SET 7777 = 5301 for BINLOADER
(that should be the only corrupted
location after running CPTST1)

IDENTIFICATION

CPTST2

PRODUCT CODE: MAINDEC-12-DØAB-B

PRODUCT NAME: PDP-12 CP TEST 2
(SKIP AND DATA HANDLING)

DATE CREATED: SEPTEMBER 19, 1969

MAINTAINER: DIAGNOSTIC GROUP

AUTHOR: JAMES KELLY

SNS = 77
SMODE
start 20
halts @ 0022, SMODE, AC = 0000
CONT
halts @ 0026, LMODE, AC = 7777
CONT
resetting any SNS switch should
BEL RINGS EVERY 27 SECONDS

a. Set the teletype reader switch to FREE.
b. Open the teletype reader and insert the program tape so that the arrows on the tape are visible to, and pointing toward the operator.
c. Close the reader and set the reader switch to START.
d. Set the teletype front panel switch to ON LINE.
e. Set the LEFT switch to 7777.
f. Set the RIGHT switch to 4000.
g. Set the MODE switch to 8 mode.
h. Depress I/O preset.
i. Depress START LS.
j. When the program tape has been read in the computer will halt.
k. The ACCUMULATOR must be = 0000, if it is not, a read in error has occurred and one might try reloading the binary loader.
l. Remove the program tape from the reader.

NOTE: This program can be started in either LINC or 8 mode. This feature was incorporated to reduce the possibility of error. However, the preferred method and the one listed below is to start the program in the 8-mode.

4. STARTING PROCEDURE

a. Remove the paper tape from the teletype.
b. Set the 6 SENSE SWITCHES to all ones.
c. Set the MODE switch to 8 mode.
d. Depress I/O preset.
e. Set IF instruction field switches to all Ø.
f. Depress START 2Ø.
g. The computer will halt at address ØØ22, i.e. MEMORY ADDRESS register = ØØ22, in 8 MODE, with the ACCUMULATOR = ØØØØ.
If any of these circumstances do not exist it is a hardware error and must be rectified before proceeding.
h. Depress CONTINUE.
i. The computer will halt at address ØØ26, in L MODE, with The ACCUMULATOR: 7777.
If any of these circumstances do not exist it is a hardware error and must be rectified before proceeding.
j. Depress CONTINUE.
k. The program is now running and any further computer halts are errors and must be evaluated by referring to the listing.
l. The test will ring the teletype bell once every 4Ø96 passes. This should occur every 25 seconds. If the bell does not ring it is a hardware error and must be rectified before proceeding.

a. Set the teletype reader switch to FREE.
b. Open the teletype reader and insert the program tape so that the arrows on the tape are visible to, and pointing toward the operator.
c. Close the reader and set the reader switch to START.
d. Set the teletype front panel switch to ON LINE.
e. Set the LEFT switch to 7777.
f. Set the RIGHT switch to 4000.
g. Set the MODE switch to 8 mode.
h. Depress I/O preset.
i. Depress START LS.
j. When the program tape has been read in the computer will halt.
k. The ACCUMULATOR must be = 0000, if it is not, a read in error has occurred and one might try reloading the binary loader.
l. Remove the program tape from the reader.

NOTE: This program can be started in either LINC or 8 mode. This feature was incorporated to reduce the possibility of error. However, the preferred method and the one listed below is to start the program in the 8-mode.

4. STARTING PROCEDURE

a. Remove the paper tape from the teletype.
b. Set the 6 SENSE SWITCHES to all ones.
c. Set the MODE switch to 8 mode.
d. Depress I/O preset.
e. Set IF instruction field switches to all Ø.
f. Depress START 2Ø.
g. The computer will halt at address ØØ22, i.e. MEMORY ADDRESS register = ØØ22, in 8 MODE, with the ACCUMULATOR = ØØØØ.
If any of these circumstances do not exist it is a hardware error and must be rectified before proceeding.
h. Depress CONTINUE.
i. The computer will halt at address ØØ26, in L MODE, with The ACCUMULATOR: 7777.
If any of these circumstances do not exist it is a hardware error and must be rectified before proceeding.
j. Depress CONTINUE.
k. The program is now running and any further computer halts are errors and must be evaluated by referring to the listing.
l. The test will ring the teletype bell once every 4Ø96 passes. This should occur every 25 seconds. If the bell does not ring it is a hardware error and must be rectified before proceeding.

4.1 Switch Settings

The left and right LSW and RSW have no effect on the program what so ever and their settings are of no concern.

The sense switches which under normal condition are set to 77 should be set to zero, one at a time, so be certain that they will cause error halts, i.e. the switch logic isn't tied to "TRUE".

5. ERROR ANALYSIS

In general the program listing is made up of 5 to 1Ø instruction modules which tests a skip, a bit or a gate and by stoping the coding just prior to the halt and the comments it's possible to determine what failed.

Any subrountine can be caused to scope loop by toggling in a jump to the beginning of the subroutine, and restarting the entire program. Great care must be exercised to remember where the jump was placed and to remove it after the hardware bug is found so that the program can test the entire computer.

```
                /PDP-12 CP TEST  PART 2 SKIP AND DATA HANDLING MAINDEC D0AB
                /COPYRIGHT 1969, DIGITAL EQUIPMENT CORP., MAYNARD, MASS.
                /LINC-8 INSTRUCTION DEFINITIONS
                /MISCELLANEOUS
                EXPUNGE
0000            HLT=0000        /HALT
0002            PDP=0002        /CHANGE TO PDP-8 MODE
0005            QAC=0005        /EI TO AI-J(11 BITS) I EQUALS 1 TO 11
0011            CLR=0011        /CLEAR ACCUMULATOR LINK, AND Z REGISTER
0014            ATR=0014        /(A6-A11)>R REGISTER
0015            RTA=0015        /R REGISTER>(A6-A11)
0016            NOP=0016        /NO OPERATION
0017            COM=0017        /C(AC)>C(A)
0040            SET=0040        /C(P+1)>BETA REGISTER (OR INDIRECT)
0200            XSK=0200        /SKIP ON 1777

                /SHIFT
0240            ROL=0240        /ROTATE LEFT
0300            ROR=0300        /ROTATE RIGHT ALSO SHIFT RIGHT INTO MQ REGISTER
0340            SCR=0340        /SCALE RIGHT ALSO SHIFT RIGHT INTO MQ REGISTER

                /SKIP
0400            SXL=0400        /SKIP IF EXTERNAL LEVEL IS -3
0415            KST=0415        /SKIP IF KEY HAS BEEN STRUCK
0440            SNS=0440        /SKIP IF SENSE SWITCH IS UP
0456            SKP=0456        /SKIP UNCONDITIONALLY
0450            AZE=0450        /SKIP IF ACCUMULATOR ZERO
0451            APO=0451        /SKIP IF ACCUMULATOR POSITIVE
0452            LZE=0452        /SKIP IF LINK ZERO
0453            IBZ=0453        /SKIP IF BETWEEN TAPE BLOCKS
0454            FLO=0454        /SKIP IF ADD OVERFLOW FLAG IS SET
0455            QLZ=0455        /SKIP IF BIT 11 OF MQ REGISTER IS 0

                /OPERATE
0513            IOT=0513        /EXECUTE THE FOLLOWING IOT INSTRUCTION IN PDP-8 MODE


                /ARITHMETIC
1000            LDA=1000        /LOAD ACCUMULATOR
1040            STA=1040        /STORE CONTENTS OF ACCUMULATOR
1100            ADA=1100        /ADD TO CONTENTS OF ACCUMULATOR
1140            ADM=1140        /ADD TO CONTENTS OF MEMORY REGISTER
```

```
                1200    LAM=1200        /ADD CONTENTS OF LINK AND ACCUMU-
                                        /LATOR TO CONTENTS OF MEMORY REGISTER
                1240    MUL=1240        /MULTIPLY
                6141    LINC=6141       /CHANGE TO LINC MODE
                        /HALF WORD OPERATIONS

                1300    LDH=1300        /TRANSFER HALF WORD FROM MEMORY INTO
                                        /THE RIGHT HALF OF ACCUMULATOR
                1340    STH=1340        /TRANSFER THE HALF WORD FROM THE RIGHT
                                        /SIDE OF ACCUMULATOR REGISTER INTO THE
                                        /DESIGNATED HALF OF A MEMORY REGISTER
                1400    SHD=1400        /SKIP IF THE HALF WORD IN ACCUMULATOR
                                        /REGISTER AND THE MEMORY REGISTER DIFFER

                        /MEMORY REFERENCE OPERATIONS
                1440    SAE=1440        /SKIP IF THE CONTENTS OF THE ACCUMULATOR
                                        /EQUAL THE CONTENTS OF THE DESIGNATED
                                        /MEMORY REGISTER
                1500    SRO=1500        /SKIP IF THE RIGHTMOST BIT IN THE
                                        /DESIGNATED MEMORY REGISTER IS 0;
                                        /AFTER TESTING, ROTATE THE CONTENTS
                                        /ONE PLACE TO THE RIGHT,
                1540    BCL=1540        /FOR EACH BIT POSITION OF MEMORY REGISTER
                                        /Y THAT CONTAINS A 1, CLEAR THE
                                        /CORRESPONDING BIT POSITION OF THE
                                        /ACCUMULATOR (LOGICAL AND)
                1600    BSL=1600        /FOR EACH BIT POSITION OF MEMORY
                                        /REGISTER Y THAT CONTAINS A 1, SET THE
                                        /CORRESPONDING BIT POSITION OF THE ACCUMULATOR (INCLUSIVE OR)
                1640    BCO=1640        /FOR EACH BIT POSITION OF MEMORY
                                        /REGISTER Y THAT CONTAINS A 1, COMPLEMENT
                                        /THE CORRESPONDING BIT POSITION OF THE
                                        /ACCUMULATOR (EXCLUSIVE OR)


                        /FULL ADDRESS
                2000    ADD=2000        /ADD THE CONTENTS OF THE DESIGNATED
                                        /MEMORY REGISTER TO ACCUMULATOR
                4000    STC=4000        /STORE THE CONTENTS OF ACCUMULATOR
                                        /IN THE DESIGNATED MEMORY REGISTER
                                        /THEN CLEAR ACCUMULATOR
                                        /LINC MODE JUMPS ARE NOT USED IN THIS TEST
                7100    CLL=7100
                7020    CML=7020
                7604    LAS=7604
                0000    AND=0000
                1000    TAD=1000
                3000    DCA=3000
                7006    RTL=7006
                7200    CLA=7200
                2000    ISZ=2000
                6046    TLS=6046
```

```
                0002    *2
0002    0000            HLT             /G141 FAILED TO LOAD IF @ 2001
                0020    *20
                        /PRIOR TO STARTUP THE OPERATOR MUST SET ALL SENSE
                        /SWITCHES TO ONES AND LEFT AND RIGHT SWITCHES TO ZERO
                        /HALT AND SKIP TEST START IN PDP-8 MODE
                        /MAJOR START
0020    0002    START,  PDP             /GO TO 8 MODE
0021    0000            HLT             /LINC MODE HALT
0022    7402            7402            /8 MODE HALT
0023    6141            LINC            /GO TO LINC MODE
0024    1020            LDA*20
0025    7777            7777
0026    0000            HLT             /TEST HALT
0027    0011            CLR

                        /SKP TEST
0030    0456            SKP
0031    0000            HLT             /SKIP FAILED
0032    0456            SKP             /SKIP OVER LINC
0033    6141            LINC            /MAJOR RESTART FROM END OF PASS

0034    0476            SKP*20
0035    0456            SKP
0036    0000            HLT             /SKP*20 FAILED
```

```
                        /
                        /SENSE SWITCH TEST CHECK SNS INSTRUCTION, I=0, I=1
                        /
0037  2440                    SNS+0
0040  0000                    HLT                     /SNS+0 FAILED TO DETECT SENSE SWITCH 0

0041  0460                    SNS+20+0                /UNCONDITIONAL SKIP
0042  0456                    SKP
0043  0000                    HLT                     /SNS I+0 SKIPPED IN ERROR

0044  0441                    SNS+1
0045  0000                    HLT                     /SNS+1 FAILED TO DETECT SENSE SWITCH 1

0046  0461                    SNS+20+1
0047  0456                    SKP
0050  0000                    HLT                     /SNS I+1 SKIPPED IN ERROR

0051  0442                    SNS+2
0052  0000                    HLT                     /SNS+2 FAILED TO DETECT SENSE SWITCH 2

0053  0462                    SNS+20+2
0054  0456                    SKP
0055  0000                    HLT                     /SNS I+2 SKIPPED IN ERROR

0056  0443                    SNS+3
0057  0000                    HLT                     /SNS+3 FAILED TO DETECT SENSE SWITCH 3

0060  0463                    SNS+20+3
0061  0456                    SKP
0062  0000                    HLT                     /SNS I+3 SKIPPED IN ERROR

0063  0444                    SNS+4
0064  0000                    HLT                     /SNS+4 FAILED TO DETECT SENSE SWITCH 4

0065  0464                    SNS+20+4
0066  0456                    SKP
0067  0000                    HLT                     /SNS I+4 SKIPPED IN ERROR

0070  0445                    SNS+5
0071  0000                    HLT                     /SNS+5 FAILED TO DETECT SENSE SWITCH 5

0072  0465                    SNS+20+5
0073  2456                    SKP                     /TEST COMPLETE SKIP TO APO TEST
0074  0000                    HLT                     /SNS I+5 SKIPPED IN ERROR
```

```
                        /
                        /APO TEST
                        /
0075  0011                     CLR                     /SET AC00=0
0076  0451                     APO                     /TEST IT USING APO
0077  0000                     HLT                     /APO FAILED TO SKIP AC=0000

0100  0471                     APO+20
0101  0456                     SKP
0102  0000                     HLT                     /APO I SKIPPED IN ERROR AC=0000

0103  1020                     LDA+20
0104  4000                     4000
0105  0471                     APO+20
0106  0000                     HLT                     /APO I FAILED TO SKIP AC=4000

0107  0451                     APO
0110  0456                     SKP                     /TEST COMPLETE SKIP TO AZE TEST PART 1
0111  0000                     HLT                     /APO SKIPPED IN ERROR AC=4000
                        /
                        /AZE TEST PART 1 AC=0000 AND FLOAT A SINGLE 1 BIT
                        /
0112  0011                     CLR
0113  0450                     AZE
0114  0000                     HLT                     /AZE FAILED TO SKIP AC=0000

0115  0470                     AZE+20
0116  0456                     SKP
0117  0000                     HLT                     /AZE I SKIPPED IN ERROR AC=0000

0120  1020                     LDA+20                  /SET EACH BIT IN THE AC IN TURN, TESTING TO
0121  0001                     0001                    /SEE IF (AZE) DETECTS THE FACT THAT THE AC IS
0122  0470                     AZE+20                  /NON ZERO
0123  0000                     HLT                     /AZE I FAILED TO SKIP AC=0001

0124  0450                     AZE
0125  0456                     SKP
0126  0000                     HLT                     /AZE SKIPPED IN ERROR AC=0001

0127  1020                     LDA+20
0130  0002                     0002
0131  0470                     AZE+20
0132  0000                     HLT                     /AZE I FAILED TO SKIP AC=0002

0133  0450                     AZE
0134  0456                     SKP
0135  0000                     HLT                     /AZE SKIPPED IN ERROR AC=0002

0136  1020                     LDA+20
0137  0004                     0004
0140  0470                     AZE+20
0141  0000                     HLT                     /AZE I FAILED TO SKIP AC=0004

0142  0450                     AZE
```

```
2143  0456          SKP
2144  0000          HLT                 /AZE SKIPPED IN ERROR AC=0004

2145  1020          LDA+20
2146  0010          0010
2147  0470          AZE+20
2150  0000          HLT                 /AZE I FAILED TO SKIP AC=0010

2151  0450          AZE
2152  0456          SKP
2153  0000          HLT                 /AZE SKIPPED IN ERROR AC=0010
```

```
0154  1020          LDA+20
0155  0020          0020
0156  0470          AZE+20
0157  0000          HLT                     /AZE I FAILED TO SKIP AC=0020

0160  0450          AZE
0161  0456          SKP
0162  0000          HLT                     /AZE SKIPPED IN ERROR AC=0020

0163  1020          LDA+20
0164  0040          0040
0165  0470          AZE+20
0166  0000          HLT                     /AZE I FAILED TO SKIP AC=0040

0167  0450          AZE
0170  0456          SKP
0171  0000          HLT                     /AZE SKIPPED IN ERROR AC=0040

0172  1020          LDA+20
0173  0100          0100
0174  0470          AZE+20
0175  0000          HLT                     /AZE I FAILED TO SKIP AC=0100

0176  0450          AZE
0177  0456          SKP
0200  0000          HLT                     /AZE SKIPPED IN ERROR AC=0100

0201  1020          LDA+20
0202  0200          0200
0203  0470          AZE+20
0204  0000          HLT                     /AZE I FAILED TO SKIP AC=0200

0205  0450          AZE
0206  0456          SKP
0207  0000          HLT                     /AZE SKIPPED IN ERROR AC=0200

0210  1020          LDA+20
0211  0400          0400
0212  0470          AZE+20
0213  0000          HLT                     /AZE I FAILED TO SKIP AC=0400

0214  0450          AZE
0215  0456          SKP
0216  0000          HLT                     /AZE SKIPPED IN ERROR AC=0400

0217  1020          LDA+20
0220  1000          1000
0221  0470          AZE+20
0222  0000          HLT                     /AZE I FAILED TO SKIP AC=1000

0223  0450          AZE
0224  0456          SKP
0225  0000          HLT                     /AZE SKIPPED IN ERROR AC=1000
```

```
0226  1020          LDA+20
0227  2000          2000
0230  0470          AZE+20
0231  0000          HLT                     /AZE I FAILED TO SKIP AC=2000

0232  0450          AZE
0233  0456          SKP
0234  0000          HLT                     /AZE SKIPPED IN ERROR AC=2000

0235  1020          LDA+20
0236  4000          4000
0237  0470          AZE+20
0240  0000          HLT                     /AZE I FAILED TO SKIP AC=4000

0241  0450          AZE
0242  0456          SKP                     /TEST COMPLETE SKIP TO PART 2
0243  0000          HLT                     /AZE SKIPPED IN ERROR AC=4000
                    /
                    /AZE TEST PART 2 AC=7777 AND FLOAT A SINGLE 0 BIT
                    /
0244  1020          LDA+20                  /SET AC=7777 AND FLOAT A SINGLE 0 BIT THRU IT
0245  7777          7777                    /TO DETERMINE IF AC DETECTS THE FACT THAT THE AC
0246  0450          AZE                     /IS NON ZERO
0247  0000          HLT                     /AZE FAILED TO SKIP AC=7777

0250  0470          AZE+20
0251  0456          SKP
0252  0000          HLT                     /AZE I SKIPPED IN ERROR AC=7777

0253  1020          LDA+20
0254  7776          7776
0255  0470          AZE+20
0256  0000          HLT                     /AZE I FAILED TO SKIP AC=7776

0257  0450          AZE
0260  0456          SKP
0261  0000          HLT                     /AZE SKIPPED IN ERROR AC=7776

0262  1020          LDA+20
0263  7775          7775
0264  0470          AZE+20
0265  0000          HLT                     /AZE I FAILED TO SKIP C=7775

0266  0450          AZE
0267  0456          SKP
0270  0000          HLT                     /AZE SKIPPED IN ERROR AC=7775

0271  1020          LDA+20
0272  7773          7773
0273  0470          AZE+20
0274  0000          HLT                     /AZE I FAILED TO SKIP AC=7773
```

```
0275  0450          AZE
0276  0456          SKP
0277  0000          HLT                 /AZE SKIPPED IN ERROR AC=7773

0300  1020          LDA+20
0301  7767          7767
0302  0470          AZE+20
0303  0000          HLT                 /AZE I FAILED TO SKIP AC=7767

0304  0450          AZE
0305  0456          SKP
0306  0000          HLT                 /AZE SKIPPED IN ERROR AC=7767

0307  1020          LDA+20
0310  7757          7757
0311  0470          AZE+20
0312  0000          HLT                 /AZE I FAILED TO SKIP AC=7757

0313  0450          AZE
0314  0456          SKP
0315  0000          HLT                 /AZE SKIPPED IN ERROR AC=7757

0316  1020          LDA+20
0317  7737          7737
0320  0470          AZE+20
0321  0000          HLT                 /AZE I FAILED TO SKIP AC=7737

0322  0450          AZE
0323  0456          SKP
0324  0000          HLT                 /AZE SKIPPED IN ERROR AC=7737

0325  1020          LDA+20
0326  7677          7677
0327  0470          AZE+20
0330  0000          HLT                 /AZE I FAILED TO SKIP AC=7767

0331  0450          AZE
0332  0456          SKP
0333  0000          HLT                 /AZE SKIPPED IN DRROR AC=7677

0334  1020          LDA+20
0335  7577          7577
0336  0470          AZE+20
0337  0000          HLT                 /AZE I FAILED TO SKIP AC=7577

0340  0450          AZE
0341  0456          SKP
0342  0000          HLT                 /AZE SKIPPED IN ERROR AC=7577

0343  1020          LDA+20
0344  7377          7377
0345  0470          AZE+20
0346  0000          HLT                 /AZE I FAILED TO SKIP AC=7377
```

```
0347  0450          AZE
0350  0456          SKP
0351  0000          HLT                 /AZE SKIPPED IN ERROR AC=7377

0352  1020          LDA+20
0353  6777          6777
0354  0470          AZE+20
0355  0000          HLT                 /AZE I FAILED TO SKIP AC=6777

0356  0450          AZE
0357  0456          SKP
0360  0000          HLT                 /AZE SKIPPED IN ERROR AC=6777

0361  1020          LDA+20
0362  5777          5777
0363  0470          AZE+20
0364  0000          HLT                 /AZE I FAILED TO SKIP AC=5777

0365  0450          AZE
0366  0456          SKP
0367  0000          HLT                 /AZE SKIPPED IN ERROR AC=5777

0370  1020          LDA+20
0371  3777          3777
0372  0470          AZE+20
0373  0000          HLT                 /AZE I FAILED TO SKIP AC=3777

0374  0450          AZE
0375  0456          SKP
0376  0000          HLT                 /AZE SKIPPED IN ERROR AC=3777
```

```
                        /
                        /AZE TESTS WITH L=1 SEE IF LINK AFFECTS THE AZE COMMAND
                        /
0377  0002                      PDP                     /ROUTINE IN 8 MODE TO SET LINK
0400  7320                      CLL CML CLA             /AC=0000, L=1
0401  6141                      LINC

0402  1020                      LDA+20
0403  7777                      7777
0404  0450                      AZE
0405  0000                      HLT                     /AZE FAILED TO SKIP AC=7777 L=1

0406  0470                      AZE+20
0407  0456                      SKP
0410  0000                      HLT                     /AZE I SKIPPED IN ERROR AC=7777 L=1

0411  1020                      LDA+20
0412  0000                      0000
0413  0450                      AZE
0414  0000                      HLT                     /AZE FAILED TO SKIP AC=0000 L=1

0415  0470                      AZE+20
0416  0456                      SKP                     /TEST COMPLETE SKIP TO LZE TEST
0417  0000                      HLT                     /AZE I SKIPPED IN ERROR AC=0000 L=1
                        /
                        /LZE TEST L=0 I=0, I=1
                        /
0420  0011                      CLR                     /CLEAR AC, L, MQ
0421  0452                      LZE                     /SKIP IF LINK = 0
0422  0000                      HLT                     /LZE FAILED TO SKIP AC=0000 L=0

0423  0472                      LZE+20
0424  0456                      SKP
0425  0000                      HLT                     /LZE I SKIPPED IN ERROR AC=3777 L=0

0426  0002                      PDP                     /ROUTINE IN 8 MODE TO SET LINK
0427  7120                      CLL CML
0430  6141                      LINC
                        /
                        /LZE TEST L=1, I=0, I=1
                        /
0431  0472                      LZE+20
0432  0000                      HLT                     /LZE I FAILED TO SKIP AC=3777 L=1

2433  0452                      LZE
2434  0456                      SKP                     /TEST COMPLETE SKIP TO SAE TEST
2435  0000                      HLT                     /LZE SKIPPED IN ERROR AC=3777 L=1
                        /
                        /SAE TEST PART 1 AC=0000 L=1 MEM=0001 FLOAT A SINGLE ONE BIT THRU MEM
                        /
2436  1020                      LDA+20                  /SET EACH AC BIT IN TURN TO A ONE COMPARE
2437  0000                      0000                    /IT WITH AN ALL ZERO IN THE SAE INSTRUCTION
2440  1460                      SAE+20
2441  0000                      0000
```

```
0442  0000          HLT                 /SAE FAILED TO SKIP MEM=0000 AC=0000 L=1

0443  1460          SAE+20              /LEAVE AC=0000 AND FLOAT A SINGLE 1 BIT THRU MEM
0444  0001          0001
0445  0456          SKP
0446  0000          HLT                 /SAE SKIPPED IN ERROR MEM=0001 AC=0000

0447  1460          SAE+20
0450  0002          0002
0451  0456          SKP
0452  0000          HLT                 /SAE SKIPPER IN ERROR MEM=0002 AC=0000

0453  1460          SAE+20
0454  0004          0004
0455  0456          SKP
0456  0000          HLT                 /SAE SKIPPED IN ERROR MEM=0004 AC=0000

0457  1460          SAE+20
0460  0010          0010
0461  0456          SKP
0462  0000          HLT                 /SAE SKIPPED IN ERROR MEM=0010 AC=0000

0463  1460          SAE+20
0464  0020          0020
0465  0456          SKP
0466  0000          HLT                 /SAE SKIPPED IN ERROR MEM=0020 AC=0000

0467  1460          SAE+20
0470  0040          0040
0471  0456          SKP
0472  0000          HLT                 /SAE SKIPPED IN ERROR MEM=0040 AC=0000
```

```
0473  1460            SAE+20
0474  0100            0100
0475  0456            SKP
0476  0000            HLT                     /SAE SKIPPED IN ERROR MEM=0100 AC=0000

0477  1460            SAE+20
0500  0200            0200
0501  0456            SKP
0502  0000            HLT                     /SAE SKIPPED IN ERROR MEM=0200 AC=0000

0503  1460            SAE+20
0504  0400            0400
0505  0456            SKP
0506  0000            HLT                     /SAE SKIPPED IN ERROR MEM=0400 AC=0000

0507  1460            SAE+20
0510  1000            1000
0511  0456            SKP
0512  0000            HLT                     /SAE SKIPPED IN ERROR MEM=1000 AC=0000

0513  1460            SAE+20
0514  2000            2000
0515  0456            SKP
0516  0000            HLT                     /SAE SKIPPED IN ERROR MEM=2000 AC=0000

0517  1460            SAE+20
0520  4000            4000
0521  0456            SKP                     /TEST COMPLETE SKIP TO SAE PART 2
0522  0000            HLT                     /SAE SKIPPED IN ERROR MEM=4000 AC=0000
                /
                /SAE TEST PART 2 MEM=0000 AC=0001 FLOAT A SINGLE ONE BIT THRU AC
                /
0523  1020            LDA+20                  /SET EACH AC BIT IN TURN TO A 1 COMPARE
0524  0001            0001                    /IT WITH AN ALL ZERO COMPARE WORD IN THE SAE
0525  1460            SAE+20                  /INSTRUCTION
0526  0000            0000
0527  0456            SKP
0530  0000            HLT                     /SAE SKIPPED IN ERROR MEM=0000 AC=0001

0531  1020            LDA+20
0532  0002            0002
0533  1460            SAE+20
0534  0000            0000
0535  0456            SKP
0536  0000            HLT                     /SAE SKIPPED IN ERROR MEM=0000 AC=0001

0537  1020            LDA+20
0540  0004            0004
0541  1460            SAE+20
0542  0000            0000
0543  0456            SKP
0544  0000            HLT                     /SAE SKIPPED IN ERROR MEM=0000 AC=0002

0545  1020            LDA+20
```

```
0546  0010          0010
0547  1460          SAE+20
0550  0000          0000
0551  0456          SKP
0552  0000          HLT                    /SAE SKIPPED IN ERROR MEM=0000 AC=0010
```

```
0553  1020          LDA+20
0554  0020          0020
0555  1460          SAE+20
0556  0000          0000
0557  0456          SKP
0560  0000          HLT                 /SAE SKIPPED IN ERROR  MEM=0000 AC=0010

0561  1020          LDA+20
0562  0040          0040
0563  1460          SAE+20
0564  0000          0000
0565  0456          SKP
0566  0000          HLT                 /SAE SKIPPED IN ERROR MEM=0000 AC=0040

0567  1020          LDA+20
0570  0100          0100
0571  1460          SAE+20
0572  0000          0000
0573  0456          SKP
0574  0000          HLT                 /SAE SKIPPED IN ERROR MEM=0000 AC=0100

0575  1020          LDA+20
0576  0200          0200
0577  1460          SAE+20
0600  0000          0000
0601  0456          SKP
0602  0000          HLT                 /SAE SKIPPED IN ERROR MEM=0000 AC=0200

0603  1020          LDA+20
0604  0400          0400
0605  1460          SAE+20
0606  0000          0000
0607  0456          SKP
0610  0000          HLT                 /SAE SKIPPED IN ERROR MEM=0000 AC=0400

0611  1020          LDA+20
0612  1000          1000
0613  1460          SAE+20
0614  0000          0000
0615  0456          SKP
0616  0000          HLT                 /SAE SKIPPED IN ERROR MEM=0000 AC=1000

0617  1020          LDA+20
0620  2000          2000
0621  1460          SAE+20
0622  0000          0000
0623  0456          SKP
0624  0000          HLT                 /SAE SKIPPED IN ERROR MEM=0000 AC=2000

0625  1020          LDA+20
0626  4000          4000
0627  1460          SAE+20
0630  0000          0000
```

```
0631  0456          SKP                    /TEST COMPLETE SKIP TO SAE TEST PART 3
0632  0000          HLT                    /SAE SKIPPED IN ERROR MEM=0000 AC=4000
```

```
                        /
                        /SAE TEST PART 3 MEM=7777 AC=7776 FLOAT A SINGLE 0 BIT THRU AC
                        /
0633  1020               LDA+20                  /FLOAT A SINGLE 0 THRU THE AC COMPARE THIS
0634  7776               7776                    /AGAINST 7777 IN THE SAE OPERAND.
0635  1460               SAE+20
0636  7777               7777
0637  0456               SKP
0640  0000               HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=7776

0641  1020               LDA+20
0642  7775               7775
0643  1460               SAE+20
0644  7777               7777
0645  0456               SKP
0646  0000               HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=AC7775

0647  1020               LDA+20
0650  7773               7773
0651  1460               SAE+20
0652  7777               7777
0653  0456               SKP
0654  0000               HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=7773

0655  1020               LDA+20
0656  7767               7767
0657  1460               SAE+20
0660  7777               7777
0661  0456               SKP
0662  0000               HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=7767

0663  1020               LDA+20
0664  7757               7757
0665  1460               SAE+20
0666  7777               7777
0667  0456               SKP
0670  0000               HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=7757

0671  1020               LDA+20
0672  7737               7737
0673  1460               SAE+20
0674  7777               7777
0675  0456               SKP
0676  0000               HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=7737

0677  1020               LDA+20
0700  7677               7677
0701  1460               SAE+20
0702  7777               7777
0703  0456               SKP
0704  0000               HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=7677
```

```
0705  1020          LDA+20
0706  7577          7577
0707  1460          SAE+20
0710  7777          7777
0711  0456          SKP
0712  0000          HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=7577

0713  1020          LDA+20
0714  7377          7377
0715  1460          SAE+20
0716  7777          7777
0717  0456          SKP
0720  0000          HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=7377

0721  1020          LDA+20
0722  6777          6777
0723  1460          SAE+20
0724  7777          7777
0725  0456          SKP
0726  0000          HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=6777

0727  1020          LDA+20
0730  5777          5777
0731  1460          SAE+20
0732  7777          7777
0733  0456          SKP
0734  0000          HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=5777

0735  1020          LDA+20
0736  3777          3777
0737  1460          SAE+20
0740  7777          7777
0741  0456          SKP                     /TEST COMPLETE SKIP TO SAE TEST PART 4
0742  0000          HLT                     /SAE SKIPPED IN ERROR MEM=7777 AC=3777
                    /
                    /SAE TEST PART 4 MEM=7776 AC=7777 L=1 FLOAT A SINGLE 0 THRU MEM
                    /
0743  1020          LDA+20                  /SET THE AC TO 7777 AND FLOAT A SINGLE
0744  7777          7777                    /ZERO THRU THE SAE OPERAND
0745  1460          SAE+20
0746  7776          7776
0747  0456          SKP
0750  0000          HLT                     /SAE SKIPPED IN ERROR MEM=7776 AC=7777

0751  1460          SAE+20
0752  7775          7775
0753  0456          SKP
0754  0000          HLT                     /SAE SKIPPED IN ERROR MEM=7775 AC=7777

0755  1460          SAE+20
0756  7773          7773
0757  0456          SKP
0760  0000          HLT                     /SAE SKIPPED IN ERROR MEM=7773 AC=7777
```

```
0761  1460          SAE+20
0762  7767          7767
0763  0456          SKP
0764  0000          HLT                 /SAE SKIPPED IN ERROR MEM=7767 AC7777

0765  1460          SAE+20
0766  7757          7757
0767  0456          SKP
0770  0000          HLT                 /SAE SKIPPED IN ERROR MEM=7757 AC=7777

0771  1460          SAE+20
0772  7737          7737
0773  0456          SKP
0774  0000          HLT                 /SAE SKIPPED IN ERROR MEM=7737 AC=7777
```

```
0775  1460          SAE+20
0776  7677          7677
0777  0456          SKP
1000  0000          HLT             /SAE SKIPPED IN ERROR MEM=7677 AC=7777

1001  1460          SAE+20
1002  7577          7577
1003  0456          SKP
1004  0000          HLT             /SAE SKIPPED IN ERROR MEM=7577 AC=7777

1005  1460          SAE+20
1006  7377          7377
1007  0456          SKP
1010  0000          HLT             /SAE SKIPPED IN ERROR MEM=7377 AC=7777

1011  1460          SAE+20
1012  6777          6777
1013  0456          SKP
1014  0000          HLT             /SAE SKIPPED IN ERROR MEM=6777 AC=7777

1015  1460          SAE+20
1016  5777          5777
1017  0456          SKP
1020  0000          HLT             /SAE SKIPPED IN ERROR MEM=5777 AA=7777

1021  1460          SAE+20
1022  3777          3777
1023  0456          SKP
1024  0000          HLT             /SAE SKPPPED IN ERROR MEM=3777 AC=7777

                /
                /SAE SOME COMBINATIONS OF EQUALITY

1025  1020          LDA+20                  /TEST SAE USING NOISY OPERANDS
1026  5252          5252
1027  1460          SAE+20
1030  5252          5252
1031  0000          HLT             /SAE FAILED TO SKIP MEM=5252 AC=5252

1032  1020          LDA+20
1033  2525          2525
1034  1460          SAE+20
1035  2525          2525
1036  0000          HLT             /SAE FAILED TO SKIP MEM=2525 AC=2525

1037  1020          LDA+20
1040  7777          7777
1041  1460          SAE+20          /END OF SAE TESTS SKIP TO ROL TEST PART 1
1042  7777          7777
1043  0000          HLT             /SAE FAILED TO SKIP MEM=7777 AC=7777
```

```
                        /
                        /ROL TEST PART 1 FLOATS A SINGLE ONE THRU THE AC, THE LINK BIT IS SET TO ONE
                        /LATER ON WE WILL TEST TO BE SURE WE DIDN'T DISTURB THE LINK
1044  0002              PDP
1045  7120              CLL CML           /SET LINK
1046  6141              LINC
1047  1020              LDA+20                    /SET A SINGLE BIT IN THE AC, ROL ONE PLACE
1050  0001              0001                      /AND TEST THE RESULT
1051  0240              ROL
1052  1460              SAE+20
1053  0001              0001
1054  0000              HLT               /ROL 0 CHANGED AC AC=0001 L=0

1055  1020              LDA+20
1056  0001              0001
1057  0241              ROL+1
1060  1460              SAE+20
1061  0002              0002
1062  0000              HLT               /ROL+1 FAILED AC11 TO AC10 AC=002

1063  1020              LDA+20
1064  0002              0002
1065  0241              ROL+1
1066  1460              SAE+20
1067  0004              0004
1070  0000              HLT               /ROL+1 FAILED AC10 TO AC9 AC=004

1071  1020              LDA+20
1072  0004              0004
1073  0241              ROL+1
1074  1460              SAE+20
1075  0010              0010
1076  0000              HLT               /ROL+1 FAILED AC9 TO AC8 AC=0010

1077  1020              LDA+20
1100  0010              0010
1101  0241              ROL+1
1102  1460              SAE+20
1103  0020              0020
1104  0000              HLT               /ROL+1 FAILED AC8 TO AC7 AC=0020

1105  1020              LDA+20
1106  0020              0020
1107  0241              ROL+1
1110  1460              SAE+20
1111  0040              0040
1112  0000              HLT               /ROL+1 FAILED AC7 TO AC6 AC=0040

1113  1020              LDA+20
1114  0040              0040
1115  0241              ROL+1
1116  1460              SAE+20
1117  0100              0100
1120  0000              HLT               /ROL+1 FAILED AC6 TO AC5 AC=0100
```

```
1121  1020          LDA+20
1122  0100          0100
1123  0241          ROL+1
1124  1460          SAE+20
1125  0200          0200
1126  0000          HLT             /ROL+1 FAILED AC5 TO AC4 AC=0200

1127  1020          LDA+20
1130  0200          0200
1131  0241          ROL+1
1132  1460          SAE+20
1133  0400          0400
1134  0000          HLT             /ROL+1 FAILED 0C4 TO AC3 AC=0400

1135  1020          LDA+20
1136  0400          0400
1137  0241          ROL+1
1140  1460          SAE+20
1141  1000          1000
1142  0000          HLT             /ROL+1 FAILED AC3 TO AC3 AC=1000

1143  1020          LDA+20
1144  1000          1000
1145  0241          ROL+1
1146  1460          SAE+20
1147  2000          2000
1150  0000          HLT             /ROL+1 FAILED AC2 TO AC1 AC=2000

1151  1020          LDA+20
1152  2000          2000
1153  0241          ROL+1
1154  1460          SAE+20
1155  4000          4000
1156  0000          HLT             /ROL+1 FAILED AC1 TO AC0 AC=4000

1157  1020          LDA+20
1160  4000          4000
1161  0241          ROL+1
1162  1460          SAE+20
1163  0001          0001            /ROL+1 FAILED AC0 TO AC11 AC=0001
1164  0000          HLT

1165  0472          LZE+20          /TEST COMPLETE SKIP TO ROL TEST PART 2
1166  0000          HLT             /LINK CLEARED BY ROL+1 IN ERROR AC=0001
```

```
                    /
                    /ROL TEST PART 2 COUNTER TEST USING NOISY NUMBER IN THE AC
                    /
1167  1020          LDA+20                  /LOAD A TEST NUMBER INTO THE AC
1170  5252          5252                    /PERFORM ROL +2,3,4,..,17 AND TEST THE RESULT
1171  0242          ROL+2
1172  1460          SAE+20
1173  5252          5252
1174  0000          HLT             /ROL+2 FAILED AC=5252

1175  1020          LDA+20
1176  2525          2525
1177  0243          ROL+3
1200  1460          SAE+20
1201  5252          5252
1202  0000          HLT             /ROL+3 FAILED AC=5252

1203  1020          LDA+20
1204  0077          0077
1205  0244          ROL+4
1206  1460          SAE+20
1207  1760          1760
1210  0000          HLT             /ROL+4 FAILED AC=1760

1211  1020          LDA+20
1212  7700          7700
1213  0245          ROL+5
1214  1460          SAE+20
1215  4037          4037
1216  0000          HLT             /ROL+5 FAILED AC=4037

1217  1020          LDA+20
1220  5200          5200
1221  0246          ROL+6
1222  1460          SAE+20
1223  0052          0052
1224  0000          HLT             /ROL+6 FAILED AC=0052

1225  1020          LDA+20
1226  2500          2500
1227  0247          ROL+7
1230  1460          SAE+20
1231  0052          0052
1232  0000          HLT             /ROL+7 FAILED AC=0052

1233  1020          LDA+20
1234  0025          0025
1235  0250          ROL+10
1236  1460          SAE+20
1237  2401          2401
1240  0000          HLT             /ROL+10 FAILED AC=2401
```

```
1241  1020          LDA+20
1242  0052          0052
1243  0251          ROL+11
1244  1460          SAE+20
1245  2005          2005
1246  0000          HLT             /ROL+11 FAILED AC=2005

1247  1020          LDA+20
1250  0770          0770
1251  0252          ROL+12
1252  1460          SAE+20
1253  0176          0176
1254  0000          HLT             /ROL+12 FAILED AC=0176

1255  1020          LDA+20
1256  0707          0707
1257  0253          ROL+13
1260  1460          SAE+20
1261  4343          4343
1262  0000          HLT             /ROL+13 FAILED AC=4343

1263  1020          LDA+20
1264  7070          7070
1265  0254          ROL+14
1266  1460          SAE+20
1267  7070          7070
1270  0000          HLT             /ROL+14 FAILED AC=7070

1271  1020          LDA+20
1272  7007          7007
1273  0255          ROL+15
1274  1460          SAE+20
1275  6017          6017
1276  0000          HLT             /ROL+15 FAILED AC=6017

1277  1020          LDA+20
1300  0520          0520
1301  0256          ROL+16
1302  1460          SAE+20
1303  2500          2500
1304  0000          HLT             /ROL+16 FAILED AC=2500

1305  1020          LDA+20
1306  0250          0250
1307  0257          ROL+17
1310  1460          SAE+20
1311  2500          2500
1312  0000          HLT             /ROL+17 FAILED AC=1240

1313  0472          LZE+20          /TEST COMPLETE SKIP TO ROL TEST 3
1314  0000          HLT             /LINK CLEARED BY ROL+2 THRU 17 IN ERROR AC=2500
```

```
                    /ROL I TEST PART 3

1315  0002          PDP             /ROUTINE IN 8 MODE TO SET LINK
1316  7120          CLL CML
1317  6141          LINC

1320  1020          LDA 20                  /DOES SETTING THE I BIT EFFECT THE LINK
1321  2525          2525
1322  0260          ROL 20
1323  1460          SAE 20
1324  2525          2525
1325  0000          HLT             /ROL I 0 FAILED AC=2525

1326  0472          LZE 20
1327  0000          HLT             /ROL I 0 FAILED L=1

1330  1020          LDA 20
1331  2525          2525
1332  0261          ROL 20 1
1333  1460          SAE 20
1334  5253          5253
1335  0000          HLT             /ROL I 1 FAILED AC=5253
                                    /IF AC=5252 LINK TO AC11 FAILED

1336  0452          LZE
1337  0000          HLT             /ROL I 1 FAILED L=0

1340  0011          CLR             /CLEAR LINK AND AC
1341  1020          LDA 20
1342  5252          5252
1343  0261          ROL 20 1
1344  1460          SAE 20
1345  2524          2524
1346  0000          HLT             /ROL I 1 FAILED AC=2524

1347  0472          LZE 20
1350  0000          HLT             /ROL I 1 FAILED AC00 TO LINK L=1

1351  0011          CLR
1352  1020          LDA 20
1353  5252          5252
1354  0277          ROL 20 17
1355  1460          SAE 20
1356  5251          5251
1357  0000          HLT             /ROL I 17 FAILED AC=5251

1360  0452          LZE             /TEST COMPLETE SKIP TO ROL TEST 4
1361  0000          HLT             /ROL I 17 FAILED L=0
```

```
                        /
                        /ROR TEST 4 FLOATS A SINGLE ONE THRU THE AC THE LINK BIT IS SET TO A ONE
                        /LATER ON WELL WILL TEST TO BE SURE WE DIDN'T DISTURB THE LINK
1362  0002                      PDP             /SET LINK IN 8 MODE
1363  7120                      CLL CML
1364  6141                      LINC

1365  1020                      LDA+20
1366  4000                      4000
1367  0300                      ROR
1370  1460                      SAE+20
1371  4000                      4000
1372  0000                      HLT             /ROR 0 FAILED AC0 TO AC0 AC=4000

1373  1020                      LDA+20
1374  4000                      4000
1375  0301                      ROR+1
1376  1460                      SAE+20
1377  2000                      2000
1400  0000                      HLT             /ROR +1 FAILED AC0 TO AC1 AC=2000

1401  1020                      LDA+20
1402  2000                      2000
1403  0301                      ROR+1
1404  1460                      SAE+20
1405  1000                      1000
1406  0000                      HLT             /ROR +1 FAILED AC1 TO AC2 AC=1000

1407  1020                      LDA+20
1410  1000                      1000
1411  0301                      ROR+1
1412  1460                      SAE+20
1413  0400                      0400
1414  0000                      HLT             /ROR +1 FAILED AC2 TO AC3 AC=0400

1415  1020                      LDA+20
1416  0400                      0400
1417  0301                      ROR+1
1420  1460                      SAE+20
1421  0200                      0200
1422  0000                      HLT             /ROR+1 FAILED AC3 TO AC4 AC=0200

1423  1020                      LDA+20
1424  0200                      0200
1425  0301                      ROR+1
1426  1460                      SAE+20
1427  0100                      0100
1430  0000                      HLT             /ROR+1 FAILED AC4 TO AC5 AC=0100
```

```
1431  1020          LDA+20
1432  0100          0100
1433  0301          ROR+1
1434  1460          SAE+20
1435  0040          0040
1436  0000          HLT             /ROR+1 FAILED AC5 TO AC6 AC=0040

1437  1020          LDA+20
1440  0040          0040
1441  0301          ROR+1
1442  1460          SAE+20
1443  0020          0020
1444  0000          HLT             /ROR+1 FAILED AC6 TO AC7 AC=0020

1445  1020          LDA+20
1446  0020          0020
1447  0301          ROR+1
1450  1460          SAE+20
1451  0010          0010
1452  0000          HLT             /ROR+1 FAILED AC7 TO AC8 AC=0010

1453  1020          LDA+20
1454  0010          0010
1455  0301          ROR+1
1456  1460          SAE+20
1457  0004          0004
1460  0000          HLT             /ROR+1 FAILED AC8 TO AC9 AC=0004

1461  1020          LDA+20
1462  0004          0004
1463  0301          ROR+1
1464  1460          SAE+20
1465  0002          0002
1466  0000          HLT             /ROR+1 FAILED AC9 TO AC10 AC=0002

1467  1020          LDA+20
1470  0002          0002
1471  0301          ROR+1
1472  1460          SAE+20
1473  0001          0001
1474  0000          HLT             /ROR+1 FAILED AC10 TO AC11 AC=0001

1475  1020          LDA+20
1476  0001          0001
1477  0301          ROR+1
1500  1460          SAE+20
1501  4000          4000
1502  0000          HLT             /ROR+1 FAILED AC11 TO AC0 AC=4000

1503  0472          LZE+20          /TEST COMPLETE SKIP RO ROR TEST 5
1504  0000          HLT             /ROR+1 CLEARED LINK IN ERROR AC=4000
```

```
                    /
                    /ROR TEST 5 COUNTER TEST WITH NOISY NUMBERS IN THE AC
                    /
1505  1020          LDA+20
1506  5252          5252
1507  0302          ROR+2
1510  1460          SAE+20
1511  5252          5252
1512  0000          HLT             /ROR+2 FAILED AC=5252

1513  1020          LDA+20
1514  2525          2525
1515  0303          ROR+3
1516  1460          SAE+20
1517  5252          5252
1520  0000          HLT             /ROR+3 FAILED AC=5252

1521  1020          LDA+20
1522  0077          0077
1523  0304          ROR+4
1524  1460          SAE+20
1525  7403          7403
1526  0000          HLT             /ROR+4 FAILED AC=7403

1527  1020          LDA+20
1530  7700          7700
1531  0305          ROR+5
1532  1460          SAE+20
1533  0176          0176
1534  0000          HLT             /ROR+5 FAILED AC=0176

1535  1020          LDA+20
1536  5200          5200
1537  0306          ROR+6
1540  1460          SAE+20
1541  0052          0052
1542  0000          HLT             /ROR+6 FAILED AC=0052

1543  1020          LDA+20
1544  2500          2500
1545  0307          ROR+7
1546  1460          SAE+20
1547  4012          4012
1550  0000          HLT             /ROR+7 FAILED AC=4012
```

```
1551  1020          LDA+20
1552  0025          0025
1553  0310          ROR+10
1554  1460          SAE+20
1555  0520          0520
1556  0000          HLT             /ROR+10 FAILED AC=0520

1557  1020          LDA+20
1560  0052          0052
1561  0311          ROR+11
1562  1460          SAE+20
1563  0520          0520
1564  0000          HLT             /ROR+11 FAILED AC=0520

1565  1020          LDA+20
1566  0770          0770
1567  0312          ROR+12
1570  1460          SAE+20
1571  3740          3740
1572  0000          HLT             /ROR+12 FAILED AC=0374

1573  1020          LDA+20
1574  0707          0707
1575  0313          ROR+13
1576  1460          SAE+20
1577  1616          1616
1600  0000          HLT             /ROR+13 FAILED AC=1616

1601  1020          LDA+20
1602  7070          7070
1603  0314          ROR+14
1604  1460          SAE+20
1605  7070          7070
1606  0000          HLT             /ROR+14 FAILED AC=7070

1607  1020          LDA+20
1610  7007          7007
1611  0315          ROR+15
1612  1460          SAE+20
1613  7403          7403
1614  0000          HLT             /ROR+15 FAILED AC=7403

1615  1020          LDA+20
1616  0520          0520
1617  0316          ROR+16
1620  1460          SAE+20
1621  0124          0124
1622  0000          HLT             /ROR+16 FAILED AC=0124

1623  1020          LDA+20
1624  0250          0250
1625  0317          ROR+17
1626  1460          SAE+20
1627  0025          0025
1632  0000          HLT             /ROR+17 FAILED AC=0025
```

```
1631  0472          LEE+20          /TEST COMPLETE SKIP TO ROR TEST 2
1632  0000          HLT             /LINK CLEARED BY ROR2 THRU 17
```

```
                    /ROR I TEST 2

1633  0002          PDP             /ROUTINE IN 8 MODE TO SET LINK
1634  7120          CLL CML
1635  6141          LINC

1636  1020          LDA+20
1637  5252          5252
1640  0320          ROR+20
1641  1460          SAE+20
1642  5252          5252
1643  0000          HLT             /ROR I+0 FAILED AC=5252

1644  0472          LZE+20
1645  0000          HLT             /ROR I+0 FAILED L=1,

1646  1020          LDA+20
1647  5252          5252
1650  0321          ROR+20+1
1651  1460          SAE+20
1652  6525          6525
1653  0000          HLT             /ROR I+1 FAILED AC=6525

1654  0452          LZE
1655  0000          HLT             /ROR I+1 FAILED ACII TO LINK L=0

1656  0011          CLR
1657  1020          LDA+20
1660  2525          2525
1661  0321          ROR+20+1
1662  1460          SAE+20
1663  1252          1252
1664  0000          HLT             /ROR I+1 FAILED AC=2524

1665  0472          LZE+20
1666  0000          HLT             /ROL I+1 FAILED ACII TO LINK L=1

1667  0011          CLR
1670  1020          LDA+20
1671  2525          2525
1672  0337          ROR+20+17
1673  1460          SAE+20
1674  4525          4525
1675  0000          HLT             /ROR I+17 FAILED AC=2525

1676  0452          LZE             /TEST COMPLETE, SKIP TO ROR TEST 3
1677  0000          HLT             /ROR I+17 FAILED L=0
```

```
                    /ROR TEST 3 AC DATA TO THE MQ TEST (QAC) TEST

1700  0011          CLR                     /CLEAR AC, L, MQ
1701  1020          LDA+20/-9S
1702  0001          0001                    /ROR INTO MQ REGISTER,
1703  0301          ROR+1                   /QAC IT INTO AC,
1704  0005          QAC                     /AND TEST IT
1705  1460          SAE+20
1706  2000          2000
1707  0000          HLT             /MQ DATA FAILED AC=2000 MQ=4000

1710  0011          CLR
1711  1020          LDA+20
1712  0001          0001
1713  0302          ROR+2
1714  0005          QAC
1715  1460          SAE+20
1716  1000          1000
1717  0000          HLT             /MQ DATA FAILED AC=1000 MQ=2000


1720  0011          CLR
1721  1020          LDA+20
1722  0001          0001
1723  0303          ROR+3
1724  0005          QAC
1725  1460          SAE+20
1726  0400          0400
1727  0000          HLT             /MQ DATA FAILED AC=0400 MQ=0000

1730  0011          CLR
1731  1020          LDA+20
1732  0001          0001
1733  0304          ROR+4
1734  0005          QAC
1735  1460          SAE+20
1736  0200          0200
1737  0000          HLT             /MQ DATA FAILED AC=0200 MQ=0400


1740  0011          CLR
1741  1020          LDA+20
1742  0001          0001
1743  0305          ROR+5
1744  0005          QAC
1745  1460          SAE+20
1746  0100          0100
1747  0000          HLT             /MQ DATA FAILED AC=0100 MQ=0200

1750  0011          CLR
1751  1020          LDA+20
1752  0001          0001
1753  0306          ROR+6
1754  0005          QAC
```

```
1755  1460          SAE+20          /TEST PARTIALLY COMPLETE, CHANGE IF
1756  0040          0040
1757  0000          HLT             /MQ DATA FAILED AC=0040 MQ=0010
```

```
                        /SUBROUTINE TO CHANGE INSTRUCTION FIELDS:
                        /GO TO P MODE, JUMP INDIRECT INTO NEXT
                        /2K OF MEMORY, AND SWITCH BACK TO L MODE,
                        /THE MA IS LOADED INTO THE IB, THEN THE
                        /IB IS TRANSFERRED TO TO THE IF
                        /IF THIS FAILS, WE SHOULD LAND @ 0002
```

```
1760  0002            PDP             /GO TO 8 MODE
1761  5762            5600 ,+1        /JMP I ,+1
1762  2001            2001            /NEW FIELD
      2001    *2001
2001  6141            LINC
2002  0011            CLR             /CONTINUE ROR TEST 3
2003  0456            SKP
2004  0000            HLT             /ERROR 6141 AT 3707 FAILED
2005  1020            LDA+20
2006  0001            0001
2007  0307            ROR+7
2010  0005            QAC
2011  1460            SAE+20
2012  0020            0020
2013  0000            HLT             /MQ DATA FAILED AC=0020 MQ=0040


2014  0011            CLR
2015  1020            LDA+20
2016  0001            0001
2017  0310            ROR+10
2020  0005            QAC
2021  1460            SAE+20
2022  0010            0010
2023  0000            HLT             /MQ DATA FAILED AC=0010 MQ=0020


2024  0011            CLR
2025  1020            LDA+20
2026  0001            0001
2027  0311            ROR+11
2030  0005            QAC
2031  1460            SAE+20
2032  0004            0004
2033  0000            HLT             /MQ DATA FAILED AC=0004 MQ=0010

2034  0011            CLR
2035  1020            LDA+20
2036  0001            0001
2037  0312            ROR+12
2040  0005            QAC
2041  1460            SAE+20
2042  0002            0002
2043  0000            HLT             /MQ DATA FAILED AC=0002 MQ=0004
```

```
2044  0011            CLR
2045  1020            LDA+20
2046  0001            0001
2047  0313            ROR+13
2050  0005            QAC
2051  1460            SAE+20          /TEST COMPLETE SKIP TO QLC TEST
2052  0001            0001
2053  0000            HLT             /MQ DATA FAILED AC=0001 MQ=0002
                /
                /QLZ TEST
                /

2054  0455            QLZ
2055  0000            HLT             /MQ11 NOT ZERO ON QLC FAILED AC=0001 MQ=0002

2056  0475            QLZ+20
2057  0456            SKP
2060  0000            HLT             /QLC +20 SKIPPED IN ERROR

2061  1020            LDA+20
2062  0001            0001
2063  0314            ROR+14
2064  0475            QLZ+20
2065  0000            HLT             /QLC +20 FAILED MQ=0001

2066  0455            QLZ
2067  0456            SKP
2070  0000            HLT             /QLC FAILED MQ=0001
                /ROR TEST 4
                /ROR INTO MQ USING NOISY NUMBERS
                /
2071  1020            LDA+20
2072  5252            5252
2073  0314            ROR+14
2074  0005            QAC
2075  1460            SAE+20
2076  2525            2525
2077  0000            HLT             /ROR+14 FAILED AC=2525 MQ=5252

2100  0455            QLZ
2101  0000            HLT             /MQ11=0

2102  1020            LDA+20
2103  2525            2525
2104  0314            ROR+14
2105  0005            QAC
2106  1460            SAE+20
2107  1252            1252
2110  0000            HLT             /ROR+14 FAILED AC=1252 MQ=2525

2111  0475            QLZ+20
2112  0000            HLT             /MQ11=1
```

```
2113  1020          LDA+20
2114  0077          0077
2115  0314          ROR+14
2116  0005          QAC
2117  1460          SAE+20
2120  0037          0037
2121  0000          HLT             /ROR+14 FAILED AC=0037  MQ=0077

2122  0475          QLZ+20
2123  0000          HLT             /MQ11=1

2124  1020          LDA+20
2125  7700          7700
2126  0314          ROR+14
2127  0005          QAC
2130  1460          SAE+20
2131  3740          3740
2132  0000          HLT             /ROR+14 FAILED AC=3740 MQ=7700

2133  0455          QLZ
2134  0000          HLT             /MQ11=0

2135  1020          LDA+20
2136  5200          5200
2137  0314          ROR+14
2140  0005          QAC
2141  1460          SAE+20
2142  2500          2500
2143  0000          HLT             /ROR+14 FAILED AC=2500 MQ=5200

2144  0455          QLZ
2145  0000          HLT             /MQ11=0

2146  1020          LDA+20
2147  2500          2500
2150  0314          ROR+14
2151  0005          QAC
2152  1460          SAE+20
2153  1240          1240
2154  0000          HLT             /ROR+14 FAILED AC=1240 MQ=2500

2155  0455          QLZ
2156  0000          HLT             /MQ11=0

2157  1020          LDA+20
2160  0025          0025
2161  0314          ROR+14
2162  0005          QAC
2163  1460          SAE+20
2164  0012          0012
2165  0000          HLT             /ROR+14 FAILED AC=0012 MQ=0025
```

```
2166  0475          QLZ+20
2167  0000          HLT             /MQ11=1

2170  1020          LDA+20
2171  0052          0052
2172  0314          ROR+14
2173  0005          QAC
2174  1460          SAE+20
2175  0025          0025
2176  0000          HLT             /ROR+14 FAILED AC=0025 MQ=0052

2177  0455          QLZ
2200  0000          HLT             /MQ11=0

2201  1020          LDA+20
2202  0770          0770
2203  0314          ROR+14
2204  0005          QAC
2205  1460          SAE+20
2206  0374          0374
2207  0000          HLT             /ROR+14 FAILED AC=0374 MQ=0770

2210  0455          QLZ
2211  0000          HLT             /MQ11=0

2212  1020          LDA+20
2213  0707          0707
2214  0314          ROR+14
2215  0005          QAC
2216  1460          SAE+20
2217  0343          0343
2220  0000          HLT             /ROR+14 FAILED AC=0343 MQ=0707

2221  0475          QLZ+20
2222  0000          HLT             /MQ1=1

2223  1020          LDA+20
2224  7070          7070
2225  0314          ROR+14
2226  0005          QAC
2227  1460          SAE+20
2230  3434          3434
2231  0000          HLT             /ROR+14 FAILED AC=3434 MQ=7070

2232  0455          QLZ
2233  0000          HLT             /MQ11=0

2234  1020          LDA+20
2235  7007          7007
2236  0314          ROR+14
2237  0005          QAC
2240  1460          SAE+20
2241  3403          3403
2242  0000          HLT             /ROR+14 FAILED AC=3403 MQ=7007
```

```
2243  0475          QLZ+20
2244  0000          HLT             /MQ11=1

2245  1020          LDA+20
2246  0520          0520
2247  0314          ROR+14
2250  0005          QAC
2251  1460          SAE+20
2252  0250          0250
2253  0000          HLT             /ROR+14 FAILED AC=0250 MQ=0520

2254  0455          QLZ
2255  0000          HLT             /MQ11=0

2256  1020          LDA+20
2257  0250          0250
2260  0314          ROR+14
2261  0005          QAC
2262  1460          SAE+20
2263  0124          0124
2264  0000          HLT             /ROR+14 FAILED AC=0124 MQ=0250

2265  0455          QLZ             /END OF TEST SKIP RQ BLC TEST 1
2266  0000          HLT             /MQ11
```

```
                    /
                    /BCL TEST 1, BCL WILL CLEAR ONE BIT OUT OF A FIELD OF ZEROS
                    /
2267  1020          LDA+20
2270  0001          0001
2271  1560          BCL+20
2272  0001          0001
2273  0450          AZE
2274  0000          HLT             /BCL FAILED TO CLEAR AC11, AC=0000

2275  1020          LDA+20
2276  0002          0002
2277  1560          BCL+20
2300  0002          0002
2301  0450          AZE
2302  0000          HLT             /BCL FAILED TO CLEAR AC 10, AC=0000


2303  1020          LDA+20
2304  0004          0004
2305  1560          BCL+20
2306  0004          0004
2307  0450          AZE
2310  0000          HLT             /BCL FAILED TO CLEAR AC9, AC=0000

2311  1020          LDA+20
2312  0010          0010
2313  1560          BCL+20
2314  0010          0010
2315  0450          AZE
2316  0000          HLT             /BCL FAILED TO CLEAR AC8, AC=0000

2317  1020          LDA+20
2320  0020          0020
2321  1560          BCL+20
2322  0020          0020
2323  0450          AZE             /BCL FAILED TO CLEAR AC 7, AC=0000
2324  0000          HLT

2325  1020          LDA+20
2326  0040          0040
2327  1560          BCL+20
2330  0040          0040
2331  0450          AZE
2332  0000          HLT             /BCL FAILED TO CLEAR AC 6, AC=0000

2333  1020          LDA+20
2334  0100          0100
2335  1560          BCL+20
2336  0100          0100
2337  0450          AZE
2340  0000          HLT             /BCL FAILED TO CLEAR AC 5, AC=0000
```

```
2341  1020          LDA+20
2342  0200          0200
2343  1560          BCL+20
2344  0200          0200
2345  0450          AZE
2346  0000          HLT             /BCL FAILED TO CLEAR AC 4, AC=0000

2347  1020          LDA+20
2350  0400          0400
2351  1560          BCL+20
2352  0400          0400
2353  0450          AZE
2354  0000          HLT             /BCL FAILED TO CLEAR AC 3, AC=0000

2355  1020          LDA+20
2356  1000          1000
2357  1560          BCL+20
2360  1000          1000
2361  0450          AZE
2362  0000          HLT             /BCL FAILED TO CLEAR AC 2, AC=0000

2363  1020          LDA+20
2364  2000          2000
2365  1560          BCL+20
2366  2000          2000
2367  0450          AZE
2370  0000          HLT             /BCL FAILED TO CLEAR AC 1, AC=0000

2371  1020          LDA+20
2372  4000          4000
2373  1560          BCL+20
2374  4000          4000
2375  0450          AZE             /END OF BCL TEST 1, SKIP TO BCL TEST 2
2376  0000          HLT             /BCL FAILED TO CLEAR AC 0, AC=0000

                    /
                    /BCL TEST 2 WILL CLEAR A SINGLE ONE OUT OF A FIELD OF ONES
                    /
2377  1020          LDA+20          /SET ALL BITS AND TRY TO CLEAR
2400  7777          7777            /ONE AND ONLY 1 BIT
2401  1560          BCL+20
2402  0001          0001
2403  1460          SAE+20
2404  7776          7776
2405  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=7776

2406  1020          LDA+20
2407  7777          7777
2410  1560          BCL+20
2411  0002          0002
2412  1460          SAE+20
2413  7775          7775
2414  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=7775

2415  1020          LDA+20
```

```
2416  7777          7777
2417  1560          BCL+20
```

```
2420  0004          0004
2421  1460          SAE+20
2422  7773          7773
2423  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=7773

2424  1020          LDA+20
2425  7777          7777
2426  1560          BCL+20
2427  0010          0010
2430  1460          SAE+20
2431  7767          7767
2432  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=7767

2433  1020          LDA+20
2434  7777          7777
2435  1560          BCL+20
2436  0020          0020
2437  1460          SAE+20
2440  7757          7757
2441  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=7757

2442  1020          LDA+20
2443  7777          7777
2444  1560          BCL+20
2445  0040          0040
2446  1460          SAE+20
2447  7737          7737
2450  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=7737


2451  1020          LDA+20
2452  7777          7777
2453  1560          BCL+20
2454  0100          0100
2455  1460          SAE+20
2456  7677          7677
2457  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=7677

2460  1020          LDA+20
2461  7777          7777
2462  1560          BCL+20
2463  0200          0200
2464  1460          SAE+20
2465  7577          7577
2466  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=7577

2467  1020          LDA+20
2470  7777          7777
2471  1560          BCL+20
2472  0400          0400
2473  1460          SAE+20
2474  7377          7377
2475  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=7377
```

```
2476  1020          LDA+20
2477  7777          7777
2500  1560          BCL+20
2501  1000          1000
2502  1460          SAE+20
2503  6777          6777
2504  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=6777

2505  1020          LDA+20
2506  7777          7777
2507  1560          BCL+20
2510  2000          2000
2511  1460          SAE+20
2512  5777          5777
2513  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=5777

2514  1020          LDA+20
2515  7777          7777
2516  1560          BCL+20
2517  4000          4000
2520  1460          SAE+20
2521  3777          3777
2522  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=3777

                    /
                    /BCL WILL CLEAR ALL BITS EXCEPT FOR A SINGLE ONE
                    /

2523  1020          LDA+20
2524  7777          7777
2525  1560          BCL+20
2526  7776          7776
2527  1460          SAE+20
2530  0001          0001
2531  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=0001

2532  1020          LDA+20
2533  7777          7777
2534  1560          BCL+20
2535  7775          7775
2536  1460          SAE+20
2537  0002          0002
2540  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=0002

2541  1020          LDA+20
2542  7777          7777
2543  1560          BCL+20
2544  7773          7773
2545  1460          SAE+20
2546  0004          0004
2547  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=0004

2550  1020          LDA+20
2551  7777          7777
2552  1560          BCL+20
```

```
2553  7767          7767
2554  1460          SAE+20
2555  0010          0010
2556  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=0010

2557  1020          LDA+20
2560  7777          7777
2561  1560          BCL+20
2562  7757          7757
2563  1460          SAE+20
2564  0020          0020
2565  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=0020

2566  1020          LDA+20
2567  7777          7777
2570  1560          BCL+20
2571  7737          7737
2572  1460          SAE+20
2573  0040          0040
2574  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=0004

2575  1020          LDA+20
2576  7777          7777
2577  1560          BCL+20
2600  7677          7677
2601  1460          SAE+20
2602  0100          0100
2603  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=0100

2604  1020          LDA+20
2605  7777          7777
2606  1560          BCL+20
2607  7577          7577
2610  1460          SAE+20
2611  0200          0200
2612  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=0200

2613  1020          LDA+20
2614  7777          7777
2615  1560          BCL+20
2616  7377          7377
2617  1460          SAE+20
2620  0400          0400
2621  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=0400

2622  1020          LDA+20
2623  7777          7777
2624  1560          BCL+20
2625  6777          6777
2626  1460          SAE+20
2627  1000          1000
2630  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=1000
```

```
2631  1020          LDA+20
2632  7777          7777
2633  1560          BCL+20
2634  5777          5777
2635  1460          SAE+20
2636  2000          2000
2637  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=2000

2640  1020          LDA+20
2641  7777          7777
2642  1560          BCL+20
2643  3777          3777
2644  1460          SAE+20
2645  4000          4000
2646  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR AC=4000
                    /
                    /BCL WILL CLEAR ALL CLEARED BITS AND NOT CLEAR A SINGLE SET BIT
                    /

2647  1020          LDA+20
2650  0001          0001
2651  1560          BCL+20
2652  7776          7776
2653  1460          SAE+20
2654  0001          0001
2655  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=0001

2656  1020          LDA+20
2657  0002          0002
2660  1560          BCL+20
2661  7775          7775
2662  1460          SAE+20
2663  0002          0002
2664  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=0002

2665  1020          LDA+20
2666  0004          0004
2667  1560          BCL+20
2670  7773          7773
2671  1460          SAE+20
2672  0004          0004
2673  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=0004

2674  1020          LDA+20
2675  0010          0010
2676  1560          BCL+20
2677  7767          7767
2700  1460          SAE+20
2701  0010          0010
2702  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=0010

2703  1020          LDA+20
2704  0020          0020
2705  1560          BCL+20
2706  7757          7757
```

2707 1460 SAE+20

```
2710  0020          0020
2711  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=0020

2712  1020          LDA+20
2713  0040          0040
2714  1560          BCL+20
2715  7737          7737
2716  1460          SAE+20
2717  0040          0040
2720  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=0040

2721  1020          LDA+20
2722  0100          0100
2723  1560          BCL+20
2724  7677          7677
2725  1460          SAE+20
2726  0100          0100
2727  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=0100

2730  1020          LDA+20
2731  0200          0200
2732  1560          BCL+20
2733  7577          7577
2734  1460          SAE+20
2735  0200          0200
2736  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=0200

2737  1020          LDA+20
2740  0400          0400
2741  1560          BCL+20
2742  7377          7377
2743  1460          SAE+20
2744  0400          0400
2745  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=0400

2746  1020          LDA+20
2747  1000          1000
2750  1560          BCL+20
2751  6777          6777
2752  1460          SAE+20
2753  1000          1000
2754  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=1000

2755  1020          LDA+20
2756  2000          2000
2757  1560          BCL+20
2760  5777          5777
2761  1460          SAE+20
2762  2000          2000
2763  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=2000
```

```
2764  1020          LDA+20
2765  4000          4000
2766  1560          BCL+20
2767  3777          3777
2770  1460          SAE+20
2771  4000          4000            /END OF BCL TEST 5, SKIP TO BSE TEST 1
2772  0000          HLT             /BCL CLEARED OR SET A BIT IN ERROR, AC=4000
                    /
                    /BSE TEST1 BSE WILL SET A SINGLE ONE IN A FIELD OF ZEROS
                    /

2773  0011          CLR             /BSE WILL ATTEMPT TO SET A SINGLE 1 BIT
2774  1620          BSE+20          /IN A FIELD OF ZEROS
2775  0001          0001
2776  1460          SAE+20
2777  0001          0001
3000  0000          HLT             /BSE FAILED TO SET AC 11 AC=0001

3001  0011          CLR
3002  1620          BSE+20
3003  0002          0002
3004  1460          SAE+20
3005  0002          0002
3006  0000          HLT             /BSE FAILED TO SET AC 10 AC=0002

3007  0011          CLR
3010  1620          BSE+20
3011  0004          0004
3012  1460          SAE+20
3013  0004          0004
3014  0000          HLT             /BSE FAILED TO SET AC 9 AC=0004

3015  0011          CLR
3016  1620          BSE+20
3017  0010          0010
3020  1460          SAE+20
3021  0010          0010
3022  0000          HLT             /BSE FAILED TO SET AC 8 AC=0010

3023  0011          CLR
3024  1620          BSE+20
3025  0020          0020
3026  1460          SAE+20
3027  0020          0020
3030  0000          HLT             /BSE FAILED TO SET AC 7 AC=0020

3031  0011          CLR
3032  1620          BSE+20
3033  0040          0040
3034  1460          SAE+20
3035  0040          0040
3036  0000          HLT             /BSE FAILED TO SET AC 6 AC=0040

3037  0011          CLR
3040  1620          BSE+20
```

```
3041  0100          0100
3042  1460          SAE+20
3043  0100          0100
```

```
3044  0000          HLT             /BSE FAILED TO SET AC 5 AC=0100

3045  0011          CLR
3046  1620          BSE+20
3047  0200          0200
3050  1460          SAE+20
3051  0200          0200
3052  0000          HLT             /BSE FAILED TO SET AC 4 AC=0200

3053  0011          CLR
3054  1620          BSE+20
3055  0400          0400
3056  1460          SAE+20
3057  0400          0400
3060  0000          HLT             /BSE FAILED TO SET AC 3 AC=0400

3061  0011          CLR
3062  1620          BSE+20
3063  1000          1000
3064  1460          SAE+20
3065  1000          1000
3066  0000          HLT             /BSE FAILED TO SET AC 2 AC=1000

3067  0011          CLR
3070  1620          BSE+20
3071  2000          2000
3072  1460          SAE+20
3073  2000          2000
3074  0000          HLT             /BSE FAILED TO SET AC 1 AC=2000

3075  0011          CLR
3076  1620          BSE+20
3077  4000          4000
3100  1460          SAE+20
3101  4000          4000            /END OF BSE TEST 1, SKIP TO BSE TEST 2
3102  0000          HLT             /BSE FAILED TO SET AC 0 AC=4000
                    /
                    /BSE TEST 2 WILL TRY AND SET ALL BITS
                    /
3103  1020          LDA+20
3104  7776          7776
3105  1620          BSE+20
3106  7777          7777
3107  0450          AZE
3110  0000          HLT             /BSE FAILED TO SET AC11 AC=7777

3111  1020          LDA+20
3112  7775          7775
3113  1620          BSE+20
3114  7777          7777
3115  0450          AZE
3116  0000          HLT             /BSE FAILED TO SET AC10 AC=7777

3117  1020          LDA+20
3120  7773          7773
```

3121 1620 BSE+20

```
3122  7777          7777
3123  0450          AZE
3124  0000          HLT             /BSE FAILED TO SET AC09 AC=7777

3125  1020          LDA+20
3126  7767          7767
3127  1620          BSE+20
3130  7777          7777
3131  0450          AZE
3132  0000          HLT             /BSE FAILED TO SET AC08 AC=7777

3133  1020          LDA+20
3134  7757          7757
3135  1620          BSE+20
3136  7777          7777
3137  0450          AZE
3140  0000          HLT             /BSE FAILED TO SET AC07 AC=7777

3141  1020          LDA+20
3142  7737          7737
3143  1620          BSE+20
3144  7777          7777
3145  0450          AZE
3146  0000          HLT             /BSE FAILED TO SET AC06 AC=7777

3147  1020          LDA+20
3150  7677          7677
3151  1620          BSE+20
3152  7777          7777
3153  0450          AZE
3154  0000          HLT             /BSE FAILED TO SET AC05 AC=7777

3155  1020          LDA+20
3156  7577          7577
3157  1620          BSE+20
3160  7777          7777
3161  0450          AZE
3162  0000          HLT             /BSE FAILED TO SET AC04 AC=7777

3163  1020          LDA+20
3164  7377          7377
3165  1620          BSE+20
3166  7777          7777
3167  0450          AZE
3170  0000          HLT             /BSE FAILED TO SET AC03 AC=7777

3171  1020          LDA+20
3172  6777          6777
3173  1620          BSE+20
3174  7777          7777
3175  0450          AZE
3176  0000          HLT             /BSE FAILED TO SET AC02 AC=7777

3177  1020          LDA+20
3200  5777          5777
```

```
3201  1020          BSE+20
3202  7777          7777
3203  0450          AZE
3204  0000          HLT             /BSE FAILED TO SET AC01 AC=7777

3205  1020          LDA+20
3206  3777          3777
3207  1620          BSE+20
3210  7777          7777
3211  0450          AZE             /END OF BSE TESTS; SKIP TO BCO TEST 1
3212  0000          HLT             /BSE FAILED TO SET AC00 AC=7777

                    /
                    /BCO TEST 1 BCO WILL COMPLEMENT CORRESPONDING BITS OF THE AC
                    /
3213  0011          CLR
3214  1660          BCO+20
3215  0001          0001
3216  1460          SAE+20
3217  0001          0001
3220  0000          HLT             /BCO FAILED TO COMPLEMENT AC 11 TO A ONE

3221  0011          CLR
3222  1660          BCO+20
3223  0002          0002
3224  1460          SAE+20
3225  0002          0002
3226  0000          HLT             /BCO FAILED TO COMPLEMENT AC 10 TO A ONE

3227  0011          CLR
3230  1660          BCO+20
3231  0004          0004
3232  1460          SAE+20
3233  0004          0004
3234  0000          HLT             /BCO FAILED TO COMPLEMENT AC 9 TO A ONE

3235  0011          CLR
3236  1660          BCO+20
3237  0010          0010
3240  1460          SAE+20
3241  0010          0010
3242  0000          HLT             /BCO FAILED TO COMPLEMENT AC 8 TO A ONE

3243  0011          CLR
3244  1660          BCO+20
3245  0020          0020
3246  1460          SAE+20
3247  0020          0020
3250  0000          HLT             /BCO FAILED TO COMPLEMENT AC 7 TO A ONE

3251  0011          CLR
3252  1660          BCO+20
3253  0040          0040
```

```
3254  1460          SAE+20
3255  0040          0040
3256  0000          HLT             /BCO FAILED TO COMPLEMENT AC 6 TO A ONE

3257  0011          CLR
3260  1660          BCO+20
3261  0100          0100
3262  1460          SAE+20
3263  0100          0100
3264  0000          HLT             /BCO FAILED TO COMPLEMENT AC 5 TO A ONE

3265  0011          CLR
3266  1660          BCO+20
3267  0200          0200
3270  1460          SAE+20
3271  0200          0200
3272  0000          HLT             /BCO FAILED TO COMPLEMENT AC4 TO A ONE

3273  0011          CLR
3274  1660          BCO+20
3275  0400          0400
3276  1460          SAE+20
3277  0400          0400
3300  0000          HLT             /BCO FAILED TO COMPLEMENT AC3 TO A ONE

3301  0011          CLR
3302  1660          BCO+20
3303  1000          1000
3304  1460          SAE+20
3305  1000          1000
3306  0000          HLT             /BCO FAILED TO COMPLEMENT AC2 TO A ONE

3307  0011          CLR
3310  1660          BCO+20
3311  2000          2000
3312  1460          SAE+20
3313  2000          2000
3314  0000          HLT             /BCO FAILED TO COMPLEMENT AC1 TO A ONE

3315  0011          CLR
3316  1660          BCO+20
3317  4000          4000
3320  1460          SAE+20
3321  4000          4000
3322  0000          HLT             /BCO FAILED TO COMPLEMENT AC0 TO A ONE

3323  1020          LDA+20
3324  0001          0001
3325  1660          BCO+20
3326  0001          0001
3327  0450          AZE
3330  0000          HLT             /BCO FAILED TO RECOMPLEMENT AC11 TO A ZERO

3331  1020          LDA+20
```

```
3332  0002            0002
3333  1660            BCO+20
3334  0002            0002
3335  0450            AZE
3336  0000            HLT             /BCO FAILED TO RECOMPLEMENT AC10 TO A ZERO

3337  1020            LDA+20
3340  0004            0004
3341  1660            BCO+20
3342  0004            0004
3343  0450            AZE
3344  0000            HLT             /BCO FAILED TO RECOMPLEMENT AC9 TO A ZERO

3345  1020            LDA+20
3346  0010            0010
3347  1660            BCO+20
3350  0010            0010
3351  0450            AZE
3352  0000            HLT             /BCO FAILED TO RECOMPLEMENT AC8 TO A ZERO

3353  1020            LDA+20
3354  0020            0020
3355  1660            BCO+20
3356  0020            0020
3357  0450            AZE
3360  0000            HLT             /BCO FAILED TO RECOMPLEMENT AC7 TO A ZERO

3361  1020            LDA+20
3362  0040            0040
3363  1660            BCO+20
3364  0040            0040
3365  0450            AZE
3366  0000            HLT             /BCO FAILED TO RECOMPLEMENT AC6 TO A ZERO

3367  1020            LDA+20
3370  0100            0100
3371  1660            BCO+20
3372  0100            0100
3373  0450            AZE
3374  0000            HLT             /BCO FAILED TO RECOMPLEMENT AC5 TO A ZERO

3375  1020            LDA+20
3376  0200            0200
3377  1660            BCO+20
3400  0200            0200
3401  0450            AZE
3402  0000            HLT             /BCO FAILED TO RECOMPLEMENT AC4 TO A ZERO

3403  1020            LDA+20
3404  0400            0400
3405  1660            BCO+20
3406  0400            0400
3407  0450            AZE
3410  0000            HLT             /BCO FAILED TO RECOMPLEMENT AC3 TO A ZERO
```

```
3411  1020          LDA+20
3412  1000          1000
3413  1660          BCO+20
3414  1000          1000
3415  0450          AZE
3416  0000          HLT             /BCO FAILED TO RECOMPLEMENT AC2 TO A ZERO

3417  1020          LDA+20
3420  2000          2000
3421  1660          BCO+20
3422  2000          2000
3423  0450          AZE
3424  0000          HLT             /BCO FAILED TO RECOMPLEMENT AC1 TO A ZERO

3425  1020          LDA+20
3426  4000          4000
3427  1660          BCO+20
3430  4000          4000
3431  0450          AZE
3432  0000          HLT             /BCO FAILED TO RECOMPLEMENT AC0 TO A ZERO

3433  0011          CLR
3434  1020          LDA+20
3435  7776          7776
3436  1460          SAE+20
3437  7776          7776
3440  0000          HLT             /BCO FAILED AC=7776

3441  0011          CLR
3442  1660          BCO+20
3443  7775          7775
3444  1460          SAE+20
3445  7775          7775
3446  0000          HLT             /BCO FAILED AC=7775

3447  0011          CLR
3450  1660          BCO+20
3451  7773          7773
3452  1460          SAE+20
3453  7773          7773
3454  0000          HLT             /BCO FAILED AC=7773

3455  0011          CLR
3456  1660          BCO+20
3457  7767          7767
3460  1460          SAE+20
3461  7767          7767
3462  0000          HLT             /BCO FAILED AC=7767

3463  0011          CLR
3464  1660          BCO+20
3465  7757          7757
3466  1460          SAE+20
3467  7757          7757
```

```
3470  0000          HLT             /BCO FAILED AC=7757

3471  0011          CLR
3472  1660          BCO+20
3473  7737          7737
3474  1460          SAE+20
3475  7737          7737
3476  0000          HLT             /BCO FAILED AC=7737

3477  0011          CLR
3500  1660          BCO+20
3501  7677          7677
3502  1460          SAE+20
3503  7677          7677
3504  0000          HLT             /BCO FAILED AC=7677

3505  0011          CLR
3506  1660          BCO+20
3507  7577          7577
3510  1460          SAE+20
3511  7577          7577
3512  0000          HLT             /BCO FAILED AC=7577

3513  0011          CLR
3514  1660          BCO+20
3515  7377          7377
3516  1460          SAE+20
3517  7377          7377
3520  0000          HLT             /BCO FAILED AC=7377

3521  0011          CLR
3522  1660          BCO+20
3523  6777          6777
3524  1460          SAE+20
3525  6777          6777
3526  0000          HLT             /BCO FAILED AC=6777

3527  0011          CLR
3530  1660          BCO+20
3531  5777          5777
3532  1460          SAE+20
3533  5777          5777
3534  0000          HLT             /BCO FAILED AC=5777

3535  0011          CLR
3536  1660          BCO+20
3537  3777          3777
3540  1460          SAE+20
3541  3777          3777
3542  0000          HLT             /BCO FAILED AC=3777

3543  1020          LDA+20
3544  7777          7777
3545  1660          BCO+20
3546  0001          0001
```

```
3547  1460          SAE+20
3550  7776          7776
3551  0000          HLT             /BCO FAILED AC=7776

3552  1020          LDA+20
3553  7777          7777
3554  1600          BCO+20
3555  0002          0002
3556  1460          SAE+20
3557  7775          7775
3560  0000          HLT             /BCO FAILED AC=7775

3561  1020          LDA+20
3562  7777          7777
3563  1600          BCO+20
3564  0004          0004
3565  1460          SAE+20
3566  7773          7773
3567  0000          HLT             /BCO FAILED AC=7773

3570  1020          LDA+20
3571  7777          7777
3572  1600          BCO+20
3573  0010          0010
3574  1460          SAE+20
3575  7767          7767
3576  0000          HLT             /BCO FAILED AC=7767

3577  1020          LDA+20
3600  7777          7777
3601  1600          BCO+20
3602  0020          0020
3603  1460          SAE+20
3604  7757          7757
3605  0000          HLT             /BCO FAILED AC=7757

3606  1020          LDA+20
3607  7777          7777
3610  1600          BCO+20
3611  0040          0040
3612  1460          SAE+20
3613  7737          7737
3614  0000          HLT             /BCO FAILED AC=7737

3615  1020          LDA+20
3616  7777          7777
3617  1600          BCO+20
3620  0100          0100
```

```
3621  1460            SAE+20
3622  7677            7677
3623  0000            HLT             /BCO FAILED AC=7677

3624  1020            LDA+20
3625  7777            7777
3626  1660            BCO+20
3627  0200            0200
3630  1460            SAE+20
3631  7577            7577
3632  0000            HLT             /BCO FAILED AC=7577

3633  1020            LDA+20
3634  7777            7777
3635  1660            BCO+20
3636  0400            0400
3637  1460            SAE+20
3640  7377            7377
3641  0000            HLT             /BCO FAILED AC=7377

3642  1020            LDA+20
3643  7777            7777
3644  1660            BCO+20
3645  1000            1000
3646  1460            SAE+20
3647  6777            6777
3650  0000            HLT             /BCO FAILED AC=6777

3651  1020            LDA+20
3652  7777            7777
3653  1660            BCO+20
3654  2000            2000
3655  1460            SAE+20
3656  5777            5777
3657  0000            HLT             /BCO FAILED AC=5777

3660  1020            LDA+20
3661  7777            7777
3662  1660            BCO+20
3663  4000            4000
3664  1460            SAE+20
3665  3777            3777
3666  0000            HLT             /BCO FAILED AC=3777
                /ADA TEST 1 (ADA ARITHMETIC IS 1'S COMPLEMENT)
```

```
3667  1020    ADATST, LDA+20
3670  0001            0001
3671  1120            ADA+20
3672  0001            0001
3673  1460            SAE+20
3674  0002            0002
3675  0000            HLT             /ADA CARRY AC11-10 FAILED AC=0002

3676  1020            LDA+20
3677  0002            0002
3700  1120            ADA+20
3701  0002            0002
3702  1460            SAE+20
3703  0004            0004
3704  0000            HLT             /ADA CARRY AC10-9 FAILED AC=0004

3705  1020            LDA+20
3706  0004            0004
3707  1120            ADA+20
3710  0004            0004
3711  1460            SAE+20
3712  0010            0010
3713  0000            HLT             /ADA CARRY AC9-8 FAILEDL AC=0010

3714  1020            LDA+20
3715  0010            0010
3716  1120            ADA+20
3717  0010            0010
3720  1460            SAE+20
3721  0020            0020
3722  0000            HLT             /ADA CARRY AC8-7 FAILED AC=0020

3723  1020            LDA+20
3724  0020            0020
3725  1120            ADA+20
3726  0020            0020
3727  1460            SAE+20
3730  0040            0040
3731  0000            HLT             /ADA CARRY AC 7-6 FAILED AC=0040

3732  1020            LDA+20
3733  0040            0040
3734  1120            ADA+20
3735  0040            0040
3736  1460            SAE+20
3737  0100            0100
3740  0000            HLT             /ADA CARRY AC6-5 FAILED AC=0100

3741  1020            LDA+20
3742  0100            0100
3743  1120            ADA+20
3744  0100            0100
3745  1460            SAE+20
3746  0200            0200
```

```
3747  0000          HLT          /ADD CARRY AC5-4 FAILED AC=0200
```

```
3750  1020          LDA+20
3751  0200          0200
3752  1120          ADA+20
3753  0200          0200
3754  1460          SAE+20
3755  0400          0400
3756  0000          HLT             /ADA CARRY AC4=3 FAILED AC=0400

3757  1020          LDA+20
3760  0400          0400
3761  1120          ADA+20
3762  0400          0400
3763  1460          SAE+20          /TEST PARTIALLY COMPLETE; CHANGE IF
3764  1000          1000
3765  0000          HLT             /ADA CARRY AC3=2 FAILED AC=1000

                /6141 TEST
3766  0002          PDP
3767  5770          5000,+1=2000    /JMP I ,+1
3770  4030          4030
      4020      *4020
                /MINOR START LINC MODE.
4020  0002          PDP
4021  5622          5600,+1         /JMP I ,+1
4022  0020          0020
4023  0016          NOP
4024  0000          HLT             /TO HERE IF 6141 FAILS
      4030      *4030
                 /ADA TEST 1 CONT.
4030  6141          LINC
4031  1020          LDA+20
4032  1000          1000
4033  1120          ADA+20
4034  1000          1000
4035  1460          SAE+20
4036  2000          2000
4037  0000          HLT             /ADA CARRY AC2=1 FAILED AC=2000
```

```
4040  1020            LDA+20
4041  2000            2000
4042  1120            ADA+20
4043  2000            2000
4044  1460            SAE+20
4045  4000            4000
4046  0000            HLT             /ADA CARRY AC1=0 FAILED AC=4000

4047  1020            LDA+20
4050  4000            4000
4051  1120            ADA+20
4052  4000            4000
4053  1460            SAE+20
4054  0001            0001            /END OF ADA TESTS, SKIP TO SET TEST 1
4055  0000            HLT             /END AROUND CARRY FAILED AC=0001
                /SET TEST SET BETA REGISTER = OPERAND
```

```
4056  0011              CLR
4057  0061    SETTST,   SET+20+1                    /SET B REGISTER 0 TO 0000
4060  0000              0000
4061  1440              SAE
4062  0001              0001
4063  0000              HLT                 /SET CAN'T LOAD 0000 INTO B REGISTER AC=0000

4064  0061              SET+20+1
4065  0001              0001
4066  1020              LDA+20
4067  0001              0001
4070  1440              SAE
4071  0001              0001
4072  0000              HLT                 /SET CAN'T LOAD 0001 INTO B REGISTER AC=0001

4073  0061              SET+20+1
4074  0002              0002
4075  1020              LDA+20
4076  0002              0002
4077  1440              SAE
4100  0001              0001
4101  0000              HLT                 /SET CAN'T LOAD 0002 INTO B REGISTER AC=0002

4102  0061              SET+20+1
4103  0004              0004
4104  1020              LDA+20
4105  0004              0004
4106  1440              SAE
4107  0001              0001
4110  0000              HLT                 /SET CAN'T LOAD 0004 INTO B REGISTER AC=0004

4111  0061              SET+20+1
4112  0010              0010
4113  1020              LDA+20
4114  0010              0010
4115  1440              SAE
4116  0001              0001
4117  0000              HLT                 /SET CAN'T LOAD 0010 INTO B REGISTER AC=0010

4120  0061              SET+20+1
4121  0020              0020
4122  1020              LDA+20
4123  0020              0020
4124  1440              SAE
4125  0001              0001
4126  0000              HLT                 /SET CAN'T LOAD 0020 INTO B REGISTER AC=0020

4127  0061              SET+20+1
4130  0040              0040
4131  1020              LDA+20
4132  0040              0040
4133  1440              SAE
4134  0001              0001
4135  0000              HLT                 /SET CAN'T LOAD 0040 INTO B REGISTER AC=0040
```

```
4136  0061          SET+20+1
4137  0100          0100
4140  1020          LDA+20
4141  0100          0100
4142  1440          SAE
4143  0001          0001
4144  0000          HLT                 /SET CAN'T LOAD 0100 INTO B REGISTER AC=0100

4145  0061          SET+20+1
4146  0200          0200
4147  1020          LDA+20
4150  0200          0200
4151  1440          SAE
4152  0001          0001
4153  0000          HLT                 /SET CAN'T LOAD 0200 INTO B REGISTER AC=0200

4154  0061          SET+20+1
4155  0400          0400
4156  1020          LDA+20
4157  0400          0400
4160  1440          SAE
4161  0001          0001
4162  0000          HLT                 /SET CAN'T LOAD 0400 INTO B REGISTER AC=0400

4163  0061          SET+20+1
4164  1000          1000
4165  1020          LDA+20
4166  1000          1000
4167  1440          SAE
4170  0001          0001
4171  0000          HLT                 /SET CAN'T LOAD 1000 INTO B REGISTER AC=1000

4172  0061          SET+20+1
4173  2000          2000
4174  1020          LDA+20
4175  2000          2000
4176  1440          SAE
4177  0001          0001
4200  0000          HLT                 /SET CAN'T LOAD 2000 INTO B REGISTER AC=2000

4201  0061          SET+20+1
4202  4000          4000
4203  1020          LDA+20
4204  4000          4000
4205  1440          SAE
4206  0001          0001
4207  0000          HLT                 /SET CAN'T LOAD 4000 INTO BE REGISTER AC=4000

4210  0061          SET+20+1
4211  7777          7777
4212  1020          LDA+20
4213  7777          7777
4214  1440          SAE
4215  0001          0001
```

```
4216  0000          HLT                 /SET CAN'T LOAD 7777 INTO B REGISTER AC=7777
4217  0061          SET+20+1
4220  5252          5252
4221  1020          LDA+20
4222  5252          5252
4223  1440          SAE
4224  0001          0001
4225  0000          HLT                 /SET CAN'T LOAD 5252 INTO B REGISTER AC=5252

4226  0061          SET+20+1
4227  2525          2525
4230  1020          LDA+20
4231  2525          2525
4232  1440          SAE
4233  0001          0001
4234  0000          HLT                 /SET CAN'T LOAD 2525 INTO B REGISTER AC=2525

4235  0062          SET+20+2
4236  0000          0000
4237  0011          CLR
4240  1440          SAE
4241  0002          0002
4242  0000          HLT                 /SET CAN'T LOAD 0000 INTO 2 AC=0000

4243  0062          SET+20+2
4244  7777          7777
4245  1020          LDA+20
4246  7777          7777
4247  1440          SAE
4250  0002          0002
4251  0000          HLT                 /SET CAN'T LOAD 7777 INTO 2 AC=7777
```

```
4252  0065            SET+20+5
4253  0000            0000
4254  0011            CLR
4255  1440            SAE
4256  0005            0005
4257  0000            HLT             /SET CAN'T LOAD 0000 INTO 5 AC=0000

4260  0065            SET+20+5
4261  7777            7777
4262  1020            LDA+20
4263  7777            7777
4264  1440            SAE
4265  0005            0005
4266  0000            HLT             /SET CAN'T LOAD 7777 INTO 5 AC=7777

4267  0066            SET+20+6
4270  0000            0000
4271  0011            CLR
4272  1440            SAE
4273  0006            0006
4274  0000            HLT             /SET CAN'T LOAD 0000 INTO 6 AC=0000

4275  0066            SET+20+6
4276  7777            7777
4277  1020            LDA+20
4300  7777            7777
4301  1440            SAE
4302  0006            0006
4303  0000            HLT             /SET CAN'T LOAD 7777 INTO 6 AC=7777

4304  0067            SET+20+7
4305  0000            0000
4306  0011            CLR
4307  1440            SAE
4310  0007            0007
4311  0000            HLT             /SET CAN'T LOAD 0000 INTO 7 AC=0000

4312  0067            SET+20+7
4313  7777            7777
4314  1020            LDA+20
4315  7777            7777
4316  1440            SAE
4317  0007            0007
4320  0000            HLT             /SET CAN'T LOAD 7777 INTO 7 AC=7777
```

```
4321  0070            SET*20*10
4322  0000            0000
4323  0011            CLR
4324  1440            SAE
4325  0010            0010
4326  0000            HLT             /SET CAN'T LOAD 0000 INTO 10 AC=0000

4327  0070            SET*20*10
4330  7777            7777
4331  1020            LDA*20
4332  7777            7777
4333  1440            SAE
4334  0010            0010
4335  0000            HLT             /SET CAN'T LOAD 7777 INTO 10 AC=7777

4336  0071            SET*20*11
4337  0000            0000
4340  0011            CLR
4341  1440            SAE
4342  0011            0011
4343  0000            HLT             /SET CAN'T LOAD 0000 INTO 11 AC=0000
```

```
4344  0071          SET+20+11
4345  7777          7777
4346  1020          LDA+20
4347  7777          7777
4350  1440          SAE
4351  0011          0011
4352  0000          HLT             /SET CAN'T LOAD 7777 INTO 11 AC=7777

4353  0072          SET+20+12
4354  0000          0000
4355  0011          CLR
4356  1440          SAE
4357  0012          0012
4360  0000          HLT             /SET CAN'T LOAD 0000 INTO 12 AC=0000

4361  0072          SET+20+12
4362  7777          7777
4363  1020          LDA+20
4364  7777          7777
4365  1440          SAE
4366  0012          0012
4367  0000          HLT             /SET CAN'T LOAD 7777 INTO 12 AC=7777

4370  0073          SET+20+13
4371  0000          0000
4372  0011          CLR
4373  1440          SAE
4374  0013          0013
4375  0000          HLT             /SET CAN'T LOAD 0000 INTO 13 AC=0000

4376  0073          SET+20+13
4377  7777          7777
4400  1020          LDA+20
4401  7777          7777
4402  1440          SAE
4403  0013          0013
4404  0000          HLT             /SET CAN'T LOAD 7777 INTO 13 AC=7777
```

```
4405  0074            SET*20*14
4406  0000            0000
4407  0011            CLR
4410  1440            SAE
4411  0014            0014
4412  0000            HLT             /SET CAN'T LOAD 0000 INTO 14 AC=0000

4413  0074            SET*20*14
4414  7777            7777
4415  1020            LDA*20
4416  7777            7777
4417  1440            SAE
4420  0014            0014
4421  0000            HLT             /SET CAN'T LOAD 7777 INTO 14 AC=7777

4422  0075            SET*20*15
4423  0000            0000
4424  0011            CLR
4425  1440            SAE
4426  0015            0015
4427  0000            HLT             /SET CAN'T LOAD 0000 INTO 15 AC=0000

4430  0075            SET*20*15
4431  7777            7777
4432  1020            LDA*20
4433  7777            7777
4434  1440            SAE
4435  0015            0015
4436  0000            HLT             /SET CAN'T LOAD 7777 INTO 15 AC=7777
```

```
4437  0076          SET+20+16
4440  0000          0000
4441  0011          CLR
4442  1440          SAE
4443  0016          0016
4444  0000          HLT             /SET CAN'T LOAD 0000 INTO 16 AC=0000

4445  0076          SET+20+16
4446  7777          7777
4447  1020          LDA+20
4450  7777          7777
4451  1440          SAE
4452  0016          0016
4453  0000          HLT             /SET CAN'T LOAD 7777 INTO 16 AC=7777

4454  0077          SET+20+17
4455  0000          0000
4456  0011          CLR
4457  1440          SAE
4460  0017          0017
4461  0000          HLT             /SET CAN'T LOAD 0000 INTO 17 AC=0000

4462  0077          SET+20+17
4463  7777          7777
4464  1020          LDA+20
4465  7777          7777
4466  1440          SAE
4467  0017          0017
4470  0000          HLT             /SET CAN'T LOAD 7777 INTO 17 AC=7777
                /
                /SCR TEST SCALE RIGHT INTO AC AND MQ
                /
4471  0011          CLR
4472  1020          LDA+20
4473  4000          4000
4474  0340          SCR
4475  1460          SAE+20
4476  4000          4000
4477  0000          HLT             /SCR 0 FAILED AC=4000 MQ=0000

4500  1020          LDA+20
4501  4000          4000
4502  0341          SCR+1
4503  1460          SAE+20
4504  6000          6000
4505  0000          HLT             /SCR FAILED BIT 1 AC=6000 MQ=0000


4506  1020          LDA+20
4507  4000          4000
4510  0342          SCR+2
4511  1460          SAE+20
4512  7000          7000
4513  0000          HLT             /SCR FAILED BIT 2 AC=7000 MQ=0000
```

```
4514  1020          LDA+20
4515  4000          4000
4516  0343          SCR+3
4517  1460          SAE+20
4520  7400          7400
4521  0000          HLT             /SCR FAILED BIT 3 AC=7400 MQ=0000

4522  1020          LDA+20
4523  4000          4000
4524  0344          SCR+4
4525  1460          SAE+20
4526  7600          7600
4527  0000          HLT             /SCR FAILED BIT 4 AC=7600 MQ=0000

4530  1020          LDA+20
4531  4000          4000
4532  0345          SCR+5
4533  1460          SAE+20
4534  7700          7700
4535  0000          HLT             /SCR FAILED BIT 5 AC=7700 MQ=0000

4536  1020          LDA+20
4537  4000          4000
4540  0346          SCR+6
4541  1460          SAE+20
4542  7740          7740
4543  0000          HLT             /SCR FAILED BIT 6 AC=7740 MQ=0000

4544  1020          LDA+20
4545  4000          4000
4546  0347          SCR+7
4547  1460          SAE+20
4550  7760          7760
4551  0000          HLT             /SCR FAILED BIT 7 AC=7760 MQ=0000

4552  1020          LDA+20
4553  4000          4000
4554  0350          SCR+10
4555  1460          SAE+20
4556  7770          7770
4557  0000          HLT             /SCR FAILED BIT 8 AC=7770 MQ=0000
```

```
4560  1020          LDA+20
4561  4000          4000
4562  0351          SCR+11
4563  1460          SAE+20
4564  7774          7774
4565  0000          HLT             /SCR FAILED BIT 8 AC=7774 MQ=0000

4566  1020          LDA+20
4567  4000          4000
4570  0352          SCR+12
4571  1460          SAE+20
4572  7776          7776
4573  0000          HLT             /SCR FAILED BIT 9 AC=7776 MQ=0000

4574  1020          LDA+20
4575  4000          4000
4576  0353          SCR+13
4577  1460          SAE+20
4600  7777          7777
4601  0000          HLT             /SCR FAILED BIT 10 AC=7777 MQ=0000

4602  1020          LDA+20
4603  4000          4000
4604  0354          SCR+14
4605  0005          QAC
4606  1460          SAE+20
4607  2000          2000
4610  0000          HLT             /SCR FAILED BIT 11 TO Z0 AC=7777 MQ=4000

4611  0011          CLR
4612  1020          LDA+20
4613  4000          4000
4614  0355          SCR+15
4615  0005          QAC
4616  1460          SAE+20
4617  3000          3000
4620  0000          HLT             /SCR FAILED Z1 AC=7777 MQ=6000

4621  0011          CLR
4622  1020          LDA+20
4623  4000          4000
4624  0356          SCR+16
4625  0005          QAC
4626  1460          SAE+20
4627  3400          3400
4630  0000          HLT             /SCR FAILED Z2 AC=7777 MQ=7000

4631  0011          CLR
4632  1020          LDA+20
4633  4000          4000
4634  0357          SCR+17
4635  0005          QAC
4636  1460          SAE+20
4637  3600          3600
4640  0000          HLT             /SCR FAILED Z3 AC=7777 MQ=7400
```

```
4641  0011          CLR
4642  1020          LDA+20
4643  6000          6000
4644  0357          SCR+17
4645  0005          QAC
4646  1460          SAE+20
4647  3700          3700
4650  0000          HLT             /SCR FAILED Z4 AC=7777 MQ=7600

4651  0011          CLR
4652  1020          LDA+20
4653  7000          7000
4654  0357          SCR+17
4655  0005          QAC
4656  1460          SAE+20
4657  3740          3740
4660  0000          HLT             /SCR FAILED Z5 AC=7777 MQ=7700

4661  0011          CLR
4662  1020          LDA+20
4663  7400          7400
4664  0357          SCR+17
4665  0005          QAC
4666  1460          SAE+20
4667  3760          3760
4670  0000          HLT             /SCR FAILED Z6 AC=7777 MQ=7740

4671  0011          CLR
4672  1020          LDA+20
4673  7600          7600
4674  0357          SCR+17
4675  0005          QAC
4676  1460          SAE+20
4677  3770          3770
4700  0000          HLT             /SCR FAILED Z7 AC=7777 MQ=7760

4701  0011          CLR
4702  1020          LDA+20
4703  7700          7700
4704  0357          SCR+17
4705  0005          QAC
4706  1460          SAE+20
4707  3774          3774
4710  0000          HLT             /SCR FAILED Z8 AC=7777 MQ=7770

4711  0011          CLR
4712  1020          LDA+20
4713  7740          7740
4714  0357          SCR+17
4715  0005          QAC
4716  1460          SAE+20
4717  3776          3776
```

```
4720  0000          HLT          /SCR FAILED BIT 9 AC=7777 MQ=7774
```

```
4721  0011          CLR
4722  1020          LDA+20
4723  7760          7760
4724  0357          SCR+17
4725  0005          QAC
4726  1460          SAE+20
4727  3777          3777
4730  0000          HLT             /SCR FAILED BIT 10 AC=7777 MQ=7776

4731  0011          CLR
4732  1020          LDA+20
4733  7770          7770
4734  0357          SCR+17
4735  0005          QAC
4736  1460          SAE+20
4737  3777          3777
4740  0000          HLT             /SCR FAILED BIT 11 AC=7777 MQ=7776

4741  0011          CLR
4742  1020          LDA+20
4743  0001          0001
4744  0361          SCR+20+1
4745  0005          QAC
4746  1460          SAE+20
4747  2000          2000
4750  0000          HLT             /SCR +20 FAILED TO SET Z0

4751  0472          LZE+20
4752  0000          HLT             /SCR +20 FAILED TO SET LINK

4753  0011          CLR
4754  1020          LDA+20
4755  7777          7777
4756  0334          ROR+14+20       /LOADS Z 7777
4757  1020          LDA+20
4760  7776          7776
4761  0341          SCR+1
4762  1460          SAE+20
4763  7777          7777
4764  0000          HLT             /SCR FAILED BIT 1

4765  0005          QAC
4766  1460          SAE+20
4767  1777          1777
4770  0000          HLT             /SCR UPSET Z REGISTER

4771  0011          CLR
4772  1020          LDA+20
4773  1777          1777
4774  0341          SCR+1
4775  1460          SAE+20
4776  0777          0777
4777  0000          HLT             /SCR FAILED BIT 2 AC=0777
```

```
5000  0011          CLR
5001  1020          LDA+20
5002  7760          7760
5003  0357          SCR+17
5004  0005          QAC
5005  1460          SAE+20
5006  3777          3777
5007  0000          HLT             /SCR FAILED BIT 10 AC=7777 MQ=7776

5010  0011          CLR
5011  1020          LDA+20
5012  7770          7770
5013  0357          SCR+17
5014  0005          QAC
5015  1460          SAE+20
5016  3777          3777
5017  0000          HLT             /SCR FAILED BIT 11 AC=7777 MQ=7776

5020  0011          CLR
5021  1020          LDA+20
5022  0001          0001
5023  0361          SCR+20+1
5024  0005          QAC
5025  1460          SAE+20
5026  2000          2000
5027  0000          HLT             /SCR +20 FAILED TO SET 20

5030  0472          LZE+20
5031  0000          HLT             /SCR +20 FAILED TO SET LINK

5032  0011          CLR
5033  1020          LDA+20
5034  7777          7777
5035  0334          ROR+14+20       /LOADS & 7777
5036  1020          LDA+20
5037  7776          7776
5040  0341          SCR+1
5041  1460          SAE+20
5042  7777          7777
5043  0000          HLT             /SCR FAILED BIT 1

5044  0005          QAC
5045  1460          SAE+20
5046  1777          1777
5047  0000          HLT             /SCR UPSET & REGISTER

5050  0011          CLR
5051  1020          LDA+20
5052  1777          1777
5053  0341          SCR+1
5054  1460          SAE+20
5055  0777          0777
5056  0000          HLT             /SCR FAILED BIT 2 AC=0777
```

```
5057  1020          LDA+20
5060  0777          0777
5061  0341          SCR+1
5062  1460          SAE+20
5063  0377          0377
5064  0000          HLT                 /SCR FAILED BIT 3 AC=0377

5065  1020          LDA+20
5066  0377          0377
5067  0341          SCR+1
5070  1460          SAE+20
5071  0177          0177
5072  0000          HLT                 /SCR FAILED BIT 4 AC=0177

5073  1020          LDA+20
5074  0177          0177
5075  0341          SCR+1
5076  1460          SAE+20
5077  0077          0077
5100  0000          HLT                 /SCR FAILED BIT 5 AC=0077

5101  1020          LDA+20
5102  0077          0077
5103  0341          SCR+1
5104  1460          SAE+20
5105  0037          0037
5106  0000          HLT                 /SCR FAILED BIT 6 AC=0037

5107  1020          LDA+20
5110  0037          0037
5111  0341          SCR+1
5112  1460          SAE+20
5113  0017          0017
5114  0000          HLT                 /SCR FAILED BIT 7 AC=0017

5115  1020          LDA+20
5116  0017          0017
5117  0341          SCR+1
5120  1460          SAE+20
5121  0007          0007
5122  0000          HLT                 /SCR FAILED BIT 8 AC=0007

5123  1020          LDA+20
5124  0007          0007
5125  0341          SCR+1
5126  1460          SAE+20
5127  0003          0003
5130  0000          HLT                 /SCR FAILED BIT 9 AC=0003
```

```
5131  1020          LDA+20
5132  0003          0003
5133  0341          SCR+1
5134  1460          SAE+20
5135  0001          0001
5136  0000          HLT             /SCR FAILED BIT 10 AC=0001

5137  1020          LDA+20
5140  0001          0001
5141  0341          SCR+1
5142  0450          AZE
5143  0000          HLT             /SCR FAILED BIT 11 AC=0000
```

```
                        /
                        /LDH TEST 1, TEST BOTH HALVES USING FIXED NUMBERS
                        /TEST LDH RIGHT HALF FLOAT A ONE WITH NOISE NUMBERS IN
                        /THE UNUSED HALF A NEW FLOAT A ZERO

5144  1300              LDH
5145  5147              .+2
5146  0456              SKP
5147  5200              5200
5150  1460              SAE 20
5151  0000              0000
5152  0000              HLT             /LDH FAILED AC=0000 MEM=5200

5153  1300              LDH
5154  5156              .+2
5155  0456              SKP
5156  2501              2501
5157  1460              SAE 20
5160  0001              0001
5161  0000              HLT             /LDH FAILED BIT 11 AC=0001 MEM=2501

5162  1300              LDH
5163  5165              .+2
5164  0456              SKP
5165  5202              5202
5166  1460              SAE 20
5167  0002              0002
5170  0000              HLT             /LDH FAILED BIT 10 AC=0002 MEM=5202

5171  1300              LDH
5172  5174              .+2
5173  0456              SKP
5174  2504              2504
5175  1460              SAE 20
5176  0004              0004
5177  0000              HLT             /LDH FAILED BIT 09 AC=0004 MEM=2504

5200  1300              LDH
5201  5203              .+2
5202  0456              SKP
5203  5210              5210
5204  1460              SAE 20
5205  0010              0010
5206  0000              HLT             /LDH FAILED BIT 08 AC=0010 MEM=5210

5207  1300              LDH
5210  5212              .+2
5211  0456              SKP
5212  2520              2520
5213  1460              SAE 20
5214  0020              0020
5215  0000              HLT             /LDH FAILED BIT 07 AC=0020 MEM=2520
```

```
5216  1300          LDH
5217  5221          ,+2
5220  0456          SKP
5221  5240          5240
5222  1460          SAE 20
5223  0040          0040
5224  0000          HLT             /LDH FAILED BIT 06 AC=0040 MEM=5240

5225  1300          LDH
5226  5230          ,+2
5227  0456          SKP
5230  2577          2577
5231  1460          SAE 20
5232  0077          0077
5233  0000          HLT             /LDH FAILED AC=0077 MEM=2577

5234  1300          LDH
5235  5237          ,+2
5236  0456          SKP
5237  5276          5276
5240  1460          SAE 20
5241  0076          0076
5242  0000          HLT             /LDH FAILED AC=0076 MEM=5276

5243  1300          LDH
5244  5246          ,+2
5245  0456          SKP
5246  2575          2575
5247  1460          SAE 20
5250  0075          0075
5251  0000          HLT             /LDH FAILED AC=0075 MEM=2575

5252  1300          LDH
5253  5255          ,+2
5254  0456          SKP
5255  5273          5273
5256  1460          SAE 20
5257  0073          0073
5260  0000          HLT             /LDH FAILED AC=0073 MEM=5273

5261  1300          LDH
5262  5264          ,+2
5263  0456          SKP
5264  2567          2567
5265  1460          SAE 20
5266  0067          0067
5267  0000          HLT             /LDH FAILED AC=0067 MEM=2567

5270  1300          LDH
5271  5273          ,+2
5272  0456          SKP
5273  5257          5257
5274  1460          SAE 20
5275  0057          0057
5276  0000          HLT             /LDH FAILED AC=0057 MEM=5257
```

```
5277  1300          LDH
5300  5302          ,*2
5301  0456          SKP
5302  2537          2537
5303  1460          SAE 20
5304  0037          0037
5305  0000          HLT             /LDH FAILED AC=0037 MEM=2537

                /
                /LDH TEST
                /TEST LDH LEFT HALF

5306  1300          LDH
5307  1311          ,*2-4000
5310  0456          SKP
5311  0000          0000
5312  1460          SAE 20
5313  0000          0000
5314  0000          HLT             /LDH FAILED AC=0000 MEM=0000

5315  1300          LDH
5316  1320          ,*2-4000
5317  0456          SKP
5320  0152          0152
5321  1460          SAE 20
5322  0001          0001
5323  0000          HLT             /LDH FAILED BIT 05 AC=0001 MEM=0152

5324  1300          LDH
5325  1327          ,*2-4000
5326  0456          SKP
5327  0225          0225
5330  1460          SAE 20
5331  0002          0002
5332  0000          HLT             /LDH FAILED BIT 04 AC=0002 MEM=0225

5333  1300          LDH
5334  1336          ,*2-4000
5335  0456          SKP
5336  0452          0452
5337  1460          SAE 20
5340  0004          0004
5341  0000          HLT             /LDH FAILED BIT 03 AC=0004 MEM=0452

5342  1300          LDH
5343  1345          ,*2-4000
5344  0456          SKP
5345  1025          1025
5346  1460          SAE 20
5347  0010          0010
5350  0000          HLT             /LDH FAILED BIT 02 AC=0010 MEM=1025

5351  1300          LDH
5352  1354          ,*2-4000
```

```
5353  0456          SKP
5354  2052          2052
5355  1460          SAE 20
5356  0020          0020
5357  0000          HLT             /LDH FAILED BIT 01 AC=0020 MEM=2052

5360  1300          LDH
5361  1363          .+2-4000
5362  0456          SKP
5363  4025          4025
5364  1460          SAE 20
5365  0040          0040
5366  0000          HLT             /LDH FAILED BIT 00 AC=0040 MEM=4025

5367  1300          LDH
5370  1372          .+2-4000
5371  0456          SKP
5372  7752          7752
5373  1460          SAE 20
5374  0077          0077
5375  0000          HLT             /LDH FAILED AC=0077 MEM=7752
```

```
5376  1300          LDH
5377  1401          .+2-4000
5400  0456          SKP
5401  7625          7625
5402  1460          SAE 20
5403  0076          0076
5404  0000          HLT             /LDH FAILED AC=0076 MEM=7625

5405  1300          LDH
5406  1410          .+2-4000
5407  0456          SKP
5410  7552          7552
5411  1460          SAE 20
5412  0075          0075
5413  0000          HLT             /LDH FAILED AC=0075 MEM=7552

5414  1300          LDH
5415  1417          .+2-4000
5416  0456          SKP
5417  7325          7325
5420  1460          SAE 20
5421  0073          0073
5422  0000          HLT             /LDH FAILED AC=0073 MEM=7325

5423  1300          LDH
5424  1426          .+2-4000
5425  0456          SKP
5426  6752          6752
5427  1460          SAE 20
5430  0067          0067
5431  0000          HLT             /LDH FAILED AC=0067 MEM=6752

5432  1300          LDH
5433  1435          .+2-4000
5434  0456          SKP
5435  5725          5725
5436  1460          SAE 20
5437  0057          0057
5440  0000          HLT             /LDH FAILED AC=0057 MEM=5725

5441  1300          LDH
5442  1444          .+2-4000
5443  0456          SKP
5444  3752          3752
5445  1460          SAE 20
5446  0037          0037            /END OF LDH TEST SKIP TO STA TEST
5447  0000          HLT             /LDH FAILED AC=0037 MEM=3752
```

```
                    /STA TEST

5450  0011          CLR
5451  1000          STA+20
5452  0000          0000
5453  1440          SAE
5454  5452          .-2
5455  0000          HLT             /STA FAILED AC=0000 MEM=0000
5456  1400          SAE+20
5457  0000          0000
5460  0000          HLT             /AC CHANGED AC=0000

5461  1020          LDA+20
5462  7777          7777
5463  1000          STA+20
5464  0000          0000
5465  1440          SAE
5466  5464          .-2
5467  0000          HLT             /STA FAILED AC=7777 MEM=7777
5470  1400          SAE+20
5471  7777          7777
5472  0000          HLT             /AC CHANGED AC=7777

5473  1020          LDA+20
5474  5252          5252
5475  1000          STA+20
5476  0000          0000
5477  1440          SAE
5500  5476          .-2
5501  0000          HLT             /STA FAILED AC=5252 MEM=5252
5502  1400          SAE+20
5503  5252          5252
5504  0000          HLT             /AC CHANGED AC=5252

5505  1020          LDA+20
5506  2525          2525
5507  1000          STA+20
5510  0000          0000
5511  1440          SAE
5512  5510          .-2
5513  0000          HLT             /STA FAILED AC=2525 MEM=2525
5514  1400          SAE+20
5515  2525          2525            /END OF STA TEST SKIP ADM TEST
5516  0000          HLT             /AC CHANGED AC=2525

                    /ADM TEST ADM ARITHMETIC IS 1'S COMPLEMENT

5517  0011          CLR
5520  1040          STA
5521  5523          .+2
5522  1160          ADM+20
5523  0000          0000
5524  1440          SAE
```

```
5525  5523            ,=2
5526  0000            HLT             /ADM FAILED AC=0002

5527  1020            LDA+20
5530  7777            7777
5531  1040            STA
5532  5534            ,+2
5533  1160            ADM+20
5534  0000            0000
5535  1440            SAE
5536  5534            ,=2
5537  0000            HLT             /ADM FAILED AC=0004

5540  1020            LDA+20
5541  5252            5252
5542  1040            STA
5543  5545            ,+2
5544  1160            ADM+20
5545  0004            0004
5546  1440            SAE
5547  5545            ,=2
5550  0000            HLT             /ADM FAILED AC=0010

5551  1020            LDA+20
5552  2525            2525
5553  1040            STA
5554  5556            ,+2
5555  1160            ADM+20
5556  0010            0010
5557  1440            SAE
5560  5556            ,=2
5561  0000            HLT             /ADM FAILED AC=0020
```

```
                        /
                        /XSK SKIP TEST XSK IS TESTED BY FLOATING A ZERO THRU A FIELD OF 1777
                        /XSK SKIPS ON (Y)=1777
5562  0061              SET=20=1
5563  0000              0000
5564  0201              XSK 1
5565  0456              SKP
5566  0000              HLT             /XSK SKIPPED ON 0000

5567  0062              SET=20=2
5570  1776              1776
5571  0202              XSK 2
5572  0456              SKP
5573  0000              HLT             /XSK SKIPPED ON 1776

5574  0063              SET=20=3
5575  1775              1775
5576  0203              XSK 3
5577  0456              SKP
5600  0000              HLT             /XSK SKIPPED ON 1775

5601  0064              SET=20=4
5602  1773              1773
5603  0204              XSK 4
5604  0456              SKP
5605  0000              HLT             /XSK SKIPPED ON 1773

5606  0065              SET=20=5
5607  1767              1767
5610  0205              XSK 5
5611  0456              SKP
5612  0000              HLT             /XSK SKIPPED ON 1767

5613  0066              SET=20=6
5614  1757              1757
5615  0206              XSK 6
5616  0456              SKP
5617  0000              HLT             /XSK SKIPPED ON 1757

5620  0067              SET=20=7
5621  1737              1737
5622  0207              XSK 7
5623  0456              SKP
5624  0000              HLT             /XSK SKIPPED ON 1737

5625  0070              SET=20=10
5626  1677              1677
5627  0210              XSK 10
5630  0456              SKP
5631  0000              HLT             /XSK SKIPPED ON 1677

5632  0071              SET=20=11
5633  1577              1577
5634  0211              XSK 11
```

```
5635  0456          SKP
5636  0000          HLT          /XSK SKIPPED ON 1577
```

```
5637  0072          SET+20+12
5640  1377          1377
5641  0212          XSK 12
5642  0456          SKP
5643  0000          HLT             /XSK SKIPPED IN ERROR A=1377

5644  0073          SET+20+13
5645  0777          0777
5646  0213          XSK 13
5647  0456          SKP
5650  0000          HLT             /XSK SKIPPED IN ERROR A=0777

5651  0074          SET+20+14
5652  1777          1777
5653  0214          XSK 14
5654  0000          HLT             /XSK FAILED TO SKIP A=1777
```

```
                        /
                        /XSK INDEX TEST 2 XSK WILL INDEX THE B REGISTER BY ONE
                        /
5655  0061              SET+20+1
5656  0000              0000
5657  0221              XSK+20+1
5660  1020              LDA+20
5661  0001              0001
5662  1460              SAE+20
5663  0001              0001
5664  0000              HLT             /XSK INDEX FAILED BIT11 AC=0001 B1=0001

5665  0062              SET+20+2
5666  0001              0001
5667  0222              XSK+20+2
5670  1020              LDA+20
5671  0002              0002
5672  1460              SAE+20
5673  0002              0002
5674  0000              HLT             /XSK INDEX FAILED BIT10 AC=0002 B2=0002

5675  0063              SET+20+3
5676  0003              0003
5677  0223              XSK+20+3
5700  1020              LDA+20
5701  0004              0004
5702  1460              SAE+20
5703  0004              0004
5704  0000              HLT             /XSK INDEX FAILED BIT9 AC=0004 B3=0004

5705  0064              SET+20+4
5706  0007              0007
5707  0224              XSK+20+4
5710  1020              LDA+20
5711  0010              0010
5712  1460              SAE+20
5713  0010              0010
5714  0000              HLT             /XSK INDEX FAILED BIT8 AC=0010 B4=0010

5715  0065              SET+20+5
5716  0017              0017
5717  0225              XSK+20+5
5720  1020              LDA+20
5721  0020              0020
5722  1460              SAE+20
5723  0020              0020
5724  0000              HLT             /XSK INDEX FAILED BIT7 AC=0020 B5=0020

5725  0066              SET+20+6
5726  0037              0037
5727  0226              XSK+20+6
5730  1020              LDA+20
5731  0040              0040
5732  1460              SAE+20
```

```
5733  2040          0040
5734  2000          HLT          /XSK INDEX FAILED BIT6 AC=0040 B6=0040
```

```
5735  0067            SET+20+7
5736  0077            0077
5737  0227            XSK+20+7
5740  1020            LDA+20
5741  0100            0100
5742  1460            SAE+20
5743  0100            0100
5744  0000            HLT             /XSK INDEX FAILED BIT5 AC=0100 B7=0100

5745  0077            SET+20+17
5746  0177            0177
5747  0237            XSK+20+17
5750  1020            LDA+20
5751  0200            0200
5752  1460            SAE+20
5753  0200            0200
5754  0000            HLT             /XSK INDEX FAILED BIT4 AC=0200 B17=0200

5755  0076            SET+20+16
5756  0377            0377
5757  0236            XSK+20+16
5760  1020            LDA+20
5761  0400            0400
5762  1460            SAE+20
5763  0400            0400
5764  0000            HLT             /XSK INDEX FAILED BIT3 AC=0400 B16=0400

5765  0075            SET+20+15
5766  0777            0777
5767  0235            XSK+20+15
5770  1020            LDA+20
5771  1000            1000
5772  1460            SAE+20
5773  1000            1000
5774  0000            HLT             /XSK INDEX FAILED BIT2 AC=1000 B15=1000

5775  0002            PDP
5776  5777            5000,+1         /JMP I .+1
5777  6001            6001
```

```
                6001    *6001
                        /STH TEST
                        /RIGHT HALF

6001  6141              LINC
6002  1020              LDA*20
6003  5201              5201
6004  1340              STH
6005  6007              ,*2
6006  0456              SKP
6007  2500              2500
6010  1020              LDA*20
6011  2501              2501
6012  1440              SAE
6013  6007              ,=4
6014  0000              HLT             /STH FAILED AC=2501

6015  1020              LDA*20
6016  2502              2502
6017  1340              STH
6020  6022              ,*2
6021  0456              SKP
6022  5200              5200
6023  1020              LDA*20
6024  5202              5202
6025  1440              SAE
6026  6022              ,=4
6027  0000              HLT             /STH FAILED AC=5202

6030  1020              LDA*20
6031  5204              5204
6032  1340              STH
6033  6035              ,*2
6034  0456              SKP
6035  2500              2500
6036  1020              LDA*20
6037  2504              2504
6040  1440              SAE
6041  6035              ,=4
6042  0000              HLT             /STH FAILED AC=2504

6043  1020              LDA*20
6044  2510              2510
6045  1340              STH
6046  6050              ,*2
6047  0456              SKP
6050  5200              5200
6051  1020              LDA*20
6052  5210              5210
6053  1440              SAE
6054  6050              ,=4
6055  0000              HLT             /STH FAILED AC=5210
```

```
6056  1020          LDA+20
6057  5220          5220
6060  1340          STH
6061  6063          ,+2
6062  0456          SKP
6063  2500          2500
6064  1020          LDA+20
6065  2520          2520
6066  1440          SAE
6067  6063          ,+4
6070  0000          HLT             /STH FAILED AC=2520

6071  1020          LDA+20
6072  2540          2540
6073  1340          STH
6074  6076          ,+2
6075  0456          SKP
6076  5200          5200
6077  1020          LDA+20
6100  5240          5240
6101  1440          SAE
6102  6076          ,-4
6103  0000          HLT             /STH FAILED AC=5240

6104  1020          LDA+20
6105  5276          5276
6106  1340          STH
6107  6111          ,+2
6110  0456          SKP
6111  2500          2500
6112  1020          LDA+20
6113  2576          2576
6114  1440          SAE
6115  6111          ,+4
6116  0000          HLT             /STH FAILED AC=2576

6117  1020          LDA+20
6120  2575          2575
6121  1340          STH
6122  6124          ,+2
6123  0456          SKP
6124  5200          5200
6125  1020          LDA+20
6126  5275          5275
6127  1440          SAE
6130  6124          ,+4
6131  0000          HLT             /STH FAILED AC=5275
```

```
6132  1020          LDA+20
6133  5273          5273
6134  1340          STH
6135  6137          ,+2
6136  0456          SKP
6137  2500          2500
6140  1020          LDA+20
6141  2573          2573
6142  1440          SAE
6143  6137          ,-4
6144  0000          HLT             /STH FAILED AC=2573

6145  1020          LDA+20
6146  2567          2567
6147  1340          STH
6150  6152          ,+2
6151  0456          SKP
6152  5200          5200
6153  1020          LDA+20
6154  5267          5267
6155  1440          SAE
6156  6152          ,-4
6157  0000          HLT             /STH FAILED AC=5267

6160  1020          LDA+20
6161  5257          5257
6162  1340          STH
6163  6165          ,+2
6164  0456          SKP
6165  2500          2500
6166  1020          LDA+20
6167  2557          2557
6170  1440          SAE
6171  6165          ,-4
6172  0000          HLT             /STH FAILED AC=2557

6173  1020          LDA+20
6174  2537          2537
6175  1340          STH
6176  6200          ,+2
6177  0456          SKP
6200  5200          5200
6201  1020          LDA+20
6202  5237          5237
6203  1440          SAE
6204  6200          ,-4
6205  0000          HLT             /STH FAILED AC=5237
```

```
                        /LDH TEST
                        /LEFT HALF
6206  1020              LDA+20
6207  2501              2501
6210  1340              STH
6211  2213              .+2-4000
6212  0456              SKP
6213  0052              0052
6214  1020              LDA+20
6215  0152              0152
6216  1440              SAE
6217  6213              .-4
6220  0000              HLT             /STH FAILED AC=0001

6221  1020              LDA+20
6222  5202              5202
6223  1340              STH
6224  2226              .+2-4000
6225  0456              SKP
6226  0025              0025
6227  1020              LDA+20
6230  0225              0225
6231  1440              SAE
6232  6226              .-4
6233  0000              HLT             /STH FAILED AC=0002

6234  1020              LDA+20
6235  2504              2504
6236  1340              STH
6237  2241              .+2-4000
6240  0456              SKP
6241  0052              0052
6242  1020              LDA+20
6243  0452              0452
6244  1440              SAE
6245  6241              .-4
6246  0000              HLT             /STH FAILED AC=0004

6247  1020              LDA+20
6250  5210              5210
6251  1340              STH
6252  2254              .+2-4000
6253  0456              SKP
6254  0025              0025
6255  1020              LDA+20
6256  1025              1025
6257  1440              SAE
6260  6254              .-4
6261  0000              HLT             /STH FAILED AC=0010
```

```
6262  1020          LDA+20
6263  2520          2520
6264  1340          STH
6265  2267          .+2-4000
6266  0456          SKP
6267  0052          0052
6270  1020          LDA+20
6271  2052          2052
6272  1440          SAE
6273  6267          .-4
6274  0000          HLT             /STH FAILED AC=0020

6275  1020          LDA+20
6276  5240          5240
6277  1340          STH
6300  2302          .+2-4000
6301  0456          SKP
6302  0025          0025
6303  1020          LDA+20
6304  4025          4025
6305  1440          SAE
6306  6302          .-4
6307  0000          HLT             /STH FAILED AC=0040

6310  1020          LDA+20
6311  2577          2577
6312  1340          STH
6313  2315          .+2-4000
6314  0456          SKP
6315  0052          0052
6316  1020          LDA+20
6317  7752          7752
6320  1440          SAE             /SKIP TO SHO TEST 1
6321  6315          .-4
6322  0000          HLT             /STH FAILED AC=7752
```

```
                        /SRO TEST 1
6323  1020              LDA+20
6324  0000              0000
6325  4327              STC ,+2-2000
6326  1520              SRO+20
6327  0000              0000
6330  0000              HLT             /SRO SKIP FAILED
6331  1000              LDA
6332  6327              ,-3
6333  1460              SAE+20
6334  0000              0000
6335  0000              HLT             /SRO ROTATE FAILED AC=0000

6336  1020              LDA+20
6337  4000              4000
6340  4342              STC ,+2-2000
6341  1520              SRO+20
6342  0000              0000
6343  0000              HLT             /SRO SKIP FAILED
6344  1000              LDA
6345  6342              ,-3
6346  1460              SAE+20
6347  2000              2000
6350  0000              HLT             /SRO ROTATE FAILED AC=2000

6351  1020              LDA+20
6352  2000              2000
6353  4355              STC ,+2-2000
6354  1520              SRO+20
6355  0000              0000
6356  0000              HLT             /SRO SKIP FAILED
6357  1000              LDA
6360  6355              ,-3
6361  1460              SAE+20
6362  1000              1000
6363  0000              HLT             /SRO ROTATE FAILED AC=1000

6364  1020              LDA+20
6365  1000              1000
6366  4370              STC ,+2-2000
6367  1520              SRO+20
6370  0000              0000
6371  0000              HLT             /SRO SKIP FAILED
6372  1000              LDA
6373  6370              ,-3
6374  1460              SAE+20
6375  0400              0400
6376  0000              HLT             /SRO ROTATE FAILED AC=0400

6377  1020              LDA+20
6400  0400              0400
6401  4403              STC ,+2-2000
6402  1520              SRO+20
6403  0000              0000
6404  0000              HLT             /SRO SKIP FAILED
```

```
6405  1000          LDA
6406  6403          .-3
6407  1460          SAE+20
6410  0200          0200
6411  0000          HLT             /SRO ROTATE FAILED AC=0200

6412  1020          LDA+20
6413  0200          0200
6414  4416          STC .+2-2000
6415  1520          SRO+20
6416  0000          0000
6417  0000          HLT             /SRO SKIP FAILED
6420  1000          LDA
6421  6416          .-3
6422  1460          SAE+20
6423  0100          0100
6424  0000          HLT             /SRO ROTATE FAILED AC=0100

6425  1020          LDA+20
6426  0100          0100
6427  4431          STC .+2-2000
6430  1520          SRO+20
6431  0000          0000
6432  0000          HLT             /SRO SKIP FAILED
6433  1000          LDA
6434  6431          .-3
6435  1460          SAE+20
6436  0040          0040
6437  0000          HLT             /SRO ROTATE FAILED AC=0040

6440  1020          LDA+20
6441  0040          0040
6442  4444          STC .+2-2000
6443  1520          SRO+20
6444  0000          0000
6445  0000          HLT             /SRO SKIP FAILED
6446  1000          LDA
6447  6444          .-3
6450  1460          SAE+20
6451  0020          0020
6452  0000          HLT             /SRO ROTATE FAILED AC=0020

6453  1020          LDA+20
6454  0020          0020
6455  4457          STC .+2-2000
6456  1520          SRO+20
6457  0000          0000
6460  0000          HLT             /SRO SKIP FAILED
6461  1000          LDA
6462  6457          .-3
6463  1460          SAE+20
6464  0010          0010
```

```
6465  0000          HLT             /SRO ROTATE FAILED AC=0010
6466  1020          LDA+20
6467  0010          0010
6470  4472          STC ,+2-2000
6471  1520          SRO+20
6472  0000          0000
6473  0000          HLT             /SRO SKIP FAILED
6474  1000          LDA
6475  6472          ,-3
6476  1460          SAE+20
6477  0004          0004
6500  0000          HLT             /SRO ROTATE FAILED AC=0004

6501  1020          LDA+20
6502  0004          0004
6503  4505          STC ,+2-2000
6504  1520          SRO+20
6505  0000          0000
6506  0000          HLT             /SRO SKIP FAILED
6507  1000          LDA
6510  6505          ,-3
6511  1460          SAE+20
6512  0002          0002
6513  0000          HLT             /SRO ROTATE FAILED AC=0002

6514  1020          LDA+20
6515  0002          0002
6516  4520          STC ,+2-2000
6517  1520          SRO+20
6520  0000          0000
6521  0000          HLT             /SRO SKIP FAILED
6522  1000          LDA
6523  6520          ,-3
6524  1460          SAE+20
6525  0001          0001
6526  0000          HLT             /SRO ROTATE FAILED AC=0001

6527  1020          LDA+20
6530  3776          3776
6531  4533          STC ,+2-2000
6532  1520          SRO+20
6533  0000          0000
6534  0000          HLT             /SRO SKIP FAILED
6535  1000          LDA
6536  6533          ,-3
6537  1460          SAE+20
6540  1777          1777
6541  0000          HLT             /SRO ROTATE FAILED AC=1777
```

```
6542  1020          LDA+20
6543  5774          5774
6544  4546          STC ,+2-2000
6545  1520          SRO+20
6546  0000          0000
6547  0000          HLT             /SRO SKIP FAILED
6550  1000          LDA
6551  6546          ,-3
6552  1460          SAE+20
6553  2776          2776
6554  0000          HLT             /SRO ROTATE FAILED AC=6777

6555  1020          LDA+20
6556  6774          6774
6557  4561          STC ,+2-2000
6560  1520          SRO+20
6561  0000          0000
6562  0000          HLT             /SRO SKIP FAILED
6563  1000          LDA
6564  6561          ,-3
6565  1460          SAE+20
6566  3376          3376
6567  0000          HLT             /SRO ROTATE FAILED AC=

6570  1020          LDA+20
6571  7374          7374
6572  4574          STC ,+2-2000
6573  1520          SRO+20
6574  0000          0000
6575  0000          HLT             /SRO SKIP FAILED
6576  1000          LDA
6577  6574          ,-3
6600  1460          SAE+20
6601  3576          3576
6602  0000          HLT             /SRO ROTATE FAILED AC=

6603  1020          LDA+20
6604  7474          7474
6605  4607          STC ,+2-2000
6606  1520          SRO+20
6607  0000          0000
6610  0000          HLT             /SRO SKIP FAILED
6611  1000          LDA
6612  6607          ,-3
6613  1460          SAE+20          /SKIP TO SMD TEST 1
6614  3636          3636
6615  0000          HLT             /SRO ROTATE FAILED AC=
```

```
                    /SHD TEST 1
6616  1020          LDA+20
6617  0010          0010
6620  1400          SHD
6621  6624          ,+3 2000
6622  0000          HLT             /SHD FAILED AC=0010 MEM=0000
6623  0456          SKP
6624  0000          0000

6625  1020          LDA+20
6626  0020          0020
6627  1400          SHD
6630  6633          ,+3 2000
6631  0000          HLT             /SHD FAILED AC=0020 MEM=0000
6632  0456          SKP
6633  0000          0000

6634  1020          LDA+20
6635  0040          0040
6636  1400          SHD
6637  6642          ,+3 2000
6640  0000          HLT             /SHD FAILED AC=0040 MEM=0000
6641  0456          SKP
6642  0000          0000

6643  1020          LDA+20
6644  0001          0001
6645  1400          SHD
6646  6651          ,+3 2000
6647  0000          HLT             /SHD FAILED AC=0001 MEM=0000
6650  0456          SKP
6651  0000          0000

6652  1020          LDA+20
6653  0002          0002
6654  1400          SHD
6655  6660          ,+3 2000
6656  0000          HLT             /SHD FAILED AC=0002 MEM=0000
6657  0456          SKP
6660  0000          0000

6661  1020          LDA+20
6662  0004          0004
6663  1400          SHD
6664  6667          ,+3 2000
6665  0000          HLT             /SHD FAILED AC=0004 MEM=0000
6666  0456          SKP
6667  0000          0000

6670  1400          SHD
6671  6674          ,+3 2000
6672  0000          HLT             /SHD FAILED AC=0004 MEM=1000
6673  0456          SKP
6674  1000          1000
```

```
6675  1400            SHD
6676  6701            .+3 2000
6677  0000            HLT             /SHD FAILED AC=0004 MEM=2000
6700  0456            SKP
6701  2000            2000

6702  1400            SHD
6703  6706            .+3 2000
6704  0000            HLT             /SHD FAILED AC=0004 MEM=4000
6705  0456            SKP
6706  4000            4000

6707  1400            SHD
6710  6713            .+3
6711  0000            HLT             /SHD FAILED AC=0004 MEM=0040
6712  0456            SKP
6713  0040            0040

6714  1400            SHD
6715  6720            .+3 2000
6716  0000            HLT             /SHD FAILED AC=0004 MEM=0100
6717  0456            SKP
6720  0100            0100

6721  1400            SHD
6722  6725            .+3 2000
6723  0000            HLT             /SHD FAILED AC=0004 MEM=0200
6724  0456            SKP
6725  0200            0200

6726  1400            SHD
6727  6732            .+3 2000
6730  0000            HLT             /SHD FAILED AC=0004 MEM=0400
6731  0456            SKP
6732  0400            0400

6733  1400            SHD
6734  6737            .+3
6735  0000            HLT             /SHD FAILED AC=0004 MEM=0002
6736  0456            SKP
6737  0002            0002

6740  1400            SHD
6741  6744            .+3
6742  0456            SKP
6743  0000            HLT             /SHD FAILED AC=0004 MEM=0004
6744  0004            0004

6745  1400            SHD
6746  6751            .+3
6747  0000            HLT             /SHD FAILED AC=0004 MEM=0010
6750  0456            SKP
6751  0010            0010
```

```
6752  1400            SHD
6753  6756            ,+3
6754  0000            HLT             /SHD FAILED AC=0004 MEM=0020
6755  0456            SKP
6756  0020            0020

6757  1020            LDA+20
6760  0020            0020
6761  1400            SHD
6762  6765            ,+3
6763  0000            HLT             /SHD FAILED AC=0020 MEM=0000
6764  0456            SKP
6765  0000            0000

6766  1020            LDA+20
6767  0040            0040
6770  1400            SHD
6771  6774            ,+3
6772  0000            HLT             /SHD FAILED AC=0040 MEM=0000
6773  0456            SKP
6774  0000            0000

6775  0011            CLR
6776  1400            SHD
6777  7002            ,+3
7000  0000            HLT             /SHD FAILED AC=0000 MEM=0001
7001  0456            SKP
7002  0001            0001

7003  1020            LDA+20
7004  0002            0002
7005  1400            SHD
7006  7011            ,+3
7007  0000            HLT             /SHD FAILED AC=0002 MEM=0000
7010  0456            SKP
7011  0000            0000

7012  1020            LDA+20
7013  0004            0004
7014  1400            SHD
7015  7020            ,+3
7016  0000            HLT             /SHD FAILED AC=0004 MEM=0000
7017  0456            SKP
7020  0000            0000

7021  1020            LDA+20
7022  0010            0010
7023  1400            SHD
7024  7027            ,+3
7025  0000            HLT             /SHD FAILED AC=0010 MEM=0000
7026  0456            SKP
7027  0000            0000
```

```
                    /SHD TEST

7030  1020          LDA+20
7031  5201          5201
7032  1400          SHD
7033  7036          .+3
7034  0000          HLT             /SHD FAILED AC=5200 MEM=0000
7035  0456          SKP
7036  0000          0000

7037  1020          LDA+20
7040  2577          2577
7041  1400          SHD
7042  7045          .+3
7043  0000          HLT             /SHD FAILED AC=2577 MEM=0001
7044  0456          SKP
7045  0001          0001

7046  1020          LDA+20
7047  5201          5201
7050  1400          SHD
7051  7054          .+3
7052  0000          HLT             /SHD FAILED AC=5201 MEM=5200
7053  0456          SKP
7054  5200          5200
```

```
                        /LAM TEST LAM ARITHMETIC IS 2'S COMPLEMENT

7055  0011              CLR
7056  5060              STC ,+2-2000
7057  1220              LAM+20
7060  0000              0000
7061  1460              SAE+20
7062  0000              0000
7063  0000              HLT             /LAM FAILED AC=0000 MEM=0001 L=0

7064  1020              LDA+20
7065  4000              4000
7066  0261              ROL+20+1
7067  5071              STC ,+2-2000
7070  1220              LAM+20
7071  0000              0000
7072  1460              SAE+20
7073  0001              0001
7074  0000              HLT             /LAM FAILED AC=0001 MEM=0001

7075  1020              LDA+20
7076  4000              4000
7077  0261              ROL+20+1
7100  5104              STC ,+4-2000
7101  1020              LDA+20
7102  0001              0001
7103  1220              LAM+20
7104  0000              0000
7105  1460              SAE+20
7106  0002              0002
7107  0000              HLT             /LAM FAILED AC=0002

7110  1020              LDA+20
7111  4000              4000
7112  0261              ROL+20+1
7113  5117              STC ,+4-2000
7114  1020              LDA+20
7115  0003              0003
7116  1220              LAM+20
7117  0000              0000
7120  1460              SAE+20
7121  0004              0004
7122  0000              HLT             /LAM FAILED AC=0004

7123  1020              LDA+20
7124  4000              4000
7125  0261              ROL+20+1
7126  5132              STC ,+4-2000
7127  1020              LDA+20
7130  0007              0007
7131  1220              LAM+20
7132  0000              0000
7133  1460              SAE+20
7134  0010              0010
```

7135 0000 HLT /LAM FAILED AC=0010

```
7136  1020          LDA*20
7137  4000          4000
7140  0261          ROL*20*1
7141  5145          STC ,.+4-2000
7142  1020          LDA*20
7143  0017          0017
7144  1220          LAM*20
7145  0000          0000
7146  1460          SAE*20
7147  0020          0020
7150  0000          HLT             /LAM FAILED AC=0020

7151  1020          LDA*20
7152  4000          4000
7153  0261          ROL*20*1
7154  5160          STC ,.+4-2000
7155  1020          LDA*20
7156  0037          0037
7157  1220          LAM*20
7160  0000          0000
7161  1460          SAE*20
7162  0040          0040
7163  0000          HLT             /LAM FAILED AC=0040

7164  1020          LDA*20
7165  4000          4000
7166  0261          ROL*20*1
7167  5173          STC ,.+4-2000
7170  1020          LDA*20
7171  0077          0077
7172  1220          LAM*20
7173  0000          0000
7174  1460          SAE*20
7175  0100          0100
7176  0000          HLT             /LAM FAILED AC=0100

7177  1020          LDA*20
7200  4000          4000
7201  0261          ROL*20*1
7202  5206          STC ,.+4-2000
7203  1020          LDA*20
7204  0177          0177
7205  1220          LAM*20
7206  0000          0000
7207  1460          SAE*20
7210  0200          0200
7211  0000          HLT             /LAM FAILED AC=0200
```

```
7212  1020          LDA+20
7213  4000          4000
7214  0261          ROL+20+1
7215  5221          STC ,.+4-2000
7216  1020          LDA+20
7217  0377          0377
7220  1220          LAM+20
7221  0000          0000
7222  1460          SAE+20
7223  0400          0400
7224  0000          HLT             /LAM FAILED AC=0400

7225  1020          LDA+20
7226  4000          4000
7227  0261          ROL+20+1
7230  5234          STC ,.+4-2000
7231  1020          LDA+20
7232  0777          0777
7233  1220          LAM+20
7234  0000          0000
7235  1460          SAE+20
7236  1000          1000
7237  0000          HLT             /LAM FAILED AC=1000

7240  1020          LDA+20
7241  4000          4000
7242  0261          ROL+20+1
7243  5247          STC ,.+4-2000
7244  1020          LDA+20
7245  1777          1777
7246  1220          LAM+20
7247  0000          0000
7250  1460          SAE+20
7251  2000          2000
7252  0000          HLT             /LAM FAILED AC=2000

7253  1020          LDA+20
7254  4000          4000
7255  0261          ROL+20+1
7256  5262          STC ,.+4-2000
7257  1020          LDA+20
7260  3777          3777
7261  1220          LAM+20
7262  0000          0000
7263  1460          SAE+20
7264  4000          4000
7265  0000          HLT             /LAM FAILED AC=4000

7266  1020          LDA+20
7267  4000          4000
7270  0261          ROL+20+1
7271  5275          STC ,.+4-2000
7272  1020          LDA+20
7273  7777          7777
```

```
7274  1220          LAM+20
7275  0000          0000
7276  1460          SAE+20
7277  0000          0000
7300  0000          HLT
7301  0472          LAE+20
7302  0000          HLT             /LAM FAILED AC=0000
                    /
                    /COM TEST
                    /

7303  1020          LDA+20
7304  5252          5252
7305  0017          COM
7306  1460          SAE+20
7307  2525          2525
7310  0000          HLT             /COM FAILED AC=2525

7311  0017          COM
7312  1460          SAE+20
7313  5252          5252
7314  0000          HLT             /COM FAILED AC=5252

7315  1020          LDA+20
7316  7777          7777
7317  0017          COM
7320  1460          SAE+20
7321  0000          0000
7322  0000          HLT             /COM FAILED AC=0000

7323  0017          COM
7324  1460          SAE+20
7325  7777          7777
7326  0000          HLT             /COM FAILED AC=7777

                    /STC TEST

7327  1020          LDA+20
7330  5252          5252
7331  4000          STC+0000
7332  0450          AZE
7333  0000          HLT             /STC FAILED TO CLEAR AC=0000

7334  1020          LDA+20
7335  5252          5252
7336  1440          SAE
7337  0000          0000
7340  0000          HLT             /STC FAILED TO STORE PROPER NUMBER

7341  1020          LDA+20
7342  2525          2525
7343  5777          STC+1777
7344  0450          AZE
7345  0000          HLT             /STC FAILED TO CLEAR AC=0000
```

```
7346  1020          LDA+20
7347  2525          2525
7350  1440          SAE
7351  1777          1777
7352  0000          HLT             /STC FAILED TO STORE PROPER NUMBER

7353  1020          LDA+20
7354  2525          2525
7355  4000          STC+0000
7356  1020          LDA+20
7357  2525          2525
7360  1440          SAE
7361  0000          0000
7362  0000          HLT             /STC FAILED TO STORE PROPER NUMBER

7363  1020          LDA+20
7364  5252          5252
7365  5777          STC+1777
7366  1020          LDA+20
7367  5252          5252
7370  1440          SAE
7371  1777          1777
7372  0000          HLT             /STC FAILED TO STORE PROPER NUMBER
```

```
7373  0011            CLR
7374  3424            ADD K2525=4000
7375  3425            ADD K2526=4000
7376  1460            SAE 20
7377  5253            5253
7400  0000            HLT             /ADD FAILED AC=5253

7401  0011            CLR
7402  3425            ADD K2526=4000
7403  3424            ADD K2525=4000
7404  1460            SAE 20
7405  5253            5253
7406  0000            HLT             /ADD FAILED AC=5253
7407  3426            ADD K0000=4000
7410  3426            ADD K0000=4000  /TO CLEAR FILE
7411  0002            PDP             /TO PMODE
7412  2230            ISZ CTR=5400*200        /ISZ CTR (RING BELL 4096 TIMES)
7413  5215            5000,*2-2400*200        /JMP ,*2
7414  5217            5000 BELL=2400*200      /JMP BELL
7415  5616    BACK,   5000,*1-2000*200        /JMP I ,*1
7416  0033            0033                    /RETURN TO SECOND TEST
7417  7300    BELL,   CLL CLA
7420  1231            TAD KBELL-6400*200      /TAD KBELL
7421  6046            TLS
7422  7300            CLL CLA
7423  5215            5000 BACK=2400*200      /JMP BACK
7424  2525    K2525,  2525
7425  2526    K2526,  2526
7426  0000    K0000,  0000
7427  0000    TALLY,  0
7430  0000    CTR,    0
7431  0207    KBELL,  0207
              $
```

```
0000  00100000  00000000  11111111  11111111  11111111  11111111  11111111  11111111
0100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

0200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
0300  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

0400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
0500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

0600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
0700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111


1000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
1100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

1200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
1300  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

1400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
1500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

1600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
1700  11111111  11111111  11111111  11111111  11111111  11111111  11100000  00000000


2000  01111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
2100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

2200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
2300  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

2400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
2500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

2600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
2700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111


3000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
3100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

3200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
3300  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

3400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
3500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

3600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
3700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  10000000
```

```
4000  00000000  00000000  11111000  11111111  11111111  11111111  11111111  11111111
4100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

4200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
4300  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

4400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
4500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

4600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
4700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

5000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
5100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

5200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
5300  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

5400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
5500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

5600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
5700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

6000  01111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
6100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

6200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
6300  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

6400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
6500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

6600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
6700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

7000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
7100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

7200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
7300  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

7400  11111111  11111111  11111111  11000000  00000000  00000000  00000000  00000000
7500  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000

7600
7700
```

ADA	1100	SRO	1500
ADATST	3667	STA	1040
ADD	2000	START	0020
ADM	1140	STC	4000
AND	0000	STH	1340
APO	0451	SXL	0400
ATR	0014	TAD	1000
AZE	0450	TALLY	7427
BACK	7415	TLS	6046
BCL	1540	XSK	0200
BCO	1640		
BELL	7417		
BSE	1600		
CLA	7200		
CLL	7100		
CLR	0011		
CML	7020		
COM	0017		
CTR	7430		
DCA	3000		
FLO	0454		
HLT	0000		
IBZ	0453		
IOT	0513		
ISZ	2000		
K0000	7426		
K2525	7424		
K2526	7425		
KBELL	7431		
KST	0415		
LAM	1200		
LAS	7604		
LDA	1000		
LDH	1300		
LINC	6141		
LZE	0452		
MUL	1240		
NOP	0016		
PDP	0002		
QAC	0005		
QLZ	0455		
ROL	0240		
ROR	0300		
RTA	0015		
RTL	7006		
SAE	1440		
SCR	0340		
SET	0040		
SETTST	4057		
SHD	1400		
SKP	0456		
SNS	0440		

ERROR