #113,@#$TESTN   ;SEQUENCE ERROR?
2761  015272  001156                          BNE     RET4            ;BR TO ERROR HALT ON SEQ ERROR
2762  015274  042767  000100  162262          BIC     #100,TPS
2763  015302  012737  015330  000244          MOV     #TRAP244,@#244  ; SET UP TO SEE IF
2764  015310  013767  000010  000024          MOV     @#10,TENSAVE    ;  THIS PROCESSOR HAS THE
2765  015316  012737  015340  000010          MOV     #TRAP10,@#10    ;  FLOATING POINT OPTION
2766  015324  170007                          .WORD   170007          ; AN ILLEGAL FPP INSTRUCTION
2767  015326  000406                          BR      AROUND          ; THE FOLLOWING
2768  015330                          TRAP244:                        ; IF FPP IN--
2769  015330  013767  015674  000342          MOV     @#FPP,FINISH    ;  RESET END OF TABLE POINTER
2770  015336  000002                          RTI                     ; AND RETURN
2771  015340                          TRAP10:                         ; LEAVE THE TABLE ALONE
2772  015340  000002                          RTI                     ; AND RETURN
2773  015342  000000                  TENSAVE:.WORD   0               ; A PLACE TO STORE CONTENTS OF 10
2774
2775  015344                          AROUND:                         ;  CONTINUATION POINT
2776  015344  012737  000246  000244          MOV     #246,@#244      ;  RESTORE THE TRAP VECTOR
2777  015352  016737  177764  000010          MOV     TENSAVE,@#10    ; RESTORE THE ILLEGAL INST, VECTOR
2778  015360  012703  015654                  MOV     #TABLE,TAB      ;TABLE POINTER
2779  015364  012305                  GIN1:   MOV     (TAB)+,FIRST    ;FIRST OR CURRENT INSTRUCTION
2780  015366  012301                          MOV     (TAB)+,LAST     ;LAST INSTRUCTION OR GROUP
2781  015370  020567  000304                  CMP     FIRST,FINISH    ;TESTED ALL
2782  015374  001415                          BEQ     GIN3            ;YES BRANCH
2783  015376  010567  000300                  MOV     FIRST,INST      ;SET UP INST
2784  015402  005267  000274          GIN2:   INC     INST
2785  015406  012767  015560  162374          MOV     #RET,10         ;SET UP RETURN FROM TRAP
```



```
2786  015414  012706  000500                  MOV     #BUFF,SP        ;SET UP STACK POINTER
2787  015420  005067  162352                  CLR     CC              ;CLEAR PRIORITY
2788  015424  000167  000252                  JMP     INST            ;EXECUTE RESERVED INSTRUCTION
2789  015430  005237  000306          GIN3:   INC     @#$PASS
2790  015434  105267  000116                  INCB    PASSPT          ;SHOULD PRINT THIS PASS?
2791  015440  001027                          BNE     ACT             ;NO
2792  015442  132767  000040  162651          BITB    #40,$ENVM       ;WILL APT ALLOW PRINTING?
2793  015450  001023                          BNE     ACT             ;NO
2794  015452  023727  000042  015530          CMP     @#42,@#$ENDAD
2795  015460  001417                          BEQ     ACT
2796  015462  012700  016000                  MOV     #MSG,R0         ;GET MSG ADDR,
2797  015466  105737  177564          WAIT:   TSTB    @#TPS           ;TTY READY
2798  015472  100375                          BPL     WAIT            ;NO WAIT
2799  015474  112037  177566                  MOVB    (R0)+,@#TPB     ;PRINT CHARACTER
2800  015500  001372                          BNE     WAIT            ;NEXT IF NOT DONE,
2801  015502  105737  177564          WAIT1:  TSTB    @#TPS
2802  015506  100375                          BPL     WAIT1
2803  015510  000005                          RESET
2804  015512  012767  177761  000036          MOV     #177761,PASSPT  ;DO IT ABOUT 15 DECIMAL TIMES
2805  015520  013700  000042          ACT:    MOV     @#42,R0         ;CHECK ACT
2806  015524  001405                          BEQ     GOAGIN          ;KEEP GOING
2807  015526  000005                          RESET
2808  015530  004710                  $ENDAD: JSR     PC,(R0)         ;ACT HOOKS
2809  015532  000240                          NOP
2810  015534  000240                          NOP
2811  015536  000240                          NOP
2812  015540  012767  000012  162242  GOAGIN: MOV     #12,10
2813  015546  005067  162240                  CLR     12
2814  015552  000167  163076                  JMP     RESTRT          ;DO NEXT PASS
2815  015556  177777                  PASSPT: -1
2816
2817                                  ;TRAPPING SHOULD SEND YOU HERE
2818  015560  020627  000474          RET:    CMP     SP,#BUFF-4      ;TEST DECREMENT OF SP
2819  015564  001405                          BEQ     RET1
2820  015566  012737  000314  000302          MOV     #314,@#$FATAL   ;MOVE TO MAILBOX #  *******  314  *******
2821  015574  005212                          INC     (P2)            ;SET MSGTYP TO FATAL ERROR
2822  015576  000000                          HALT                    ;WRONG DECREMENT
2823                                                                  ; TO SCOPE REPLACE HALT W/ 240
2824                                                                  ; AND REPLACE NEXT INST W/ 635
2825  015600  026727  162670  015704  RET1:   CMP     BUFF-4,#INST+2  ;LOC OF INST UNINCREMENTED
2826  015606  001405                          BEQ     RET2
2827  015610  012737  000315  000302          MOV     #315,@#$FATAL   ;MOVE TO MAILBOX #  *******  315  *******
2828  015616  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2829  015620  000000                          HALT                    ;INST INC ON TRAP
2830                                                                  ; TO SCOPE REPLACE HALT W/ 240
2831                                                                  ; AND REPLACE NEXT INST W/ 624
2832  015622  005767  162650          RET2:   TST     BUFF-2
2833  015626  001405                          BEQ     RET3
2834  015630                          RET4:
2835  015630  012737  000316  000302          MOV     #316,@#$FATAL   ;MOVE TO MAILBOX #  *******  316  *******
2836  015636  005212                          INC     (R2)            ;SET MSGTYP TO FATAL ERROR
2837  015640  000000                          HALT                    ;CONDITION CODES SET ON TRAP OR WRONG $TSTNM
2838                                                                  ; TO SCOPE REPLACE HALT W/ 240
2839                                                                  ; AND REPLACE NEXT INST W/ 614
2840  015642  026701  000034          RET3:   CMP     INST,LAST
2841  015646  001646                          BEQ     GIN1            ;SET UP NEW GROUP
```

```
 2842  015650  000167  177526                    JMP     GIN2            ;FINISH OLD GROUP
 2843                                             ;END OF INSTRUCTION GROUP
 2844  015654  000006                    TABLE:  6                       ;END OF OPERATE
 2845  015656  000077                            77
 2846  015660  000207                            207                     ;RTS,RT1,JMP
 2847  015662  000227                            227
 2848  015664  006777                            6777
 2849  015666  007777                            7777
 2850  015670  075037                            075037
 2851  015672  076777                            76777
 2852  015674  167777                    FPP:    167777                  ;  START OF THE FPP INSTRUCTIONS
 2853  015676  177777                            177777
 2854  015700  015700                    FINISH: .                       ;END FLAG
 2855  015702  000000                    INST:   HALT                    ;WILL CONTINUE RESERVED INST
 2856  015704  000000                            HALT                    ;SHOULD TRAP TO LOC 10
 2857  015706  000000                            HALT                    ;LOC 10 SHOULD SEND YOU TO
 2858  015710  000000                            HALT                    ;RET
 2859  015712  000000                            HALT
 2860  015714  012767  015724  162102  PWRDWN: MOV     #PWRUP,24
 2861  015722  000000                            HALT
 2862
 2863  015724  012767  015714  162072  PWRUP:  MOV     #PWRDWN,24
 2864  015732  012706  000500                    MOV     #BUFF,SP
 2865  015736  132767  000040  162355          BITB    #40,$ENVM       ;WILL APT ALLOW PRINTING?
 2866  015744  001013                            BNE     PFRES           ;NO
 2867  015746  012700  016041                    MOV     #MSGPWF,R0      ;GET MSG ADDR.
 2868  015752  105737  177564          PWAIT:  TSTB    @#TPS           ;TTY READY
 2869  015756  100375                            BPL     PWAIT           ;NO WAIT
 2870  015760  112037  177566                    MOVB    (R0)+,@#TPB     ;PRINT CHARACTER
 2871  015764  001372                            BNE     PWAIT           ;NEXT IF NOT DONE.
 2872  015766  105737  177564          PWAIT1: TSTB    @#TPS
 2873  015772  100375                            BPL     PWAIT1
 2874  015774  000167  162654          PFRES:  JMP     RESTRT
 2875  016000  005015  043103  040513  MSG:    .ASCIZ  <15><12>,CFKABD0 11/34 TRAPS TST DONE  .
 2876  016006  042102  020060  030461
 2877  016014  031457  020064  051124
 2878  016022  050101  020123  051524
 2879  016030  020124  047504  042516
 2880  016036  020040     000
 2881  016041     015  050012  053517  MSGPWF: .ASCIZ  <15><12>,POWER FAILED!.
 2882  016046  051105  043040  044501
 2883  016054  042514  020504     000
 2884  016061     015  041412  045506  MSG1:   .ASCIZ  <15><12>,CFKABD0 11/34 TRAPS TST .
 2885  016066  041101  030104  030440
 2886  016074  027461  032063  052040
 2887  016102  040522  051520  052040
 2888  016110  052123  000040
 2889  016114  005077  162362          CLRALL: CLR     @SR0
 2890  016120  005000                            CLR     R0
 2891  016122  012701  000040                    MOV     #32.,R1                 ;COUNT OF REGISTERS TO BE CLEARED
 2892  016126  005070  000516          CLRLP:  CLR     @ADRTAB(R0)             ;CLEAR REGISTERS THRU ADDRESS TABLE
 2893  016132  005720                            TST     (R0)+                   ;MOVE POINTER
 2894  016134  077104                            SOB     R1,CLRLP                ;LOOP TILL DONE
 2895  016136  000207                            RTS     %7
 2896
 2897                                     ;SUBROUTINE TO MAKE ALL PAGES RW, BANK 0, 4K, UP
```



```
 2898  016140  005077  162336          RWALL:  CLR     @SR0
 2899  016144  012701  000516                  MOV     #ADRTAB,R1      ;R1 POINTS TO ADDRESS TABLE
 2900  016150  012700  000010          RWL1:   MOV     #10,R0          ;R0 IS COUNTER
 2901  016154  005071  000020          RWL2:   CLR     @20(R1)         ;CLEAR PAR
 2902  016160  012731  077406                  MOV     #77406,@(R1)+   ;SET PDR RW, 4K
 2903  016164  077005                          SOB     R0,RWL2
 2904  016166  062701  000020                  ADD     #20,R1
 2905  016172  020127  000616                  CMP     R1,#ADREND      ;POINTER TO NEXT GROUP
 2906  016176  002764                          BLT     RWL1
 2907  016200  000207                          RTS     %7
 2908                                     ;MAP KERNEL PAR/PDR 7 TO EXTERNAL BANK
 2909  016202  012777  007600  162404  KEPN7:  MOV     #7600,@KPAR7
 2910  016210  012777  077406  162356          MOV     #77406,@KPDR7
 2911  016216  000207                          RTS     PC
 2912          000001                          .END
```

```
ABASE = 000000             59
ACDW1 = 000000             59
ACDW2 = 000000             59
ACPUOP= 000000             59      77
ACT     015520           2791    2793    2795    2805#
ADALL   013054           2359    2362#
ADDW0 = 000000             59
ADDW1 = 000000             59
ADDW10= 000000             59
ADDW11= 000000             59
ADDW12= 000000             59
ADDW13= 000000             59
ADDW14= 000000             59
ADDW15= 000000             59
ADDW2 = 000000             59
ADDW3 = 000000             59
ADDW4 = 000000             59
ADDW5 = 000000             59
ADDW6 = 000000             59
ADDW7 = 000000             59
ADDW8 = 000000             59
ADDW9 = 000000             59
ADEVCT= 000000             59      68
ADEVM = 000000             59
ADREND  000616            155#    2905
ADRTAB  000516            119#    2892*   2899
ADR25   014524           2647#    2657    2662
ADR25A  014526           2648#    2672
ADR40   015004           2704#    2724
ADR40A  015066           2717#    2727
ADR40B  015164           2736#    2744
ADR40C  015166           2737#    2748
AENV  = 000000             59      73
AENVM = 000000             59      74
AFATAL= 000000             59      65
AMADR1= 000000             59
AMADR2= 000000             59
AMADR3= 000000             59
AMADR4= 000000             59
AMAMS1= 000000             59
AMAMS2= 000000             59
AMAMS3= 000000             59
AMAMS4= 000000             59
AMSGAD= 000000             59      70
AMSGLG= 000000             59      71
AMSGTY= 000000             59      64
AMTYP1= 000000             59
AMTYP2= 000000             59
AMTYP3= 000000             59
AMTYP4= 000000             59
APASS = 000000             59      67
APRIOR= 000000             59
AROUND  015344           2767    2775#
ASWREG= 000000             59      75
ATESTN= 000000             59      66
ATRAP   013116           2364    2376#
```



```
AUNIT = 000000             59      69
AUSWR = 000000             59      76
AUTO    013104           2369#
AUTO1   013214           2356    2402#
AVECT1= 000000             59
AVECT2= 000000             59
BEGIN   000620             41      44     160#
BELL  = 000240             32#
BR1     001002            198     205#
BR10    001234            272     279#
BR11    001350            300     307#
BR12    001420            313     320#
BR13    001470            326     333#
BR14    001540            339     346#
BR15    001646            365     372#
BR16    001670            373     380#
BR17    001712            381     388#
BR2     001032            208     215#
BR20    001734            389     395#
BR21    001756            396     403#
BR22    002000            404     411#
BR23    002022            412     419#
BR3     001056            218     225#
BR33    002102            436     442#
BR34    002116            443     449#
BR35    002132            450     456#
BR36    002146            457     463#
BR37    002172            466     472#
BR4     001104            229     236#
BR40    002206            473     479#
BR41    002222            480     486#
BR45    003722            829     834#
BR46    004552            927    1003#
BR46A   004564           1002    1009#
BR47    005432           1178    1183#
BR5     001132            240     247#
BR51    006262           1278    1354#
BR51A   006274           1353    1360#
BR6     001160            251     257#
BR60    012500           2264*   2270
BR7     001206            261     268#
BR70    012710           2301    2318#
BR71    013540           2456    2463    2474#
BTRAP   013164           2379    2393#
BUFF    000500            112*    499     515     518     531     534     547     552     559     564     577     616     668
                          683     686     699     702     715     720     727     731     744     783     832     851     866
                          869     882     885     898     903     910     915     928     967    1017    1032    1035    1048
                         1051    1064    1069    1076    1081    1094    1133    1181    1201    1216    1219    1232    1235
                         1248    1253    1261    1266    1279    1318    1375    1390    1393    1406    1409    1422    1427
                         1434    1439    1452    1491    1537    1552    1555    1568    1571    1585    1590    1597    1602
                         1615    1654    1701    1716    1719    1732    1735    1748    1753    1760    1765    1778    1817
                         2087    2105    2116    2129    2135    2151    2173    2203    2230    2238    2246    2255    2262
                         2270    2278    2289    2303    2332    2338    2365    2380    2400    2413    2459    2491    2544
                         2570    2583    2606    2630    2786    2818    2825    2832    2864
CC    = 177776            39*    549*    561*    609     648     717*    729*    776     815     900*    912*    960     999
                         1066*   1078*   1126    1166    1250*   1263*   1311    1350    1424*   1436*   1484    1523    1587*
```

```
                    1599*   1647    1686    1750*   1762*   1810    1849    2787*
CLRALL  016114      2640    2697    2889#
CLRLP   016126      2892#   2894
CORH    013052      2361#   2376*   2383
CTRAP   013126      2379#   2401
DL11W   013266      2414    2418#
DL11W1  013272      2416    2419#
DONE40  015242      2707    2719    2739    2752#
DON25   014642      2650    2676#
DTRAP   013142      2382#   2400
FINISH  015700      2769*   2781    2854#
FOVER   011566      2059    2061    2073#
FPP     015674      2769    2852#
GIN1    015364      2779#   2841
GIN2    015402      2784#   2842
GIN3    015430      2782    2789#
GOAGIN  015540      2806    2812#
HERE  = 000000       176#    196*    206*    280
HLT   = 000000        20#    2655    2659    2664    2667    2671    2674    2691    2706    2711    2718    2723    2726
                    2729    2738    2743    2746    2750
ILLA  = 004700        37#    2021
ILLB  = 000100        38#    2045
INST    015702      2783*   2784*   2788    2825    2840    2855#
INSTC   002376       533#
INSTK   007244      1570#   1571
INT25   014536      2643    2651#
INT40   015022      2701    2708#
INT40A  015076      2712    2720#
INT40B  015176      2731    2740#
ITRAP5= 000004        22#
KERN7   016202      2642    2683    2698    2909#
KPAR0   000576       147#
KPAR1   000600       148#
KPAR2   000602       149#
KPAR3   000604       150#
KPAR4   000606       151#
KPAR5   000610       152#
KPAR6   000612       153#
KPAR7   000614       154#    2909*
KPDR0   000556       138#    2641*   2665    2699*
KPDR1   000560       139#    2669    2682*   2700*
KPDR2   000562       140#
KPDR3   000564       141#
KPDR4   000566       142#
KPDR5   000570       143#
KPDR6   000572       144#
KPDR7   000574       145#    2910*
KTSTA   000514       118#    2644*   2676*   2677    2685*   2694    2702*   2753*   2754
KTVEC   000512       117#    2643*   2677*   2684*   2694*   2701*   2712*   2731*   2754*
K1      000714       179#     295*    296     299     308*    309     312     320*    322     333*    335     346*    348
                     351
K10     000732       186#     380     388     395     403     411     419
K11     000734       187#
K12     000736       188#
K2      000716       180#
K3      000720       181#
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K4      000722       182#
K5      000724       183#     294*    297     307*    321*    323     325     334*    336     338     347*    349
K6      000726       184#     310     388
K7      000730       185#     364     372     380     395     419
MSG     016000      2796    2875#
MSGPWF  016041      2867    2881#
MSG1    016061       161    2884#
NODL    013564      2458    2482#
NODL1   013722      2490    2510#
NODL2   014026      2519    2537#
NODL3   014276      2568    2597#
NOP   = 000240        33#
NOR     013070      2365#   2368
PASSPT  015556       160*   2790*   2804*   2815#
PFRES   015774      2866    2874#
PROFTE  013264      2412*   2417#   2418*   2427    2457    2489    2518    2567
PWAIT   015752      2868#   2869    2871
PWAIT1  015766      2872#   2873
PWRDWN  015714       169    2860#   2863
PWRUP   015724      2860    2863#
RA      005444      1180    1189#
RA1     003734       831     840#
RB      005430      1179*   1182#   1189*   1190
RB1     003720       830*    833#    840*    841
RC      005424      1181#   1191
RC1     003714       832#    842
RESET2  014104      2545    2557#
RESET3  014072      2543    2551#
RESTRT  000654       168#   2814    2874
RET     015560      2785    2818#
RETA    002266       498     502#
RETAH   002300       500     508#
RETAT   011666      2088    2098#
RETA1   003126       669     676#
RETA2   004024       852     859#
RETA3   004640      1018    1025#
RETA4   005534      1202    1209#
RETA5   006350      1376    1383#
RETB    002330       516     518#
RETBT   011742      2106    2116#
RETB1   003156       684     686#
RETB2   004054       867     869#
RETB3   004670      1033    1035#
RETB4   005564      1217    1219#
RETB5   006400      1391    1393#
RETC    002400       532     534#
RETCT   012022      2130    2135#
RETC1   003226       700     702#
RETC2   004124       883     885#
RETC3   004740      1049    1051#
RETC4   005634      1233    1235#
RETC5   006450      1407    1409#
RETD    002460       548     552#
RETD1   003306       716     720#
RETD2   004204       899     903#
RETD3   005020      1065    1069#
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RETD4   005714          1249    1253#
RETD5   006530          1423    1427#
RETE    002526           560     564#
RETE1   003352           728     731#
RETE2   004252           911     915#
RETE3   005066          1077    1081#
RETE4   005762          1262    1266#
RETE5   006576          1435    1439#
RETF    002604           578     581#
RETF1   003430           745     748#
RETF2   004330           929     932#
RETF3   005144          1095    1098#
RETF4   006040          1280    1283#
RETF5   006654          1453    1456#
RETG    002730           617     620#
RETG1   003554           784     787#
RETG2   004454           960     971#
RETG3   005270          1134    1137#
RETG4   006164          1319    1322#
RETG5   007000          1492    1495#
RETH5   007146          1538    1545#
RETJ    007176          1553    1555#
RETK    007246          1569    1571#
RETL    007326          1586    1590#
RETM    007374          1598    1602#
RETN    007452          1616    1619#
RETO    007574          1655    1658#
RETP    007744          1702    1709#
RETQ    007776          1717    1719#
RETR    010050          1733    1735#
RETS    010132          1749    1753#
RETT    010202          1761    1765#
RETU    010262          1779    1782#
RETV    010410          1818    1821#
RET1    015600          2819    2825#
RET2    015622          2826    2832#
RET3    015642          2833    2840#
RET33   014716          2684    2689#
RET4    015630          2761    2834#
RTI1    012276          2205    2209#
RTI2    012312          2206    2215#
RTRAP = 000010            36#     500*    516*    532*    548*    560*    578*    579*    617*    618*
RTRAP1= 000034            27#     669*    684*    700*    716*    728*    745*    746*    784*    785*
RTRAP2= 000020            26#     852*    867*    883*    899*    911*    929*    930*    968*    969*
RTRAP3= 000030            25#    1018*   1033*   1049*   1065*   1077*   1095*   1096*   1134*   1135*
RTRAP4= 000014            24#    1202*   1217*   1233*   1249*   1262*   1280*   1281*   1319*   1320*   2088*   2106*   2130*
RTRAP5= 000004            23#    1376*   1391*   1407*   1423*   1435*   1453*   1454*   1492*   1493*   1538*   1553*   1569*
                        1586*   1598*   1616*   1617*   1655*   1656*   1702*   1717*   1733*   1749*   1761*   1779*   1780*
                        1818*   1819*
RTT1    012106          2154    2157#
RTT2    012124          2155    2165#
RTT3    012172          2175    2179#
RTT4    012212          2176    2187#
RTT5    012144          2173*   2181    2190
RTT6    012234          2188    2196#
RWALL   016140          2681    2898#
```



```
RWL1    016150          2900#   2906
RWL2    016154          2901#   2903
R7TRX   013426          2428    2450#
R7TR1   012374          2231    2238#
R7TR2   012444          2247    2255#
R7TR2A  012432          2249#   2255
R7TR3   012514          2263    2270#
R7TR4   012566          2279    2288#
SR0     000502           113#   2646*   2649*   2651    2652*   2686*   2689    2693*   2703*   2705*   2708*   2709    2715*
                        2717*   2720*   2721    2732*   2735*   2737*   2740*   2741    2752*   2889*   2898*
SR0H    000504           114#
SR1     000506           115#
SR2     000510           116#   2657    2661*   2662    2724    2744
STATUS= 177776            34#    435*    464*   2393    2430*   2435*   2460*   2466*   2492*   2557*   2572*   2575    2586*
                        2588    2616*   2623
STP     011600          2072    2079#
STPP    003026           576     652#
STPPA   003040           651     658#
STP3    013012          2331    2340#
STP3D   013024          2339    2346#
STP4    014444          2604    2632#
STP4E   014456          2631    2638#
TABLE   015654          2778    2844#
TDEC1   010556          1864    1871#
TDEC2   010606          1880    1882#
TDEC3   010662          1898    1900#
TDEC4   010734          1909    1916#
TDEC6   010750          1919#
TDEC7   010762          1917    1925#
TDEC77  013410          2432    2447#
TDEC8   013376          2426    2433    2441#
TENSAV  015342          2764*   2773#   2777
TONT1   012722          2307    2324#
TPB   = 177566            31#    164*   2611*   2614*   2799*   2870*
TPS   = 177564            30#    162     166    2415    2605*   2609    2612    2615*   2762*   2797    2801    2868    2872
TRACE   012676          2304    2312#
TRAPA = 000007            35#    501     517     533     551     563     580     619
TRAPB   013226          2384    2408#
TRAP10  015340          2765    2771#
TRAP24  015330          2763    2768#
TRCSR = 177560            29#   2521*   2530
TRC1    013002          2333    2336    2338#
TRT   = 000003            21#   1203    1218    1234    1252    1265    1282    1321    2004
TR0     013526          2461    2468#
TR2     013552          2464    2480#
TR3     013660          2494    2499#
TR4     013674          2495    2506#
TR4A    012554          2282#   2289
TR5     013662          2488    2496    2500#
TSL     013050          2360#
TST1    000740           178     192#
TST10   002422           530     535     544#
TST100  012330          2202    2217    2227#
TST101  012616          2229    2290    2299#
TST102  012736          2329#
TST103  013032          2354#
```

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TST104  013300          2424#
TST105  013426          2454#
TST106  013564          2486#
TST107  013722          2515#
TST11   002550           546     565     574#
TST110  014026          2517    2531    2541#
TST111  014122          2564#
TST112  014276          2602#
TST113  015260          2759#
TST12   003052           663#
TST13   003126           665     680#
TST14   003176           682     687     696#
TST15   003250           698     703     712#
TST16   003374           714     732     741#
TST17   003664           743     818     827#
TST2    001264           194     282     291#
TST20   003762           848#
TST21   004024           850     863#
TST22   004074           865     870     879#
TST23   004146           881     886     895#
TST24   004274           897     916     925#
TST25   004576          1014#
TST26   004640          1016    1029#
TST27   004710          1031    1036    1045#
TST3    001610           293     352     361#
TST30   004762          1047    1052    1061#
TST31   005110          1063    1082    1091#
TST32   005374          1093    1167    1176#
TST33   005472          1198#
TST34   005534          1200    1213#
TST35   005604          1215    1220    1229#
TST36   005656          1231    1236    1245#
TST37   006004          1247    1267    1276#
TST4    002044           363     420     431#
TST40   006306          1372#
TST41   006350          1374    1387#
TST42   006420          1389    1394    1403#
TST43   006472          1405    1410    1419#
TST44   006620          1421    1440    1449#
TST45   007104          1451    1525    1534#
TST46   007146          1536    1549#
TST47   007216          1551    1556    1565#
TST5    002236           433     487     496#
TST50   007270          1567    1572    1582#
TST51   007416          1584    1603    1612#
TST52   007700          1614    1688    1698#
TST53   007744          1700    1713#
TST54   010016          1715    1720    1729#
TST55   010072          1731    1736    1745#
TST56   010224          1747    1766    1775#
TST57   010514          1777    1851    1860#
TST6    002300           512#
TST60   010556          1862    1876#
TST61   010626          1878    1883    1893#
TST62   010762          1895    1930#
TST63   011040          1947#
```



```
TST64   011116          1964#
TST65   011174          1981#
TST66   011252          1998#
TST67   011330          2015#
TST7    002350           514     519     528#
TST70   011426          2030    2039#
TST71   011504          2057#
TST72   011612          2084#
TST73   011666          2086    2102#
TST74   011762          2104    2117    2126#
TST75   012044          2128    2136    2147#
TST76   012124          2149    2158    2169#
TST77   012234          2171    2200#
TTCSR = 177564            28#   2434*   2447*   2462*   2481*   2493*   2520*   2523    2574*   2587*   2596*
TTT37   014272          2589    2596#
TTY11   014260          2566    2590#
TTY3    014176          2571    2575#
TTY4    014252          2584    2588#
UPAR0   000536           129#
UPAR1   000540           130#
UPAR2   000542           131#
UPAR3   000544           132#
UPAR4   000546           133#
UPAR5   000550           134#
UPAR6   000552           135#
UPAR7   000554           136#
UPDR0   000516           120#
UPDR1   000520           121#
UPDR2   000522           122#
UPDR3   000524           123#
UPDR4   000526           124#
UPDR5   000530           125#
UPDR6   000532           126#
UPDR7   000534           127#
VDEC1   011032          1935    1943#
VDEC10  011310          2000    2002    2005#
VDEC11  011366          2017    2019    2022#
VDEC12  011400          2020    2028#
VDEC13  011464          2041    2043    2046#
VDEC14  011476          2044    2052#
VDEC2   011020          1932    1934    1937#
VDEC3   011110          1952    1960#
VDEC4   011076          1949    1951    1954#
VDEC5   011166          1969    1977#
VDEC6   011154          1966    1968    1971#
VDEC7   011244          1986    1994#
VDEC8   011232          1983    1985    1988#
VDEC9   011322          2003    2011#
WAIT    015466          2797#   2798    2800
WAIT1   015502          2801#   2802
WATE    014414          2607    2623#
WATE1   014336          2609#   2610
WATE2   014352          2612#   2613
WATE3   014400          2617#   2630
$APTHD  000330            95     101#
$CPUOP  000326            77#
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$ENV    000320            73#
$ENVM   000321            74#   2792    2865
$ERN  = 000317             1#    199     200#    209     210#    219     220#    230     231#    241     242#    252     253#
                         262     263#    273     274#    283     284#    301     302#    314     315#    327     328#    340
                         341#    353     354#    366     367#    374     375#    382     383#    390     391#    397     398#
                         405     406#    413     414#    421     422#    437     438#    444     445#    451     452#    458
                         459#    467     468#    474     475#    481     482#    488     489#    503     504#    520     521#
                         536     537#    554     555#    566     567#    583     584#    590     591#    597     598#    604
                         605#    611     612#    622     623#    629     630#    636     637#    643     644#    653     654#
                         671     672#    688     689#    704     705#    722     723#    733     734#    750     751#    757
                         758#    764     765#    771     772#    778     779#    789     790#    796     797#    803     804#
                         810     811#    819     820#    835     836#    854     855#    871     872#    887     888#    905
                         906#    917     918#    934     935#    941     942#    948     949#    955     956#    962     963#
                         973     974#    980     981#    987     988#    994     995#   1004    1005#   1020    1021#   1037
                        1038#   1053    1054#   1071    1072#   1083    1084#   1100    1101#   1107    1108#   1114    1115#
                        1121    1122#   1128    1129#   1139    1140#   1146    1147#   1153    1154#   1160    1161#   1168
                        1169#   1184    1185#   1204    1205#   1221    1222#   1237    1238#   1256    1257#   1268    1269#
                        1285    1286#   1292    1293#   1299    1300#   1306    1307#   1313    1314#   1324    1325#   1331
                        1332#   1338    1339#   1345    1346#   1355    1356#   1378    1379#   1395    1396#   1411    1412#
                        1429    1430#   1441    1442#   1458    1459#   1465    1466#   1472    1473#   1479    1480#   1486
                        1487#   1497    1498#   1504    1505#   1511    1512#   1518    1519#   1526    1527#   1540    1541#
                        1557    1558#   1573    1574#   1592    1593#   1604    1605#   1621    1622#   1628    1629#   1635
                        1636#   1642    1643#   1649    1650#   1660    1661#   1667    1668#   1674    1675#   1681    1682#
                        1689    1690#   1704    1705#   1721    1722#   1737    1738#   1755    1756#   1767    1768#   1784
                        1785#   1791    1792#   1798    1799#   1805    1806#   1812    1813#   1823    1824#   1830    1831#
                        1837    1838#   1844    1845#   1852    1853#   1866    1867#   1884    1885#   1902    1903#   1911
                        1912#   1920    1921#   1938    1939#   1955    1956#   1972    1973#   1989    1990#   2006    2007#
                        2023    2024#   2031    2032#   2047    2048#   2074    2075#   2093    2094#   2111    2112#   2118
                        2119#   2137    2138#   2159    2160#   2182    2183#   2191    2192#   2210    2211#   2218    2219#
                        2233    2234#   2240    2241#   2250    2251#   2257    2258#   2265    2266#   2272    2273#   2283
                        2284#   2291    2292#   2313    2314#   2319    2320#   2341    2342#   2370    2371#   2385    2386#
                        2395    2396#   2403    2404#   2436    2437#   2442    2443#   2469    2470#   2475    2476#   2501
                        2502#   2525    2526#   2532    2533#   2552    2553#   2577    2578#   2591    2592#   2618    2619#
                        2625    2626#   2633    2634#   2820    2821#   2827    2828#   2835    2836#
$ERROR= 000302            109#    172*
$ETABL  000320             72#
$ETEND  000330             84#    107
$FATAL  000302             65#    109     199*    209*    219*    230*    241*    252*    262*    273*    283*    301*    314*
                         327*    340*    353*    366*    374*    382*    390*    397*    405*    413*    421*    437*    444*
                         451*    458*    467*    474*    481*    488*    503*    520*    536*    554*    566*    583*    590*
                         597*    604*    611*    622*    629*    636*    643*    653*    671*    688*    704*    722*    733*
                         750*    757*    764*    771*    778*    789*    796*    803*    810*    819*    835*    854*    871*
                         887*    905*    917*    934*    941*    948*    955*    962*    973*    980*    987*    994*   1004*
                        1020*   1037*   1053*   1071*   1083*   1100*   1107*   1114*   1121*   1128*   1139*   1146*   1153*
                        1160*   1168*   1184*   1204*   1221*   1237*   1256*   1268*   1285*   1292*   1299*   1306*   1313*
                        1324*   1331*   1338*   1345*   1355*   1378*   1395*   1411*   1429*   1441*   1458*   1465*   1472*
                        1479*   1486*   1497*   1504*   1511*   1518*   1526*   1540*   1557*   1573*   1592*   1604*   1621*
                        1628*   1635*   1642*   1649*   1660*   1667*   1674*   1681*   1689*   1704*   1721*   1737*   1755*
                        1767*   1784*   1791*   1798*   1805*   1812*   1823*   1830*   1837*   1844*   1852*   1866*   1884*
                        1902*   1911*   1920*   1938*   1955*   1972*   1989*   2006*   2023*   2031*   2047*   2074*   2093*
                        2111*   2118*   2137*   2159*   2182*   2191*   2210*   2218*   2233*   2240*   2250*   2257*   2265*
                        2272*   2283*   2291*   2313*   2319*   2341*   2370*   2385*   2395*   2403*   2436*   2442*   2469*
                        2475*   2501*   2525*   2532*   2552*   2577*   2591*   2618*   2625*   2633*   2820*   2827*   2835*
$HIBTS  000330            102#
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$MBADR  000332            103#
$MSGAD  000314             70#
$MSGLG  000316             71#
$MSGTY  000300             64#    168*    173
$PASS   000306             43*     67#   2789*
$PASTM  000336            105#
$SVPC = 000300             50#     55
$SWR  = 000000              1#
$SWREG  000322             75#
$TESTN  000304             66#    108     192*    193     291*    292     361*    362     431*    432     496*    497     512*
                         513     528*    529     544*    545     574*    575     663*    664     680*    681     696*    697
                         712*    713     741*    742     827*    828     848*    849     863*    864     879*    880     895*
                         896     925*    926    1014*   1015    1029*   1030    1045*   1046    1061*   1062    1091*   1092
                        1176*   1177    1198*   1199    1213*   1214    1229*   1230    1245*   1246    1276*   1277    1372*
                        1373    1387*   1388    1403*   1404    1419*   1420    1449*   1450    1534*   1535    1549*   1550
                        1565*   1566    1582*   1583    1612*   1613    1698*   1699    1713*   1714    1729*   1730    1745*
                        1746    1775*   1776    1860*   1861    1876*   1877    1893*   1894    1930*   1931    1947*   1948
                        1964*   1965    1981*   1982    1998*   1999    2015*   2016    2039*   2040    2057*   2058    2084*
                        2085    2102*   2103    2126*   2127    2147*   2148    2169*   2170    2200*   2201    2227*   2228
                        2299*   2300    2329*   2330    2354*   2355    2424*   2425    2454*   2455    2486*   2487    2515*
                        2516    2541*   2542    2564*   2565    2602*   2603    2759*   2760
$TN   = 000114             1#    189     195#    282     288     294#    352     358     364#    420     428     434#    487
                         493     499#    509     515#    519     525     531#    535     541     547#    565     571     577#
                         660     666#    677     683#    687     693     699#    703     709     715#    732     738     744#
                         818     824     830#    845     851#    860     866#    870     876     882#    886     892     898#
                         916     922     928#   1011    1017#   1026    1032#   1036    1042    1048#   1052    1058    1064#
                        1082    1088    1094#   1167    1173    1179#   1195    1201#   1210    1216#   1220    1226    1232#
                        1236    1242    1248#   1267    1273    1279#   1369    1375#   1384    1390#   1394    1400    1406#
                        1410    1416    1422#   1440    1446    1452#   1525    1531    1537#   1546    1552#   1556    1562
                        1568#   1572    1579    1585#   1603    1609    1615#   1688    1695    1701#   1710    1716#   1720
                        1726    1732#   1736    1742    1748#   1766    1772    1778#   1851    1857    1863#   1873    1879#
                        1883    1890    1896#   1927    1933#   1944    1950#   1961    1967#   1978    1984#   1995    2001#
                        2012    2018#   2030    2036    2042#   2054    2060#   2081    2087#   2099    2105#   2117    2123
                        2129#   2136    2144    2150#   2158    2166    2172#   2197    2203#   2217    2224    2230#   2290
                        2296    2302#   2326    2332#   2351    2357#   2421    2427#   2451    2457#   2483    2489#   2512
                        2518#   2531    2538    2544#   2561    2567#   2599    2605#   2756    2762#
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$TSTNM= 000304             108#    171*
$UNIT   000312              69#
$UNITM  000340             106#
$USWR   000324              76#
$X    = 015274             195#    202     212     222     233     244     255     265     276     286     294#    304     317
                         330     343     356     364#    369     377     385     393     400     408     416     424     434#
                         440     447     454     461     470     477     484     491     499#    506     515#    523     531#
                         539     547#    557     569     577#    586     593     600     607     614     625     632     639
                         646     656     666#    674     683#    691     699#    707     715#    725     736     744#    753
                         760     767     774     781     792     799     806     813     822     830#    838     851#    857
                         866#    874     882#    890     898#    908     920     928#    937     944     951     958     965
                         976     983     990     997    1007    1017#   1023    1032#   1040    1048#   1056    1064#   1074
                        1086    1094#   1103    1110    1117    1124    1131    1142    1149    1156    1163    1171    1179#
                        1187    1201#   1207    1216#   1224    1232#   1240    1248#   1259    1271    1279#   1288    1295
                        1302    1309    1316    1327    1334    1341    1348    1358    1375#   1381    1390#   1398    1406#
                        1414    1422#   1432    1444    1452#   1461    1468    1475    1482    1489    1500    1507    1514
                        1521    1529    1537#   1543    1552#   1560    1568#   1576    1585#   1595    1607    1615#   1624
                        1631    1638    1645    1652    1663    1670    1677    1684    1692    1701#   1707    1716#   1724
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                    1732#  1740   1748#  1758   1770   1778#  1787   1794   1801   1808   1815   1826   1833
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                    1950#  1958   1967#  1975   1984#  1992   2001#  2009   2018#  2026   2034   2042#  2050
                    2060#  2077   2087#  2096   2105#  2114   2121   2129#  2140   2150#  2162   2172#  2185
                    2194   2203#  2213   2221   2230#  2236   2243   2253   2260   2268   2275   2286   2294
                    2302#  2316   2322   2332#  2344   2357#  2373   2388   2398   2406   2427#  2439   2445
                    2457#  2472   2478   2489#  2504   2518#  2528   2535   2544#  2555   2567#  2580   2594
                    2605#  2621   2628   2636   2762#  2823   2830   2838
$XX     = 177615     202#   212#   222#   233#   244#   255#   265#   276#   286#   304#   317#   330#   343#
                     356#   369#   377#   385#   393#   400#   408#   416#   424#   440#   447#   454#   461#
                     470#   477#   484#   491#   506#   523#   539#   557#   569#   586#   593#   600#   607#
                     614#   625#   632#   639#   646#   656#   674#   691#   707#   725#   736#   753#   760#
                     767#   774#   781#   792#   799#   806#   813#   822#   838#   857#   874#   890#   908#
                     920#   937#   944#   951#   958#   965#   976#   983#   990#   997#  1007#  1023#  1040#
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                    1923#  1941#  1958#  1975#  1992#  2009#  2026#  2034#  2050#  2077#  2096#  2114#  2121#
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                    2294#  2316#  2322#  2344#  2373#  2388#  2398#  2406#  2439#  2445#  2472#  2478#  2504#
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                    2528#  2535#  2555#  2580#  2594#  2621#  2628#  2636#  2823#  2830#  2838#
.       = 016220      40#    42#    45#    50     51#    53#    55#    91     92#    94#    96#   111#   155
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                      330    343    356    364    369    377    385    393    400    408    416    424    434
                      440    447    454    461    470    477    484    491    499    506    515    523    531
                      534    539    547    557    569    577    586    593    600    607    614    625    632
                      639    646    656    666    674    683    691    699    702    707    715    725    736
                      744    753    760    767    774    781    792    799    806    813    822    830    838
                      851    857    866    874    882    885    890    898    908    920    928    937    944
                      951    958    965    976    983    990    997   1007   1017   1023   1032   1040   1048
                     1051   1056   1064   1074   1086   1094   1103   1110   1117   1124   1131   1142   1149
                     1156   1163   1171   1179   1187   1201   1207   1216   1224   1232   1235   1240   1248
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                     1375   1381   1390   1398   1406   1409   1414   1422   1432   1444   1452   1461   1468
                     1475   1482   1489   1500   1507   1514   1521   1529   1537   1543   1552   1560   1568
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```



```
                    1787   1794   1801   1808   1815   1826   1833   1840   1847   1855   1863   1869   1879
                    1887   1896   1905   1914   1923   1933   1941   1950   1958   1967   1975   1984   1992
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                    2316   2322   2332   2344   2357   2373   2388   2398   2406   2427   2439   2445   2457
                    2472   2478   2489   2504   2518   2528   2535   2544   2555   2567   2580   2594   2605
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          651    671    687    703    721    732    749    755    762    769    777    788    794    801    808
          818    834    854    870    886    904    916    933    939    946    953    961    972    978    985
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         1158   1167   1183   1204   1220   1236   1255   1267   1284   1290   1297   1304   1312   1323   1329
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         1835   1842   1851   1866   1883   1901   1911   1919   1937   1954   1971   1988   2005   2022   2030
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ESCAPE      1#
GETPRI      1#
LOOP        1#    202    212    222    233    244    255    265    276    286    304    317    330    343    356
          369    377    385    393    400    408    416    424    440    447    454    461    470    477    484
          491    506    523    539    557    569    586    593    600    607    614    625    632    639    646
          656    674    691    707    725    736    753    760    767    774    781    792    799    806    813
          822    838    857    874    890    908    920    937    944    951    958    965    976    983    990
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         1677   1684   1692   1707   1724   1740   1758   1770   1787   1794   1801   1808   1815   1826   1833
         1840   1847   1855   1869   1887   1905   1914   1923   1941   1958   1975   1992   2009   2026   2034
         2050   2077   2096   2114   2121   2140   2162   2185   2194   2213   2221   2236   2243   2253   2260
         2268   2275   2286   2294   2316   2322   2344   2373   2388   2398   2406   2439   2445   2472   2478
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MULT        1#
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         1242   1273   1369   1384   1400   1416   1446   1531   1546   1562   1579   1609   1695   1710   1726
         1742   1772   1857   1873   1890   1927   1944   1961   1978   1995   2012   2036   2054   2081   2099
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         2756
POP         1#
PUSH        1#
REPORT      1#
SETPRI      1#
SETUP       1#
SKIP        1#
SLASH       1#
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          709    711    738    740    824    826    845    847    860    862    876    878    892    894    922
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         1929   1944   1946   1961   1963   1978   1980   1995   1997   2012   2014   2036   2038   2054   2056
         2081   2083   2099   2101   2123   2125   2144   2146   2166   2168   2197   2199   2224   2226   2296
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TYPBIN      1#
TYPDEC      1#
TYPNAM      1#
TYPNUM      1#
TYPOCS      1#
TYPOCT      1#
TYPTXT      1#
VTRP     1926#  1927   1944   1961   1978   1995   2012   2036
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          366    374    382    390    397    405    413    421    437    444    451    458    467    474    481
          488    503    520    536    554    566    583    590    597    604    611    622    629    636    643
          653    671    688    704    722    733    750    757    764    771    778    789    796    803    810
          819    835    854    871    887    905    917    934    941    948    955    962    973    980    987
          994   1004   1020   1037   1053   1071   1083   1100   1107   1114   1121   1128   1139   1146   1153
         1160   1168   1184   1204   1221   1237   1256   1268   1285   1292   1299   1306   1313   1324   1331
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         2265   2272   2283   2291   2313   2319   2341   2370   2385   2395   2403   2436   2442   2469   2475
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$$ERNU      1#    199    209    219    230    241    252    262    273    283    301    314    327    340    353
          366    374    382    390    397    405    413    421    437    444    451    458    467    474    481
          488    503    520    536    554    566    583    590    597    604    611    622    629    636    643
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          819    835    854    871    887    905    917    934    941    948    955    962    973    980    987
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         1338   1345   1355   1378   1395   1411   1429   1441   1458   1465   1472   1479   1486   1497   1504
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          491    506    523    539    557    569    586    593    600    607    614    625    632    639    646
          656    674    691    707    725    736    753    760    767    774    781    792    799    806    813
          822    838    857    874    890    908    920    937    944    951    958    965    976    983    990
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         2050   2077   2096   2114   2121   2140   2162   2185   2194   2213   2221   2236   2243   2253   2260
         2268   2275   2286   2294   2316   2322   2344   2373   2388   2398   2406   2439   2445   2472   2478
         2504   2528   2535   2555   2580   2594   2621   2628   2636   2823   2830   2838
```

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$$NEWT      1#    189     288     358     428     493     509     525     541     571     660     677     693     709     738
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         1242    1273    1369    1384    1400    1416    1446    1531    1546    1562    1579    1609    1695    1710    1726
         1742    1772    1857    1873    1890    1927    1944    1961    1978    1995    2012    2036    2054    2081    2099
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.$SAVE      1#
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.$SCOP      1#
.$SIZE      1#
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.$TYPB      1#
.$TYPD      1#
.$TYPE      1#
.$TYPO      1#
.$40CA      1#

. ABS.  016220     000

 ERRORS DETECTED:  0

 CFKABD,BIN,CFKABD,LST/CRF/SOL=CFKABD,SML,CFKABD,P11
 RUN-TIME:  47 56 5 SECONDS
 RUN-TIME RATIO: 212/109=1,9
 CORE USED:  29K  (57 PAGES)
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