IDENTIFICATION

PRODUCT CODE:	MAINDEC-12-D1AC-D
PRODUCT NAME:	EXTENDED MEMORY CONTROL (EXTMC12)
DATE CREATED:	JUNE 19, 1970
MAINTAINER:	DIAGNOSTIC GROUP
AUTHOR:	HAROLD LONG

RSW = 7001 for 8K
8 MODE
START 20
RSW 5 = 1 inhibit bell
RSW 6 = 1

1. ABSTRACT

PDP-12 Extended Memory Control Test (Version 2) is designed to exercise all functions of memory control available to a PDP-12 with at least 4K of additional memory. This includes data field control, data handling, interrupts, data field-instruction field control during an interrupt, auto indexing in extended memory, subroutine handling (both with and without interrupts), and non-existant memory detect handling. All these tests are performed both in P mode and L mode whenever possible.

Program Control is handled by a monitor resident in bank Ø. Several options are available to the user for control of error handling.

2. REQUIREMENTS

2.1 EQUIPMENT

a) Any PDP-12 with at least 4K of extended memory.

b) An ASR-33 teletype or equivalent

2.2 PRELIMINARY PROGRAMS

a) All basic processor - memory tests should have been run successfully.

3. LOADING PROCEDURES

3.1 METHOD

This program must be loaded with the binary loader. If you are unfamiliar with the proper binary loading procedures refer to "Appendix A" of this program, otherwise proceed with the following:

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 on START.
d) Set the teletype front panel switch on ON LINE.
e) Set the LEFT switches to 7777.
f) Set the RIGHT switches to 4ØØØ.
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 the ACCUMULATOR must be ØØØØ if it is not, a read-in error has occurred and one might try reloading the binary loader.
k) Remove the program tape from the reader.

4. STARTING PROCEDURES

a) Set the right switches as outlined in section 5.1, switch settings.
b) Set the mode switch to 8 mode.
c) Depress I/O preset.
d) Depress start 20.
e) The program, when properly running, will type the contents of the pass counter at the completion of each pass.
f) Attempting to test non-existant memory may result in false error printout or program destruction.

5. ERROR ROUTINE

5.1 SWITCH SETTINGS

a) In general, RSWØ-6 allow selection of the error mode. With all switches equal to zero, the sequence would be: (error typeout and halt) - operator selects any additional error modes and depresses continue; machine will respond as directed by right switches.

RSW ØØ = 1, SUPPRESS ERROR HALT
RSW Ø1 = 1, SUPPRESS ERROR PRINTOUT
RSW Ø2 = 1, SCOPE LOOP ON FAILING ROUTINE
RSW Ø3 = 1, SCOPE LOOP ON NON-FAILING ROUTINE
RSW Ø5 = 1, INHIBIT BELL
RSW Ø6 = 1, INHIBIT PASS COUNTER

b) RSW Ø8-11 must contain the amount of memory available, within the range of 8 to 32K.

8K: ØØ1
12K: Ø1Ø
16K: Ø11
20K: 1ØØ
24K: 1Ø1
28K: 11Ø
32K: 111

5.2 ERROR PRINTOUT

a) The error printout has the following general form:

```
TESTNAME TEST MESSAGE FAILED
REGISTER REGISTER REGISTER...
(CONTENTS) (CONTENTS) (CONTENTS)...
```

The message is interpreted as follows:

TESTNAME - The nmemonic code used to identify each test in the listing.

TEST MESSAGE FAILED - What the test is attempting to check, along with the identifier "failed".

REGISTERS - The registers associated with this test; this may be the L mode data field register, the L mode save field register, etc.

(CONTENTS) - The contents of each register identified above.

Consult the listing for further explaination of any error condition encountered.

b) Following is a list of all possible error printouts:

```
TST01
CDF OR RDF FAILED (PMODE)
SENT RCVD

TST02
CDF OR RDF FAILED (PMODE)
SENT RCVD

TST03
LDF OR RDF FAILED (LMODE)
SENT RCVD

TST04
LDF OR RDF FAILED (LMODE)
SENT RCVD

TST05
CDF OR RDF FAILED (PMODE)
SENT RCVD

TST06
LDF OR RDF FAILED (LMODE)
SENT RCVD
```

```
TSTØ7
PMODE INTERRUPT FAILED

TSTØ8
PMODE LOAD SF OR RIB FAILED
 DF   SF

TST9A
LMODE INTERRUPT FAILED

TSTØ9
LMODE LOAD SF OR RIB FAILED
 DF   SF

TST 1Ø
PMODE DF FAILED TO ZERO ON AN INTERRUPT
SENT   SF  RCVD

TST11
LMODE DF FAILED TO ZERO ON AN INTERRUPT
SENT SF RCVD

TST12
DCA I - TAD I FAILED
BANK LOCN SENT RCVD

TST13
STA - LDA FAILED
BANK LOCN SENT RCVD

TST14
LMODE JUMP SAVE RETURN FAILED FOR NORMAL JUMP

TST15
DJR FAILED TO INHIBIT JUMP SAVE

TST16
LMODE JMP FAILED TO CLEAR DJR

TST17
PMODE JUMP ALTERED CELL ØØØØ

TST18
PMODE IOF ALTERED CELL ØØØØ

TST19
LMODE IOF ALTERED CELL ØØØØ

TST2Ø
PMODE JUMP CLEARED DJR

TST21
DJR INHIBITED PMODE INTERRUPT SAVE

TST22
NON EXISTANT MEMORY READ-BACK FAILED
BANK DATA
```

TST24
CIF FAILED TO LOAD PROPER IF
SENT TCVD

TST25
LIF FAILED TO LOAD PROPER IF
SENT TCVD

TST26
CIF FAILED TO FIND PROPER MEMORY
SENT RCVD

TST27
PMODE INTERRUPTS NOT INHIBITED BY CIF
BANK

TST28
LMODE LIF FAILED TO INHIBIT INTERRUPTS
BANK

TST29
LMODE JMP Ø FAILED TO CLEAR INTERRUPT INHIBIT
BANK

TST3Ø
LMODE DJR-JMP Ø FAILED TO LOAD IF
BANK

TST 32
LMODE ION-LIF FAILED TO INHIBIT INTERRUPTS

TST32
LMODE LIF-JMP N FAILED TO LOAD SF
 IF DF SF

TST34
LMODE PMF IN EXTENDED BANK FAILED
BANK SF

TST35
PMODE AUTO-INDEX FAILED
BANK CELL ADDR

TST36 LMODE AUTO-INDEX FAILED
FIELD LOCN

EXT MEM TST PASS --- ØØØØ

SPURIOUS INTERPUPT
(CHECK IOC I/O PRESET)

```
/PDP-12 EXTENDED MEMORY TEST, VERSION 2,  MAINDEC 12-D1AC-L
/COPYRIGHT, 1970, DIGITAL EQUIPMENT CORP., MAYNARD, MASS.
/
/AUTHOR:  HAROLD LONG
/
/THIS TEST IS DESIGNED TO EXERCISE ALL MEMORY
/REFERENCE INSTRUCTIONS AVAILABLE ON A PDP-12
/COMPUTER WITH EXTENDED MEMORY.  IT OPERATES
/IN BOTH P MODE AND L MODE, IN ALL AVAILABLE
/MEMORY; A MINIMUM OF 8K OF CORE IS REQUIRED.
/
/
/RIGHT SWITCH REGISTER OPTIONS:
/SR00=1, INHIBIT ERROR HALT
/SR01=1, INHIBIT ERROR PRINTOUT
/SR02=1, SCOPE LOOP ON FAILING ROUTINE
/SR03=1, SCOPE LOOP ON NON-FAILING ROUTINE
/SR05=1, INHIBIT BELL
/SR06=1, INHIBIT PASS COUNTER PRINTOUT
/SR09,10,11 -- EXTENDED BANKS
/
/
/NORMAL SWITCH SETTING IS RSW=000N, WHERE
/(N)=AMOUNT OF EXTENDED MEMORY AVAILABLE AND
/IS WITHIN THE RANGE OF 0<N<10 OCTAL
/
/
/PROGRAM CONTROL IS HANDLED BY A MONITOR RESIDENT IN BANK 0,
/LOCATIONS 5000 TO 5177. ALL ROUTINES VISIT THE MONITOR 4096 TIMES
/AT THE COMPLETION OF A TEST, AN ERROR WILL CAUSE THE
/PROGRAM TO TYPE OUT THE ERROR MESSAGE AND HALT. THE
/HALT IS AT LOCATION 5033. THE HALTS IN THE PROGRAM
/BLOCKS ARE NOT, REPEAT NOT, EXECUTED. THEY ARE
/THERE FOR MANUAL PROGRAM CONTROL ONLY.
/
/TO REDEFINE AMOUNT OF MEMORY AVAILABLE, THE
/PROGRAM MUST BE RESTARTED.
/
/I/O PRESET TO PMODE, START 20
/
```

```
                /PDP-12 INSTRUCTION DEFINITIONS
                /L MODE MEMORY REFERENCE
 0064           LDF=0640                /LOAD DATA FIELD 0-37
 0050           LIF=0600                /LOAD INSTRUCTION FIELD 0-37
 0006           DJR=0006                /DISABLE JUMP RETURN
                /MODE CHANGE
 0002           POP=0002                /SWITCH TO P MODE
 6141           LINC=6141               /SWITCH TO L MODE
                /L MODE PROGRAMMING INSTRUCTIONS
 6000           LJMP=6000               /JMP
 0011           CLR=0011
 0450           AZE=0450
 2000           ADD=2000
 0500           IOB=0500
 0016           LNOP=0016               /NOP
 0300           ROR=0300
 0456           LSKP=0456
 0240           ROL=0240
 1600           BSE=1600
 1540           BCL=1540
 0060           SET=0060                /(REALLY SET I)
 4000           STC=4000
 1500           SRO=1500                /USED AS A SWITCH CHECK
 1000           LDA=1000
 1040           STA=1040
 0220           XSK=0220                /(REALLY XSK I)
                /DATA MATRIX SWITCHES
 7777           EXITA=7777
 4444           EXITB=4444              /SPECIAL RESTART SWITCH
 0000           EXIT=0000
```

```
                /P MODE INTERRUPT HANDLER
      0000      *000
0000  0000      PINTR,  0000                   /INTERRUPT RETURN STORAGE (ALSO LINC JUMP SAVE)
0001  7320              CLA CLL CML            /SET LINK, CLEAR AC
0002  6234              RIB                    /READ SF
0003  3143              DCA     PREG           /SAVE IT
0004  1142              TAD     PPOINT         /GET SWITCH
0005  7650              SNA CLA                /SET?
0006  5555              JMP I   RETURN         /NO, RETURN THROUGH PRESET LINKUP
0007  3142              DCA     PPOINT         /CLEAR SWITCH
0010  6244              RMF                    /RESTORE MEMORY
0011  2000              ISZ     0              /ENABLE RETURN
0012  5400              JMP I   PINTR          /BACK TO MAINLINE VIA INTERRUPT RETURN LINKUP
                /AUTO-INDEX REGISTERS
0013  0000      LREG1,  0000           /DATA POINTER
0014  0000      PINT,   0000           /MESSAGE POINTER
0015  0000      AUTO11, 0000
0016  0000      AUTO12, 0000
0017  0000      COUNT,  0000
                /
                /CROSS-PAGE REFERENCE TAGS AND CONSTANTS
                /
      0020      *020
0020  5176              JMP     176            /MINOR START
0021  0003      K0003,  0003
0022  0007      K0007,  0007
0023  0010      K0010,  0010
0024  0017      K0017,  0017
0025  0020      K0020,  0020
0026  0040      K0040,  0040
0027  0070      K0070,  0070
0030  0077      K0077,  0077
0031  0100      K0100,  0100
0032  0177      K0177,  0177
0033  0207      K0207,  0207
0034  0400      K0400,  0400
0035  1026      K1026,  1026
0036  1777      K1777,  1777
0037  2000      K2000,  2000
```

```
                        /LMODE INTERRUPT HANDLER
                *0040
0040  0000      LINTR,  0000                    /INTERRUPT RETURN STORAGE
0041  7011              CLR                     /CLEAR LINK, CLEAR AC
0042  6254      LHAN,   IOB                     /
0043  6234              RIB                     /READ SAVE FIELD REG
0044  4064              STC     LREG            /SAVE IT
0045  7500              SRO                     /SWITCH SET?
0046  5065              LPOINT                  /
0047  5456              LSKP                    /TO HERE IF BIT 0=1
0050  5605      LSET,   LJMP    .               /NO, RETURN TO BANK 0 THROUGH PRESET LINKUP
0051  6254              IOB                     /
0052  6244              RMF                     /YES, RESTORE MEMORY FIELDS
0053  7022              XSK     0               /INCREMENT
0054  2234              ADD     LINTR           /GET RETURN
0055  1620              BSE     20              /MAKE IT A LINC JUMP (BSE I)
0056  6000              6000                    /
0057  4063              STC     .+4             /STORE FOR EXECUTION
0060  4065              STC     LPOINT          /CLEAR SWITCH
0061  6254              IOB                     /
0062  6001              ION                     /ENABLE INTERRUPTS
0063  5663              LJMP    .               /BACK TO BANK 0 VIA INTERRUPT RETURN LINKUP
0064  0000      LREG,   0000
0065  0000      LPOINT, 0000
```

```
                        /
                        /MORE TAGS AND CONSTANTS
                        /
0066  0001  BANK,   0000                    /AMOUNT OF EXTENDED MEMORY
0067  5464  BELL,   BELLS                   /CROSS PAGE TO BELL RINGER
0070  5326  BNKSET, LOCSET                  /BANK SET
0071  5021  ERROR,  ERRORS                  /CROSS PAGE TO ERROR MONITOR
0072  2123  EXDF33, XDF33
0073  2121  EXIF33, XIF33
0074  5431  GETBNK, GETNXT                  /CROSS PAGE TO PMODE FIND BANK
0075  5445  GETBNL, GETNXL                  /CROSS PAGE TO LMODE FIND BANK
0076  5252  K5252,  5252
0077  6020  K6020,  6020
0100  7774  K7774,  7774
0101  6201  KCDF,   CDF                     /PMODE CDF
0102  6202  KCIF,   CIF                     /PMODE CIF
0103  7402  KHLT,   HLT                     /PMODE HLT
0104  6641  KLDF,   LDF                     /LMODE LDF
0105  6505  KIOB,   IOB
0106  6002  KIOF,   IOF
0107  7016  KLNOP,  LNOP
0110  6224  KRIF,   RIF                     /LMODE NOP
0111  6602  KLIF,   LIF                     /LMODE LIF
0112  6001  KLJMP,  LJMP                    /LMODE JMP
0113  0003  LBANK,  0003                    /LINC FIELD IN USE (>4K)
0114  0037  LMASK,  0037                    /LIF/LDF MASK
0115  0000  LSTERR, 0000                    /LAST ERROR POINTER
0116  5001  NERROR, NERROS                  /CROSS PAGE TO NON-ERROR MONITOR
0117  4206  PASSN,  PASS
0120  0000  PBANK,  0000                    /PMODE BANK IN USE (<32K)
0121  0070  PMASK,  0070                    /CIF/CDF MASK
0122  0502  PNTA,   LOCA                    /INTERRUPT RETURN TEST 07
0123  0527  PNTB,   LOCB                    /INTERRUPT RETURN TEST 08
0124  0621  PNTC,   LOCC                    /INTERRUPT RETURN TEST 09
0125  0564  PNTCA,  LOCCA                   /INTERRUPT RETURN
0126  0661  PNTD,   LOCD                    /INTERRUPT RETURN TEST 10
0127  0722  PNTE,   LOCE                    /INTERRUPT RETURN TEST 11
0130  1246  PNTF,   LOCF                    /INTERRUPT RETURN TEST 21
0131  1431  PNTG,   LOCG
0132  1473  PNTH,   LOCH
0133  1615  PNTI,   LOCI
0134  1651  PNTJ,   LOCJ
0135  1734  PNTK,   LOCK
0136  2012  PNTL,   LOCL
0137  4222  PNTO,   LOCO
0140  5423  PNTP,   LOCP
0141  2007  PNT30N, PNT30
0142  0000  PPOINT, 0000
```

```
0143  0000  PREG,   0000                  /HOLDS SF
0144  5200  RANDOM, RANDY                /CROSS PAGE TO RANDOM GENERATOR
0145  0000  REGA,   0000                  /DATA
0146  0000  REGB,   0000                  /DATA
0147  0000  REGC,   0000                  /DATA
0150  0147  REGCN,  REGC
0151  0000  REGD,   0000                  /DATA
0152  0000  REGE,   0000                  /DATA
0153  5261  RELOCR, RELOC                /CROSS PAGE TO RELOCATOR SUBR
0154  0000  RELPNT, PINTR                /CROSS BANK TO INTERRUPT RETURN STORAGE
0155  0000  RETURN, 0000                  /PMODE INTERRUPT RETURN IF SWITCH=0
0156  5253  SETFLG, FLAG                 /CROSS PAGE TO FLAG SET ROUTINE
0157  0000  SPACE,  0000                  /DATA I/O BUFFER
0160  5400  TSTINT, INTTST
0161  0746  TST12N, TST12                /CROSS PAGE TO TEST 12
0162  1004  TST13N, TST13                /CROSS PAGE TO TEST 13
0163  1370  TST23N, TST23
0164  1403  TST24N, TST24
0165  1556  TST27N, TST27                /CROSS PAGE TO TEST 27
0166  1613  TST28N, TST28
0167  1747  TST30N, TST30
0170  2033  TST32N, TST32
0171  2072  TST33N, TST33
0172  2152  TST34N, TST34
0173  2400  TST35N, TST35
0174  5244  TYPE,   TYPOUT               /CROSS PAGE TO TYPEOUT SUBR
```

```
                    /
                    /TO HERE FROM MINOR START
                    /
          176       *176
 0176     7410               SKP                     /DON'T RING ON STARTUP, INITIALIZE TEST
 0177     4467     %START,   JMS I   .BELL            /GO RING BELL, RETURN TO TST01
                    /
                    /MAJOR START P MODE; INITIALIZATION ROUTINE
                    /
          200       * 200
 0200     7604     START,    LAS                     /READ SWITCHES
 0201     0222               AND     K0007           /SAVE BANK BITS
 0202     3366               DCA     BANK            /AMOUNT OF EXTENDED MEMORY
 0203     3145               DCA     REGA            /CLEAR LOOP COUNTER
 0204     3115               DCA     LSTERR          /CLEAR OLD ERROR
 0205     3121               DCA     PBANK
 0206     3317               DCA     COUNT           /CLEAR PASS COUNTER
 0207     1321               TAD     K0003           /SET LBANK TO UPPER MEMORY
 0210     3113               DCA     LBANK
 0211     6271               CDF     30              /RESTORE DATA FIELD
 0212     4560               JMS I   TSTINT          /TEST FOR NO INTERRUPT
                    /PMODE
                    /CAN THE DATA FIELD REGISTER BE LOADED WITH ALL NUMBERS (BINARY COUNT)
                    /
 0213     1145     TST01,    TAD     REGA            /FETCH TEST NUMBER
 0214     0121               AND     PMASK           /SAVE BITS 06-08
 0215     3146               DCA     REGB            /SAVE FOR OBSERVATION
 0216     1146               TAD     REGB            /FETCH IT
 0217     1321               TAD     KCDF            /ADD CDF
 0220     3221               DCA     .+1             /PLACE IT IN ROUTINE
 0221     0000               0000                    /EXECUTE CDF N
 0222     6214               RDF                     /GET DATA FIELD
 0223     0121               AND     PMASK           /SAVE BITS 06-08
 0224     3147               DCA     REGC            /SAVE FOR TYPING
 0225     1147               TAD     REGC            /FETCH IT
 0226     7041               CIA                     /2'S COMPLEMENT
 0227     1146               TAD     REGB            /COMPARE WITH DATA SENT
 0230     6271               CDF     30              /RESTORE DATA FIELD
 0231     7651               SNA CLA                 /INCORRECT IF NOT ZERO
 0232     4516               JMS I   .ERROR          /CHECK WITH MONITOR
 0233     4471               JMS I   ERROR           /CDF OR RDF FAILED
 0234     5475               TST01M                  /MESSAGE POINTER
 0235     7402               HLT                     /ERROR HALT
 0236     7610               SKP CLA                 /GO TO NEXT TEST
 0237     0213               TST01                   /SCOPE LOOP, ISP LOOP
```

```
                        /PMODE
                        /CAN THE DATA FIELD BE LOADED WITH RANDOM NUMBERS
                        /
0240  4544    TST02,    JMS I   RANDOM          /GET A RANDOM NUMBER
0241  4121              AND     PMASK           /SAVE BITS 06-08
0242  3146              DCA     REGB            /SAVE FOR OBSERVATION
0243  1146              TAD     REGB            /FETCH IT
0244  1141              TAD     KCDF            /ADD CDF
0245  3246              DCA     .+1             /PLACE IT IN ROUTINE
0246  0000              0000                    /EXECUTE CDF R
0247  6214              RDF                     /GET DATA FIELD
0250  4121              AND     PMASK           /SAVE BITS 06-08
0251  3147              DCA     REGC            /SAVE FOR TYPING
0252  1147              TAD     REGC            /FETCH IT
0253  7041              CIA                     /2'S COMPLEMENT
0254  1146              TAD     REGB            /COMPARE
0255  6201              CDF     00              /RESTORE DATA FIELD
0256  7650              SNA CLA                 /INCORRECT IF NOT ZERO
0257  4516              JMS I   NERROR          /CHECK WITH MONITOR
0260  4471              JMS I   ERROR           /CDF FAILED
0261  5527              TST02M                  /MESSAGE POINTER
0262  7402              HLT                     /ERROR HLT
0263  7610              SKP CLA                 /NEXT TEST
0264  5240              TST02                   /SCOPE LOOP, ISZ LOOP

                        /LMODE
                        /CAN THE DATA FIELD REGISTER BE LOADED WITH BINARY COUNT
                        /
0265  1145    TST03,    TAD     REGA            /FETCH TEST NUMBER
0266  0114              AND     LMASK           /SAVE BITS 07-11
0267  3146              DCA     REGB            /SAVE FOR OBSERVATION
0270  1146              TAD     REGB            /FETCH IT
0271  1144              TAD     KLDF            /ADD LDF
0272  3274              DCA     .+2             /PLACE IN ROUTINE
0273  6141              LINC                    /GO TO LINC MODE
0274  0000              0000                    /EXECUTE LDF
0275  5000              IOR                     /PREPARE TO GET DATA FIELD
0276  6214              RDF                     /GET DATA FIELD
0277  6002              PDP                     /BACK TO PMODE
0300  7110              RAR CLL                 /JUSTIFY RIGHT TO AGREE WITH REGB
0301  3147              DCA     REGC            /SAVE FOR TYPING
0302  1147              TAD     REGC            /FETCH IT
0303  7041              CIA                     /2'S COMPLEMENT
0304  1146              TAD     REGB            /COMPARE
0305  6201              CDF     00              /RESTORE DATA FIELD
0306  7650              SNA CLA                 /INCORRECT IF NOT ZERO
0307  4516              JMS I   NERROR          /CHECK WITH MONITOR
0310  4471              JMS I   ERROR           /LDF FAILED
0311  5561              TST03M                  /MESSAGE POINTER
0312  7402              HLT                     /ERROR HLT
0313  7610              SKP CLA                 /GO TO NEXT TEST
0314  5265              TST03                   /SCOPE LOOP; ISZ LOOP
```

```
                        /LMODE
                        /CAN THE DATA FIELD REGISTER BE LOADED WITH RANDOM NUMBERS
                        /
0315  4544    TST04,    JMS I   RANDOM          /GET RANDOM NUMBER
0316  0114              AND     LMASK           /SAVE BITS 07-11
0317  3146              DCA     REGB            /SAVE FOR OBSERVATION
0320  1146              TAD     REGB            /FETCH IT
0321  1144              TAD     KLDF            /ADD LF
0322  3324              DCA     .+2             /PLACE IN ROUTINE
0323  6141              LINC                    /GO TO LINC MODE
0324  0000              0000                    /EXECUTE LDF
0325  6520              IOB                     /PREPARE TO GET DATA FIELD
0326  6214              RDF                     /GET DATA FIELD
0327  0002              PDP                     /BACK TO PMODE
0330  7110              RAR CLL                 /JUSTIFY RIGHT TO AGREE WITH REGB
0331  3147              DCA     REGC            /SAVE FOR TYPING
0332  1147              TAD     REGC            /FETCH IT
0333  7041              CIA                     /2'S COMPLEMENT
0334  1146              TAD     REGB            /COMPARE
0335  6201              CDF     00              /RESTORE DATA FIELD
0336  7650              SNA CLA                 /INCORRECT IF NOT ZERO
0337  4516              JMS I   NERROR          /CHECK WITH MONITOR
0340  4471              JMS I   ERROR           /LDF FAILED
0341  5613              TST04M                  /MESSAGE POINTER
0342  7402              HLT                     /ERROR HALT
0343  7610              SKP CLA                 /GO TO NEXT TEST
0344  0315              TST04                   /SCOPE LOOP; ISZ LOOP
```

```
                    /PMODE
                    /GATE SHAKER TEST
                    /
0345  4544    TST05,  JMS I   RANDOM          /GET A RANDOM NUMBER
0346  0121            AND     PMASK           /SAVE BITS 06-08
0347  3146            DCA     REGB            /SAVE FOR OBSERVATION
0350  1146            TAD     REGB            /FETCH IT
0351  1101            TAD     KCDF            /ADD CDF
0352  3374            DCA     NOW1            /STORE FOR EXECUTION
0353  6201            CDF     00              /FOLLOWING IS A SERIES OF CDF
0354  6241            CDF     40              /NOISE MAKERS.
0355  6221            CDF     20
0356  6211            CDF     10
0357  6271            CDF     70
0360  6261            CDF     60
0361  6251            CDF     50
0362  6241            CDF     40
0363  6231            CDF     30
0364  6221            CDF     20
0365  6211            CDF     10
0366  6221            CDF     20
0367  6231            CDF     30
0370  6241            CDF     40
0371  6251            CDF     50
0372  6261            CDF     60
0373  6271            CDF     70
0374  0000    NOW1,   0000                    /EXECUTE ACTUAL CDF
0375  6214            RDF                     /GET DATA FIELD
0376  0121            AND     PMASK           /SAVE BITS 06-08
0377  3147            DCA     REGC            /SAVE FOR TYPING
0400  1147            TAD     REGC            /FETCH IT
0401  7041            CIA                     /2'S COMPLEMENT
0402  1146            TAD     REGB            /COMPARE
0403  6201            CDF     00              /RESTORE DATA FIELD
0404  7650            SNA CLA                 /INCORRECT IF NOT ZERO
0405  4516            JMS I   NERROR          /CHECK WITH MONITOR
0406  4471            JMS I   ERROR           /PROBLEMS WITH NOISY DATA FIELD
0407  5645            TST05M                  /MESSAGE POINTER
0410  7402            HLT                     /ERROR HALT
0411  7610            SKP CLA                 /GO TO NEXT TEST
0412  5345            TST05                   /SCOPE LOOP; ISZ LOOP
```

```
                        /LMODE
                        /GATE SHAKER TEST
                        /
0413  4544    TST06,    JMS I   RANDOM          /GET A RANDOM NUMBER
0414  0114              AND     LMASK           /SAVE BITS 07-11
0415  3146              DCA     REGB            /SAVE FOR OBSERVATION
0416  1146              TAD     REGB            /FETCH IT
0417  1104              TAD     KLDF            /ADD LDF
0420  3252              DCA     NOW2            /STORE FOR EXECUTION
0421  6141              LINC                    /GO TO LINC MODE
0422  0640              LDF     00              /TRY SOME DATA FIELD
0423  0677              LDF     37              /NOISEMAKERS
0424  0660              LDF     20
0425  0650              LDF     10
0426  0644              LDF     04
0427  0642              LDF     02
0430  0641              LDF     01
0431  0665              LDF     25
0432  0652              LDF     12
0433  0647              LDF     07
0434  0670              LDF     30
0435  0640              LDF     00
0436  0641              LDF     01
0437  0642              LDF     02
0440  0643              LDF     03
0441  0644              LDF     04
0442  0645              LDF     05
0443  0646              LDF     06
0444  0646              LDF     06
0445  0647              LDF     07
0446  0650              LDF     10
0447  0657              LDF     17
0450  0667              LDF     27
0451  0677              LDF     37
0452  0000    NOW2,     0000                    /EXECUTE ACTUAL LDF
0453  6054              IOB                     /PREPARE TO GET DATA FIELD
0454  6214              RDF                     /GET DATA FIELD
0455  6002              POP                     /GO TO PMODE
0456  7110              RAR CLL                 /JUSTIFY WITH REGB
0457  3147              DCA     REGC            /SAVE FOR TYPING
0460  1147              TAD     REGC            /FETCH IT
0461  7041              CIA                     /2'S COMPLEMENT
0462  1146              TAD     REGB            /COMPARE
0463  6201              CDF     00              /RESTORE DATA FIELD
0464  7650              SNA CLA                 /INCORRECT IF NOT ZERO
0465  4516              JMS I   .ERROR          /CHECK WITH MONITOR
0466  4471              JMS I   ERROR           /PROBLEMS WITH NOISY DATA FIELD
0467  5677              TST06M                  /MESSAGE POINTER
0470  7402              HLT                     /ERROR HALT
0471  7610              SKP CLA                 /GO TO NEXT TEST
0472  5413              TST06                   /SCOPE LOOP; ISZ LOOP
```

```
                    /THE DATA FIELD IS NOW CONSIDERED TO BE TESTED,
                    /NOW CHECK RIB
                    /PMODE
                    /CHECK INTERRUPT FACILITY,
                    /
0473  6041    TST07,  TSF                     /CHECK FOR FLAG
0474  4556            JMS I   SETFLG          /NOT UP; GO SET IT
0475  1122            TAD     PNTA            /GET ADDRESS RETURN
0476  3155            DCA     RETURN          /STORE IT
0477  3142            DCA     PPOINT          /ZERO THE PMODE SWITCH
0500  6001            ION                     /ENABLE INTERRUPT
0501  7000            NOP                     /WAIT
0502  6002    LOCA,   IOF                     /DISABLE INTERRUPT
0503  7430            SZL                     /CHECK LINK; INCORRECT IF ZERO
0504  4516            JMS I   NERROR          /CHECK WITH MONITOR
0505  4471            JMS I   ERROR           /INTERRUPT FAILED
0506  5731            TST07M                  /MESSAGE POINTER
0507  7402            HLT                     /ERROR HALT
0510  7610            SKP CLA                 /GO TO NEXT TEST
0511  0473            TST07                   /SCOPE LOOP; ISZ LOOP
                    /PMODE
                    /NOW CHECK RIB
                    /
0512  6041    TST08,  TSF                     /CHECK FOR FLAG
0513  4556            JMS I   SETFLG          /NOT UP; GO SET IT
0514  1123            TAD     PNTB            /GET RETURN ADDRESS
0515  3155            DCA     RETURN          /STORE IT
0516  4544            JMS I   RANDOM          /GET RANDOM NUMBER
0517  0121            AND     PMASK           /SAVE BITS 06-08
0520  3146            DCA     REGB            /SAVE FOR OBSERVATION
0521  1146            TAD     REGB            /FETCH IT
0522  1101            TAD     KCDF            /ADD CDF
0523  3324            DCA     .+1             /STORE FOR EXECUTION
0524  0000            0000                    /EXECUTE CDF
0525  6001            ION                     /ENABLE INTERRUPT
0526  7000            NOP                     /WAIT
0527  6002    LOC8,   IOF                     /DISABLE INTERUPT
0530  6234            RIB                     /READ INTERRUPT BUFFER
0531  7006            RTL                     /JUSTIFY WITH REGB
0532  7104            RAL CLL                 /SOME MORE
0533  0121            AND     PMASK           /SAVE BITS 06-08
0534  3147            DCA     REGC            /SAVE FOR TYPING
0535  1147            TAD     REGC            /FETCH IT
0536  7041            CIA                     /2'S COMPLEMENT
0537  1146            TAD     REGB            /COMPARE
0540  6201            CDF     00              /RESTORE DATA FIELD
0541  7650            SNA CLA                 /INCORRECT IF NOT ZERO
0542  4516            JMS I   NERROR          /CHECK WITH MONITOR
0543  4471            JMS I   ERROR           /LOAD SF OR RIB FAILED
0544  5752            TST08M                  /MESSAGE POINTER
0545  7402            HLT                     /ERROR HALT
0546  7610            SKP CLA                 /GO TO NEXT TEST
0547  0512            TST08                   /SCOPE LOOP; ISZ LOOP
```

```
                        /LMODE
                        /CHECK INTERRUPT FACILITY
                        /
0550  6041    TST9A,    TSF                     /CHECK FOR FLAG
0551  4556              JMS I   SETFLG          /NOT UP; GO SET IT
0552  1125              TAD     PNTCA           /GET RETURN ADDRESS
0553  0036              AND     K1777           /10 BIT ADDRESS
0554  1112              TAD     KLJMP           /ADD LINC JUMP
0555  3052              DCA     LSET            /STORE FOR EXECUTION
0556  3065              DCA     LPOINT          /ZERO THE LMODE SWITCH
0557  7120              CLL CML                 /SET LINK
0560  6141              LINC                    /GO TO LINC MODE
0561  0500              IOB                     /PREPARE TO EXECUTE IOT
0562  6001              ION                     /ENABLE INTERRUPTS
0563  0016              LNOP                    /WAIT
0564  0500    LOCCA,    IOB                     /PREPARE TO EXECUTE IOT
0565  6002              IOF                     /DISABLE INTERRUPTS
0566  0002              PDP                     /BACK TO PMODE
0567  7420              SNL                     /CHECK LINK, INCORRECT IF SET
0570  4516              JMS I   NERROR          /CHECK WITH MONITOR
0571  4471              JMS I   ERROR           /INTERRUPT FAILED
0572  6004              TST9AM                  /MESSAGE POINTER
0573  7402              HLT                     /ERROR HALT
0574  7610              SKP CLA                 /GO TO NEXT TEST
0575   552              TST9A                   /ISZ LOOP; SCOPE LOOP
```

```
                        /LMODE
                        /CHECK RIB
                        /
0576  6041    TST09,    TSF                       /CHECK FOR FLAG
0577  4556              JMS I   SETFLG            /NOT UP; GO SET IT
0600  1124              TAD     PNTC              /GET RETURN ADDRESS
0601  0036              AND     K1777             /10 BIT ADDRESS
0602  1112              TAD     KLJMP             /ADD LINC JUMP
0603  3050              DCA     LSET              /STORE IN RETURN ADDRESS
0604  4544              JMS I   RANDOM            /GET RANDOM NUMBER
0605  0114              AND     LMASK             /SAVE BITS 07-11
0606  3146              DCA     REGB              /SAVE FOR COMPARISON
0607  1146              TAD     REGB              /FETCH IT
0610  1104              TAD     KLDF              /ADD LDF
0611  3214              DCA     .+3               /STORE FOR EXECUTION
0612  7120              CLL CML                   /SET LINK
0613  6141              LINC                      /GO TO LINC MODE
0614  0000              0000                      /EXECUTE LDF
0615  6032              IOB                       /PREPARE FOR IOT
0616  6001              ION                       /ENABLE INTERUPT
0617  0016              LNOP                      /WAIT
0620  6032    LOCC,     IOB                       /PREPARE FOR IOT
0621  6002              IOF                       /DISABLE INTERRUPT
0622  6032              IOB                       /PREPARE FOR IOT
0623  6234              RIB                       /READ INTERRUPT BUFFER
0624  7242              ROL     2                 /JUSTIFY WITH REGB
0625  6002              PDP                       /BACK TO PMODE
0626  0114              AND     LMASK             /SAVE BITS 07-11
0627  3147              DCA     REGC              /SAVE FOR TYPING
0630  1147              TAD     REGC              /FETCH IT
0631  7041              CIA                       /2'S COMPLEMENT
0632  1146              TAD     REGB              /COMPARE
0633  6201              CDF     00                /RESTORE DATA FIELD
0634  7650              SNA CLA                   /INCORRECT IF NOT ZERO
0635  4516              JMS I   .ERROR            /CHECK WITH MONITOR
0636  4471              JMS I   ERROR             /LMODE RIB FAILED
0637  6025              TST09M                    /MESSAGE POINTER
0640  7402              HLT                       /ERROR HALT
0641  7610              SKP CLA                   /GO TO NEXT TEST
0642  5576              TST09                     /SCOPE LOOP: ISZ LOOP
```

```
                        /PMODE
                        /DOES THE DATA FIELD SET TO ZERO FOR AN INTERRUPT
                        /
0643  6041    TST13,    TSF                     /CHECK FLAG
0644  4556              JMS I   SETFLG          /NO UP; GO SET IT
0645  1126              TAD     PNTD            /GET RETURN ADDRESS
0646  3155              DCA     RETURN1         /STORE IT
0647  4544              JMS I   RANDOM          /GET RANDOM NUMBER
0650  0121              AND     PMASK           /SAVE BITS 06-08
0651  3146              DCA     REGB            /SAVE FOR TYPING
0652  1146              TAD     REGB            /FETCH IT
0653  1101              TAD     KCDF            /ADD CDF
0654  3255              DCA     .+1             /STORE FOR EXECUTION
0655  0000              0000                    /EXECUTE CDF
0656  6001              ION                     /ENABLE INTERRUPT
0657  7000              NOP                     /WAIT
0660  6002    LOCD,     IOF                     /DISABLE INTERRUPT
0661  6234              RIR                     /GET INTERRUPT BUFFER
0662  7006              RTL                     /JUSTIFY WITH REGB
0663  7004              RAL                     /SOME MORE
0664  3147              DCA     REGC            /SAVE FOR TYPING
0665  6214              RDF                     /READ DATA FIELD
0666  0121              AND     PMASK           /SAVE BITS 06-08
0667  3151              DCA     REGD            /STORE FOR TYPING
0670  1151              TAD     REGD            /FETCH IT
0671  6201              CDF     00              /RESTORE DATA FIELD
0672  7650              SNA CLA                 /INCORRECT IF NOT ZERO
0673  4516              JMS I   NERROR          /CHECK WITH MONITOR
0674  4471              JMS I   ERROR           /DATA FIELD FAILED TO ZERO
0675  6057              TST10M                  /MESSAGE POINTER
0676  7402              HLT                     /ERROR HALT
0677  7610              SKP CLA                 /GO TO NEXT TEST
0700  0643              TST10                   /SCOPE LOOP; ISZ LOOP
```

```
                        /LMODE
                        /DOES THE DATA FIELD SET TO ZERO FOR AN INTERRUPT
                        /
0701  6041    TST11,    TSF                     /CHECK FLAG
0702  4556              JMS I   SETFLG          /NOT UP; GO SET IT
0703  1127              TAD     PNTE            /GET RETURN ADDRESS
0704  0036              AND     K1777           /10 BIT ADDRESS
0705  1112              TAD     KLJMP           /ADD LINC MODE JMP
0706  3057              DCA     LSET            /STORE IT
0707  4544              JMS I   RANDOM          /GET RANDOM NUMBER
0710  0114              AND     LMASK           /SAVE BITS 07-11
0711  3146              DCA     REGB            /STORE FOR TYPING
0712  1146              TAD     REGB            /FETCH IT
0713  1104              TAD     KLDF            /ADD LDF
0714  3316              DCA     .+2             /STORE FOR EXECUTION
0715  6141              LINC                    /GO TO LINC MODE
0716  0000              0000                    /EXECUTE LDF
0717  6530              IOB                     /PREPARE FOR IOT
0720  6001              ION                     /ENABLE INTERRUPT
0721  0016              LNOP                    /WAIT
0722  6530    LOCE,     IOB                     /PREPARE FOR IOT
0723  6002              IOF                     /DISABLE INTERRUPT
0724  6530              IOB                     /PREPARE FOR IOT
0725  6234              RIB                     /READ INTERRUPT BUFFER
0726  0242              ROL     2               /JUSTIFY WITH REGB
0727  4147              STC     REGC            /SAVE FOR TYPING
0730  6530              IOB                     /PREPARE FOR IOT
0731  6214              RDF                     /READ DATA FIELD
0732  0002              PDP                     /BACK TO PMODE
0733  7110              RAR CLL                 /JUSTIFY WITH REGB
0734  3151              DCA     REGD            /SAVE FOR TYPING
0735  1151              TAD     REGD            /FETCH IT
0736  6201              CDF     00              /RESTORE DATA FIELD
0737  7650              SNA CLA                 /INCORRECT IF NOT ZERO
0740  4516              JMS I   NERROR          /CHECK WITH MONITOR
0741  4471              JMS I   ERROR           /DATA FIELD FAILED TO ZERO ON INTERRUPT
0742  6123              TST11M                  /MESSAGE POINTER
0743  7402              HLT                     /ERROR HALT
0744  7610              SKP CLA                 /GO TO NEXT TEST
0745  5701              TST11                   /SCOPE LOOP; ISZ LOOP
```

```
                        /PMODE
                        /DOES DCA I--TAD I WORK FOR ALL DATA FIELDS
                        /
0746  7300     TST12,   CLA CLL                 /CLEAR AC
0747  4474              JMS I    GETBNK         /GET NEXT BANK
0750  7450              SNA                     /DONE?
0751  5562              JMP I    TST13N         /YES, NEXT TEST VIA PAGE 0
0752  3146              DCA      REGB           /SAVE BANK
0753  1025              TAD      K0020          /GET CONSTANT
0754  3145              DCA      REGA           /SET REGA = 20
0755  1146     TST12A,  TAD      REGB           /GET CURRENT BANK
0756  7006              RTL                     /JUSTIFY
0757  7004              RAL                     /JUSTIFY
0760  1101              TAD      KCDF           /GET CDF
0761  3363              DCA      EXC12          /STORE FOR EXECUTION
0762  1076              TAD      K5252          /GET CONSTANT
0763  0000     EXC12,   0000                    /EXECUTE CDF
0764  3545              DCA I    REGA           /STORE IN TEST BANK
0765  1545              TAD I    REGA           /GET IT
0766  6201              CDF      00             /RESTORE DATA FIELD
0767  3147              DCA      REGC           /SAVE DATA
0770  1147              TAD      REGC           /FETCH IT
0771  7041              CIA                     /2'S COMPLEMENT
0772  1076              TAD      K5252          /COMPARE
0773  6201              CDF      00             /RESTORE DATA FIELD
0774  7650              SNA CLA                 /INCORRECT IF NOT ZERO
0775  4516              JMS I    NERROR         /CHECK WITH MONITOR
0776  4471              JMS I    ERROR          /DCA I OR TAD I FAILED
0777  6167              TST12M                  /MESSAGE POINTER
1000  7402              HLT                     /ERROR HALT
1001  7610              SKP CLA                 /TO NEXT BANK
1002  0755              TST12A                  /SCOPE LOOP; ISZ LOOP
1003  5561              JMP I    TST12N         /NEXT BANK VIA PAGE 0
```

```
                    /LMODE
                    /DOES STA-LDA WORK FOR ALL DATA FIELDS
                    /
1004  7300  TST13,  CLA CLL                 /CLEAR AC
1005  4475          JMS I   GETBNL          /FIND NEXT BANK
1006  7450          SNA                     /DONE
1007  5244          JMP     TST14           /YES, GO TO NEXT TEST
1010  3146          DCA     REGB            /SAVE BANK
1011  1077          TAD     K6020           /GET CONSTANT
1012  3145          DCA     REGA            /SET REGA TO 6020
1013  1146          TAD     REGB            /GET CURRENT BANK
1014  1104          TAD     KLDF            /ADD    LDF
1015  3222          DCA     EXC13           /STORE FOR EXECUTION
1016  1145  TST13A, TAD     REGA            /GET ADDRESS
1017  3013          DCA     LREG1           /STORE FOR INDIRECT ACCESS
1020  1076          TAD     K5252           /GET CONSTANT
1021  6141          LINC                    /GO TO LMODE
1022  0000  EXC13,  0000                    /EXECUTE LDF
1023  1053          STA     LREG1           /STORE INDIRECT TO DF
1024  1013          LDA     LREG1           /FETCH NUMBER
1025  0640          LDF     0               /RESTORE DATA FIELD
1026  6002          PDP                     /TO PMODE
1027  3147          DCA     REGC            /SAVE FOR TYPING
1030  1147          TAD     REGC            /FETCH IT
1031  7041          CIA                     /2'S COMPLEMENT
1032  1076          TAD     K5252           /COMPARE
1033  6201          CDF     00              /RESTORE DATA FIELD
1034  7651          SNA CLA                 /INCORRECT IF NOT ZERO
1035  4516          JMS I   .ERROR          /CHECK WITH MONITOR
1036  4471          JMS I   ERROR           /STA OR LDA FAILED
1037  6225          TST13M                  /MESSAGE POINTER
1040  7402          HLT                     /ERROR HALT
1041  7610          SKP CLA                 /NEXT TEST
1042  1016          TST13A                  /SCOPE LOOP; ISZ LOOP
1043  5204          JMP     TST13           /NEXT BANK
```

```
                        /
                        /TEST THE DJR FUNCTION FOR ALL COMBINATIONS
                        /
                        /LMODE
                        /DOES DJR NOT FUNCTION WHEN NOT SET?
                        /
1044  7300      TST14,  CLA CLL                 /CLEAR AC
1045  1076              TAD     K5252           /GET CONSTANT
1046  3000              DCA     0               /SET 0
1047  6141              LINC                    /GO TO LINC MODE
1050  7051              LJMP    .+1             /DO A LINC JUMP
1051  6002              PDP                     /BACK TO P MODE
1052  1000              TAD     0               /GET 0
1053  7041              CIA                     /2'S COMPLEMENT
1054  1076              TAD     K5252           /ADD CONSTANT
1055  7640              SZA CLA                 /WAS LOCATION 0 CHANGED?
1056  4516              JMS I   NERROR          /YES; CHECK WITH MONITOR
1057  4471              JMS I   ERROR           /LINC JUMP SAVE RETURN FAILED
1060  6261              TST14M                  /MESSAGE POINTER
1061  7402              HLT                     /ERROR HALT
1062  7610              SKP CLA                 /TO NEXT TEST
1063  1044              TST14                   /SCOPE LOOP; ISZ LOOP
                        /LMODE
                        /DOES DJR FUNCTION WHEN IT'S SET?
                        /
1064  7300      TST15,  CLA CLL                 /CLEAR AC
1065  1076              TAD     K5252           /GET CONSTANT
1066  3000              DCA     0               /SET 0
1067  6141              LINC                    /TO L MODE
1070  6036              DJR                     /DISABLE JUMP SAVE RETURN
1071  7072              LJMP    .+1             /DO A LINC JUMP
1072  6002              PDP                     /BACK TO PMODE
1073  1000              TAD     0               /GET 0
1074  7041              CIA                     /2'S COMPLEMENT
1075  1076              TAD     K5252           /COMPARE WITH CONSTANT
1076  7650              SNA CLA                 /DID DJR WORK?
1077  4516              JMS I   NERROR          /CHECK WITH MONITOR
1100  4471              JMS I   ERROR           /DJR FAILED
1101  6316              TST15M                  /MESSAGE POINTER
1102  7402              HLT                     /ERROR HALT
1103  7610              SKP CLA                 /TO NEXT TEST
1104  1064              TST15                   /SCOPE LOOP; ISZ LOOP
```

```
                    /LMODE
                    /DOES A LINC JUMP CLEAR DJR?
                    /
1105  73[illegible]  TST16,  CLA CLL                 /CLEAR AC
1106  1076          TAD      K5252                  /GET CONSTANT
1107  30[illegible]  DCA      0                      /SET 0
1110  6141          LINC                            /TO LMODE
1111  [illegible]026  DJR                            /DISABLE JUMP SAVE RETURN
1112  7113          LJMP     .+1                    /DO A LINC JUMP
1113  7114          LJMP     .+1                    /DO ANOTHER LINC JUMP
1114  [illegible]002  PDP                            /BACK TO PMODE
1115  100[illegible]  TAD      0                      /GET 0
1116  7041          CIA                             /2'S COMPLEMENT
1117  1076          TAD      K5252                  /COMPARE WITH CONSTANT
1120  764[illegible]  SZA CLA                        /DID DJR CLEAR?
1121  4516          JMS I    NERROR                 /CHECK MONITOR
1122  4471          JMS I    ERROR                  /DJR FAILED TO CLEAR
1123  6344          TST16M                          /MESSAGE POINTER
1124  7402          HLT                             /ERROR HALT
1125  761[illegible]  SKP CLA                        /TO NEXT TEST
1126  1105          TST16                           /SCOPE LOOP; ISZ LOOP
                    /PMODE
                    /DOES JUMP SAVE RETURN WORK FOR 8 MODE JUMPS?
                    /
1127  73[illegible]  TST17,  CLA CLL                 /CLEAR AC
1130  1076          TAD      K5252                  /GET CONSTANT
1131  30[illegible]  DCA      0                      /SET 0
1132  5333          JMP      .+1                    /DO AN 8 MODE JUMP
1133  100[illegible]  TAD      0                      /GET 0
1134  7041          CIA                             /2'S COMPLEMENT
1135  1076          TAD      K5252                  /COMPARE WITH CONSTANT
1136  765[illegible]  SNA CLA                        /DID WE SAVE IN ERROR?
1137  4516          JMS I    NERROR                 /CHECK MONITOR
1140  4471          JMS I    ERROR                  /JUMP SAVE RETURN OPERATED IN ERROR
1141  6371          TST17M                          /MESSAGE POINTER
1142  7402          HLT                             /ERROR HALT
1143  761[illegible]  SKP CLA                        /TO NEXT TEST
1144  1127          TST17                           /ISZ LOOP; SCOPE LOOP
```

```
                        /PMODE
                        /DOES JUMP SAVE RETURN WORK FOR NON-JUMP COMMANDS?
                        /
1145  7300      TST18,  CLA CLL                 /CLEAR AC
1146  1076              TAD     K5252           /GET CONSTANT
1147  3000              DCA     0               /SET 0
1150  6002              IOF                     /IOF LOOKS LIKE LINC JUMP
1151  1000              TAD     0               /GET 0
1152  7041              CIA                     /2'S COMPLEMENT
1153  1076              TAD     K5252           /COMPARE WITH CONSTANT
1154  7650              SNA CLA                 /DID CELL 0 CHANGE?
1155  4516              JMS I   NERROR          /CHECK MONITOR
1156  4471              JMS I   ERROR           /IOF CHANGED CELL 0
1157  6415              TST18M                  /MESSAGE POINTER
1160  7402              HLT                     /ERROR HALT
1161  7610              SKP CLA                 /TO NEXT TEST
1162  1145              TST18                   /SCOPE LOOP; ISZ LOOP

                        /LMODE
                        /DOES JUMP SAVE RETURN WORK FOR NON-JUMP COMMANDS?
                        /
1163  7300      TST19,  CLA CLL                 /CLEAR AC
1164  1076              TAD     K5252           /GET CONSTANT
1165  3000              DCA     0               /SET 0
1166  6141              LINC                    /GO TO LMODE
1167  6500              IOB                     /PREPARE FOR IOT
1170  6002              IOF                     /DISABLE INTERRUPTS
1171  0002              PDP                     /BACK TO PMODE
1172  1000              TAD     0               /FETCH 0
1173  7041              CIA                     /2'S COMPLEMENT
1174  1076              TAD     K5252           /ADD CONSTANT
1175  7650              SNA CLA                 /EQUAL?
1176  4516              JMS I   NERROR          /CHECK MONITOR
1177  4471              JMS I   ERROR           /IOR/IOF CAUSED LOC 0000 TO ALTER
1200  6441              TST19M                  /MESSAGE POINTER
1201  7402              HLT                     /ERROR HALT
1202  7610              SKP CLA                 /TO NEXT TEST
1203  1163              TST19                   /ISZ LOOP; SCOPE LOOP
```

```
                        /LMODE
                        /DOES DJR CLEAR WITH 8 MODE JUMP?
                        /
1204  7300      TST20,  CLA CLL                 /CLEAR AC
1205  1076              TAD     K5252           /GET CONSTANT
1206  3000              DCA     0               /SET 0
1207  6141              LINC                    /TO LMODE
1210  6006              DJR                     /DISABLE JUMP RETURN SAVE
1211  6002              PDP                     /TO PMODE
1212  5213              JMP     .+1             /JUMP
1213  6141              LINC                    /TO LMODE
1214  7215              LJMP    .+1             /JUMP
1215  6002              PDP                     /TO  PMODE
1216  1000              TAD     0               /FETCH 0
1217  7041              CIA                     /2'S COMPLEMENT
1220  1076              TAD     K5252           /ADD CONSTANT
1221  7650              SNA CLA                 /EQUAL?
1222  4516              JMS I   NERROR          /CHECK MONITOR
1223  4471              JMS I   ERROR           /8 MODE JUMP CLEARED DJR
1224  6465              TST20M                  /MESSAGE POINTER
1225  7402              HLT                     /ERROR HALT
1226  7610              SKP CLA                 /TO NEXT TEST
1227  1204              TST20                   /ISZ LOOP; SCOPE LOOP
```

```
                        /PMODE
                        /DOES DJR INHIBIT 8 MODE INTERRUPT SAVE?
                        /
1230  7300      TST21,  CLA CLL                 /CLEAR AC
1231  1130              TAD     PNIF            /GET RETURN POINTER TO LOCF
1232  3155              DCA     RETURN          /SET UP INTERRUPT HANDLER
1233  1076              TAD     K5252           /GET CONSTANT
1234  3000              DCA     0               /STORE IN 0
1235  6041              TSF                     /FLAG SET?
1236  4556              JMS I   SETFLG          /NO, GO SET IT
1237  6141              LINC                    /TO LMODE
1240  6006              DJR                     /SET DJR
1241  6002              PDP                     /TO PMODE
1242  6001              ION                     /ENABLE INTERRUPTS
1243  7000              NOP                     /WAIT
1244  6002              IOF                     /DISABLE INTERRUPTS
1245  7410              SKP                     /IF NO INTERRUPT, THIS CAUSES ERROR
1246  1000      LOCF,   TAD     0               /GET 0
1247  7041              CIA                     /2'S COMPLEMENT
1250  1076              TAD     K5252           /ADD CONSTANT
1251  7640              SZA CLA                 /EQUAL?
1252  4516              JMS I   NERROR          /CHECK MONITOR
1253  4471              JMS I   ERROR           /DJR INHIBITED 8 MODE INTERRUPT
1254  6506              TST21M                  /MESSAGE POINTER
1255  7402              HLT                     /ERROR HALT
1256  7610              SKP CLA                 /TO NEXT TEST
1257  1230              TST21                   /ISZ LOOP; SCOPE LOOP
1260  7340              CLA CLL CMA             /SET AC=7777
1261  3145              DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                        /PMODE
                        /WILL NON-EXISTANT MEMORY DETECT WORK FOR ALL BANKS?
                        /
1262  7300      TST22,  CLA CLL                 /CLEAR AC
1263  1066              TAD     BANK            /GET AVAILABLE MEMORY
1264  3151              DCA     REGD            /SAVE IT
1265  1151              TAD     REGD            /FETCH IT
1266  7041              CIA                     /2'S COMPLEMENT
1267  1022              TAD     K0007           /ADD MAXIMUM MEMORY
1270  3146              DCA     REGB            /SAVE IT
1271  1146              TAD     REGB            /FETCH IT
1272  7450              SNA                     /HOW MUCH WAS LEFT?
1273  5370              JMP     TST23           /NONE; 32K MACHINE
1274  7010              RAR                     /CHECK BIT 11
1275  7620              SNL CLA                 /IS MEMORY ODD OR EVEN?
1276  5342              JMP     READ1           /NEXT BANK IS EVEN
1277  5316              JMP     READ0           /NEXT BANK IS ODD
1300  7300      BAK22,  CLA CLL                 /CLEAR AC
1301  6201              CDF     00              /RESTORE DATA FIELD
1302  1151              TAD     REGD            /GET LAST BANK TESTED
1303  7041              CIA                     /2'S COMPLEMENT
1304  1022              TAD     K0007           /COMPARE WITH MAXIMUM
1305  7640              SZA CLA                 /DONE?
1306  5342              JMP     READ1           /NO, TEST NEXT BANK
1307  4516              JMS I   NERROR          /CHECK MONITOR
1310  4471      FAL22,  JMS I   ERROR           /NON-EXIST DETECT FAILED
1311  6535              TST22M                  /MESSAGE POINTER
1312  7402              HLT                     /ERROR HALT
1313  7410              SKP                     /TO NEXT TEST
1314  1262              TST22                   /ISZ LOOP; SCOPE LOOP
1315  5370              JMP     TST23           /JUMP OVER READ ROUTINES
```

```
                        /PMODE
                        /READ Ø ROUTINE FOR TST22 (USED ONLY ONCE PER PASS)
                        /
1316  7300      READØ,  CLA CLL                 /CLEAR AC
1317  2151              ISZ     REGD          /INCREMENT NON-EXIST BANK
1320  1151              TAD     REGD          /FETCH BANK NUMBER
1321  7006              RTL                   /JUSTIFY
1322  7004              RAL                   /JUSTIFY
1323  1101              TAD     KCDF          /FETCH CDF ØØ
1324  3325              DCA     .+1           /STORE FOR EXECUTION
1325  0000              ØØØØ                  /EXECUTE CDF
1326  7040              CMA                   /SET AC=7777
1327  3015              DCA     AUTO11        /SETUP POINTER REGISTER
1330  3000              DCA     Ø             /SETUP COUNTER
1331  1415              TAD I   AUTO11        /FETCH NON-EXISTANT WORD
1332  7440              SZA                   /ZERO?
1333  5337              JMP     .+4           /NO, ENTER ERROR ROUTINE
1334  2000              ISZ     Ø             /INCREMENT COUNTER
1335  5331              JMP     .-4           /TRY NEXT LOCATION
1336  5303              JMP     BAK22         /BANK FINISHED; RETURN
1337  6201              CDF     ØØ            /RESTORE DATA FIELD
1340  3147              DCA     REGC          /SAVE AC FOR TYPEOUT
1341  5315              JMP     FAL22         /TO ERROR MONITOR
                        /PMODE
                        /READ 1 ROUTINE FOR TEST 22
                        /
1342  7300      READ1,  CLA CLL                 /CLEAR AC
1343  2151              ISZ     REGD          /INCREMENT NON-EXIST BANK
1344  1151              TAD     REGD          /FETCH IT
1345  7006              RTL                   /JUSTIFY
1346  7004              RAL                   /JUSTIFY
1347  1101              TAD     KCDF          /FETCH CDF ØØ
1350  3351              DCA     .+1           /STORE FOR EXECUTION
1351  0000              ØØØØ                  /EXECUTE CDF
1352  7040              CMA                   /SET AC=7777
1353  3015              DCA     AUTO11        /SETUP POINTER REGISTER
1354  3000              DCA     Ø             /SETUP COUNTER
1355  1415              TAD I   AUTO11        /FETCH NON-EXISTANT WORD
1356  7040              CMA                   /COMPLEMENT
1357  7440              SZA                   /ZERO?
1360  5364              JMP     .+4           /NO, ENTER ERROR ROUTINE
1361  2000              ISZ     Ø             /INCREMENT COUNTER
1362  5355              JMP     .-5           /TRY NEXT LOCATION
1363  5303              JMP     BAK22         /BANK FINISHED; RETURN,
1364  7040              CMA                   /RESTORE AC
1365  3147              DCA     REGC          /SAVE FOR TYPEOUT
1366  6201              CDF     ØØ            /RESTORE DATA FIELD
1367  5315              JMP     FAL22         /TO ERROR MONITOR
```

```
                        /PMODE
                        /NOW SET UP EXTENDED MEMORY FOR FURTHER TESTING
                        /
1370  7300      TST23,  CLA CLL                 /CLEAR AC
1371  4474              JMS I   GETBNK          /GO FIND NEXT BANK
1372  7450              SNA                     /DONE?
1373  5564              JMP I   TST24N          /YES, EXIT
1374  3376              DCA     .+2             /NO SAVE BANK FOR EXECUTION
1375  4553              JMS I   RELOCR          /GO RELOCATE ALL OF MEMORY
1376  0030              0000                    /TARGET BANK
1377  7777              7777                    /ORG,
1400  7777              7777                    /DEST,
1401  7777              7777                    /LENGTH
1402  5563              JMP I   TST23N          /DO IT AGAIN
```

```
                    /
                    /TRY A CIF-ION-JMP TO ALL BANKS
                    /
1403  7300  TST24,  CLA CLL                  /CLEAR AC
1404  3142          DCA     PPOINT           /ZERO THE PMODE SWITCH
1405  4474          JMS I   GETBNK           /GO GET THE NEXT BANK
1406  7450          SNA                      /DONE?
1407  5246          JMP     TST25            /EXIT
1410  7006          RTL                      /JUSTIFY
1411  7004          RAL                      /JUSTIFY
1412  3146          DCA     REGB             /SAVE IT
1413  1146          TAD     REGB             /FETCH IT
1414  1132          TAD     KCIF             /ADD CIF
1415  3222          DCA     .+5              /STORE FOR EXECUTION
1416  1131          TAD     PNTG             /GET RETURN ADDRESS
1417  3155          DCA     RETURN           /SET UP HANDLER
1420  6041          TSF                      /FLAG SET?
1421  4556          JMS I   SETFLG           /NO, GO SET IT
1422  0000          0000                     /EXECUTE CIF
1423  6001          ION                      /ENABLE INTERRUPTS
1424  5224          JMP     .                /WAIT
1425  6002          IOF                      /DISABLE INTERRUPTS
1426  6202          CIF     00               /BACK TO BANK 0
1427  5555          JMP I   RETURN           /JUMP DOWN
1430  1143  LOCG,   TAD     PREG             /GET INTERRUPT SF
1431  0027          AND     K0070            /CLEAR OUT ALL BUT 06,07,08
1432  3147          DCA     REGC             /SAVE IT
1433  1147          TAD     REGC             /FETCH IT
1434  7041          CIA                      /2'S COMPLEMENT
1435  1146          TAD     REGB             /COMPARE
1436  7650          SNA     CLA              /EQUAL?
1437  4516          JMS I   NERROR           /CHECK MONITOR
1440  4471          JMS I   ERROR            /IF FAILED TO LOAD
1441  6575          TST24M                   /MESSAGE POINTER
1442  7402          HLT                      /ERROR HALT
1443  7413          SKP                      /TO NEXT TEST
1444  1413          TST24+10                 /ISZ LOOP; SCOPE LOOP
1445  5203          JMP     TST24
```

```
                        /LMODE
                        /TRY A LIF-IOB-ION-NOP TO ALL BANKS
                        /
1446  7300      TST25,  CLA CLL                 /CLEAR AC
1447  3065              DCA     LPOINT        /ZERO THE LMODE SWITCH
1450  4474              JMS I   GETBNK        /GET NEXT BANK
1451  7450              SNA                   /DONE?
1452  5314              JMP     TST26         /EXIT
1453  3146              DCA     REGB          /SAVE FIELD
1454  1146              TAD     REGB          /FETCH IT
1455  7006              RTL                   /JUSTIFY
1456  1111              TAD     KLIF          /MAKE IT A LIF
1457  3266              DCA     .+7           /STORE FOR EXECUTION
1460  1132              TAD     PNTH          /GET RETURN ADDRESS
1461  1112              TAD     KLJMP         /MAKE IT A LINC JUMP
1462  3050              DCA     LSET          /STORE FOR RETURN
1463  6041              TSF                   /FLAG SET?
1464  4556              JMS I   SETFLG        /NO, GO SET IT
1465  6141              LINC                  /GO TO LMODE
1466  0000              0000                  /EXECUTE LIF
1467  6500              IOB
1470  6001              ION                   /ENABLE INTERRUPTS
1471  0016              LNOP                  /WAIT
1472  7472              LJMP    .             /WAIT
1473  2064      LOCH,   ADD     LREG          /GET SAVE FIELD
1474  1560              BCL     20            /CLEAR OUT ALL BUT IF
1475  6037              6037                  /
1476  0305              ROR     5             /JUSTIFY
1477  4147              STC     REGC          /SAVE IT
1500  0002              PDP                   /BACK TO PMODE
1501  1146              TAD     REGB          /GET TARGET IF
1502  7041              CIA                   /2'S COMPLEMENT
1503  1147              TAD     REGC          /GET CURRENT IF
1504  7650              SNA CLA               /EQUAL?
1505  4516              JMS I   NERROR        /CHECK MONITOR
1506  4471              JMS I   ERROR         /IF FAILED TO LOAD
1507  6631              TST25M                /MESSAGE POINTER
1510  7402              HLT                   /ERROR HALT
1511  7410              SKP                   /TO NEXT TEST
1512  1454              TST25+6               /ISZ LOOP; SCOPE LOOP
1513  5246              JMP     TST25
```

```
                        /PMODE
                        /NOW GO TO EXTENDED MEMORY AND TEST RMF
                        /
1514  7300      TST26,  CLA CLL                 /CLEAR AC
1515  4474              JMS I   GETBNK          /GET NEXT BANK
1516  7450              SNA                     /DONE?
1517  5565              JMP I   TST27N          /YES, NEXT TEST
1520  7006              RTL                     /JUSTIFY
1521  7004              RAL                     /JUSTIFY
1522  3146              DCA     REGB            /SAVE BANK
1523  6041              TSF                     /FLAG SET?
1524  4556              JMS I   SETFLG          /NO, GO SET IT
1525  7040              CMA                     /SET AC=7777
1526  3142              DCA     PPOINT          /SET P SWITCH=1
1527  1146              TAD     REGB            /GET BANK
1530  1162              TAD     KCIF            /MAKE IT A CIF N
1531  3332              DCA     .+1             /STORE FOR EXECUTION
1532  0000              0000                    /EXECUTE CIF
1533  6001              ION                     /ENABLE INTERRUPTS
1534  5334              JMP     .               /GO TO EXTENDED MEMORY AND WAIT
1535  6002              IOF                     /DISABLE INTERRUPTS
1536  6224              RIF                     /GET INSTRUCTION FIELD
1537  3550              DCA I   REGCN           /SAVE IT
1540  6202              CIF     00              /BACK TO FIELD 0
1541  5342              JMP     .+1             /CHANGE FIELDS
1542  7300              CLA CLL
1543  1146              TAD     REGB            /GET TARGET FIELD
1544  7041              CIA                     /2'S COMPLEMENT
1545  1147              TAD     REGC            /COMPARE WITH ACTUAL FIELD
1546  7650              SNA CLA                 /EQUAL?
1547  4516              JMS I   NERROR          /CHECK MONITOR
1550  4471              JMS I   ERROR           /CIF FAILED TO FIND PROPER IF
1551  6664              TST26M                  /MESSAGE POINTER
1552  7402              HLT                     /ERROR HALT
1553  7410              SKP                     /TO NEXT TEST
1554  1523              TST26+7                 /ISZ LOOP; SCOPE LOOP
1555  5314              JMP     TST26           /DO NEXT BANK
```

```
                        /PMODE
                        /INTERRUPT INHIBIT TEST BANK 0 - BANK N - BANK 0
                        /
1556  7320    TST27,    CLA CLL                 /CLEAR AC
1557  1133              TAD     PNTI            /GET RETURN
1560  3155              DCA     RETURN          /SET UP HANDLER
1561  4474              JMS I   GETBNK          /GET NEXT BANK
1562  7450              SNA                     /DONE
1563  5566              JMP I   TST28N          /YES, GO TO NEXT TEST
1564  3146              DCA     REGB            /SAVE BANK
1565  1146              TAD     REGB            /FETCH IT
1566  7006              RTL                     /JUSTIFY FOR CIF
1567  7004              RAL                     /JUSTIFY
1570  1102              TAD     KCIF            /MAKE IT A CIF
1571  3374              DCA     .+3             /STORE FOR EXECUTION
1572  6041              TSF                     /FLAG SET?
1573  4556              JMS I   SETFLG          /NO, GO SET IT
1574  0000              0000                    /EXECUTE CIF
1575  7000              NOP                     /SPACER
1576  5377              JMP     .+1             /GO TO UPPER MEMORY
1577  7000              NOP                     /WAIT FOR INTERRUPT
1600  7000              NOP                     /WAIT FOR INTERRUPT
1601  6002              IOF                     /TO HERE IF NO INTERRUPT
1602  6202              CIF     00              /BACK TO BANK 0
1603  5204              JMP     .+1             /JUMP INTO MONITOR
1604  4516              JMS I   NERROR          /INTERRUPT OK; CHECK MONITOR
1605  4471    LOCI,     JMS I   ERROR           /PMODE INTERRUPT INHIBIT FAILED
1606  6721              TST27M                  /MESSAGE POINTER
1607  7402              HLT                     /ERROR HALT
1610  7410              SKP                     /TO NEXT TEST
1611  1565              TST27+7                 /ISZ LOOP; SCOPE LOOP
1612  5565              JMP I   TST27N          /DO NEXT BANK
```

```
                    /LMODE
                    /INTERRUPT INHIBIT TEST BANK 0 -BANK N- BANK 0
                    /
1613  7300  TST28,  CLA CLL                  /CLEAR AC
1614  3065          DCA     LPOINT           /CLEAR HANDLER SWITCH
1615  1134          TAD     PNTJ             /GET ERROR RETURN
1616  1112          TAD     KLJMP            /MAKE IT A LINC JUMP
1617  3058          DCA     LSET             /PLACE IT IN HANDLER
1620  4474          JMS I   GETBNK           /GET NEXT 4K BANK
1621  7450          SNA                      /DONE?
1622  5263          JMP     TST29            /YES, NEXT TEST
1623  3146          DCA     REGB             /SAVE BANK
1624  1146          TAD     REGB             /FETCH IT
1625  7006          RTL                      /JUSTIFY FOR LMODE LIF
1626  1111          TAD     KLIF             /MAKE IT A LIF N
1627  3233          DCA     .+4              /STORE FOR EXECUTION
1630  6041          TSF                      /FLAG SET?
1631  4556          JMS I   SETFLG           /NO, GO SET IT
1632  6141          LINC                     /TO LINC MODE
1633  0600          LIF                      /EXECUTE LIF N
1634  0500          IOB                      /
1635  6001          ION                      /ENABLE INTERRUPTS (SHOULD INHIBIT)
1636  7637          LJMP    .+1              /TO EXTENDED MEMORY
1637  0016          LNOP                     /WAIT FOR INTERRUPT
1640  0600          LIF     0                /LOAD IB
1641  0500          IOB                      /
1642  6001          ION                      /ENABLE INTERRUPT AGAIN
1643  7644          LJMP    .+1              /BACK TO BANK 0
1644  0016          LNOP                     /WAIT FOR INTERRUPT
1645  0500          IOB                      /
1646  6002          IOF                      /DISABLE INTERRUPT
1647  0002          PDP                      /BACK TO PMODE
1650  5254          JMP     .+4              /TO NON-ERROR
1651  0002  LOCJ,   PDP                      /BACK HERE IF INTERRUPT OCCURS
1652  6002          IOF                      /DISABLE INTERRUPT
1653  7410          SKP                      /SKIP INTO ERROR
1654  4516          JMS I   NERROR           /CHECK MONITOR
1655  4471          JMS I   ERROR            /LIF FAILED TO INHIBIT INTERRUPT
1656  6756          TST28M                   /MESSAGE POINTER
1657  7402          HLT                      /ERROR HALT
1660  7610          SKP CLA                  /TO NEXT TEST
1661  1624          TST28+11                 /ISZ LOOP; SCOPE LOOP
1662  5213          JMP     TST28            /NEXT BANK
```

```
                        /LMODE
                        /INTERRUPT INHIBIT TEST; DOES JMP 0 CLEAR INT INH?
                        /
1663  73??    TST29,    CLA CLL                 /CLEAR AC
1664  3065              DCA     LPOINT          /SET L SWITCH TO OFF
1665  1135              TAD     PNTK            /GET RETURN
1666  1112              TAD     KLJMP           /MAKE IT A LINC JUMP
1667  305?              DCA     LSET            /PUT IT IN HANDLER
1670  4474              JMS I   GETBNK          /GET NEXT BANK
1671  745?              SNA                     /DONE?
1672  5347              JMP     TST30           /YES, NEXT TEST
1673  3146              DCA     REGB            /SAVE TARGET
1674  1146              TAD     REGB            /FETCH IT
1675  7006              RTL                     /JUSTIFY FOR LIF
1676  1111              TAD     KLIF            /MAKE IT A LIF N
1677  3325              DCA     EX29            /STORE FOR EXECUTION
1700  6041              TSF                     /FLAG SET?
1701  4556              JMS I   SETFLG          /NO, GO SET IT
1702  3014              DCA     PINT            /SET UP AUTO-INDEX
1703  1146              TAD     REGB            /GET TARGET
1704  7006              RTL                     /JUSTIFY FOR CDF
1705  7004              RAL                     /JUSTIFY
1706  1101              TAD     KCDF            /MAKE IT A CDF N
1707  331?              DCA     .+1             /STORE FOR EXECUTION
1710  ?0??              0000                    /EXECUTE CDF
1711  702?              CML                     /SET LINK
1712  1105              TAD     KIOB            /GET IOB
1713  3414              DCA I   PINT            /CELL 0001 BANK N
1714  1106              TAD     KIOF            /GET IOF
1715  3414              DCA I   PINT            /CELL 0002, BANK N
1716  1325              TAD     .+7             /GET LIF N
1717  3414              DCA I   PINT            /CELL 0003, BANK N
1720  105?              TAD     LSET            /GET LJMP LOCK
1721  3414              DCA I   PINT            /CELL 0004, BANK N
1722  6201              CDF     00              /RESTORE DF
1723  1107              TAD     KLNOP           /GET NOP
1724  6141              LINC                    /TO L MODE
1725  ?00?    EX29,     0000                    /EXECUTE LIF
1726  ?50?              IOB
1727  6001              ION
1730  7731              LJMP    .+1             /TO UPPER MEMORY
1731  ?016              LNOP                    /WAIT FOR INTERRUPT
1732  40??              STC     3               /SET UP 3
1733  60??              LJMP    0               /JMP 0
```

```
1734  0002    LOCK,   PDP                     /TO HERE AFTER INTERRUPT OR JMP 0
1735  6202            CIF     00              /BACK TO BANK 0 IF NOT THERE
1736  5337            JMP     .+1             /TO LOWER MEMORY
1737  7430            SZL                     /SKIP MEANS INTERRUPT NOT INHIBITED
1740  4516            JMS I   NERROR          /CHECK MONITOR
1741  4471            JMS I   ERROR           /JMP 0 INT INH IN ERROR
1742  7013            TST29M                  /MESSAGE POINTER
1743  7402            HLT                     /ERROR HALT
1744  7410            SKP                     /TO NEXT TEST
1745  1674            TST29+11                /ISZ LOOP; SCOPE LOOP
1746  5263            JMP     TST29           /NEXT BANK
```

```
                        /LMODE
                        /WILL DJR-JMP Ø LOAD THE IF?
                        /
1747  7340      TST3Ø,  CLA CLL CMA             /CLEAR AC
1750  3065              DCA     LPOINT          /SWITCH=1
1751  1136              TAD     PNTL            /GET RETURN
1752  0036              AND     K1777           /CLEAR BITS Ø,1
1753  1112              TAD     KLJMP           /MAKE IT A LINC JUMP
1754  3057              DCA     LSET            /PUT IT IN HANDLER (WE WON'T USE INTERRUPTS)
1755  4474              JMS I   GETBNK          /GET NEXT BANK
1756  7450              SNA                     /DONE?
1757  5577              JMP I   TST32N          /YES, NEXT TEST
1760  7006              RTL                     /JUSTIFY FOR LIF
1761  7001              IAC                     /ADD CURRENT IF
1762  3146              DCA     REGB
1763  1146      TST3ØX, TAD     REGB
1764  1111              TAD     KLIF            /MAKE IT A LIF N
1765  3541              DCA I   PNT3ØN          /STORE FOR EXECUTION
1766  1036              TAD     K1777           /SET AC = 1777 FOR IF Ø1
1767  3014              DCA     PINT            /SET UP AUTO-INDEX
1770  1146              TAD     REGB            /GET TARGET
1771  7004              RAL                     /JUSTIFY FOR CDF
1772  0121              AND     PMASK           /JUSTIFY
1773  1101              TAD     KCDF            /MAKE IT A CDF N
1774  3375              DCA     .+1             /STORE FOR EXECUTION
1775  0000              0000                    /EXECUTE CDF N
1776  1105              TAD     KIOB            /IOB
1777  7410              SKP                     /WASTE A SPACE
2000  0000              0000                    /LINC JUMP SAVE
2001  3414              DCA I   PINT            /CELL 2000, BANK N
2002  1117              TAD     KRIF            /RIF LINC MODE (5 BITS)
2003  3414              DCA I   PINT            /CELL 2001, BANK N
2004  1057              TAD     LSET            /LJMP LOCL
2005  3414              DCA I   PINT            /CELL 2002, BANK N
2006  6141              LINC                    /TO LMODE
2007  0000      PNT3Ø,  0000                    /EXECUTE LIF N
2010  7006              DJR                     /DISABLE JUMP RETURN SAVE
2011  6000              LJMP    Ø               /JMP Ø
```

```
2012  0601    LOCL,   LIF     1               /WE WILL ALWAYS BE IN UPPER MEM
2013  6014            LJMP    .+1             /BACK TO LOWER MEMORY
2014  0002            PDP                     /BACK TO PMODE
2015  7010            RAR                     /JUSTIFY
2016  3147            DCA     REGC            /SAVE FIRST RIF
2017  6201            CDF     0               /RESTORE DF
2020  1146            TAD     REGB            /GET TARGET
2021  7041            CIA                     /2'S COMPLEMENT
2022  1147            TAD     REGC            /FETCH IF
2023  7650            SNA CLA                 /DID WE LOAD THE IF?
2024  4516            JMS I   NERROR          /CHECK MONITOR
2025  4471            JMS I   ERROR           /DJR-JMP 0 FAILED TO LOAD IF
2026  7054            TST30M                  /MESSAGE POINTER
2027  7402            HLT                     /ERROR HALT
2030  7410            SKP                     /TO NEXT TEST
2031  1763            TST30X                  /ISZ LOOP; SCOPE LOOP
2032  5567            JMP I   TST30N          /NEXT BANK
```

```
                        /LMODE
                        /WILL ION-LIF INHIBIT INTERRUPTS?
                        /(TIMING RACE IF EP12-D0018 IS NOT INSTALLED)
2033  7341      TST32,  CLA CLL CMA             /SET AC = 7777
2034  3065              DCA     LPOINT          /SET SWITCH
2035  4474              JMS I   GETBNK          /GET NEXT BANK
2036  7451              SNA                     /DONE?
2037  5272              JMP     TST33           /YES, NEXT TEST
2040  3146              DCA     REGB            /SAVE BANK
2041  6041              TSF
2042  4556              JMS I   SETFLG
2043  1146      TST32X, TAD     REGB            /FETCH IT
2044  7006              RTL                     /JUSTIFY FOR LIF
2045  7021              IAC CML                 /GET CURRENT IF, SET LINK
2046  1111              TAD     KLIF            /MAKE IT A LIF N
2047  3253              DCA     .+4             /STORE FOR EXECUTION
2050  6141              LINC                    /TO LMODE
2051  6503              IOB                     /
2052  6001              ION                     /ENABLE INTERRUPTS
2053  0007              0000                    /EXECUTE LIF
2054  6016              LNOP                    /WAIT FOR INTERRUPT
2055  6016              LNOP                    /WAIT
2056  6502              IOB                     /
2057  6002              IOF                     /DISABLE INTERRUPTS
2060  6601              LIF     1
2061  6002              PDP                     /TO PMODE
2062  7437              SZL                     /ERROR?
2063  4516              JMS I   NERROR          /CHECK MONITOR
2064  4471              JMS I   ERROR           /LIF FAILED TO INHIBIT INTERRUPT
2065  7106              TST32M                  /MESSAGE POINTER
2066  7402              HLT                     /ERROR HALT
2067  7401              SKP                     /TO NEXT TEST
2070  2043              TST32X                  /ISZ LOOP; SCOPE LOOP
2071  5233              JMP     TST32           /NEXT BANK
```

```
                        /LMODE
                        /DOES LIF CAUSE THE IF/DF TO TRANSFER TO THE SF?
                        /
2072  7300              TST33,  CLA CLL                 /CLEAR AC
2073  4474                      JMS I   GETBNK          /GET NEXT BANK
2074  7450                      SNA                     /DONE?
2075  5572                      JMP I   TST34N          /YES, NEXT TEST
2076  3146                      DCA     REGB            /SAVE BANK
2077  6041                      TSF                     /FLAG SET?
2100  4556                      JMS I   SETFLG          /NO, GO SET IT
2101  1146                      TAD     REGB            /GET BANK
2102  7006                      RTL                     /JUSTIFY FOR LIF/LDF
2103  7001                      IAC                     /GET CURRENT IF
2104  3147                      DCA     REGC            /SAVE IT
2105  1147                      TAD     REGC            /FETCH IT
2106  7040                      CMA                     /COMPLEMENT
2107  0114                      AND     LMASK           /SAVE DF BITS
2110  3152                      DCA     REGE            /SAVE IT
2111  1152                      TAD     REGE            /FETCH IT
2112  1104                      TAD     KLDF            /MAKE IT A LDF -N
2113  3472                      DCA I   EXDF33          /STORE FOR EXECUTION
2114  1147                      TAD     REGC            /FETCH CONSTANT
2115  1111                      TAD     KLIF            /MAKE IT A LIF N
2116  3473                      DCA I   EXIF33          /STORE FOR EXECUTION
2117  6141                      LINC                    /TO LMODE
2120  0000              XDF33,  0000                    /EXECUTE LDF
2121  0000              XIF33,  0000                    /EXECUTE LIF
2122  6123                      LJMP    .+1             /TO UPPER MEMORY
2123  6601                      LIF     1               /RESTORE IF
2124  6533                      IOB                     /
2125  6234                      RIB                     /READ SF
2126  6646                      LDF     3               /RESTORE DF
2127  6131                      LJMP    .+1             /BACK TO BANK 0
2130  7242                      BSW     2               /JUSTIFY
2131  6002                      PDP                     /TO PMODE
2132  3151                      DCA     REGD            /SAVE RIB DATA
2133  1147                      TAD     REGC            /GET IF
2134  7006                      RTL                     /JUSTIFY
2135  7006                      RTL                     /
2136  7004                      RAL                     /
2137  1152                      TAD     REGE            /GET DF
2140  7041                      CIA                     /2'S COMPLEMENT
2141  1151                      TAD     REGD            /ADD RECEIVED
2142  7650                      SNA CLA                 /EQUAL?
2143  4516                      JMS I   .ERROR          /CHECK MONITOR
2144  4471                      JMS I   ERROR           /LIF FAILED TO LOAD SF
2145  7146                      TST33M                  /MESSAGE POINTER
2146  7402                      HLT                     /ERROR HALT
2147  7410                      SKP                     /TO NEXT TEST
2150  2377                      TST33+5                 /ISZ LOOP; SCOPE LOOP
2151  5571                      JMP I   TST33N          /NEXT BANK
```

```
                    /LMODE
                    /WILL RMF WORK IN EXTENDED MEMORY?
                    /
2152  73Ø0  TST34,  CLA CLL                  /CLEAR AC
2153  4474          JMS I   GETBNK           /GET NEXT BANK
2154  745Ø          SNA                      /DONE?
2155  5573          JMP I   TST35N           /YES, NEXT TEST
2156  3146          DCA     REGB             /SAVE TARGET
2157  1146          TAD     REGB             /FETCH IT
2160  7006          RTL                      /JUSTIFY FOR LIF
2161  7001          IAC                      /INCREMENT FOR FIELD 2
2162  1111          TAD     KLIF             /MAKE IT A LIF N
2163  3366          DCA     .+3              /STORE FOR EXECUTION
2164  6002          IOF                      /DISABLE INTERRUPTS
2165  6141          LINC                     /TO LMODE
2166  ØØØØ          0000                     /EXECUTE LIF N
2167  6170          LJMP    .+1              /TO UPPER MEMORY
2170  Ø5ØØ          IOB                      /
2171  6244          RMF                      /RESTORE MEMORY
2172  Ø5ØØ          IOB                      /
2173  6234          RIB                      /FIND OUT WHERE WE ARE
2174  6175          LJMP    .+1              /TO LOWER MEMORY
2175  ØØØ2          PDP                      /TO PMODE
2176  3550          DCA I   REGCN            /SAVE TARGET - DATA FIELD IS ZERO
2177  6224          RIF                      /NOW WHERE ARE WE?
2200  7640          SZA CLA                  /RMF FAILED IF NOT ZERO
2201  7040          CMA                      /SET AC=7777 TO CAUSE ERROR
2202  6242          CIF     00               /JUST TO BE SURE
2203  5204          JMP     .+1              /BACK TO BANK Ø
2204  7650          SNA CLA                  /AC=7777 IF ERROR
2205  4516          JMS I   NERROR           /CHECK MONITOR
2206  4471          JMS I   ERROR            /RMF FILED
2207  7201          TST34M                   /MESSAGE POINTER
2210  7402          HLT                      /ERROR HALT
2211  7410          SKP                      /TO NEXT TEST
2212  2157          TST34+5                  /ISZ LOOP; SCOPE LOOP
2213  5572          JMP I   TST34N           /NEXT BANK
```

```
                    *2400
                    /PMODE
                    /AUTO INDEX TEST (FIRST SET UP REGISTERS)
                    /
2400  7300  TST35,  CLA CLL                  /CLEAR AC
2401  4474          JMS I   GETBNK           /GET NEXT BANK
2402  7450          SNA                      /DONE?
2403  5336          JMP     TST36X           /NEXT TEST
2404  3146          DCA     REGB             /SAVE IT
2405  1146          TAD     REGB             /FETCH IT
2406  7006          RTL                      /JUSTIFY
2407  7004          RAL                      /JUSTIFY
2410  1102          TAD     KCIF             /MAKE IT A CIF N
2411  3212          DCA     .+1              /STORE FOR EXECUTION
2412  0000          0000                     /EXECUTE CIF
2413  1146          TAD     REGB             /GET BANK
2414  7006          RTL                      /JUSTIFY
2415  7004          RAL                      /JUSTIFY
2416  1101          TAD     KCDF             /MAKE IT A CDF N
2417  3220          DCA     .+1              /STORE FOR EXECUTION
2420  0000          0000                     /EXECUTE CDF
2421  5222          JMP     .+1              /TO UPPER MEMORY
2422  3000          DCA     0                /CLEAR 0
2423  7040          CMA                      /COMPLEMENT AC
2424  3734          DCA I   END              /SET END (END=7777)
2425  7040          CMA                      /NOW SET AUTO 10-17 TO 7777
2426  3010          DCA     10
2427  7040          CMA
2430  3011          DCA     11
2431  7040          CMA
2432  3012          DCA     12
2433  7040          CMA
2434  3013          DCA     13
2435  7040          CMA
2436  3014          DCA     14
2437  7040          CMA
2440  3015          DCA     15
2441  7040          CMA
2442  3016          DCA     16
2443  7040          CMA
2444  3017          DCA     17
```

```
                    /
                    /NOW TEST REGISTERS
                    /
2445  1410          TAD I   10          /FETCH INDIRECT INDEXING TO 0
2446  7640          SZA CLA             /ZERO?
2447  5305          JMP     ERR10       /TO ERROR LOOP.
2450  1411          TAD I   11
2451  7640          SZA CLA
2452  5304          JMP     ERR11
2453  1412          TAD I   12
2454  7640          SZA CLA
2455  5303          JMP     ERR12
2456  1413          TAD I   13
2457  7640          SZA CLA
2460  5302          JMP     ERR13
2461  1414          TAD I   14
2462  7640          SZA CLA
2463  5301          JMP     ERR14
2464  1415          TAD I   15
2465  7640          SZA CLA
2466  5300          JMP     ERR15
2467  1416          TAD I   16
2470  7640          SZA CLA
2471  5277          JMP     ERR16
2472  1417          TAD I   17
2473  7640          SZA CLA
2474  5276          JMP     ERR17
2475  5316          JMP     OK35        /THIS BANK IS OK
```

```
                        /
                        /NOW HANDLE THE RETURN
                        /
2476  7001      ERR17,  IAC                     /INCREMENT AC TO FAILING CELL
2477  7001      ERR16,  IAC
2500  7001      ERR15,  IAC
2501  7001      ERR14,  IAC
2502  7001      ERR13,  IAC
2503  7001      ERR12,  IAC
2504  7001      ERR11,  IAC
2505  7001      ERR10,  IAC
2506  6202              CIF     00            /BACK TO BANK 0
2507  5311              JMP     .+1           /TO LOWER MEMORY
2510  1023              TAD     K0010         /ADD JUSTIFICATION
2511  3147              DCA     REGC          /SAVE FAILING CELL
2512  1547              TAD I   REGC          /GET CONTENTS
2513  3151              DCA     REGD          /SAVE IT
2514  6201              CDF     07            /RESTORE DATA FIELD
2515  5322              JMP     FAL35         /TO ERROR MONITOR
2516  6201      0<35,   CDF     00            /RESTORE DATA FIELD
2517  6202              CIF     00            /RESTORE INSTRUCTION FIELD
2520  5321              JMP     .+1           /TO LOWER MEMORY
2521  4516              JMS I   NERROR        /CHECK MONITOR
2522  4471      FAL35,  JMS I   ERROR         /AUTO INDEX FAILED
2523  7236              TST35M                /MESSAGE POINTER
2524  7402              HLT                   /ERROR HALT
2525  7610              SKP CLA               /TO NEXT BANK
2526  2405              TST35+5               /SCOPE LOOP
2527  5230              JMP     TST35         /NEXT BANK
2530  7340      TST36X, CLA CLL CMA           /SET AC=7777
2531  3145              DCA     REGA          /PRESET REGA
2532  5733              JMP I   .+1           /TO NEXT TEST
2533  2600              TST36                 /(DONE THIS WAY TO AVOID PAGING ERRORS)
2534  7777      END,    7777
```

```
                    260     *2600
                            /LMODE
                            /AUTO INDEX TEST
                            /
2600  7300      TST36,  CLA CLL                 /CLEAR AC
2601  4474              JMS I   GETBNK          /FIND NEXT BANK
2602  7450              SNA                     /DONE?
2603  5211              JMP     .+6             /YES, RELOCATE
2604  3207              DCA     .+3             /SAVE BANK
2605  3146              DCA     REGB            /ZERO REGB
2606  4476              JMS I   BNKSET          /ZERO BANK
2607  0001              0001                    /TARGET BANK TO BE SET TO ZERO
2610  5200              JMP     TST36           /NEXT BANK
2611  4475      NBNK,   JMS I   GETBNL          /GET NEXT LINC FIELD
2612  7550              SNA CLL                 /DONE?
2613  5236              JMP     GOAUTO          /YES, START TESTING
2614  3146              DCA     REGB            /SAVE IT
2615  1146              TAD     REGB            /FETCH IT
2616  7012              RTR                     /JUSTIFY FOR IF BITS 3 & 4 TO MA 0,1
2617  7010              RAR                     /JUSTIFY
2620  7100              CLL                     /CLEAR LINK
2621  0112              AND     KLJMP           /CLEAR BITS 2-11
2622  1024              TAD     K0017           /ADD 17; THIS WILL BE THE TARGET ADDRESS-1
2623  3233              DCA     DEST36          /STORE
2624  1146              TAD     REGB            /GET BANK
2625  7012              RTR                     /JUSTIFY
2626  0003              AND     K0077           /CLOSE ENOUGH
2627  3231              DCA     .+2             /STORE
2630  4553              JMS I   RELOCR          /GO RELOCATE PROGRAM
2631  0000              0000                    /BANK
2632  4017              LAUTO-1                 /ORG
2633  0000      DEST36, 0000                    /DEST.
2634  0165              LEND-LAUTO              /LENGTH
2635  5211              JMP     NBNK            /NEXT FIELD
2636  4475      GOAUTO, JMS I   GETBNL          /FIND TEST
2637  7450              SNA                     /DONE?
2640  5517              JMP I   PASSN           /GO TYPE PASS ALARM
2641  3146              DCA     REGB            /SAVE TARGET
2642  1146              TAD     REGB            /FETCH IT
2643  1111              TAD     KLIF            /MAKE IT A LIF N
2644  3254              DCA     .+10            /STORE FOR EXECUTION
2645  1146              TAD     REGB            /FETCH TARGET
2646  1104              TAD     KLDF            /MAKE IT A LDF N
2647  3255              DCA     .+6             /STORE FOR EXECUTION
2650  1025              TAD     K0020           /GET 20
2651  1112              TAD     KLJMP           /MAKE A LJMP 20
2652  3256              DCA     .+4             /STORE FOR EXECUTION
2653  6141      EXAUT,  LINC                    /TO LMODE
2654  0000              0000                    /LIF N
2655  0000              0000                    /LDF N
2656  0000              0000                    /JMP 20
```

```
                    /
                    /TO HERE IN PMODE IF INDEX OK
                    /
2657  6201  LOK,     CDF      00
2660  4516           JMS I    .ERROR          /CHECK MONITOR
2661  4471  ERL36,   JMS I    ERROR           /AUTO-INDEX FAILED (DIRECT TO HERE FROM ERROR)
2662  7272           TST36M                   /MESSAGE POINTER
2663  7402           HLT                      /ERROR HALT
2664  7410           SKP                      /TO NEXT FIELD
2665  2653           EXAUT                    /SCOPE LOOP
2666  5236           JMP      GOAUTO          /NEXT FIELD.
```

```
                4022    *4020
                        /LMODE (THIS PORTION IS RELOCATED FOR EACH FIELD)
                        /AUTO INDEX TEST (IF=DF)
                        /
4020  0061      LAUTO,  SET     1               /SET UP REGISTERS
4021  3777              3777
4022  0062              SET     2
4023  3777              3777
4024  0063              SET     3
4025  3777              3777
4026  0064              SET     4
4027  3777              3777
4030  0065              SET     5
4031  3777              3777
4032  0066              SET     6
4033  3777              3777
4034  0067              SET     7
4035  3777              3777
4036  0070              SET     10
4037  3777              3777
4040  0071              SET     11
4041  3777              3777
4042  0072              SET     12
4043  3777              3777
4044  0073              SET     13
4045  3777              3777
4046  0074              SET     14
4047  3777              3777
4050  0075              SET     15
4051  3777              3777
4052  0076              SET     16
4053  3777              3777
4054  0077              SET     17
4055  3777              3777
4056  7011              CLR
4057  4000              STC     0               /SET 0=0000
4060  1020              LDA     20              /PICK UP CONSTANT
4061  5252              5252
4062  1044              STA                     /SET 1777=5252
4063  1777              1777
```

```
                        /
                        /NOW TEST THE REGISTERS
                        /
4064  7011              CLR
4065  1021              LDA     21              /GET INDIRECT INDEX 0
4066  7450              AZE                     /ZERO?
4067  6172              LJMP    ERL1            /AUTO INDEX FAILED
4070  1022              LDA     22
4071  7450              AZE
4072  6164              LJMP    ERL2
4073  1023              LDA     23
4074  7450              AZE
4075  6163              LJMP    ERL3
4076  1024              LDA     24
4077  7450              AZE
4100  6162              LJMP    ERL4
4101  1025              LDA     25
4102  7450              AZE
4103  6161              LJMP    ERL5
4104  1026              LDA     26
4105  7450              AZE
4106  6160              LJMP    ERL6
4107  1027              LDA     27
4110  7450              AZE
4111  6157              LJMP    ERL7
4112  1030              LDA     30
4113  7450              AZE
4114  6156              LJMP    ERL10
4115  1031              LDA     31
4116  7450              AZE
4117  6155              LJMP    ERL11
4120  1032              LDA     32
4121  7450              AZE
4122  6154              LJMP    ERL12
4123  1033              LDA     33
4124  7450              AZE
4125  6153              LJMP    ERL13
4126  1034              LDA     34
4127  7450              AZE
4130  6152              LJMP    ERL14
4131  1035              LDA     35
4132  7450              AZE
4133  6151              LJMP    ERL15
4134  1036              LDA     36
4135  7450              AZE
4136  6150              LJMP    ERL16
4137  1037              LDA     37
4140  7450              AZE
4141  6147              LJMP    ERL17
```

```
4142  6002            PDP                     /AUTO OK
4143  6201            CDF     00
4144  6202            CIF     00
4145  5746            JMP I   .+1
4146  2657            LOK                     /RETURN FOR NEXT BANK
4147  7221    ERL17,  XSK     1               /INCREMENT ERROR POINTER
4150  7221    ERL16,  XSK     1               /NONE OF THESE WILL SKIP,
4151  7221    ERL15,  XSK     1
4152  7221    ERL14,  XSK     1
4153  7221    ERL13,  XSK     1
4154  7221    ERL12,  XSK     1
4155  7221    ERL11,  XSK     1
4156  7221    ERL10,  XSK     1
4157  7221    ERL7,   XSK     1
4160  7221    ERL6,   XSK     1
4161  7221    ERL5,   XSK     1
4162  7221    ERL4,   XSK     1
4163  7221    ERL3,   XSK     1
4164  7221    ERL2,   XSK     1
4165  7221            XSK     1
4166  7016            LNOP                    /WASTE SOME SPACE FOR PAGING REASONS
4167  7016            LNOP
4170  7016            LNOP
4171  6174            LJMP    .+3
4172  7061    ERL1,   SET     1               /MUST BE CELL 1 THAT FAILED
4173  0021            0001
4174  1621            LDA                     /FETCH IT
4175  0021            21
4176  6002            PDP                     /TO PMODE
4177  6201            CDF     00              /RESTORE DF
4200  3604            DCA I   PONT            /SAVE ERROR
4201  6202            CIF     00              /RESTORE IF
4202  5603            JMP I   .+1             /TO BANK 0
4203  2661            ERL36                   /RETURN
4204  0147    PONT,   REGC                    /ERROR POINTER
4205  0000    LEND,   0000                    /END POINTER
```

```
                /
                /ALERT OPERATOR OF PASS COMPLETION (INHIBIT IF RSW 06=01)
                /
4226  7300      PASS,   CLA CLL
4227  3145              DCA     REGA            /CLEAR REGA
4210  6201              CDF     00
4211  2017              ISZ     COUNT           /INCREMENT COUNT
4212  7000              NOP                     /DON'T SKIP
4213  7604              LAS                     /GET SWITCHES
4214  0026              AND     K0042           /PICK OUT BIT 06
4215  7640              SZA CLA                 /SET ?
4216  5177              JMP     177             /YES, INHIBIT AND RESTART
4217  1137              TAD     PNTO            /GET POINTER TO TEXT
4220  3471              DCA I   ERROR           /CHEAT MONITOR
4221  5623              JMP I   PASPNT          /GO TYPE MESSAGE
4222  7323      LOCO,   TST37M                  /MESSAGE POINTER
4223  5051      PASPNT, ASCII                   /LINKUP POINTER
```

```
                5000    *5000
                        /
                        /NON ERROR MONITOR DETERMINES IF OPERATOR WANTS TO LOOP ON NON FAILING TEST
5000  0000      NERROS, 0                       /RETURN ADDRESS
5001  7307              CLA CLL IAC RTL         /SET AC = 4
5002  1200              TAD     NERROS          /GET RETURN ADDRESS
5003  3200              DCA     NERROS          /RETURN ADDRESS +4
5004  1600              TAD I   NERROS          /GET SCOPE LOOP ADDRESS
5005  3220              DCA     ERRORS          /STORE IT
5006  2145              ISZ     REGA            /UPDATE DATA
5007  5620              JMP I   ERRORS          /LOOP BACK TO TEST
5010  7604              LAS                     /READ SWITCHES
5011  0034              AND     K0400           /SAVE SR3
5012  7640              SZA CLA                 /TEST AND CLEAR
5013  5620              JMP I   ERRORS          / LOOPING
5014  7040              CMA                     /SET AC=-1
5015  1200              TAD     NERROS          /ADD NERRORS
5016  3200              DCA     NERROS          /STORE IN NERRORS
5017  5600              JMP I   NERROS          /JUMP INDIRECT LOOP
                        /
                        /ERROR PROCESSOR, SCOPE LOOP, HALT, PRINT
5020  0000      ERRORS, 0                       /RETURN ADDRESS STORAGE
5021  7604              LAS                     /READ SWITCHES
5022  7004              RAL                     /MOVE SR1 INTO AC00
5023  7700              SMA CLA                 /IS IT SET
5024  5250              JMP     ASCII           /NO TYPE A MESSAGE
5025  1220      ASCRXT, TAD     ERRORS          /GET CURRENT ERROR ADDRESS
5026  7041              CIA                     /INVERT IT
5027  3115              DCA     LSTERR          /STORE IN LAST ERROR
5030  2220              ISZ     ERRORS          /YES INDEX ESCAPE
5031  7604              LAS                     /READ SWITCHES
5032  7700              SMA CLA                 /IS SR0 SET?
5033  7402              HLT                     /NO, ERROR HALT
5034  2220              ISZ     ERRORS          /YES INDEX ESCAPE TO JUMP OUT
5035  2220              ISZ     ERRORS          /INDEX ERRORS TO SCOPE MODE
5036  1620              TAD I   ERRORS          /GET SCOPE ADDRESS
5037  3200              DCA     NERROS          /STORE IN TYPE
5040  7604              LAS                     /READ SWITCHES
5041  7006              RTL                     /MOVE SR02 TO AC0
5042  7710              SPA CLA                 /IS SCOPE MODE SELECTED
5043  5620              JMP I   NERROS          /YES CONTINUE IN SCOPE LOOP
5044  7040              CMA                     /NO SET AC=7777
5045  1220              TAD     ERRORS          /SUBTRACT ONE FROM ERRORS
5046  3220              DCA     ERRORS          /STORE SELECTED ADDRESS
5047  5620              JMP I   ERRORS          /EXIT TO NEXT TEST
```

```
5050  7240    ASCII,  CLA CMA                 /SET C(AC)=-1
5051  1627            TAD I   ERRORS          /GET MESSAGE ADDRESS STORAGE
5052  3014            DCA     PINT            /STORE IT IN AUTO INDEX REGISTER
5053  1227            TAD     ERRORS          /GET RETURN ADDRESS
5054  1115            TAD     LSTERR          /SUBTRACT LAST ERROR ADDRESS
5055  7650            SNA CLA                 /TEST
5056  5362            JMP     DATYP           /SAME GO TYPE DATA
5057  1414            TAD I   PINT           /GET FIRST CHARACTER
5060  3263            DCA     NERROS          /SAVE IT
5061  1263            TAD     NERROS          /GET IT
5062  7450            SNA                     /TEST IT
5063  5225            JMP     ASCRXT          /NUMBER=EXIT
5064  7040            CMA                     /INVERT IT
5065  7450            SNA                     /NUMBER=EXITA
5066  5314            JMP     DATUM           /TYPE OUT DATA ROUTINE
5067  7040            CMA                     /CHANGE IT BACK
5070  7112            RTR CLL                 /SWAP AC TO THE RIGHT
5071  7012            RTR                     /MOVE
5072  7012            RTR                     /MOVE
5073  4277            JMS     TYPECH          /TYPE IT
5074  1263            TAD     NERROS          /GET IT AGAIN
5075  4277            JMS     TYPECH          /TYPEIT
5076  5257            JMP     ASCII+7         /MUST BE MORE WORDS THAT NEED TYPING
5077  0000    TYPECH, 0
5100  0037            AND     K0077           /SAVE SIGNIFICANT PART
5101  3157            DCA     SPACE           /STORE WORD
5102  1157            TAD     SPACE           /FETCH IT
5103  0765            SNA CLA                 /TEST FOR 00 CRLF CODE
5104  4353            JMS     CRLF            /YES IT WAS
5105  1157            TAD     SPACE           /NO TYPE IT
5106  1377            TAD     M40             /SUBTRACT 40
5107  7510            SPA                     /TEST POLARITY
5110  1031            TAD     K0100           /ADD 340
5111  1376            TAD     K240            /ADD 240
5112  4574            JMS I   TYPE            /TYPE
5113  5677            JMP I   TYPECH          /EXIT
```

```
5114  1414    DATUM,  TAD I   PINT            /GET ADDRESS OF REGISTER
5115  3200            DCA     NERROS          /STORE IN TEMP
5116  1200            TAD     NERROS          /GET TEMP
5117  7650            SNA CLA                 /TEST FOR EXIT
5120  5225            JMP     ASCRXT          /EQUALS 0000 EXIT
5121  1200            TAD     NERROS          /GET TEMP
5122  1373            TAD     M4444           /ADD CONSTANT
5123  7650            SNA CLA                 /TEST FOR RESTART
5124  4467            JMS I   BELL           /IT'S THERE, RESTART
5125  1600            TAD I   NERROS          /GET DATA
5126  4332            JMS     OCTYP           /TYPE IT
5127  1376            TAD     K240            /SPACE
5130  4574            JMS I   TYPE            /TYPE IT
5131  5314            JMP     DATUM           /TYPE NUMERIC DATA
5132  0000    OCTYP,  0                       /RETURN ADDRESS STORAGE
5133  3277            DCA     TYPECH          /STORE DATA TO BE PRINTED
5134  1100            TAD     K7774           /SET UP TALLY
5135  3157            DCA     SPACE           /SET IT
```

```
5136  1035    HERE,   TAD     K1026           /GET FLAG NUMBER
5137  3353    REDO,   DCA     CRLF            /STORE
5140  1277            TAD     TYPECH
5141  7004            RAL
5142  3277            DCA     TYPECH
5143  1353            TAD     CRLF
5144  7004            RAL
5145  7420            SNL
5146  5337            JMP     REDO
5147  4574            JMS I   TYPE
5150  2157            ISZ     SPACE
5151  5336            JMP     HERE
5152  5732            JMP I   OCTYP           /EXIT
5153  0000    CRLF,   0                       /RETURN ADDRESS STORAGE
5154  1374            TAD     K0215           /GET CR
5155  4574            JMS I   TYPE            /TYPE IT
5156  1375            TAD     K0212           /GET LF
5157  4574            JMS I   TYPE            /TYPE IT
5160  1032            TAD     K0177           /SET TO RUBOUT
5161  5753            JMP I   CRLF            /EXIT
5162  1414    DATYP,  TAD I   PINT            /GET A TERM OFF OF TYPE LIST
5163  7450            SNA                     /END OF LIST?
5164  5225            JMP     ASCRXT          /YES EXIT
5165  7040            CMA                     /INVERT
5166  7640            SZA CLA                 /BEGINNING OF DATA
5167  5362            JMP     DATYP           /NO
5170  4353            JMS     CRLF            /YES OK RETURN THE TTY CARRIAGE AND LINE FEED
5171  7300            CLA CLL                 /CLEAR AC AND LINK
5172  5314            JMP     DATUM           /GO TYPE THE DATA
5173  3334    M4444,  -4444                   /SWITCH CHECK
5174  0215    K 215,  0215
5175  0212    K 212,  0212
5176  0240    K240,   0240
5177  7740    M40,    -40
```

```
                5200    *5200
5200  0000      RANDY,  0                       /NEW PAGE
5201  1240              TAD     RNA             /RANDOM NUMBER GENERATOR
5202  1241              TAD     RNB
5203  1076              TAD     K5252
5204  3243              DCA     RND
5205  1243              TAD     RND
5206  1242              TAD     RNC
5207  3240              DCA     RNA
5210  7004              RAL
5211  1240              TAD     RNA
5212  1241              TAD     RNB
5213  1076              TAD     K5252
5214  3243              DCA     RND
5215  1243              TAD     RND
5216  1242              TAD     RNC
5217  3241              DCA     RNB
5220  7004              RAL
5221  1240              TAD     RNA
5222  1076              TAD     K5252
5223  3243              DCA     RND
5224  1243              TAD     RND
5225  1241              TAD     RNB
5226  1242              TAD     RNC
5227  3242              DCA     RNC
5230  7004              RAL
5231  1240              TAD     RNA
5232  3240              DCA     RNA
5233  1241              TAD     RNB
5234  1076              TAD     K5252
5235  3243              DCA     RND
5236  1243              TAD     RND
5237  5600              JMP I   RANDY
5240  7601    RNA,      7601
5241  3542    RNB,      3542
5242  3755    RNC,      3755
5243  0016    RND,      0016
5244  0000    TYPOUT,   0
5245  6046              TLS                     /AC TO PRINTER
5246  6041              TSF                     /FLAG SET?
5247  5246              JMP     .-1             /NOT UP; WAIT
5250  6042              TCF                     /NOW CLEAR IT
5251  7200              CLA                     /CLEAR AC
5252  5644              JMP I   TYPOUT          /INDIRECT RETURN
                /
                /TELEPRINTER FLAG SET ROUTINE
                /
5253  0000      FLAG,   0000
5254  7200              CLA                     /CLEAR AC
5255  6046              TLS                     /BUMP PRINTER
5256  6041              TSF                     /WAIT 100 MS
5257  5256              JMP     .-1
5260  5653              JMP I   FLAG            /INDIRECT RETURN,
```

```
                    /
                    /PROGRAM RELOCATOR
                    /CALL: RELOC; BANK, ORG-1, DEST-1, END-ORG,
                    /
5261  0000  RELOC,  0000                    /CONTAINS CALLING LOCATION +1
5262  7300          CLA CLL                 /CLEAR AC
5263  1261          TAD     RELOC           /GET BANK ADDRESS
5264  6201          CDF     00              /RESET DATA FIELD
5265  3146          DCA     REGB            /SAVE ADDRESS
5266  1546          TAD I   REGB            /BANK
5267  3147          DCA     REGC            /SAVE IT
5270  2146          ISZ     REGB            /INCREMENT
5271  1546          TAD I   REGB            /ORG-1
5272  3015          DCA     AUTO11          /SAVE IT
5273  2146          ISZ     REGB            /INCREMENT
5274  1546          TAD I   REGB            /DEST-1
5275  3016          DCA     AUTO12          /SAVE IT
5276  2146          ISZ     REGB            /INCREMENT
5277  1546          TAD I   REGB            /LENGTH
5300  7040          CMA                     /COMPLEMENT
5301  3151          DCA     REGD            /SAVE IT
5302  2146          ISZ     REGB            /INCREMENT
5303  1146          TAD     REGB            /GET RETURN
5304  3261          DCA     RELOC           /SAVE RETURN
5305  1147          TAD     REGC            /GET BANK
5306  7006          RTL                     /JUSTIFY
5307  7004          RAL                     /SOME MORE
5310  0121          AND     PMASK           /SAVE BITS 06-08
5311  1141          TAD     KCDF            /GET CDF
5312  3323          DCA     EXCREL          /SAVE INSTRUCTION FOR EXECUTION
5313  2151  INCREL, ISZ     REGD            /CHECK IF DONE
5314  5321          JMP     PICKUP          /NOT DONE; MOVE A WORD
5315  3146          DCA     REGB            /RESET REGISTER
5316  3147          DCA     REGC            /RESET REGISTER
5317  6201          CDF     00              /RESET DATA FIELD
5320  5661          JMP I   RELOC           /RETURN
5321  6201  PICKUP, CDF     00              /RESET DATA FIELD
5322  1415          TAD I   AUTO11          /GET WORD
5323  0000  EXCREL, 0000                    /CHANGE DATA FIELD
5324  3416          DCA I   AUTO12          /DEPOSIT WORD
5325  5313          JMP     INCREL          /CHECK BACK
```

```
                    /
                    /BANK SET
                    /CALL: LOCSET; BANK; REGB HAS CONSTANT
                    /
5326  0020      LOCSET, 0000
5327  7300            CLA CLL                 /CLEAR AC
5330  1726            TAD I   LOCSET          /GET BANK
5331  7006            RTL                     /JUSTIFY
5332  7004            RAL                     /SOME MORE
5333  0121            AND     PMASK           /BITS 06-08
5334  1101            TAD     KCDF            /ADD CDF
5335  3342            DCA     EXCSET          /STORE FOR EXECUTION
5336  2326            ISZ     LOCSET          /INCREMENT RETURN
5337  3147            DCA     REGC            /ZERO REGC
5340  6201      PICSET, CDF     00              /RESET DATA FIELD
5341  1146            TAD     REGB            /GET CONSTANT
5342  0000      EXCSET, 0000                    /EXECUTE CDF
5343  3547            DCA I   REGC            /DEPOSIT C(REGB) IN BANK (N)
5344  2147            ISZ     REGC            /DONE?
5345  5340            JMP     PICSET          /NO, NEXT WORD
5346  6201            CDF     00              /RESET DATA FIELD
5347  5726            JMP I   LOCSET          /RETURN
```

```
                *5400
                /PMODE-LMODE
                /INTERRUPT TEST: DO WE HAVE A SPURIOUS INTERRUPT ON-LINE?
                /
5400  0000      INTTST, 0000
5401  7345      CLA CLL CMA
5402  3145      DCA     REGA
5403  6041      TSF                     /FLAG SET?
5404  4556      JMS I   SETFLG          /NOT UP; GO SET IT
5405  6141      LINC                    /TO LMODE
5406  1027      LDA     20              /GET BIT 07
5407  0020      0020                    /I/O PRESET
5410  0004      0004                    /ESF
5411  6002      PDP                     /TO PMODE
5412  5213      JMP     .+1             /CLEAR INHIBIT
5413  5214      JMP     .+1             /CLEAR INHIBIT
5414  7300      CLA CLL                 /ZERO AC, LINK
5415  1147      TAD     PNTR            /GET POINTER
5416  3155      DCA     RETURN          /SET UP RETURN
5417  6001      ION                     /ENABLE INTERRUPTS
5420  7000      NOP                     /WAIT
5421  6002      IOF                     /DISABLE INTERRUPTS
5422  4516      JMS I   NERROR          /NO INTERRUPT ON-LINE
5423  4471  LOOP, JMS I   ERROR         /SPURIOUS INTERRUPT?
5424  7347      INTSTM                  /MESSAGE POINTER
5425  7402      HLT                     /ERROR HALT
5426  7413      SKP                     /RETURN
5427  5401      INTTST+1                /ISZ LOOP; SCOPE LOOP
5430  5600      JMP I   INTTST          /RETURN
```

```
                    /
                    /PMODE FIND BANK
                    /
5431  [illegible]   GETNXT, 0000
5432  7300          CLA CLL                 /CLEAR AC
5433  1066          TAD     BANK            /GET BANK
5434  7041          CIA                     /2'S COMPLEMENT
5435  112[illegible] TAD     PBANK           /CHECK
5436  765[illegible] SNA CLA                 /EQUAL?
5437  5243          JMP     .+4             /YES, RESET
5440  212[illegible] ISZ     PBANK           /INCREMENT
5441  112[illegible] TAD     PBANK           /FETCH IT
5442  5631          JMP I   GETNXT          /RETURN
5443  312[illegible] DCA     PBANK           /CLEAR BANK
5444  5631          JMP I   GETNXT
                    /
                    /LMODE FIND BANK
                    /
5445  300[illegible] GETNXL, 0000
5446  7300          CLA CLL                 /CLEAR AC
5447  1066          TAD     BANK            /FETCH AVAILABLE BANK
5450  7006          RTL                     /JUSTIFY
5451  1021          TAD     K0003           /INCREASE TO MAXIMUM
5452  7041          CIA                     /2'S COMPLEMENT
5453  1113          TAD     LBANK           /COMPARE
5454  765[illegible] SNA CLA                 /EQUAL?
5455  5261          JMP     .+4             /YES, RESET
5456  2113          ISZ     LBANK           /INCREMENT
5457  1113          TAD     LBANK           /FETCH IT
5460  5645          JMP I   GETNXL          /RETURN
5461  1021          TAD     K0003           /DON'T USE FIELDS 0-3
5462  3113          DCA     LBANK           /SAVE IT
5463  5645          JMP I   GETNXL          /RETURN
                    /
                    /RING THE BELL
                    /
5464  [illegible]   BELLS,  0000
5465  7404          OSR                     /READ SWITCHES
5466  [illegible]031 AND     K0100           /SAVE SR05
5467  764           SZA CLA                 /IS IT SET?
5470  5273          JMP     .+3             /YES, INHIBIT BELL
5471  1033          TAD     K0207           /GET BELL
5472  4574          JMS I   TYPE            /GO RING IT
5473  5674          JMP I   .+1             /RETURN
5474  [illegible]213 TST01                  /AVOID CLOBBERING PASS COUNTER
```

```
                    /
                    /ERROR MESSAGES
                    /
5475  0024  TST01M, 0024                    /TST01
5476  2324          2324
5477  6061          6061
5500  0003          0003                    /CDF OR RDF FAILED (PMODE)
5501  0406          0406                    /SENT RCVD
5502  4017          4017
5503  2240          2240
5504  2204          2204
5505  0640          0640
5506  0601          0601
5507  1114          1114
5510  0504          0504
5511  4050          4050
5512  2015          2015
5513  1704          1704
5514  0551          0551
5515  0023          0023
5516  0516          0516
5517  2440          2440
5520  2203          2203
5521  2604          2604
5522  4000          4000
5523  7777          EXITA
5524  0146          REGB
5525  0147          REGC
5526  0000          EXIT

5527  0024  TST02M, 0024                    /TST02
5530  2324          2324
5531  6062          6062
5532  0003          0003                    /CDF OR RDF FAILED (PMODE)
5533  0406          0406                    /SENT RCVD
5534  4017          4017
5535  2240          2240
5536  2204          2204
5537  0640          0640
5540  0601          0601
5541  1114          1114
5542  0504          0504
5543  4050          4050
5544  2015          2015
5545  1704          1704
5546  0551          0551
5547  0023          0023
5550  0516          0516
5551  2440          2440
5552  2203          2203
5553  2604          2604
5554  4000          4000
5555  7777          EXITA
5556  0146          REGB
5557  0147          REGC
```

```
5560  0000            EXIT

5561  0024  TST03M,  0024                    /TST03
5562  2324            2324
5563  6063            6063
5564  0014            0014                  /LDF OR RDF FAILED (LMODE)
5565  0406            0406                  /SENT RCVD
5566  4017            4017
5567  2240            2240
5570  2204            2204
5571  0640            0640
5572  0601            0601
5573  1114            1114
5574  0504            0504
5575  4050            4050
5576  1415            1415
5577  1704            1704
5600  0551            0551
5601  4000            4000
5602  2305            2305
5603  1624            1624
5604  4022            4022
5605  0326            0326
5606  0400            0400
5607  7777            EXITA
5610  0146            REGB
5611  0147            REGC
5612  0000            EXIT

5613  0024  TST04M,  0024              /TST04
5614  2324            2324             /LDF OR RDF FAILED (LMODE)
5615  6064            6064             /SENT RCVD
5616  0014            0014
5617  0406            0406
5620  4017            4017
5621  2240            2240
5622  2204            2204
5623  0640            0640
5624  0601            0601
5625  1114            1114
5626  0504            0504
5627  4050            4050
5630  1415            1415
5631  1704            1704
5632  0551            0551
5633  0023            0023
5634  0516            0516
5635  2440            2440
5636  2223            2223
5637  2604            2604
5640  4000            4000
5641  7777            EXITA
5642  0146            REGB
5643  0147            REGC
5644  0000            EXIT
```

```
5645  0024    TST05M, 0024            /TST05
5646  2324            2324            /CDF OR RDF FAILED (PMODE)
5647  6065            6065            /SENT RCVD
5650  0003            0003
5651  0406            0406
5652  4017            4017
5653  2240            2240
5654  2204            2204
5655  0640            0640
5656  0601            0601
5657  1114            1114
5660  0504            0504
5661  4050            4050
5662  2015            2015
5663  1704            1704
5664  0551            0551
5665  0023            0023
5666  0516            0516
5667  2440            2440
5670  2203            2203
5671  2604            2604
5672  4000            4000
5673  7777            EXITA
5674  0146            REGB
5675  0147            REGC
5676  0000            EXIT

5677  0024    TST06M, 0024            /TST06
5700  2324            2324            /LDF OR RDF FAILED (LMODE)
5701  6066            6066            /SENT RCVD
5702  0014            0014
5703  0406            0406
5704  4017            4017
5705  2240            2240
5706  2204            2204
5707  0640            0640
5710  0601            0601
5711  1114            1114
5712  0504            0504
5713  4050            4050
5714  1415            1415
5715  1704            1704
5716  0551            0551
5717  0023            0023
5720  0516            0516
5721  2440            2440
5722  2203            2203
5723  2604            2604
5724  4000            4000
5725  7777            EXITA
5726  0146            REGB
5727  0147            REGC
5730  0000            EXIT
```

```
5731  0024    TST07M, 0024                    /TST07
5732  2324            2324
5733  6067            6067
5734  0020            0020                    /PMODE INTERRUPT FAILED
5735  1517            1517
5736  0405            0405
5737  4011            4011
5740  1624            1624
5741  0522            0522
5742  2225            2225
5743  2024            2024
5744  4006            4006
5745  0111            0111
5746  1405            1405
5747  0400            0400
5750  7777            EXITA
5751  0000            EXIT

5752  0024    TST08M, 0024                    /TST08
5753  2324            2324
5754  6070            6070
5755  0020            0020                    /PMODE LOAD SF OR RIB FAILED
5756  1517            1517                    / DF   SF
5757  0405            0405
5760  4014            4014
5761  1701            1701
5762  0440            0440
5763  2306            2306
5764  4017            4017
5765  2240            2240
5766  2211            2211
5767  0240            0240
5770  0601            0601
5771  1114            1114
5772  0504            0504
5773  0040            0040
5774  0406            0406
5775  4040            4040
5776  4023            4023
5777  0600            0600
6000  7777            EXITA
6001  0146            REGB
6002  0147            REGC
6003  0000            EXIT

6004  0024    TST9AM, 0024                    /TST9A
6005  2324            2324
6006  7101            7101
6007  0314            0314                    /LMODE INTERRUPT FAILED
6010  1517            1517
6011  0405            0405
6012  4011            4011
6013  1624            1624
6014  0522            0522
      2225            2225
```

```
6016  2024              2024
6017  4006              4006
6020  0111              0111
6021  1405              1405
6022  0400              0400
6023  7777              EXITA
6024  0000              EXIT

6025  0024    TST09M,   0024                    /TST09
6026  2324              2324
6027  6071              6071
6030  0014              0014                    /LMODE LOAD SF OR RIB FAILED
6031  1517              1517                    / DF   SF
6032  0405              0405
6033  4014              4014
6034  1701              1701
6035  0440              0440
6036  2306              2306
6037  4017              4017
6040  2240              2240
6041  2211              2211
6042  0240              0240
6043  0601              0601
6044  1114              1114
6045  0504              0504
6046  0040              0040
6047  0406              0406
6050  4040              4040
6051  4023              4023
6052  0600              0600
6053  7777              EXITA
6054  0146              REGB
6055  0147              REGC
6056  0000              EXIT

6057  0024    TST10M,   0024                    /TST10
6060  2324              2324
6061  6160              6160
6062  0020              0020                    /PMODE DF FAILED TO ZERO ON AN INTERRUPT
6063  1517              1517                    /SENT SF RCVD
6064  0405              0405
6065  4004              4004
6066  0640              0640
6067  0601              0601
6070  1114              1114
6071  0504              0504
6072  4024              4024
6073  1740              1740
6074  3205              3205
6075  2217              2217
6076  4017              4017
6077  1640              1640
6100  0116              0116
6101  4011              4011
6102  1624              1624
```

```
6103  0522            0522
6104  2225            2225
6105  2024            2024
6106  0023            0023
6107  0516            0516
6110  2440            2440
6111  4023            4023
6112  0640            0640
6113  4022            4022
6114  0326            0326
6115  0400            0400
6116  7777            EXITA
6117  0146            REGB
6120  0147            REGC
6121  0151            REGD
6122  0000            EXIT

6123  0024    TST11M, 0024                    /TST11
6124  2324            2324
6125  6161            6161
6126  0014            0014                    /LMODE DF FAILED TO ZERO ON AN INTERRUPT
6127  1517            1517                    /SENT SF RCVD
6130  0405            0405
6131  4004            4004
6132  0640            0640
6133  0601            0601
6134  1114            1114
6135  0504            0504
6136  4024            4024
6137  1740            1740
6140  3205            3205
6141  2217            2217
6142  4017            4017
6143  1640            1640
6144  0116            0116
6145  4011            4011
6146  1624            1624
6147  0522            0522
6150  2225            2225
6151  2024            2024
6152  0023            0023
6153  0516            0516
6154  2440            2440
6155  4023            4023
6156  0640            0640
6157  4022            4022
6160  0326            0326
6161  0400            0400
6162  7777            EXITA
6163  0146            REGB
6164  0147            REGC
6165  0151            REGD
6166  0000            EXIT

      0024    TST12M, 0024                    /TST12
```

```
6170  2324              2324
6171  6162              6162
6172  0004              0004                    /DCA I - TAD I FAILED
6173  0301              0301                    /FIELD LOCN SENT RCVD
6174  4011              4011
6175  4055              4055
6176  4024              4024
6177  0104              0104
6200  4011              4011
6201  4006              4006
6202  0111              0111
6203  1405              1405
6204  0400              0400
6205  0611              0611
6206  1404              1404
6207  4014              4014
6210  1703              1703
6211  1640              1640
6212  2305              2305
6213  1624              1624
6214  4022              4022
6215  0326              0326
6216  0400              0400
6217  7777              EXITA
6220  0146              REGB
6221  0145              REGA
6222  5076              K5252
6223  0147              REGC
6224  0000              EXIT

6225  0024    TST13M,   0024                    /TST13
6226  2324              2324
6227  6163              6163
6230  0023              0023                    /STA - LDA FAILED
6231  2401              2401                    /BANK LOCN SENT RCVD
6232  4055              4055
6233  4014              4014
6234  0401              0401
6235  4006              4006
6236  0111              0111
6237  1405              1405
6240  0400              0400
6241  0201              0201
6242  1613              1613
6243  4014              4014
6244  1703              1703
6245  1640              1640
6246  2305              2305
6247  1624              1624
6250  4022              4022
6251  0326              0326
6252  0400              0400
6253  7777              EXITA
6254  0146              REGB
6255  0145              REGA
```

```
6256  3076          K5252
6257  0147          REGC
6260  0001          EXIT

6261  0024  TST14M, 0024                    /TST14
6262  2324          2324
6263  6164          6164
6264  0014          0014                    /LMODE JUMP SAVE RETURN FAILED FOR NORMAL JUMP
6265  1517          1517
6266  0405          0405
6267  4012          4012
6270  2515          2515
6271  2040          2040
6272  2301          2301
6273  2605          2605
6274  4022          4022
6275  0524          0524
6276  2522          2522
6277  1640          1640
6300  0601          0601
6301  1114          1114
6302  0504          0504
6303  4006          4006
6304  1722          1722
6305  4016          4016
6306  1722          1722
6307  1501          1501
6310  1440          1440
6311  1225          1225
6312  1520          1520
6313  4000          4000
6314  7777          EXITA
6315  0001          EXIT

6316  0024  TST15M, 0024                    /TST15
6317  2324          2324
6320  6165          6165
6321  0004          0004                    /DJR FAILED TO INHIBIT JUMP SAVE
6322  1222          1222
6323  4006          4006
6324  0111          0111
6325  1405          1405
6326  0440          0440
6327  2417          2417
6330  4011          4011
6331  1610          1610
6332  1102          1102
6333  1124          1124
6334  4012          4012
6335  2515          2515
6336  2040          2040
6337  2301          2301
6340  2605          2605
6341  4000          4000
   42 7777          EXITA
```

```
6343  0000              EXIT

6344  0024    TST16M,   0024                    /TST16
6345  2324              2324
6346  6166              6166
6347  0014              0014                    /LMODE JUMP FAILED TO CLEAR DJR
6350  1517              1517
6351  0405              0405
6352  4012              4012
6353  1520              1520
6354  4006              4006
6355  0111              0111
6356  1405              1405
6357  0440              0440
6360  2417              2417
6361  4003              4003
6362  1405              1405
6363  0122              0122
6364  4004              4004
6365  1222              1222
6366  4000              4000
6367  7777              EXITA
6370  0000              EXIT

6371  0024    TST17M,   0024                    /TST17
6372  2324              2324
6373  6167              6167
6374  0020              0020                    /PMODE JUMP ALTERED CELL 0000
6375  1517              1517
6376  0405              0405
6377  4012              4012
6400  2515              2515
6401  2040              2040
6402  0114              0114
6403  2405              2405
6404  2205              2205
6405  0440              0440
6406  0305              0305
6407  1414              1414
6410  4060              4060
6411  6060              6060
6412  6000              6000
6413  7777              EXITA
6414  0000              EXIT

6415  0024    TST18M,   0024                    /TST18
6416  2324              2324
6417  6170              6170
6420  0020              0020                    /PMODE IOF ALTERED CELL 0002
6421  1517              1517
6422  0405              0405
6423  4011              4011
6424  1706              1706
6425  4001              4001
6426  1424              1424
```

```
6427  0522              0522
6430  0504              0504
6431  4003              4003
6432  0514              0514
6433  1440              1440
6434  6060              6060
6435  6060              6060
6436  4000              4000
6437  7777              EXITA
6440  0000              EXIT

6441  0024    TST19M,   0024                  /TST19
6442  2324              2324
6443  6171              6171
6444  0014              0014                  /LMODE IOF ALTERED CELL 0000
6445  1517              1517
6446  0405              0405
6447  4011              4011
6450  1706              1706
6451  4001              4001
6452  1424              1424
6453  0522              0522
6454  0504              0504
6455  4003              4003
6456  0514              0514
6457  1440              1440
6460  6060              6060
6461  6060              6060
6462  4000              4000
6463  7777              EXITA
6464  0000              EXIT

6465  0024    TST20M,   0024                  /TST20
6466  2324              2324
6467  6260              6260
6470  0020              0020                  /PMODE JUMP CLEARED DJR
6471  1517              1517
6472  0405              0405
6473  4012              4012
6474  2515              2515
6475  2040              2040
6476  0314              0314
6477  0521              0521
6500  2205              2205
6501  2440              2440
6502  2412              2412
6503  2200              2200
6504  7777              EXITA
6505  0000              EXIT

6506  0024    TST21M,   0024                  /TST21
6507  2324              2324
6510  6261              6261
      0004              0004                  /DJR INHIBITED PMODE INTERRUPT SAVE
      1222              1222
```

```
6513  4011                4011
6514  1610                1610
6515  1102                1102
6516  1124                1124
6517  0504                0504
6520  4020                4020
6521  1517                1517
6522  0405                0405
6523  4011                4011
6524  1624                1624
6525  0522                0522
6526  2225                2225
6527  2024                2024
6530  4023                4023
6531  0126                0126
6532  0500                0500
6533  7777                EXITA
6534  7000                EXIT

6535  0024    TST22M,     0024                /TST22
6536  2324                2324                /NON-EXISTANT MEMORY READ-BACK FAILED
6537  6262                6262                /BANK DATA
6540  0016                0016                /REGD REGC
6541  1716                1716
6542  5505                5505
6543  3011                3011
6544  2324                2324
6545  0116                0116
6546  2440                2440
6547  1505                1505
6550  1517                1517
6551  2231                2231
6552  4022                4022
6553  0501                0501
6554  0455                0455
6555  0201                0201
6556  0313                0313
6557  4006                4006
6560  0111                0111
6561  1405                1405
6562  0400                0400
6563  0201                0201
6564  1613                1613
6565  4004                4004
6566  0124                0124
6567  0100                0100
6570  7777                EXITA
6571  0151                REGD
6572  0147                REGC
6573  7000                EXIT

6574  0000    TST23M,     0000                /RESERVED
6575  0024    TST24M,     0024                /TST24
6576  2324                2324
6577  6264                6264
```

```
6600  0003            0003                    /CIF FAILED TO LOAD PROPER IF
6601  1106            1106                    /SENT RCVD
6602  4006            4006
6603  0111            0111
6604  1405            1405
6605  0440            0440
6606  2417            2417
6607  4040            4040
6610  1417            1417
6611  0104            0104
6612  4020            4020
6613  2217            2217
6614  2005            2005
6615  2240            2240
6616  1106            1106
6617  0023            0023
6620  0516            0516
6621  2440            2440
6622  2203            2203
6623  2604            2604
6624  4000            4000
6625  7777            EXITA
6626  0146            REGB
6627  0147            REGC
6630  0000            EXIT

6631  0024    TST25M, 0024                    /TST25
6632  2324            2324
6633  6265            6265
6634  0014            0014                    /LIF FAILED TO LOAD PROPER IF
6635  1106            1106                    /SENT RCVD
6636  4006            4006
6637  0111            0111
6640  1405            1405
6641  0440            0440
6642  2417            2417
6643  4014            4014
6644  1701            1701
6645  0440            0440
6646  2022            2022
6647  1722            1722
6650  0522            0522
6651  4011            4011
6652  0600            0600
6653  2305            2305
6654  1624            1624
6655  4022            4022
6656  0326            0326
6657  0440            0440
6660  7777            EXITA
6661  0146            REGB
6662  0147            REGC
6663  0000            EXIT

      0024    TST26M, 0024            /TST26
```

```
6665  2324              2324
6666  6266              6266
6667  0003              0003                    /CIF FAILED TO FIND PROPER MEMORY
6670  1106              1106                    /SENT RCVD
6671  4006              4006
6672  0111              0111
6673  1405              1405
6674  0440              0440
6675  2417              2417
6676  4006              4006
6677  1116              1116
6700  0440              0440
6701  2022              2022
6702  1720              1720
6703  0522              0522
6704  4015              4015
6705  0515              0515
6706  1722              1722
6707  3100              3100
6710  2305              2305
6711  1624              1624
6712  4022              4022
6713  0326              0326
6714  0400              0400
6715  7777              EXITA
6716  .146             REGB
6717  .147             REGC
6720  0002              EXIT

6721  0024    TST27M,   0024                    /TST27
6722  2324              2324                    /PMODE INTERRUPTS NOT INHIBITED BY CIF
6723  6267              6267                    /BANK
6724  0020              0020
6725  1517              1517
6726  0405              0405
6727  4011              4011
6730  1624              1624
6731  0522              0522
6732  2225              2225
6733  2024              2024
6734  2340              2340
6735  1617              1617
6736  2440              2440
6737  1116              1116
6740  1011              1011
6741  0211              0211
6742  2405              2405
6743  0440              0440
6744  0231              0231
6745  4003              4003
6746  1106              1106
6747  4004              4004
6750  0201              0201
6751  1613              1613
6752  4000              4000
```

```
6753  7777            EXITA
6754  0146            REGB
6755  0000            EXIT

6756  0024    TST28M, 0024                    /TST28
6757  2324            2324                    /LMODE LIF FAILED TO INHIBIT INTERRUPTS
6760  6270            6270                    /BANK
6761  0014            0014
6762  1517            1517
6763  0405            0405
6764  4014            4014
6765  1106            1106
6766  4006            4006
6767  0111            0111
6770  1405            1405
6771  0440            0440
6772  2417            2417
6773  4011            4011
6774  1610            1610
6775  1102            1102
6776  1124            1124
6777  4011            4011
7000  1624            1624
7001  0522            0522
7002  2225            2225
7003  2024            2024
7004  2300            2300
7005  0201            0201
7006  1613            1613
7007  4000            4000
7010  7777            EXITA
7011  0146            REGB
7012  0000            EXIT

7013  0024    TST29M, 0024                    /TST29
7014  2324            2324                    /LMODE JMP 0 FAILED TO CLEAR
7015  6271            6271                    /INTERRUPT INHIBIT
7016  0014            0014
7017  1517            1517
7020  0405            0405
7021  4012            4012
7022  1520            1520
7023  4060            4060
7024  4006            4006
7025  0111            0111
7026  1405            1405
7027  0440            0440
7030  2417            2417
7031  4003            4003
7032  1405            1405
7033  0122            0122
7034  4011            4011
7035  1624            1624
7036  0522            0522
      2225            2225
```

```
7040  2024              2024
7041  4011              4011
7042  161               1610
7043  1102              1102
7044  1124              1124
7045  4003              4000
7046  0201              0201
7047  1613              1613
7050  4003              4000
7051  7777              EXITA
7052  0146              REGB
7053  0003              EXIT

7054  0024    TST30M,   0024                    /TST30
7055  2324              2324                    /LMODE DJR-JMP 0 FAILED
7056  6360              6360                    /TO LOAD IF
7057  0014              0014                    /BANK
7060  1517              1517
7061  0405              0405
7062  4004              4004
7063  1222              1222
7064  5512              5512
7065  1520              1520
7066  4060              4060
7067  4006              4006
7070  0111              0111
7071  1405              1405
7072  0440              0440
7073  2417              2417
7074  4014              4014
7075  1701              1701
7076  0440              0440
7077  1106              1106
7100  0002              0002
7101  0116              0116
7102  1300              1300
7103  7777              EXITA
7104  0146              REGB
7105  0003              EXIT

7106  0024    TST32M,   0024                    /TST32
7107  2324              2324                    /LMODE ION-LIF FAILED TO
7110  6362              6362                    /INHIBIT INTERRUPTS
7111  0014              0014
7112  1517              1517
7113  0405              0405
7114  4011              4011
7115  1716              1716
7116  5514              5514
7117  1106              1106
7120  4006              4006
7121  0111              0111
7122  1405              1405
7123  0440              0440
```

```
7124  2417              2417
7125  4011              4011
7126  1610              1610
7127  1102              1102
7130  1124              1124
7131  4011              4011
7132  1624              1624
7133  0522              0522
7134  2225              2225
7135  2024              2024
7136  2300              2300
7137  0000              EXIT

7140  0024    TST33M,   0024                    /TST33
7141  2324              2324                    /LMODE LIF-JMP N FAILED TO LOAD SF
7142  6363              6363                    /  IF   DF   SF
7143  0014              0014
7144  1517              1517
7145  0405              0405
7146  4014              4014
7147  1106              1106
7150  5512              5512
7151  1520              1520
7152  4016              4016
7153  4006              4006
7154  0111              0111
7155  1405              1405
7156  0440              0440
7157  2417              2417
7160  4014              4014
7161  1701              1701
7162  0440              0440
7163  2306              2306
7164  0040              0040
7165  1106              1106
7166  4040              4040
7167  4004              4004
7170  0640              0640
7171  4040              4040
7172  2306              2306
7173  4000              4000
7174  7777              EXITA
7175  0147              REGC
7176  0152              REGE
7177  0151              REGD
7200  0000              EXIT

7201  0024    TST34M,   0024                    /TST34
7202  2324              2324                    /LMODE RMF IN EXTENDED
7203  6364              6364                    /BANK FAILED
7204  0014              0014
7205  1517              1517
7206  0405              0405
7207  4022              4022
      1506              1506
```

```
7211  4011              4011
7212  164[illegible]              1640
7213  [illegible]530              0530
7214  2405              2405
7215  1604              1604
7216  [illegible]504              0504
7217  4002              4002
7220  [illegible]116              0116
7221  134[illegible]              1340
7222  [illegible]601              0601
7223  1114              1114
7224  [illegible]504              0504
7225  [illegible]002              0002
7226  [illegible]116              0116
7227  134[illegible]              1340
7230  4023              4023
7231  [illegible]600              0600
7232  7777              EXITA
7233  [illegible]146              REGB
7234  [illegible]147              REGC
7235  [illegible]000              EXIT

7236  0024    TST35M,   0024                    /TST35
7237  2324              2324                    /PMODE AUTO-INDEX FAILED
7240  6365              6365                    /BANK CELL ADDR
7241  [illegible]020              0020
7242  1517              1517
7243  [illegible]405              0405
7244  4001              4001
7245  2524              2524
7246  1755              1755
7247  1116              1116
7250  [illegible]405              0405
7251  3040              3040
7252  [illegible]601              0601
7253  1114              1114
7254  [illegible]504              0504
7255  [illegible]002              0002
7256  [illegible]116              0116
7257  134[illegible]              1340
7260  [illegible]305              0305
7261  1414              1414
7262  4001              4001
7263  [illegible]404              0404
7264  22[illegible]               2200
7265  7777              EXITA
7266  [illegible]146              REGB
7267  [illegible]147              REGC
7270  [illegible]151              REGD
7271  [illegible]000              EXIT

7272  [illegible]024    TST36M,   0024                    /TST36
7273  2324              2324                    /LMODE AUTO-INDEX FAILED
7274  6366              6366                    /FIELD LOCN
7275  4014              4014
```

```
7276  1517              1517
7277  0405              0405
7300  4001              4001
7301  2524              2524
7302  1755              1755
7303  1116              1116
7304  0405              0405
7305  3040              3040
7306  0601              0601
7307  1114              1114
7310  0504              0504
7311  0006              0006
7312  1105              1105
7313  1404              1404
7314  4014              4014
7315  1703              1703
7316  1600              1600
7317  7777              EXITA
7320  0146              REGB
7321  0147              REGC
7322  0000              EXIT
7323  0005    TST37M,   0005                /EXT MEM TST PASS--(PASS)
7324  3024              3024
7325  4015              4015
7326  0515              0515
7327  4024              4024
7330  2324              2324
7331  4020              4020
7332  0123              0123
7333  2355              2355
7334  5555              5555
7335  7777              EXITA
7336  0017              COUNT
7337  4444              EXITB               /SPECIAL RESTART: EVENTUALLY GETS TO TST01

7340  0023    INTSTM,   0023                /SPURIOUS INTERRUPT!
7341  2025              2025                /(CHECK IOC I/O PRESET)
7342  2211              2211
7343  1725              1725
7344  2340              2340
7345  1116              1116
7346  2405              2405
7347  2222              2222
7350  2520              2520
7351  2441              2441
7352  0050              0050
7353  0312              0312
7354  0503              0503
7355  1340              1340
7356  1117              1117
7357  0340              0340
7360  1157              1157
7361  1740              1740
      2022              2022
      0523              0523
```

```
7364  0524                0524
7365  5100                5100
7366  0000                EXIT

                          $
```

```
2000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
2100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111011

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

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  11111111  11111111

2000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
2100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

2200  11111111  11110000  00000000  00000000  00000000  00000000  00000000  00000000
2300  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000

2400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
2500  11111111  11111111  11111111  11111000  00000000  00000000  00000000  00000000

2600  11111111  11111111  11111111  11111111  11111111  11111111  11111110  00000000
2700  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000

3000
3100

3200
3300

3400
3500

3600
3700
```

```
4000  000 0000  000 0000  11111111  11111111  11111111  11111111  11111111  11111111
4100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

4200  11111111  11111111  11110000  00000000  00000000  00000000  00000000  00000000
4300  000 0000  000 0000  00000000  00000000  00000000  00000000  00000000  00000000

4400
4500

4600
4700


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  00000000  00000000  00000000

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  11111111  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  11111110  00000000

7400
7500

7600
7700
```

```
ADD     2000    EXCSET  5342    LDA     1000    PMASK   0121
ASCII   5050    EXDF33  0072    LDF     0640    PNT30   2007
ASCRXT  5025    EXIF33  0073    LEND    4205    PNT30N  0141
AUTO11  0015    EXIT    0000    LHAN    0042    PNTA    0122
AUTO12  0016    EXITA   7777    LIF     0600    PNTB    0123
AZE     0450    EXITB   4444    LINC    6141    PNTC    0124
BAK22   1300    FAL22   1310    LINTR   0040    PNTCA   0125
BANK    0066    FAL35   2522    LJMP    6000    PNTD    0126
BCL     1540    FLAG    5253    LMASK   0114    PNTE    0127
BELL    0067    GETBNK  0074    LNOP    0016    PNTF    0130
BELLS   5464    GETBNL  0075    LOCA    0502    PNTG    0131
BNKSET  0073    GETNXL  5445    LOCB    0527    PNTH    0132
BSE     1600    GETNXT  5431    LOCC    0620    PNTI    0133
CLR     0011    GOAUTO  2636    LOCCA   0564    PNTJ    0134
COUNT   0017    HERE    5136    LOCD    0660    PNTK    0135
CRLF    5153    INCREL  5313    LOCE    0722    PNTL    0136
DATUM   5114    INTSTM  7340    LOCF    1246    PNTO    0137
DATYP   5162    INTTST  5400    LOCG    1430    PNTP    0140
DEST36  2633    IOB     0500    LOCH    1473    PONT    4204
DJR     0006    K0003   0021    LOCI    1605    PPOINT  0142
END     2534    K0007   0022    LOCJ    1651    PREG    0143
ERL1    4172    K0010   0023    LOCK    1734    RANDOM  0144
ERL10   4156    K0017   0024    LOCL    2012    RANDY   5200
ERL11   4155    K0020   0025    LOCO    4222    READ0   1316
ERL12   4154    K0040   0026    LOCP    5423    READ1   1342
ERL13   4153    K0070   0027    LOCSET  5326    REDO    5137
ERL14   4152    K0077   0030    LOK     2657    REGA    0145
ERL15   4151    K0100   0031    LPOINT  0065    REGB    0146
ERL16   4150    K0177   0032    LREG    0064    REGC    0147
ERL17   4147    K0207   0033    LREG1   0013    REGCN   0150
ERL2    4164    K0212   5175    LSET    0050    REGD    0151
ERL3    4163    K0215   5174    LSKP    0456    REGE    0152
ERL36   2661    K0400   0034    LSTERR  0115    RELOC   5261
ERL4    4162    K1026   0035    M40     5177    RELOCR  0153
ERL5    4161    K1777   0036    M4444   5173    RELPNT  0154
ERL6    4160    K2000   0037    MSTART  0177    RETURN  0155
ERL7    4157    K240    5176    NBNK    2611    RNA     5240
ERR10   2505    K5252   0076    NERROR  0116    RNB     5241
ERR11   2504    K6220   0077    NERRQS  5000    RNC     5242
ERR12   2503    K7774   0100    NOW1    0374    RND     5243
ERR13   2502    KCDF    0101    NOW2    0452    ROL     0240
ERR14   2501    KCIF    0102    OCTYP   5132    ROR     0300
ERR15   2500    KHLT    0103    OK35    2516    SET     0060
ERR16   2477    KIOB    0105    PASPNT  4223    SETFLG  0156
ERR17   2476    KIOF    0106    PASS    4206    SPACE   0157
ERROR   0071    KLDF    0104    PASSN   0117    SR0     1500
ERRORS  5021    KLIF    0111    PBANK   0120    STA     1040
EX29    1725    KLJMP   0112    PDP     0002    START   0200
EXAUT   2653    KLNOP   0107    PICKUP  5321    STC     4000
EXC12   1763    KRIF    0110    PICSET  5340    TST01   0213
EXC13   1922    LAUTO   4220    PINT    0014    TST01M  5475
EXCREL  5323    LBANK   0113    PINTR   0000    TST02   0240
```

TST02M	5527	TST25M	6631
TST03	0265	TST26	1514
TST03M	5561	TST26M	6664
TST04	0315	TST27	1556
TST04M	5613	TST27M	6721
TST05	0345	TST27N	0165
TST05M	5645	TST28	1613
TST06	0413	TST28M	6756
TST06M	5677	TST28N	0166
TST07	0473	TST29	1663
TST07M	5731	TST29M	7013
TST08	0512	TST30	1747
TST08M	5752	TST30M	7054
TST09	0576	TST30N	0167
TST09M	6025	TST30X	1763
TST10	0643	TST32	2033
TST10M	6057	TST32M	7106
TST11	0701	TST32N	0170
TST11M	6123	TST32X	2043
TST12	0746	TST33	2072
TST12A	0755	TST33M	7140
TST12M	6167	TST33N	0171
TST12N	0161	TST34	2152
TST13	1004	TST34M	7201
TST13A	1016	TST34N	0172
TST13M	6225	TST35	2400
TST13N	0162	TST35M	7236
TST14	1044	TST35N	0173
TST14M	6261	TST36	2600
TST15	1064	TST36M	7272
TST15M	6316	TST36X	2530
TST16	1105	TST37M	7323
TST16M	6344	TST9A	0550
TST17	1127	TST9AM	6004
TST17M	6371	TSTINT	0160
TST18	1145	TYPE	0174
TST18M	6415	TYPECH	5077
TST19	1163	TYPOUT	5244
TST19M	6441	XDF33	2120
TST20	1204	XIF33	2121
TST20M	6465	XSK	0220
TST21	123[illegible]		
TST21M	6506		
TST22	1262		
TST22M	6535		
TST23	137		
TST23M	6574		
TST23N	0163		
TST24	1403		
TST24M	6575		
TST24N	0164		
TST25	1446		

ERRORS DETECTED: 0

LINKS GENERATED: 0

RUN-TIME: 25 SECONDS

3K CORE USED