IDENTIFICATION

PRODUCT CODE:	MAINDEC 12-D8CC-D
PRODUCT NAME:	KW12A CLOCK TEST
DATE CREATED:	JUNE 19, 1970
MAINTAINER:	DIAGNOSTIC GROUP
AUTHOR:	HAROLD LONG

1 ABSTRACT

1.1 The KW12 Real Time Clock Test is designed to verify the correct operation of the Buffer Preset Register, Clock Counter Register, Clock Control Register, Clock Enable Register, Clock I/O Inferface, External Input Channels, and Fast Sample Mode (if the AD12 option is concurrently installed.)

1.2 Program Control is maintained by a monitor resident in Bank Ø. Several options are available to the operator for error handling.

2 REQUIREMENTS:

2.1 Equipment:

a) A PDP-12 with KW12 installed.
b) An AD12 Analog-to-Digital Converter if Fast Sample testing is required.
c) An ASR-33 or equivalent.

2.2 Preliminary Programs

a) All Central Processor and Memory Diagnostic Programs for a basic PDP-12 must be able to run successfully prior to testing the KW12.

2.3 Storage:

a) 4K minimum core.
b) Program occupies locations ØØØØ to 76ØØ.

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 procede 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 to START.
d) Set the teletype front panel switch to 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 occured and one might try reloading the binary loader.
k) Remove the program tape from the reader.

4 STARTING PROCEDURES

4.1 Method

a) Set the MODE switch to 8 mode.
b) Set the LEFT switches to ØØØØ.
c) Set the RIGHT switches to the desired options.
d) Depress I/O preset.
e) Depress START 2Ø.
f) The program is now running. The teletype bell will ring at the end of each pass. In addition, the contents of the pass counter will be typed out.

4.2 Switch Settings

a) If Fast Sample testing is to be attempted, set knob Ø fully counterclockwise and knob 1 fully clockwise.
b) Set the selector switches on the front panel to line frequency.
c) Set the input level knobs to mid-range.
d) Select any desired error handler options. With RSW = ØØØØ, the following sequence will occur for an error:
(MESSAGE TYPEOUT...ERROR HALT) the operator selects any further error options and depresses continue...
(MONITOR EXECUTES NEXT SEQUENTIAL TEST)

RSW ØØ = 1, INHIBIT ERROR HALT
RSW Ø1 = 1, INHIBIT ERROR PRINTOUT
RSW Ø2 = 1, SCOPE LOOP ON ERROR
RSW Ø3 = 1, SCOPE LOOP ON NON-FAILING TEST
RSW Ø4 = 1, INHIBIT FAST SAMPLE TESTING
RSW 05 = 1, INHIBIT BELL RINGING
RSW 06 = 1, INHIBIT PASS COUNTER PRINTOUT

5 ERROR ROUTINE

5.1 Error Printout

a) The error messages have the following general form:

TEST NO. TEST MESSAGE
REG1 REG2 REG3 ...

b) TEST NO. refers to the test number as organized in the listing. This is included to aid the operator in finding the test in the listing.

c) TEST MESSAGE is the body of the text, describing what was tested, and indicating any areas of probable failure.

d) REG1, REG2, REG3, are specific data words pertaining to the failure.

5.2 Error Messages

TST1Ø CLAB CHANGED AC
7741 7Ø2Ø
TST11 CLBA FAILED
Ø4Ø2 7Ø2Ø
TST12 CLAB FAILED
Ø4Ø2 7Ø2Ø
TST13 CLAB FAILED
7741 7Ø2Ø
TST14 CLAB FAILED
Ø4Ø2 7Ø2Ø
TST15 CLBA CHANGED BUFFER
Ø4Ø2 7Ø2Ø
TST16 CLAB < > CLBA FAILED
7741 7Ø2Ø
TST17 CLAB < > CLBA FAILED
Ø4Ø2 7Ø2Ø
TST18 CLAB < > CLBA FAILED
Ø4Ø2 7Ø2Ø
TST19 CLEN CHANGED AC
7741 7Ø2Ø
TST2Ø CLEN CHANGED BUFFER
7741 7Ø2Ø
TST21 CLCA FAILED
Ø4Ø2 7Ø2Ø
TST22 "CLR CNT" FAILED
Ø4Ø2 7Ø2Ø
TST23 CLEN FAILED
7741 7Ø2Ø
TST24 CLEN FAILED
Ø4Ø2 7Ø2Ø
TST25 CLCA CHANGES COUNT
Ø4Ø2 7Ø2Ø
TST26 BUFFER < > COUNTER FAILED
Ø4Ø2 7Ø2Ø
TST27 "LOAD CNT" FAILS TO "OR"

```
Ø4Ø2 7Ø2Ø
TST28 "LOAD CNT" LOADED IN ERROR
Ø4Ø2 7Ø2Ø
TST29 "LOAD CNT" LOADED IN ERROR
Ø4Ø2 7Ø2Ø
TST3Ø MODE REG CAUSES "LOAD CNT"
Ø4Ø2 7Ø2Ø
TST31 MODE REG CAUSES "LOAD CNT" OR "CLR BUF"
Ø4Ø2 7Ø2Ø ØØØØ
TST32 MODE 2:  1>Ø CLOCKED CNTR
Ø4Ø2 7Ø2Ø
TST33 MODE 2: Ø>1 CLOCKED CNTR
ØØØØ 7Ø2Ø
TST34 O'FLO   FAILED TO SET O'FLO FLOP
TST35 CLSA FAILED TO CELEAR O'FLO FLOP

TST36 CLSK SKIPPED IN ERROR

TST37 ILLEGAL CLOCK INTERRUPT!

TST38 CLSK FAILED TO SKIP

TST39 CLOCK INTERRUPT FAILED

TST4Ø O'FLO ENABLE WON'T ZERO

TST41 O'FLO FLAG WON'T CLEAR

TST42 CLOCK INTR WON'T CLEAR

TST43 BIT 11 FAILED.
Ø4Ø2 7Ø2Ø
TST44 BIT 1Ø FAILED.
Ø4Ø2 7Ø2Ø
TST45 BIT Ø9 FAILED.
Ø4Ø2 7Ø2Ø
TST46 BIT Ø8 FAILED.
Ø4Ø2 7Ø2Ø
TST47 BIT Ø7 FAILED.
Ø4Ø2 7Ø2Ø
TST48 BIT Ø6 FAILED.
Ø4Ø2 7Ø2Ø
TST49 BIT Ø5 FAILED.
Ø4Ø2 7Ø2Ø
TST5Ø BIT Ø4 FAILED.
Ø4Ø2 7Ø2Ø
TST51 BIT Ø3 FAILED.
Ø4Ø2 7Ø2Ø
TST52 BIT Ø2 FAILED.
Ø4Ø2 7Ø2Ø
TST53 BIT Ø1 FAILED.
Ø4Ø2 7Ø2Ø
```

TST54 BIT ØØ FAILED.
Ø4Ø2 7Ø2Ø
TST55 RATE 4ØØKC FAILS

TST56 RATE 1ØØKC FAILS

TST57 RATE 1ØKC. FAILS

TST58 RATE 1KC FAILS

TST58 RATE 1ØØCPS FAILS

TST6Ø
CHAN 1 INPUT LOCKED OUT

TST61 CHAN 3 WON'T TOGGLE
Ø4Ø2 7Ø2Ø
TST62 CHAN 2 WON'T TOGGLE
Ø4Ø2 7Ø2Ø
TST63 CHAN 1 WON'T TOGGLE
Ø4Ø2 7Ø2Ø
TST64 CHAN 1 WON'T INTR

TST65 CHAN 1 INTR IN ERROR

TST66 CHAN 2 WON'T INTR.
Ø4Ø2 7Ø2Ø
TST67 CHAN 2 INTR IN ERROR

TST68 CHAN 3 WON'T INTR.
Ø4Ø2 7Ø2Ø
TST69 CHAN 3 INTR IN ERROR

TST7Ø CHAN 3 INPUT LINE FREQ FAILED
7Ø2Ø
TST71 CHAN 2 INPUT LINE FREQ FAILED
7Ø2Ø
TST72 CHAN 1 INPUT LINE FREQ FAILED
7Ø2Ø
TST73 FAST SAM FAILS
Ø4Ø2 7Ø2Ø
TST74 O'FLO WON'T FAST SAO
Ø4Ø2 7Ø2Ø
TST75 FAST SAM WON'T SET
Ø4Ø2 7Ø2Ø
TST76 MODES 2-1 INHIBIT FAST SAM
Ø4Ø2 7Ø2Ø
TST77 RATE 1ØKC FAILS
Ø4Ø2
TST78 I/O PRESET WON'T STOP CLOCK
(RATE BITS 1 & 2)

TST79 1KC FAILS
Ø4Ø2

TST8Ø I/O PRESET WON'T STOP CLOCK
(RATE BIT Ø)

TST81 I/O PRESET WON'T CLEAR O'FLO

TST82 I/O PRESET WON'T CLEAR INTERRUPT ENABLE

TST83 I/O PRESET WON'T CLEAR INPUTS

TST84 I/O PRESET WON'T CLEAR MODE 2

TST85 I/O PRESET WON'T CLEAR MODE Ø

TST86 FAST SAM NOT CLEARED

TST87 CHAN 1 WON'T TRANS CNT TO BUF
Ø2ØØ
TST88 CHAN 2 WON'T TRANS CNT TO BUF
Ø2ØØ
TST89 CAAN 3 WON'T TRANS CNT TO BUF
Ø2ØØ
TST9Ø CHAN 1 WON'T TRANS CNT TO BUF
Ø3ØØ
TST91 CHAN 2 WON'T TRANS CNT TO BUF
Ø3ØØ
TST92 CHAN 3 WON'T TRANS CNT TO BUF
Ø3ØØ
TST93 CHA3 INPUT FAILED TO CLR CNT
7Ø2Ø
TST94 ECO EM-ØØØ34 IS EITHER NOT WORKING OR NOT
INSTALLED
KW12 PASS-ØØØØ

APPENDIX A

PDP-8 MODE PERFORATED-TAPE LOADER

READIN MODE LOADER

The readin mode (RIM) loader is a minimum length, basic, perforated-tape program for the 33 ASR. It is initially stored in memory by manual use of the operator console keys and switches. The loader is permanently stored in 18 locations of page 37.

The RIM loader can only be used in conjunction with the 33ASR reader (not the high-speed perforated-tape reader). Because a tape in RIM format is, in effect, twice as long as it need be, it is suggested that the RIM loader be used only to read the binary loader when using the 33 ASR. (NOTE: Some PDP-12 diagnostic program tapes are in RIM format).

The complete PDP-12 RIM loader (SA=7756) is as follows:

Absolute Address	Octal Content	Tag	Instruction I Z	Comments
7756	6032	BEG,	KCC	/CLEAR AC AND FLAG
7757	6031		KSF	/SKIP IF FLAG=1
7760	5357		JMP-1	/LOOKING FOR CHARACTER
7761,	6036		KRB	/READ BUFFER
7762,	7106		CLL RTL	
7763,	7006		RTL	/CHANNEL 8 IN ACO
7764,	7510		SPA	/CHECKING FOR LEADER
7765,	5357		JMP BEG+1	/FOUND LEADER
7766,	7006		RTL	/OK, CHANNEL 7 IN LINK
7767,	6031		KSF	
7770,	5367		JMP-1	
7771,	6034		KRS	/READ, DO NOT CLEAR
7772,	7420		SNL	/CHECKING FOR ADDRESS
7773,	3776		DCA 1 TEMP	/STORE CONTENT
7774,	3376		DCA TEMP	/STORE ADDRESS
7775,	5356		JMP BEG	/NEXT WORD
7776,	0	TEMP,	0	/TEMP STORAGE
7777	5XXX		JMP X	/JMP START OF BIN LOADER

Placing the RIM loader in core memory by way of the operator console keys and switches is accomplished as follows:

a. Set the starting address 7756 in the LEFT switches.
b. Set the first instruction (6032) in the RIGHT switches.
c. Press the FILL switch, then press FILL STEP.
d. Set the next instruction (6031) in the RIGHT switches.
e. Press the FILL STEP switch.
f. Repeat steps d and e until all 16 instructions have been deposited.

To lead a tape in RIM format, place the tape in the reader, set the LEFT switches to the starting address 7756 of the RIM loader (not of the program being read), press the START LS key, and start the Teletype reader.

BINARY FORMAT PERFORATED TAPE LOADER

Once the RIM loader is in core, place the binary loader program tape on the teletype reader and turn the reader on. Set the LEFT switches to 7756, depress I/O preset with the mode switch in 8 mode, then depress START LS. The binary tape will read into core. The reader must be turned off manually as the tape reaches the end, since RIM does not stop.

ph

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                /PDP-12 KW12A CLOCK TEST, MAINDEC 12-D8CC-L
                /COPYRIGHT 1970, DIGITAL EQUIPMENT CORP., MAYNARD, MASS.
                /THIS TEST IS DESIGNED TO VERIFY PROPER OPERATION
                /OF THE KW12A REAL TIME CLOCK AND TO DIAGNOSE
                /MALFUNCTIONS IN REGISTERS, REGISTER TRANSFERS, IO
                /BUS INTERFACE, AND EXTERNAL INPUT CHANNELS.
                /
                /AUTHORS: JAMES KELLY, STEVE TEICHER, HAROLD LONG
                /
                /MAJOR START
                /I/O PRESET & MODE
                /SET LEFT SWITCHES TO 0000
                /SET RIGHT SWITCHES TO DESIRED OPTIONS
                /DEPRESS START 20
                /
                /SWITCH SETTINGS: (NORMALLY 0000)
                /RSW 00=1, INHIBIT ERROR HALT
                /RSW 01=1, INHIBIT ERROR PRINTOUT
                /RSW 02=1, SCOPE LOOP ON FAILING TEST
                /RSW 03=1, SCOPE LOOP ON NON-FAILING TEST
                /RSW 04=1, INHIBIT FAST SAMPLE TESTING.
                /RSW 05=1, INHIBIT BELL RINGING
                /RSW 06=1, INHIBIT TEST COMPLETION ALARM
                /
                /SOME IOT DEFINITIONS:
                /
6131    CLSK=6131                       /SKIP ON CLOCK INTERRUPT
6132    CLLR=6132                       /AC TO CLOCK CONTROL REGISTER
6133    CLAB=6133                       /AC TO BUFFER PRESET REGISTER
6134    CLEN=6134                       /AC TO CLOCK ENABLE REGISTER
6135    CLSA=6135                       /CLOCK STATUS TO AC, CLEAR STATUS FLIP-FLOPS
6136    CLBA=6136                       /BUFFER PRESET REGISTER TO AC
6137    CLCA=6137                       /COUNTER TO AC
                /
0000    EXIT=0000                       /MESSAGE TERMINATOR
7777    EXITA=7777                      /MESSAGE SWITCH
4444    EXITB=4444                      /RESTART SWITCH
                /
                /SOME LINC PROGRAMMING DEFINITIONS:
                /
6141    LINC=6141
0002    PDP=0002
0011    CLR=0011
0004    ESF=0004
0100    SAM0=0100
0101    SAM1=0101
1020    LDAI=1020
```

```
                0001    *1
0001    5452            JMP I   RETURN          /INTERRUPT RETURN HANDLER
                0010    *10
0010    0000    PINT,   0
                0020    *20
0020    5177    JMP     177                     /MAJOR START & MODE
                /
                /PAGE 0 REGISTERS AND CROSS-PAGE TAGS
                /
0021    5200    BELL,   BELLS
0022    1572    DN43,   BK43
0023    1775    DN47,   BK47
0024    2373    DN55,   BK55
0025    0000    CNTR,   0000
0026    5020    ERROR,  ERRORS
0027    0000    LSTERR, 0000
0030    5000    NERROR, NERROS
0031    5051    OUTPAS, ASCII
0032    0000    PASS,   0000
0033    1440    PNTA,   LOCA
0034    1472    PNTB,   LOCB
0035    1542    PNTC,   LOCC
0036    2731    PNTD,   LOCD
0037    2753    PNTE,   LOCE
0040    2774    PNTF,   LOCF
0041    3016    PNTG,   LOCG
0042    3040    PNTH,   LOCH
0043    3062    PNTI,   LOCI
0044    4332    PNTJ,   LOCJ
0045    5210    RANDOM, RANDY
0046    0000    REGA,   0000
0047    0000    REGB,   0000
0050    0000    REGC,   0000
0051    0000    REGT,   0000
0052    0000    RETURN, 0000
0053    0000    RXED,   0000
0054    0000    SEND,   0000
0055    5252    SET,    SETN
0056    0000    SPACE,  0000
0057    1343    TST35N, TST35-2
0060    2764    TST66N, TST66
0061    3024    TST75N, TST75
0062    3406    TST77N, TST77
0063    3453    TST79N, TST79
0064    4120    TST90N, TST90
0065    5243    TYPE,   TYPOUT
0066    1603    UP43,   FD43
0067    2403    UP55,   FD55
0070    2630    UP61,   FD61
```

```
                    /
                    /PAGE 0 CONSTANTS
                    /
0071  7770    KPRE,   7770
0072  0100    KENA,   0100
0073  4100    KRTE,   4100
0074  0000    K0000,  0000
0075  0001    K0001,  0001
0076  0002    K0002,  0002
0077  0003    K0003,  0003
0100  0004    K0004,  0004
0101  0007    K0007,  0007
0102  0010    K0010,  0010
0103  0012    K0012,  0012
0104  0014    K0014,  0014
0105  0015    K0015,  0015
0106  0017    K0017,  0017
0107  0020    K0020,  0020
0110  0037    K0037,  0037
0111  0040    K0040,  0040
0112  0060    K0060,  0060
0113  0077    K0077,  0077
0114  0100    K0100,  0100
0115  0177    K0177,  0177
0116  0200    K0200,  0200
0117  0240    K240,   0240
0120  0300    K0300,  0300
0121  0377    K0377,  0377
0122  0400    K0400,  0400
0123  0500    K0500,  0500
0124  0600    K0600,  0600
0125  0700    K0700,  0700
0126  0777    K0777,  0777
0127  1000    K1000,  1000
0130  1026    K1026,  1026
0131  1777    K1777,  1777
0132  2000    K2000,  2000
0133  3000    K3000,  3000
0134  3777    K3777,  3777
0135  4000    K4000,  4000
0136  4100    K4100,  4100
0137  5100    K5100,  5100
0140  5252    K5252,  5252
0141  5555    K5555,  5555
0142  6000    K6000,  6000
0143  7774    K7774,  7774
```

```
                        /
                        /PAGE 0 NEGATIVE CONSTANTS
                        /
0144  7777    M0001,  -1
0145  7776    M0002,  -2
0146  7774    M0004,  -4
0147  7770    M0010,  -10
0150  7760    M0020,  -20
0151  7740    M0040,  -40
0152  7736    M0042,  -42
0153  7700    M0100,  -100
0154  7600    M0200,  -200
0155  7400    M0400,  -400
0156  7000    M1000,  -1000
0157  6400    M1400,  -1400
0160  6000    M2000,  -2000
0161  4000    M4000,  -4000
0162  3334    M4444,  -4444
0163  2400    M5400,  -5400
```

```
                0176    *176
0176    7410            SKP                     /RESTART ADDRESS; DON'T CLEAR COUNTERS
0177    4455            JMS I   SET             /RESET BUFFERS, COUNTERS
                0200    *200
                        /MAJOR START & MODE, AC=0
                        /TEST BUFFER AND PRESET REGISTER DATA INTERCHANGE
                        /CLAB=6133  AC TO CLOCK PRESET REGISTER
                        /CLBA=6136  CLOCK PRESET REGISTER TO AC
                        /
                        /DOES AC CHANGE AFTER A TRANSFER TO BUFFER REG?
                        /
0200    4421            JMS I   BELL            /RING BELL
0201    7300    TST10,  CLA CLL                 /CLEAR AC
0202    1046            TAD     REGA            /GET A NUMBER=BINARY UPCOUNT SEQUENCE 0 THRU 7777
0203    6133            CLAB                    /LOAD BUFFER
0204    3053            DCA     RXED            /STORE WHAT WAS LEFT IN AC
0205    1053            TAD     RXED            /FETCH IT
0206    7041            CIA                     /INVERT CONTENTS OF AC
0207    1046            TAD     REGA            /SUBTRACT SEND
0210    7650            SNA CLA                 /EQUAL?
0211    4430            JMS I   NERROR          /CHECK MONITOR
0212    4426            JMS I   ERROR           /CLAB CHANGED AC.
0213    5261            TST10M                  /MESSAGE POINTER
0214    7402            HLT                     /ERROR HALT
0215    7610            SKP CLA                 /TO NEXT TEST
0216    0201            TST10                   /ISZ LOOP; SCOPE LOOP
                        /
                        /DOES BUFFER DATA JAM INTO THE AC?
                        /
0217    7300    TST11,  CLA CLL                 /CLEAR AC
0220    3054            DCA     SEND            /0 SEND REG
0221    6133            CLAB                    /SET BUFFER AND PRESET REGISTER TO 0000
0222    7240            CLA CMA                 /SET AC TO 7777
0223    6136            CLBA                    /JAM BUFFER PRESET (0000) OVER AC (7777
0224    3053            DCA     RXED            /SAVE AC
0225    1053            TAD     RXED            /RESTORE AC
0226    7650            SNA CLA                 /DID AC BECOME (0000)?
0227    4430            JMS I   NERROR          /CHECK MONITOR
0230    4426            JMS I   ERROR           /CLBA FAILED TO JAM THE AC
0231    5301            TST11M                  /MESSAGE POINTER
0232    7402            HLT                     /ERROR HALT
0233    7610            SKP CLA                 /TO NEXT TEST
0234    0217            TST11                   /ISZ LOOP; SCOPE LOOP
```

```
                        /
                        /DOES THE AC JAM INTO THE BUFFER?
                        /
0235  7240    TST12,    CLA CMA                 /SET AC=7777
0236  6133              CLAB                    /SET BUFF=7777
0237  7300              CLA CLL                 /CLEAR AC
0240  6133              CLAB                    /LOAD BUFFER TO ALL ZEROS
0241  3054              DCA     SEND            /SAVE AC
0242  6136              CLBA                    /READ BUFFER AND PRESET REGISTER
0243  3053              DCA     RXED            /SAVE TEST VALUE
0244  1053              TAD     RXED            /RESTORE IT
0245  7650              SNA CLA                 /DID BUFFER AND PRESET REGISTER GET CLEARED
0246  4430              JMS I   NERROR          /CHECK MONITOR
0247  4426              JMS I   ERROR           /AC JAM INTO BUFFER FAILED
0250  5317              TST12M                  /MESSAGE POINTER
0251  7402              HLT                     /ERROR HALT
0252  7610              SKP CLA                 /TO NEXT TEST
0253  0235              TST12                   /ISZ LOOP! SCOPE LOOP
                        /
                        /DO ALL NUMBERS TRANSFER BETWEEN AC AND BUFFER PROPERLY?
                        /
0254  7300    TST13,    CLA CLL                 /CLEAR AC
0255  1046              TAD     REGA            /GET TEST NUMBER
0256  6133              CLAB                    /SEND IT
0257  7200              CLA                     /CLEAR AC
0260  6136              CLBA                    /RETRIEVE IT
0261  3053              DCA     RXED            /SAVE IT
0262  1053              TAD     RXED            /RESTORE IT
0263  7041              CIA                     /COMPLEMENT
0264  1046              TAD     REGA            /ADD TEST NUMBER
0265  7650              SNA CLA                 /WERE THEY EQUAL?
0266  4430              JMS I   NERROR          /CHECK MONITOR
0267  4426              JMS I   ERROR           /AC = BUFFER TO AC DATA TRANSFER FAILED
0270  5335              TST13M                  /MESSAGE POINTER
0271  7402              HLT                     /ERROR HALT
0272  7610              SKP CLA                 /TO NEXT TEST
0273  0254              TST13                   /ISZ LOOP! SCOPE LOOP
```

```
                        /
                        /DO RANDOM NUMBERS TRANSFER BETWEEN AC AND BUFFER PROPERLY?
                        /
0274  4445    TST14,    JMS I   RANDOM          /LOAD BUFFER AND PRESET REGISTER WITH A RANDOM NUMBER
0275  3054              DCA     SEND            /SAVE IT
0276  1054              TAD     SEND            /RESTORE IT
0277  6133              CLAB                    /SEND IT
0300  4445              JMS I   RANDOM          /LOAD THE AC WITH A RANDOM NUMBER
0301  6136              CLBA                    /READ BACK RANDOM NUMBER FROM BUFFER PRESET REGISTER
0302  3053              DCA     RXED            /SAVE TEST RETURN
0303  1053              TAD     RXED            /RESTORE IT
0304  7041              CIA                     /COMPLEMENT
0305  1054              TAD     SEND            /SUBTRACT TEST NUMBER
0306  7650              SNA CLA                 /EQUAL?
0307  4430              JMS I   NERROR          /CHECK MONITOR
0310  4426              JMS I   ERROR           /AC = BUFFER = AC DATA INTERCHANGE FAILED
0311  5353              TST14M                  /MESSAGE POINTER
0312  7402              HLT                     /ERROR HALT
0313  7610              SKP CLA                 /TO NEXT TEST
0314  0274              TST14                   /ISZ LOOP) SCOPE LOOP
                        /
                        /DOES READING THE BUFFER CHANGE ITS CONTENTS?
                        /
0315  4445    TST15,    JMS I   RANDOM          /GET RANDOM NUMBER
0316  3054              DCA     SEND            /SAVE IT
0317  1054              TAD     SEND            /RESTORE IT
0320  6133              CLAB                    /SEND IT
0321  4445              JMS I   RANDOM          /LOAD AC WITH A RANDOM NUMBER
0322  6136              CLBA                    /BRING BACK TEST NUMBER
0323  4445              JMS I   RANDOM          /LOAD AC WITH A RANDOM NUMBER
0324  6136              CLBA                    /READ BUFFER AGAIN
0325  3053              DCA     RXED            /SAVE TEST VALUE
0326  1053              TAD     RXED            /RESTORE IT
0327  7041              CIA                     /COMPLEMENT
0330  1054              TAD     SEND            /SUBTRACT TEST NUMBER
0331  7650              SNA CLA                 /EQUAL
0332  4430              JMS I   NERROR          /CHECK MONITOR
0333  4426              JMS I   ERROR           /CLBA CHANGED THE CONTENTS OF THE BUFFER
0334  5371              TST15M                  /MESSAGE POINTER
0335  7402              HLT                     /ERROR HALT
0336  7610              SKP CLA                 /TO NEXT TEST
0337  0315              TST15                   /ISZ LOOP) SCOPE LOOP
```

```
                    /
                    /CAN THE GATES FUNCTION AT HIGH SPEED?
                    /
0340  7300  TST16,  CLA CLL                 /CLEAR AC
0341  1046        TAD     REGA            /GET TEST NUMBER
0342  6133        CLAB                    /SEND IT
0343  6136        CLBA                    /GET IT
0344  6133        CLAB
0345  6136        CLBA
0346  6133        CLAB
0347  6136        CLBA
0350  6133        CLAB
0351  6136        CLBA
0352  6133        CLAB
0353  6136        CLBA
0354  6133        CLAB
0355  6136        CLBA
0356  6133        CLAB
0357  6136        CLBA
0360  6133        CLAB
0361  6136        CLBA
0362  6133        CLAB
0363  6136        CLBA
0364  6133        CLAB
0365  6136        CLBA
0366  6133        CLAB                    /SEND IT
0367  6136        CLBA                    /GET IT
0370  3053        DCA     RXED            /SAVE IT
0371  1053        TAD     RXED            /FETCH IT
0372  7041        CIA                     /2'S COMPLEMENT
0373  1046        TAD     REGA            /COMPARE
0374  7650        SNA CLA                 /EQUAL?
0375  4430        JMS I   NERROR         /CHECK MONITOR
0376  4426        JMS I   ERROR          /BUF FAILED TO TOGGLE AT HIGH SPEED
0377  5413        TST16M                  /MESSAGE POINTER
0400  7402        HLT                     /ERROR HALT
0401  7610        SKP CLA                 /TO NEXT TEST
0402  0340        TST16                   /ISZ LOOP: SCOPE LOOP
```

```
                    /
                    /CAN THE BUFFER SURVIVE CHECKERBOARD?
                    /
0403  7300  TST17,  CLA CLL                 /CLEAR AC
0404  1140        TAD     K5252           /GET TEST PATTERN
0405  3054        DCA     SEND            /SAVE TEST PATTERN
0406  1054        TAD     SEND            /RESTORE IT
0407  6133        CLAB                    /SEND IT
0410  6136        CLBA                    /GET IT
0411  7040        CMA
0412  6133        CLAB
0413  6136        CLBA
0414  7040        CMA
0415  6133        CLAB
0416  6136        CLBA
0417  7040        CMA
0420  6133        CLAB
0421  6136        CLBA
0422  7040        CMA
0423  6133        CLAB
0424  6136        CLBA
0425  7040        CMA
0426  6133        CLAB
0427  6136        CLBA
0430  7040        CMA
0431  6133        CLAB
0432  6136        CLBA
0433  7040        CMA
0434  6133        CLAB
0435  6136        CLBA
0436  7040        CMA
0437  6133        CLAB
0440  6136        CLBA
0441  7040        CMA
0442  6133        CLAB
0443  6136        CLBA
0444  7040        CMA
0445  6133        CLAB
0446  6136        CLBA
0447  7040        CMA
0450  6133        CLAB
0451  6136        CLBA                    /SEND IT
0452  7040        CMA                     /GET IT
0453  3053        DCA     RXED            /SAVE FINAL PATTERN
0454  1053        TAD     RXED            /RESTORE IT
0455  7041        CIA                     /COMPLEMENT
0456  1054        TAD     SEND            /SUBTRACT TEST PATTERN
0457  7650        SNA CLA                 /EQUAL?
0460  4430        JMS I   NERROR          /CHECK MONITOR
0461  4426        JMS I   ERROR           /BUFFER FAILED CHECKBOARD TEST
0462  5434        TST17M                  /MESSAGE POINTER
0463  7402        HLT                     /ERROR HALT
0464  7610        SKP CLA                 /TO NEXT TEST
0465  5403        TST17                   /ISZ LOOP: SCOPE LOOP
```

```
                    /
                    /CAN THE BUFFER SURVIVE RANDOM COMPLEMENT PATTERNS?
                    /
0466  4445  TST18,  JMS I   RANDOM          /GENERATE A RANDOM NUMBER
0467  3054          DCA     SEND            /SAVE IT
0470  1054          TAD     SEND            /RESTORE IT
0471  6133          CLAB                    /SEND IT
0472  6136          CLBA                    /GET IT
0473  7040          CMA
0474  6133          CLAB
0475  6136          CLBA
0476  7040          CMA
0477  6133          CLAB
0500  6136          CLBA
0501  7040          CMA
0502  6133          CLAB
0503  6136          CLBA
0504  7040          CMA
0505  6133          CLAB
0506  6136          CLBA
0507  7040          CMA
0510  6133          CLAB
0511  6136          CLBA
0512  7040          CMA
0513  6133          CLAB
0514  6136          CLBA
0515  7040          CMA
0516  6133          CLAB
0517  6136          CLBA
0520  7040          CMA
0521  6133          CLAB
0522  6136          CLBA
0523  7040          CMA
0524  6133          CLAB
0525  6136          CLBA
0526  7040          CMA
0527  6133          CLAB
0530  6136          CLBA
0531  7040          CMA
0532  6133          CLAB
0533  6136          CLBA                    /SEND IT
0534  7040          CMA                     /GET IT
0535  3053          DCA     RXED            /SAVE FINAL PATTERN
0536  1053          TAD     RXED            /RESTORE IT
0537  7041          CIA                     /COMPLEMENT
0540  1054          TAD     SEND            /SUBTRACT TEST PATTERN
0541  7650          SNA CLA                 /EQUAL?
0542  4430          JMS I   NERROR          /CHECK MONITOR
0543  4426          JMS I   ERROR           /BUFFER FAILED RANDOM COMPLEMENT PATTERN
0544  5455          TST18M                  /MESSAGE POINTER
0545  7402          HLT                     /ERROR HALT
0546  7610          SKP CLA                 /TO NEXT TEST
0547  5466          TST18                   /ISZ LOOP! SCOPE LOOP
```

```
                    /
                    /CLEN=6134 AC TO CLOCK ENABLE REGISTER
                    /DOES CLEN AFFECT THE AC?
                    /
0550  7300    TST19,  CLL CLA                 /CLEAR AC
0551  1046            TAD     REGA            /RESTORE TEST NUMBER
0552  6134            CLEN                    /DOES CLEN AFFECT AC
0553  3053            DCA     RXED            /SAVE AC
0554  1053            TAD     RXED            /RESTORE IT
0555  7041            CIA                     /COMPLEMENT
0556  1046            TAD     REGA            /SUBTRACT TEST NUMBER
0557  7650            SNA CLA                 /EQUAL?
0560  4430            JMS I   NERROR         /CHECK MONITOR
0561  4426            JMS I   ERROR           /AC TO CLOCK ENABLE REG CHANGED AC
0562  5476            TST19M                  /MESSAGE POINTER
0563  7402            HLT                     /ERROR HALT
0564  7610            SKP CLA                 /TO NEXT TEST
0565  0550            TST19                   /ISZ LOOP; SCOPE LOOP
                    /
                    /PRESET REGISTER AND COUNTER DATA INTERCHANGE
                    /CLSA=6135 STATUS REGISTER TO AC
                    /CLLR=6132 AC TO CLOCK CONTROL REGISTER
                    /
                    /DOES BUFFER CHANGE AFTER A TRANSFER TO THE COUNTER?
                    /
0566  7300    TST20,  CLL CLA                 /CLEAR AC
0567  6135            CLSA                    /CLEAR STATUS
0570  7300            CLA CLL                 /CLEAR AC
0571  1046            TAD     REGA            /RESTORE TEST NUMBER
0572  6133            CLAB                    /LOAD BUFFER PRESET REGISTER WITH A BINARY UPCOUNT NUMBER
0573  7300            CLA CLL                 /CLEAR AC
0574  6132            CLLR                    /STOP CLOCK, SET ALL MODES=0
0575  1114            TAD     K0100           /MODE CONTROL REG BIT 2=1
0576  6132            CLLR                    /SET MODE 2, ENABLING CLR LOAD CNT
0577  7200            CLA                     /CLEAR AC
0600  1116            TAD     K0200           /AC BIT 4=1, SIMULATE CLR OFLOW ON 6134
0601  6134            CLEN                    /TRANSER PRESET COUNT TO CLOCK COUNTER
0602  6136            CLBA                    /READ THE BUFFER
0603  3053            DCA     RXED            /SAVE IT
0604  1053            TAD     RXED            /RESTORE IT
0605  7041            CIA                     /COMPLEMENT
0606  1046            TAD     REGA            /SUBTRACT TEST NUMBER
0607  7650            SNA CLA                 /EQUAL?
0610  4430            JMS I   NERROR         /CHECK MONITOR
0611  4426            JMS I   ERROR           /TRANSFER FROM BUFFER TO COUNTER CHANGES BUFFER
0612  5516            TST20M                  /MESSAGE POINTER
0613  7402            HLT                     /ERROR HALT
0614  7610            SKP CLA                 /TO NEXT TEST
0615  0570            TST20+2                 /ISZ LOOP; SCOPE LOOP
```

```
                        /
                        /DOES COUNTER DATA JAM THE BUFFER AND AC?
                        /CLCA=6137 CLOCK COUNTER TO PRESET REGISTER, THEN PRESET REG TO AC
                        /
0616  6135      TST21,  CLSA                    /CLEAR STATUS
0617  7300              CLA CLL                 /CLEAR AC
0620  6133              CLAB                    /LOAD BUFFER TO 0000
0621  6132              CLLR                    /STOP CLOCK, SET ALL MODES=0
0622  1114              TAD     K0100           /SET AC 05=1
0623  6132              CLLR                    /SET MODE 2=1, THEREBY CLEARING CLOCK COUNTER
0624  6134              CLEN                    /ENABLE INTERRUPT ON OVERFLOW
0625  7240              CLA CMA                 /SET AC 7777
0626  3054              DCA     SEND            /SAVE IT
0627  1054              TAD     SEND            /FETCH IT
0630  6133              CLAB                    /SET BUFFER 7777
0631  6137              CLCA                    /READ COUNTER
0632  3053              DCA     RXED            /SAVE COUNT
0633  1053              TAD     RXED            /RESTORE IT
0634  7650              SNA CLA                 /ZERO?
0635  4430              JMS I   NERROR          /CHECK MONITOR
0636  4426              JMS I   ERROR           /COUNTER FAILED TO JAM 0000 INTO 7777
0637  5540              TST21M                  /MESSAGE POINTER
0640  7402              HLT                     /ERROR HALT
0641  7610              SKP CLA                 /TO NEXT TEST
0642  0616              TST21                   /ISZ LOOP: SCOPE LOOP
                        /
                        /DOES SIGNAL CLR CNT WORK
                        /
0643  6135      TST22,  CLSA                    /CLEAR STATUS
0644  7350              CLA CMA CLL RAR         /SET AC=3777
0645  3054              DCA     SEND            /SAVE AC
0646  1054              TAD     SEND            /FETCH IT
0647  6133              CLAB                    /SET BUFFER TO 3777 (USE 3777 SO WE DON'T SET OVERFLOW FLOP)
0650  7300              CLA CLL                 /CLEAR AC
0651  1116              TAD     K0200           /ENABLE LOAD COUNT GATES
0652  6134              CLEN                    /LOAD COUNTER TO 3777 (GENERATE LOAD CNT)
0653  7300              CLA CLL                 /CLEAR AC
0654  6132              CLLR                    /ZERO MODE 2
0655  1114              TAD     K0100           /SET AC 05=1
0656  6132              CLLR                    /SET MODE 2, THEREBY GENERATING "CLC CLR CNT"
0657  7300              CLA CLL                 /CLEAR AC
0660  6137              CLCA                    /READ THE COUNTER
0661  3053              DCA     RXED            /SAVE IT
0662  1053              TAD     RXED            /RESTORE IT
0663  7650              SNA CLA                 /ZERO?
0664  4430              JMS I   NERROR          /CHECK MONITOR
0665  4426              JMS I   ERROR           /CLR CNT FAILED TO CLEAR THE COUNTER FROM 3777 TO 0000
0666  5556              TST22M                  /MESSAGE POINTER
0667  7402              HLT                     /ERROR HALT
0670  7610              SKP CLA                 /TO NEXT TEST
0671  0643              TST22                   /ISZ LOOP: SCOPE LOOP
```

```
                    /
                    /DO ALL NUMBERS TRANSFER BETWEEN THE BUFFER AND COUNTER?
                    /
0672  6135    TST23,  CLSA                    /CLEAR STATUS
0673  7300            CLA CLL                 /CLEAR AC
0674  1046            TAD     REGA            /LOAD AC WITH TEST NUMBER
0675  6133            CLAB                    /SET BUFFER TO TEST NUMBER
0676  7300            CLA CLL                 /CLEAR AC
0677  6132            CLLR                    /STOP CLOCK, SET ALL MODES=0
0700  1114            TAD     K0120           /SET AC 05=1
0701  6132            CLLR                    /GENERATE "CLR CNT"
0702  7200            CLA                     /CLEAR AC
0703  1116            TAD     K0200           /SET AC 04=1
0704  6134            CLEN                    /GENERATE "LOAD CNT"
0705  6137            CLCA                    /COUNTER TO AC
0706  3053            DCA     RXED            /SAVE IT
0707  1053            TAD     RXED            /RESTORE IT
0710  7041            CIA                     /COMPLEMENT
0711  1046            TAD     REGA            /SUBTRACT TEST NUMBER
0712  7650            SNA CLA                 /EQUAL?
0713  4430            JMS I   NERROR          /CHECK WITH MONITOR
0714  4426            JMS I   ERROR           /BUFFER TO COUNTER DATA INTERCHANGE FAILED
0715  5576            TST23M                  /MESSAGE POINTER
0716  7402            HLT                     /ERROR HALT
0717  7610            SKP CLA                 /TO NEXT TEST
0720  0672            TST23                   /ISE LOOP; SCOPE LOOP
```

```
                    /
                    /DO RANDOM NUMBERS TRANSFER BETWEEN BUFFER AND COUNTER?
                    /
0721  4445  TST24,  JMS I   RANDOM          /GET RANDOM NUMBER
0722  6133          CLAB                    /LOAD BUFFER RANDOM
0723  3054          DCA     SEND            /SAVE TEST NUMBER
0724  6135          CLSA                    /CLEAR CLOCK STATUS
0725  7200          CLA                     /CLEAR AC
0726  6132          CLLR                    /STOP CLOCK, SET ALL MODES=0
0727  1114          TAD     K0100           /SET AC 05=1
0730  6132          CLLR                    /GENERATE "CLR CNT"
0731  7200          CLA                     /CLEAR AC
0732  1116          TAD     K0200           /SET AC 04=1
0733  6134          CLEN                    /GENERATE "LOAD CNT"
0734  4445          JMS I   RANDOM          /GET RANDOM NUMBER
0735  6133          CLAB                    /LOAD BUFFER RANDOM
0736  4445          JMS I   RANDOM          /LOAD AC RANDOM
0737  6137          CLCA                    /READ COUNTER
0740  3053          DCA     RXED            /SAVE TEST VALUE
0741  1053          TAD     RXED            /RESTORE IT
0742  7041          CIA                     /COMPLEMENT
0743  1054          TAD     SEND            /SUBTRACT TEST NUMBER
0744  7650          SNA CLA                 /EQUAL?
0745  4430          JMS I   NERROR         /CHECK MONITOR
0746  4426          JMS I   ERROR          /BUFFER TO COUNTER RANDOM DATA INTERCHANGE FAILED
0747  5614          TST24M                  /MESSAGE POINTER
0750  7402          HLT                     /ERROR HALT
0751  7610          SKP CLA                 /TO NEXT TEST
0752  0721          TST24                   /ISZ LOOP; SCOPE LOOP
```

```
                        /
                        /DOES READING THE COUNTER CHANGE ITS STATE?
                        /
0753  4445  TST25,  JMS I   RANDOM          /GET RANDOM TEST NUMBER
0754  6133          CLAB                    /SEND IT TO BUFFER
0755  3054          DCA     SEND            /SAVE IT
0756  6132          CLLR                    /STOP CLOCK, SET ALL MODES=0
0757  1114          TAD     K0100           /SET AC 05=1
0760  6132          CLLR                    /GENERATE "CLR CNT"
0761  6135          CLSA                    /CLEAR CLOCK STATUS
0762  7200          CLA                     /CLEAR AC
0763  1116          TAD     K0200           /SET AC 04=1
0764  6134          CLEN                    /GENERATE "LOAD CNT"
0765  4445          JMS I   RANDOM          /GET RANDOM NUMBER
0766  6133          CLAB                    /SEND IT TO BUFFER
0767  4445          JMS I   RANDOM          /GET RANDOM NUMBER
0770  6137          CLCA                    /READ CLOCK COUNTER
0771  4445          JMS I   RANDOM          /GET RANDOM NUMBER
0772  6133          CLAB                    /SEND IT TO BUFFER
0773  4445          JMS I   RANDOM          /GET RANDOM NUMBER
0774  6137          CLCA                    /READ CLOCK COUNTER
0775  3053          DCA     RXED            /SAVE IT
0776  1053          TAD     RXED            /RESTORE IT
0777  7041          CIA                     /COMPLEMENT
1000  1054          TAD     SEND            /SUBTRACT TEST NUMBER
1001  7650          SNA CLA                 /EQUAL?
1002  4430          JMS I   NERROR          /CHECK MONITOR
1003  4426          JMS I   ERROR           /(CLCA) READ THE COUNTER CHANGES THE COUNTERS STATE
1004  5632          TST25M                  /MESSAGE POINTER
1005  7402          HLT                     /ERROR HALT
1006  7610          SKP CLA                 /TO NEXT TEST
1007  0753          TST25                   /ISZ LOOP; SCOPE LOOP
1010  7340          CLA CLL CMA             /SET AC=7777
1011  3046          DCA     REGA            /PRESET COUNTER FOR NEXT TEST
```

```
                    /
                    /CAN THE BUF TO COUNTER AND COUNTER TO BUF FUNCTION AT HIGH SPEED?
                    /
1012  4445  TST26,  JMS I   RANDOM          /GET RANDOM NUMBER
1013  6133          CLAB                    /SEND IT TO BUFFER
1014  3054          DCA     SEND            /SAVE IT
1015  7200          CLA                     /CLEAR AC
1016  6132          CLLR                    /STOP CLOCK
1017  1114          TAD     K0100           /SET AC 05=1
1020  6132          CLLR                    /GENERATE "CLR CNT"
1021  6135          CLSA                    /CLEAR CLOCK STATUS
1022  7200          CLA                     /CLEAR AC
1023  1116          TAD     K0200           /SET AC 04=1
1024  6134          CLEN                    /GENERATE "LOAD CNT"
1025  6137          CLCA                    /READ COUNTER
1026  2047          ISZ     REGB            /DONE?
1027  5215          JMP     TST26+3         /BACK TO START 4096 TIMES
1030  3053          DCA     RXED            /SAVE FINAL NUMBER
1031  1053          TAD     RXED            /RESTORE IT
1032  7041          CIA                     /COMPLEMENT
1033  1054          TAD     SEND            /SUBTRACT TEST NUMBER
1034  7650          SNA CLA                 /EQUAL?
1035  4430          JMS I   NERROR          /CHECK MONITOR
1036  4426          JMS I   ERROR           /THE BUFFER COUNTER BUFFER DATA INTERCHANGE FAILED AT HIGH SPEED
1037  5653          TST26M                  /MESSAGE POINTER
1040  7402          HLT                     /ERROR HALT
1041  7010          SKP CLA                 /TO NEXT TEST
1042  1012          TST26                   /ISZ LOOP; SCOPE LOOP
```

```
                    /
                    /DOES (LOAD CNT) PERFORM LOGIC OR?
                    /
1043  7300  TST27,  CLA CLL                 /CLEAR AC
1044  6132        CLLR                    /STOP CLOCK
1045  1114        TAD     K0100           /SET AC 05=1
1046  6132        CLLR                    /GENERATE "CLR CNT"
1047  6135        CLSA                    /CLEAR CLOCK STATUS
1050  4445        JMS I   RANDOM          /GET RANDOM TEST NUMBER
1051  6133        CLAB                    /LOAD BUFFER WITH A RANDOM NUMBER
1052  3054        DCA     SEND            /SAVE IT
1053  1116        TAD     K0200           /SET AC 04=1
1054  6134        CLEN                    /LOAD COUNTER FROM THE BUFFER REGISTER; GENERATE "LOAD CNT"
1055  7300        CLA CLL                 /CLEAR AC
1056  1054        TAD     SEND            /GET TEST NUMBER
1057  7040        CMA                     /INCREMENT
1060  6133        CLAB                    /LOAD BUFFER WITH THE COMPLEMENT OF THE PREVIOUS NUMBER
1061  7300        CLA CLL                 /CLEAR AC
1062  1116        TAD     K0200           /SET AC 04=1
1063  6134        CLEN                    /LOAD COUNTER (OR) IN COMPLEMENT OF THE FIRST NUMBER
1064  6137        CLCA                    /READ COUNTER,
1065  3053        DCA     RXED            /SAVE IT
1066  1053        TAD     RXED            /RESTORE IT
1067  7040        CMA                     /CONVERT TO ALL ZEROS FOR TESTING
1070  7650        SNA CLA                 /ZERO?
1071  4430        JMS I   NERROR          /CHECK MONITOR
1072  4426        JMS I   ERROR           /THE (LOAD CNT) SIGNAL FAILED TO "OR" DATA INTO COUNTER
1073  5676        TST27M                  /MESSAGE POINTER
1074  7402        HLT                     /ERROR HALT
1075  7610        SKP CLA                 /TO NEXT TEST
1076  1043        TS+27                   /ISZ LOOP; SCOPE LOOP
```

```
                    /
                    /TEST LOAD CNT GENERATION GATES (CLR CLOCK RATE) MODE 2 (0)
                    /
1077  7300  TST28,  CLA CLL                  /CLEAR AC
1100  6133        CLAB                      /CLEAR BUFFER
1101  6132        CLLR                      /CLEAR ALL MODES
1102  1114        TAD     K0100             /SET AC 05=1
1103  6132        CLLR                      /GEN. "CLR CNT"
1104  6135        CLSA                      /CLEAR STATUS
1105  4445        JMS I   RANDOM            /GET RANDOM NUMBER
1106  6133        CLAB                      /SEND IT TO BUFFER
1107  3054        DCA     SEND              /SAVE IT
1110  6132        CLLR                      /STOP CLOCK, SET ALL MODES=0
1111  1114        TAD     K0100             /SET AC 05=1
1112  6132        CLLR                      /GENERATE "CLR CNT"
1113  7200        CLA                       /CLEAR AC
1114  6132        CLLR                      /SET ALL MODES=0
1115  1116        TAD     K0200             /SET AC 04=1
1116  6134        CLEN                      /TRY TO GENERATE "LOAD CNT"
1117  6137        CLCA                      /GET COUNTER
1120  3053        DCA     RXED              /SAVE IT
1121  1053        TAD     RXED              /RESTORE IT
1122  7650        SNA CLA                   /WAS IT ZERO?
1123  4430        JMS I   NERROR           /CHECK MONITOR
1124  4426        JMS I   ERROR             /LOAD CNT GATES FUNCTIONED WITH MODE 2=0 IN ERROR
1125  5722        TST28M                    /MESSAGE POINTER
1126  7402        HLT                       /ERROR HALT
1127  7510        SKP CLA                   /TO NEXT TEST
1130  1077        TST28                     /ISZ LOOP: SCOPE LOOP
```

```
                    /
                    /TEST LOAD CNT GENERATION GATES (CLR CLOCK RATE) MODE 1(1)
                    /
1131  4445  TST29,  JMS I   RANDOM          /GET RANDOM NUMBER
1132  6133          CLAB                    /SEND IT TO BUFFER
1133  3054          DCA     SEND            /SAVE IT
1134  1124          TAD     K0600           /SET AC 04,05=1
1135  6132          CLLR                    /GENERATE "CLR CNT", SET MODE 1 AND 2 =1
1136  6135          CLSA                    /CLEAR CLOCK STATUS
1137  7200          CLA                     /CLEAR AC
1140  1116          TAD     K0200           /SET AC 04=1
1141  6134          CLEN                    /TRY TO GENERATE "LOAD CNT"
1142  6137          CLCA                    /READ COUNTER
1143  3053          DCA     RXED            /SAVE TEST VALUE
1144  1053          TAD     RXED            /RESTORE IT
1145  7650          SNA CLA                 /ZERO?
1146  4430          JMS I   NERROR          /CHECK MONITOR
1147  4426          JMS I   ERROR           /LOAD CNT GATES FUNCTIONED WITH MODE 1=1 IN ERROR
1150  5747          TST29M                  /MESSAGE POINTER
1151  7402          HLT                     /ERROR HALT
1152  7610          SKP CLA                 /TO NEXT TEST
1153  1131          TST29                   /ISZ LOOP; SCOPE LOOP
1154  7340          CLA CLL CMA             /SET AC=7777
1155  3046          DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /GLITCH TEST OF LOAD CNT GATES
                    /
1156  4445  TST30,  JMS I   RANDOM          /GET RANDOM NUMBER
1157  6133          CLAB                    /SEND IT TO BUFFER
1160  3054          DCA     SEND            /SAVE IT
1161  1116          TAD     K0200           /SET AC 04=1
1162  6132          CLLR                    /SET MODE 1=1
1163  7200          CLA                     /CLEAR AC
1164  1120          TAD     K0300           /SET AC 04,05=1
1165  6132          CLLR                    /SET MODE 2=1
1166  7200          CLA                     /CLEAR AC
1167  2047          ISZ     REGB            /DONE?
1170  5361          JMP     .-7             /BACK 4096 TIMES
1171  6137          CLCA                    /READ COUNTER
1172  3053          DCA     RXED            /SAVE IT
1173  1053          TAD     RXED            /RESTORE IT
1174  7650          SNA CLA                 /ZERO?
1175  4430          JMS I   NERROR          /CHECK MONITOR
1176  4426          JMS I   ERROR           /THE MODE REGISTER CAUSES ILLEGAL LOAD COUNTER
1177  5774          TST30M                  /MESSAGE POINTER
1200  7402          HLT                     /ERROR HALT
1201  7200          CLA                     /TO NEXT TEST
1202  1156          TST30                   /ISZ LOOP; SCOPE LOOP
1203  7340          CLA CLL CMA             /SET AC=7777
1204  3046          DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                        /
                        /GENERAL GATE SHAKING TEST OF THE MODE FLIP FLOPS
                        /
1225  4445  TST31,  JMS I   RANDOM          /GET RANDOM NUMBER
1226  6133          CLAB                    /SEND IT TO BUFFER
1227  3054          DCA     SEND            /SAVE IT
1230  1047          TAD     REGB            /GET TEST COUNTER
1231  7006          RTL                     /ROTATE TWO LEFT
1232  7006          RTL                     /ROTATE TWO LEFT
1233  7006          RTL                     /ROTATE TWO LEFT
1234  0125          AND     K0700           /INSURE THAT MODE 0,1,2=1
1235  6132          CLLR                    /SEND RANDOM NUMBER TO CONTROL REGISTER
1236  7040          CMA                     /COMPLEMENT
1237  0125          AND     K0700           /INSURE THAT MODE 0,1,2=1
1240  6132          CLLR                    /SET TO COMPLEMENT OF THE NUMBER
1241  2047          ISZ     REGB            /DONE?
1242  5210          JMP     TST31+3         /BACK 4096 TIMES
1243  6136          CLBA                    /GET TEST VALUE FROM BUFFER
1244  3053          DCA     RXED            /SAVE IT
1245  1053          TAD     RXED            /RESTORE IT
1246  7041          CIA                     /COMPLEMENT
1247  1054          TAD     SEND            /SUBTRACT TEST NUMBER
1250  7640          SZA CLA                 /EQUAL?
1251  5237          JMP     .+6             /BUFF CHANGED IN ERROR
1252  6137          CLCA                    /READ COUNTER
1253  3047          DCA     REGB            /SAVE IT
1254  1047          TAD     REGB            /RESTORE IT
1255  7650          SNA CLA                 /STILL ZERO?
1256  4430          JMS I   NERROR          /CHECK MONITOR
1257  4426          JMS I   ERROR           /COUNTER CHANGED IN ERROR
1260  6021          TST31M                  /MESSAGE POINTER
1261  7402          HLT                     /ERROR HALT
1262  7200          CLA                     /TO NEXT TEST
1263  1205          TST31                   /ISZ LOOP; SCOPE LOOP
1264  3047          DCA     REGB            /CLEAR FOR NEXT ISZ LOOP
```

```
                    /
                    /DOES MODE 2 1-0 CLK CNT?
                    /
1245  4445  TST32,  JMS I   RANDOM          /GET RANDOM NUMBER
1246  6133          CLAB                    /SEND IT TO BUFFER
1247  3054          DCA     SEND            /SAVE IT
1250  6132          CLLR                    /ZERO MODE 2
1251  1114          TAD     K0100           /AC 05=1
1252  6132          CLLR                    /GENERATE "CLR CNT"
1253  6135          CLSA                    /CLEAR STATUS
1254  7200          CLA                     /CLEAR AC
1255  1116          TAD     K0200           /SET AC 04=1
1256  6134          CLEN                    /GENERATE "LOAD CNT"
1257  7200          CLA                     /CLEAR AC
1260  6132          CLLR                    /0 MODE 2
1261  6137          CLCA                    /READ COUNTER
1262  3053          DCA     RXED            /SAVE IT
1263  6133          CLAB                    /CLEAR BUF OR OVERFLOW WILL RELOAD CNT
1264  1053          TAD     RXED            /RESTORE IT
1265  7041          CIA                     /COMPLEMENT
1266  1054          TAD     SEND            /SUBTRACT TEST NUMBER
1267  7650          SNA CLA                 /EQUAL?
1270  4430          JMS I   NERROR          /CHECK MONITOR
1271  4426          JMS I   ERROR           /MODE 2 1-0 DID IT
1272  6056          TST32M                  /MESSAGE POINTER
1273  7402          HLT                     /ERROR HALT
1274  7410          SKP                     /TO NEXT TEST
1275  1245          TST32                   /ISZ LOOP! SCOPE LOOP
                    /
                    /DOES MODE 2 0-1 CLOCK CNT?
                    /
1276  1114  TST33,  TAD     K0100           /SET AC 05=1
1277  6132          CLLR                    /GENERATE "CLR CNT"
1300  6137          CLCA                    /READ COUNTER
1301  3053          DCA     RXED            /SAVE IT
1302  1053          TAD     RXED            /RESTORE IT
1303  7650          SNA CLA                 /ZERO?
1304  4430          JMS I   NERROR          /CHECK MONITOR
1305  4426          JMS I   ERROR           /MODE 2 0-1 FAILED
1306  6102          TST33M                  /MESSAGE POINTER
1307  7402          HLT                     /ERROR HALT
1310  7410          SKP                     /TO NEXT TEST
1311  1276          TST33                   /ISZ LOOP! SCOPE LOOP
```

```
                    /
                    /DOES COUNTER OVERFLOW SET OVERFLOW FLOP?
                    /
1312  7300    TST34,  CLA CLL                 /CLEAR AC
1313  6132            CLLR                    /CLEAR STATUS
1314  1114            TAD     K0100           /SET AC 05=1
1315  6132            CLLR                    /0 TO COUNTER
1316  6135            CLSA                    /CLEAR CLOCK STATUS
1317  7330            CLA CLL CML RAR         /SET AC=4000
1320  6133            CLAB                    /SET BUFFER TO 4000
1321  7300            CLA CLL                 /CLEAR AC
1322  1116            TAD     K0200           /SET AC 04=1
1323  6134            CLEN                    /LOAD CNT (00)=1; 1 TO OVERFLOW
1324  7300            CLA CLL                 /CLEAR AC
1325  6133            CLAB                    /CLEAR BUFFER
1326  6132            CLLR                    /CLEAR ALL MODES
1327  1114            TAD     K0100           /SET AC 05=1
1330  6132            CLLR                    /GEN "CLR CNT"
1331  6135            CLSA                    /GET STATUS OF CLOCK
1332  7710            SPA CLA                 /OVERFLOW SET?
1333  4430            JMS I   NERROR          /CHECK MONITOR
1334  4426            JMS I   ERROR           /OVERFLOW NOT SET
1335  6126            TST34M                  /MESSAGE POINTER
1336  7402            HLT                     /ERROR HALT
1337  7410            SKP                     /TO NEXT TEST
1340  1312            TST34                   /ISZ LOOP) SCOPE LOOP
1341  7300            CLA CLL
1342  3054            DCA     SEND            /RESET SEND
1343  7340            CLA CLL CMA             /SET AC=7777
1344  3046            DCA     REGA            /PRESET ISZ COUNTER FOR NEXT TEST
```

```
                    /
                    /DOES CLSA (6135) CLEAR OVERFLOW FLOP?
                    /
1345  7300    TST35,  CLA CLL                 /CLEAR AC
1346  6132            CLLR                    /CLEAR ALL MODES
1347  1114            TAD     K0100           /SET AC 05=1
1350  6132            CLLR                    /GEN "CLR CNT"
1351  6135            CLSA                    /CLEAR CLOCK STATUS
1352  7330            CLA CLL CML RAR         /SET AC=4000
1353  6133            CLAB                    /SET BUF=4000 OCTAL
1354  7300            CLA CLL                 /CLEAR AC
1355  1116            TAD     K0200           /SET AC 04=1
1356  6134            CLEN                    /GEN LOAD CNT
1357  7300            CLA CLL                 /CLEAR AC
1360  6133            CLAB                    /ZERO BUF.
1361  6132            CLLR                    /CLEAR ALL MODES
1362  1114            TAD     K0100           /SET AC 05=1
1363  6132            CLLR                    /GEN "CLR CNT"
1364  7300            CLA CLL                 /CLEAR AC
1365  6135            CLSA                    /GET STATUS BIT 0=1
1366  7300            CLA CLL                 /CLEAR AC
1367  6135            CLSA                    /GET STATUS BIT 0=0
1370  7700            SMA CLA                 /OVERFLOW SET?
1371  4430            JMS I   NERROR          /CHECK MONITOR
1372  4426            JMS I   ERROR           /CLSA FAILED TO CLEAR OVERFLOW FLOP
1373  6132            TST35M                  /MESSAGE POINTER
1374  7402            HLT                     /ERROR HALT
1375  7410            SKP                     /TO NEXT TEST
1376  1345            TST35                   /ISZ LOOP; SCOPE LOOP
1377  7340            CLA CLL CMA             /SET AC=7777
1400  3046            DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /TEST OVERFLOW SKIP
                    /
1431  7300  TST36, CLA CLL                 /CLEAR AC
1432  6132        CLLR                    /CLEAR ALL MODES
1433  1114        TAD     K0100           /SET AC 09=1
1434  6132        CLLR                    /GEN "CLR CNT"
1435  6135        CLSA                    /CLEAR CLOCK STATUS
1436  7330        CLA CLL CML RAR         /SET AC=4000
1437  6133        CLAB                    /SET BUF=4000 OCTAL
1440  7300        CLA CLL                 /CLEAR AC
1441  1116        TAD     K0200           /SET AC 04=1
1442  6134        CLEN                    /GEN LOAD CNT
1443  7300        CLA CLL                 /CLEAR AC
1444  6133        CLAB                    /CLR BUF.
1445  6132        CLLR                    /CLEAR ALL MODES
1446  1114        TAD     K0100           /AC 09=1
1447  6132        CLLR                    /GEN "CLR CNT"
1450  7300        CLA CLL                 /CLEAR AC
1451  6131        CLSK                    /OVERFLOW SET?
1452  4430        JMS I   NERROR          /CHECK MONITOR
1453  4426        JMS I   ERROR           /CLOCK PRESET DIDN'T 0 OVERFLOW ENABLE
1454  6177        TST3OH                  /MESSAGE POINTER
1455  7402        HLT                     /ERROR HALT
1456  7410        SKP                     /TO NEXT TEST
1457  1431        TST36                   /ISZ LOOP; SCOPE LOOP
1460  7340        CLA CLL CMA             /SET AC=7777
1461  3046        DCA     REGA            /RESET REGA FOR NEXT TEST
                    /
                    /TEST FOR NO INTERRUPT
                    /
1462  1033  TST37, TAD     PNTA            /GET RETURN POINTER TO LOCA
1463  3052        DCA     RETURN          /PUT IT IN INTERRUPT HANDLER
1464  6001        ION                     /ENABLE INTERRUPTS
1465  7000        NOP                     /WAIT
1466  6002        IOF                     /DISABLE INTERRUPTS
1467  4430        JMS I   NERROR          /CHECK MONTIOR
1470  4426  LOCA, JMS I   ERROR           /ILLEGAL INTERRUPT OVERFLOW=1 OVERFLOW ENABLE=0
1471  6217        TST37M                  /MESSAGE POINTER
1472  7402        HLT                     /ERROR HALT
1473  7410        SKP                     /TO NEXT TEST
1474  1432        TST37                   /ISZ LOOP; SCOPE LOOP
1475  7340        CLA CLL CMA             /SET AC=7777
1476  3246        DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                        /
                        /SET INT ENABLE
                        /
1447  1114  TST38,  TAD      K3100          /SET AC 05=1
1450  6134           CLEN                   /TURN ON CLOCK OVERFLOW INT
1451  7300           CLA CLL                /CLEAR AC
1452  6131           CLSK                   /INTERRUPT SET?
1453  7410           SKP                    /TO HERE IF INTERRUPT NOT SET
1454  4430           JMS I    NERROR        /CHECK MONITOR
1455  4426           JMS I    ERROR         /CLSK FAILED TO SKIP OVERFLOW=1 EN OVF INT=1
1456  6240           TST38M                 /MESSAGE POINTER
1457  7402           HLT                    /ERROR HALT
1460  7410           SKP                    /TO NEXT TEST
1461  1447           TST38                  /ISZ LOOP! SCOPE LOOP
1462  7340           CLA CLL CMA            /SET AC=7777
1463  3046           DCA      REGA          /PRESET REGA FOR NEXT TEST
                        /
                        /TEST FOR CLOCK INTERRUPT
                        /
1464  1034  TST39,  TAD      PNTB           /GET RETURN POINTER TO LOCB
1465  3052           DCA      RETURN        /PUT IT IN INTERRUPT HANDLER
1466  6001           ION                    /ENABLE INTERRUPTS
1467  7000           NOP                    /WAIT
1470  6002           IOF                    /DISABLE INTERRUPTS
1471  7410           SKP                    /TO HERE IF NO INTERRUPT
1472  4430  LOCB,  JMS I    NERROR         /CHECK WITH MONITOR
1473  4426           JMS I    ERROR         /CLOCK INT FAILED TO INTERRUPT
1474  6257           TST39M                 /MESSAGE POINTER
1475  7402           HLT                    /ERROR HALT
1476  7410           SKP                    /TO NEXT TEST
1477  1464           TST39                  /ISZ LOOP! SCOPE LOOP
1500  7340           CLA CLL CMA            /SET AC=7777
1501  3046           DCA      REGA          /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /TEST WITH FLAG UP ZERO OVERFLOW INT ENABLE
                    /
1502  7300  TST40,  CLA CLL                  /CLEAR AC
1503  6134          CLEN                    /0 CLOCK ENABLE
1504  6131          CLSK                    /INTERRUPT AVAILABLE?
1505  4430          JMS I   NERROR          /CHECK MONITOR
1506  4426          JMS I   ERROR           /OVERFLOW ENABLE WON'T ZERO
1507  6277          TST40M                  /MESSAGE POINTER
1510  7402          HLT                     /ERROR HALT
1511  7410          SKP                     /TO NEXT TEST
1512  1502          TST40                   /ISZ LOOP; SCOPE LOOP
1513  7340          CLL CLA CMA             /SET AC=7777
1514  3046          DCA     REGA            /PRESET REGA FOR NEXT TEST
                    /
                    /TEST WITH FLAG ZERO OVERFLOW SET
                    /
1515  1114  TST41,  TAD     K0100           /SET AC 05=1
1516  6134          CLEN                    /ENABLE INTERRUPTS
1517  7300          CLA CLL                 /CLEAR AC
1520  6132          CLLR                    /STOP THE CLOCK
1521  6135          CLSA                    /READ AND ZERO FLAG
1522  7300          CLA CLL                 /CLEAR AC
1523  6131          CLSK                    /INTERRUPT SET?
1524  4430          JMS I   NERROR          /CHECK MONITOR
1525  4426          JMS I   ERROR           /BAD INTERRUPT CONDITION STILL EXIST'S
1526  6320          TST41M                  /MESSAGE POINTER
1527  7402          HLT                     /ERROR HALT
1530  7410          SKP                     /TO NEXT TEST
1531  1515          TST41                   /ISZ LOOP; SCOPE LOOP
1532  7340          CLA CLL CMA             /SET AC=7777
1533  3046          DCA     REGA            /PRESET REGA FOR NEXT TEST
                    /
                    /TEST INT OVERFLOW=0
                    /
1534  1035  TST42,  TAD     PNTC            /GET RETURN POINTER TO LOCC
1535  3052          DCA     RETURN          /PUT IT IN INTERRUPT HANDLER
1536  6001          ION                     /ENABLE INTERRUPTS
1537  7000          NOP                     /WAIT
1540  6002          IOF                     /DISABLE INTERRUPTS
1541  4430          JMS I   NERROR          /CHECK MONITOR
1542  4426  LOCC,   JMS I   ERROR           /ILLEGAL CLOCK INTERRUPT
1543  6340          TST42M                  /MESSAGE POINTER
1544  7402          HLT                     /ERROR HALT
1545  7410          SKP                     /TO NEXT TEST
1546  1534          TST42                   /ISZ LOOP; SCOPE LOOP
1547  2047          ISZ     REGB            /INCREMENT PASS COUNTER
1550  5457          JMP I TST35N            /CROSS-PAGE TO TEST 35 4096 TIMES
1551  7340          CLA CLL CMA             /SET AC=7777
1552  3046          DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /COUNTER CARRY TESTING
                    /COUNTER PRESET SUCH THAT CLOCK CNT RAISES BIT IN QUESTION
                    /
                    /DOES BIT 11 SET UP?
                    /
1553  7200  TST43,  CLA                     /CLEAR AC
1554  6132          CLLR                    /CLEAR ALL MODES
1555  6133          CLAB                    /CLEAR BUF
1556  1114          TAD     K0100           /SET AC 05=1
1557  6132          CLLR                    /GEN "CLR CNT"
1560  6135          CLSA                    /CLEAR STATUS
1561  7200          CLA                     /CLEAR AC
1562  3025          DCA     CNTR            /CLEAR COUNTER
1563  3054          DCA     SEND            /CLEAR SEND
1564  6133          CLAB                    /CLEAR BUFFER
1565  1116          TAD     K0200           /MODE 2
1566  6134          CLEN                    /ENABLE MODE
1567  7300          CLA CLL                 /CLEAR AC
1570  1137          TAD     K5100           /SELECT 100 HZ RATE TO BE USED IN TST 43 TO TST 54
1571  6132          CLLR                    /ENABLE RATE
1572  6137  BK43,   CLCA                    /READ COUNTER
1573  3053          DCA     RXED            /SAVE IT
1574  1053          TAD     RXED            /FETCH IT
1575  1144          TAD     M0001           /BIT 11 AND ONLY BIT 11 SET?
1576  7650          SNA CLA                 /IF NOT, WAIT A WHILE
1577  5466          JMP I   UP43            /SET; GO CHECK MONITOR (.-4)
1600  2025          ISZ     CNTR            /TIMER DONE?
1601  5422          JMP I   DN43            /NO, GO BACK (.-7)
1602  7410          SKP                     /TO HERE IF BAD BIT
1603  4430  FD43,   JMS I   NERROR          /CHECK MONITOR
1604  4426          JMS I   ERROR           /BIT 11 FAILED TO GET SET BY A CLOCK PULSE
1605  6360          TST43M                  /MESSAGE POINTER
1606  7402          HLT                     /ERROR HALT
1607  7410          SKP                     /TO NEXT TEST
1610  1553          TST43                   /!SS LOOP! SCOPE LOOP
1611  7340          CLA CLL CMA             /SET AC=7777
1612  3046          DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES BIT 10 SET UP?
                    /
1613  7200  TST44,  CLA
1614  6132         CLLR
1615  6133         CLAB
1616  6132         CLLR
1617  6135         CLSA
1620  7200         CLA
1621  3025         DCA     CNTR
1622  1075         TAD     K0001          /PRESET FOR BIT 10
1623  6133         CLAB
1624  3054         DCA     SEND
1625  1116         TAD     K0200
1626  6134         CLEN
1627  7300         CLA CLL
1630  1137         TAD     K5100
1631  6132         CLLR
1632  6137         CLCA
1633  3053         DCA     RXED
1634  1053         TAD     RXED
1635  1145         TAD     M0002          /BIT 10, AND ONLY BIT 10, SET?
1636  7650         SNA CLA
1637  5243         JMP     .+4
1640  2025         ISZ     CNTR
1641  5232         JMP     .-7
1642  7410         SKP
1643  4430         JMS I   NERROR         /CHECK MONITOR
1644  4426         JMS I   ERROR          /BIT 10 FAILED TO GET SET BY COUNTING
1645  6377         TST44M                 /MESSAGE POINTER
1646  7402         HLT                    /ERROR HALT
1647  7410         SKP                    /TO NEXT TEST
1650  1613         TST44                  /ISZ LOOP; SCOPE LOOP
1651  7340         CLA CLL CMA            /SET AC=7777
1652  3046         DCA     REGA           /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES BIT 9 SET UP?
                    /
1653  7200  TST45, CLA
1654  6132        CLLR
1655  6133        CLAB
1656  1114        TAD     K0100
1657  6132        CLLR
1660  6135        CLSA
1661  7200        CLA
1662  3025        DCA     CNTR
1663  1077        TAD     K0003           /PRESET FOR BIT 09
1664  6133        CLAB
1665  3054        DCA     SEND
1666  1116        TAD     K0200
1667  6134        CLEN
1670  7300        CLA CLL
1671  1137        TAD     K5100
1672  6132        CLLR
1673  6137        CLCA
1674  3053        DCA     RXED
1675  1053        TAD     RXED
1676  1146        TAD     M0004           /BIT 09, AND ONLY BIT 09, SET?
1677  7650        SNA CLA
1700  5304        JMP     .+4
1701  2025        ISZ     CNTR
1702  5273        JMP     .-7
1703  7410        SKP
1704  4430        JMS I   NERROR          /CHECK MONITOR
1705  4426        JMS I   ERROR           /BIT 9 FAILED TO GET SET BY COUNTING
1706  6416        TST45M                  /MESSAGE POINTER
1707  7402        HLT                     /ERROR HALT
1710  7410        SKP                     /TO NEXT TEST
1711  1653        TST45                   /ISZ LOOP; SCOPE LOOP
1712  7340        CLA CLL CMA             /SET AC=7777
1713  3046        DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES BIT 8 SET UP?
                    /
1714  7200  TST46, CLA
1715  6132        CLLR
1716  6133        CLAB
1717  1114        TAD     K0100
1720  6132        CLLR
1721  6135        CLSA
1722  7200        CLA
1723  3025        DCA     CNTR
1724  1101        TAD     K0007           /PRESET FOR BIT 08
1725  6133        CLAB
1726  3054        DCA     SEND
1727  1116        TAD     K0200
1730  6134        CLEN
1731  7300        CLA CLL
1732  1137        TAD     K5100
1733  6132        CLLR
1734  6137        CLCA
1735  3053        DCA     RXED
1736  1053        TAD     RXED
1737  1147        TAD     M0010           /BIT 08 AND ONLY BIT 08, SET?
1740  7650        SNA CLA
1741  5345        JMP     .+4
1742  2025        ISZ     CNTR
1743  5334        JMP     .-7
1744  7410        SKP
1745  4430        JMS I   NERROR          /CHECK MONITOR
1746  4426        JMS I   ERROR           /BIT 8 FAILED TO GET SET BY COUNTING
1747  6435        TST46M                  /MESSAGE POINTER
1750  7402        HLT                     /ERROR HALT
1751  7410        SKP                     /TO NEXT TEST
1752  1714        TST46                   /ISZ LOOP; SCOPE LOOP
1753  7340        CLA CLL CMA             /SET AC=7777
1754  3046        DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES BIT 7 SET UP?
                    /
1755  7200  TST47,   CLA
1756  6132          CLLR
1757  6133          CLAB
1760  1114          TAD     K0100
1761  6132          CLLR
1762  6135          CLSA
1763  7200          CLA
1764  3025          DCA     CNTR
1765  1106          TAD     K0017           /PRESET FOR BIT 07
1766  6133          CLAB
1767  3054          DCA     SEND
1770  1116          TAD     K0200
1771  6134          CLEN
1772  7300          CLA CLL
1773  1137          TAD     K5100
1774  6132          CLLR
1775  6137  BK47,   CLCA
1776  3053          DCA     RXED
1777  1053          TAD     RXED
2000  1150          TAD     M0020           /BIT 07, AND ONLY BIT 07, SET?
2001  7650          SNA CLA
2002  5206          JMP     .+4
2003  2025          ISZ     CNTR
2004  5423          JMP I   DN47            /(,=7)
2005  7410          SKP
2006  4430          JMS I   NERROR          /CHECK MONITOR
2007  4426          JMS I   ERROR           /BIT 7 FAILED TO GET SET BY COUNTING
2010  6454          TST47M                  /MESSAGE POINTER
2011  7402          HLT                     /ERROR HALT
2012  7410          SKP                     /TO NEXT TEST
2013  1755          TST47                   /ISZ LOOP: SCOPE LOOP
2014  7340          CLA CLL CMA             /SET AC=7777
2015  3046          DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES BIT 6 SET UP?
                    /
2016  7200  TST48,  CLA
2017  6132          CLLR
2020  6133          CLAB
2021  1114          TAD     K0100
2022  6132          CLLR
2023  6135          CLSA
2024  7200          CLA
2025  3025          DCA     CNTR
2026  1110          TAD     K0037           /PRESET FOR BIT 06
2027  6133          CLAB
2030  3054          DCA     SEND
2031  1116          TAD     K0200
2032  6134          CLEN
2033  7300          CLA CLL
2034  1137          TAD     K5100
2035  6132          CLLR
2036  6137          CLCA
2037  3053          DCA     RXED
2040  1053          TAD     RXED
2041  1151          TAD     M0040           /BIT 06 AND ONLY BIT 06, SET?
2042  7650          SNA CLA
2043  5247          JMP     .+4
2044  2025          ISZ     CNTR
2045  5236          JMP     .-7
2046  7410          SKP
2047  4430          JMS I   NERROR          /CHECK MONITOR
2050  4426          JMS I   ERROR           /BIT 6 FAILED TO GET SET BY COUNTING
2051  6473          TST48M                  /MESSAGE POINTER
2052  7402          HLT                     /ERROR HALT
2053  7410          SKP                     /TO NEXT TEST
2054  2016          TST48                   /ISZ LOOP; SCOPE LOOP
2055  7340          CLA CLL CMA             /SET AC=7777
2056  3046          DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES BIT 5 SET UP?
                    /
2057  7200  TST49, CLA
2060  6132        CLLR
2061  6133        CLAB
2062  1114        TAD     K0100
2063  6132        CLLR
2064  6135        CLSA
2065  7200        CLA
2066  3025        DCA     CNTR
2067  1113        TAD     K0077           /PRESET FOR BIT 05
2070  6133        CLAB
2071  3054        DCA     SEND
2072  1116        TAD     K0200
2073  6134        CLEN
2074  7300        CLA CLL
2075  1137        TAD     K5100
2076  6132        CLLR
2077  6137        CLCA
2100  3053        DCA     RXED
2101  1053        TAD     RXED
2102  1153        TAD     M0100           /BIT 05, AND ONLY BIT 05, SET?
2103  7650        SNA CLA
2104  5310        JMP     .+4
2105  2025        ISZ     CNTR
2106  5277        JMP     .-7
2107  7410        SKP
2110  4430        JMS I   NERROR          /CHECK MONITOR
2111  4426        JMS I   ERROR           /BIT 5 FAILED TO GET SET BY COUNTING
2112  6512        TST49M                  /MESSAGE POINTER
2113  7402        HLT                     /ERROR HALT
2114  7410        SKP                     /TO NEXT TEST
2115  2057        TST49                   /ISZ LOOP! SCOPE LOOP
2116  7340        CLA CLL CMA             /SET AC=7777
2117  3046        DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES BIT 4 SET UP?
                    /
2120  7200  TST50,  CLA
2121  6132          CLLR
2122  6133          CLAB
2123  1114          TAD     K0100
2124  6132          CLLR
2125  6135          CLSA
2126  7200          CLA
2127  3025          DCA     CNTR
2130  1115          TAD     K0177           /PRESET FOR BIT 04
2131  6133          CLAB
2132  3054          DCA     SEND
2133  1116          TAD     K0200
2134  6134          CLEN
2135  7300          CLA CLL
2136  1137          TAD     K5100
2137  6132          CLLR
2140  6137          CLCA
2141  3053          DCA     RXED
2142  1053          TAD     RXED
2143  1154          TAD     M0200           /BIT 04, AND ONLY BIT 04, SET?
2144  7650          SNA CLA
2145  5351          JMP     .+4
2146  2025          ISZ     CNTR
2147  5340          JMP     .-7
2150  7410          SKP
2151  4430          JMS I   NERROR          /CHECK MONITOR
2152  4426          JMS I   ERROR           /BIT 4 FAILED TO GET SET BY COUNTING
2153  6531          TST50M                  /MESSAGE POINTER
2154  7402          HLT                     /ERROR HALT
2155  7410          SKP                     /TO NEXT TEST
2156  2120          TST50                   /ISZ LOOP! SCOPE LOOP
2157  7340          CLA CLL CMA             /SET AC=7777
2160  3046          DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES BIT 3 SET UP?
                    /
2161  7200  TST51, CLA
2162  6132        CLLR
2163  6133        CLAB
2164  1114        TAD     K0100
2165  6132        CLLR
2166  6135        CLSA
2167  7200        CLA
2170  3025        DCA     CNTR
2171  1121        TAD     K0377           /PRESET FOR BIT 03
2172  6133        CLAB
2173  3054        DCA     SEND
2174  1116        TAD     K0200
2175  6134        CLEN
2176  7300        CLA CLL
2177  1137        TAD     K5100
2200  6132        CLLR
2201  6137        CLCA
2202  3053        DCA     RXED
2203  1053        TAD     RXED
2204  1155        TAD     M0400           /BIT 03, AND ONLY BIT 03, SET?
2205  7650        SNA CLA
2206  5212        JMP     .+4
2207  2025        ISZ     CNTR
2210  5201        JMP     .-7
2211  7410        SKP
2212  4430        JMS I   NERROR          /CHECK MONITOR
2213  4426        JMS I   ERROR           /BIT 3 FAILED TO GET SET BY COUNTING
2214  6550        TST51M                  /MESSAGE POINTER
2215  7402        HLT                     /ERROR HALT
2216  7410        SKP                     /TO NEXT TEST
2217  2161        TST51                   /ISZ LOOP; SCOPE LOOP
2220  7340        CLA CLL CMA             /SET AC=7777
2221  3046        DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES BIT 2 SET UP?
                    /
2222  7200  TST52,  CLA
2223  6132          CLLR
2224  6133          CLAB
2225  1114          TAD     K0100
2226  6132          CLLR
2227  6135          CLSA
2230  7200          CLA
2231  3025          DCA     CNTR
2232  1126          TAD     K0777           /PRESET FOR BIT 02
2233  6133          CLAB
2234  3054          DCA     SEND
2235  1116          TAD     K0200
2236  6134          CLLA
2237  7300          CLA CLL
2240  1137          TAD     K5100
2241  6132          CLLR
2242  6137          CLCA
2243  3053          DCA     RXED
2244  1053          TAD     RXED
2245  1156          TAD     M1000           /BIT 02 AND ONLY BIT 02, SET?
2246  7650          SNA CLA
2247  5253          JMP     .+4
2250  2025          ISZ     CNTR
2251  5242          JMP     .-7
2252  7410          SKP
2253  4430          JMS I   NERROR          /CHECK MONITOR
2254  4426          JMS I   ERROR           /BIT 2 FAILED TO GET SET BY COUNTIN
2255  6567          TST52M                  /MESSAGE POINTER
2256  7402          HLT                     /ERROR HALT
2257  7410          SKP                     /TO NEXT TEST
2260  2222          TST52                   /ISZ LOOP: SCOPE LOOP
2261  7340          CLA CLL CMA             /SET AC=7777
2262  3046          DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES BIT 1 SET UP?
                    /
2263  7200  TST53,  CLA
2264  6132          CLLR
2265  6133          CLAB
2266  1114          TAD     K0100
2267  6132          CLLR
2270  6135          CLSA
2271  7200          CLA
2272  3025          DCA     CNTR
2273  1131          TAD     K1777           /PRESET FOR BIT 01
2274  6133          CLAB
2275  3054          DCA     SEND
2276  1116          TAD     K0200
2277  6134          CLEN
2300  7300          CLA CLL
2301  1137          TAD     K5100
2302  6132          CLLR
2303  6137          CLCA
2304  3053          DCA     RXED
2305  1053          TAD     RXED
2306  1160          TAD     M2000           /BIT 01, AND ONLY BIT 01, SET?
2307  7650          SNA CLA
2310  5314          JMP     .+4
2311  2025          ISZ     CNTR
2312  5303          JMP     .-7
2313  7410          SKP
2314  4430          JMS I   NERROR          /CHECK MONITOR
2315  4426          JMS I   ERROR           /BIT 1 FAILED TO GET SET BY COUNTING
2316  6606          TST53M                  /MESSAGE POINTER
2317  7402          HLT                     /ERROR HALT
2320  7410          SKP                     /TO NEXT TEST
2321  2263          TST53                   /ISZ LOOP! SCOPE LOOP
2322  7340          CLA CLL CMA             /SET AC=7777
2323  3046          DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES BIT 0 SET UP?
                    /
2324  7200  TST54,  CLA
2325  6132        CLLR
2326  6133        CLAB
2327  1114        TAD     K0100
2330  6132        CLLR
2331  6135        CLSA
2332  7200        CLA
2333  3025        DCA     CNTR
2334  1134        TAD     K3777           /PRESET FOR BIT 00
2335  6133        CLAB
2336  3054        DCA     SEND
2337  1116        TAD     K0200
2340  6134        CLEN
2341  7300        CLA CLL
2342  1137        TAD     K5100
2343  6132        CLLR
2344  6137        CLSA
2345  3053        DCA     RXED
2346  1053        TAD     RXED
2347  1161        TAD     M4000           /BIT 00, AND ONLY BIT 00, SET?
2350  7650        SNA CLA
2351  5355        JMP     .+4
2352  2025        ISZ     CNTR
2353  5344        JMP     .-7
2354  7410        SKP
2355  4430        JMS I   NERROR          /CHECK MONITOR
2356  4426        JMS I   ERROR           /BIT 0 FAILED TO GET SET BY COUNTING
2357  6625        TST54M                  /MESSAGE POINTER
2360  7402        HLT                     /ERROR HALT
2361  7410        SKP                     /TO NEXT TEST
2362  2324        TST54                   /ISZ LOOP: SCOPE LOOP
2363  7340        CLA CLL CMA             /SET AC = 7777
2364  3046        DCA REGA                /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /DOES COUNTER COUNT NORMALLY AND AT ALL RATES?
                    /CHECK 400 KHZ RATE
                    /
2365  7300  TST55,   CLA CLL                  /CLEAR AC
2366  1157          TAD M1400                 /GET PRESET
2367  3047          DCA REGB                  /SET UP FOR TIMER
2370  1127          TAD     K1000             /GET AC 02
2371  6132          CLLR                      /SET 400KC RATE
2372  7300          CLA CLL
2373  2047  BK55,   ISZ REGB                 /INCREMENT COUNT
2374  7410          SKP                       /TIME OK
2375  5467          JMP I UP55                /TIMER NOT OK (.+6)
2376  6135          CLSA                      /GET STATUS
2377  7000          NOP                       /WAIT
2400  7700          SMA CLA                   /OVERFLOW?
2401  5424          JMP I DN55                /TRY AGAIN (.-6)
2402  4430          JMS I NERROR              /CHECK MONITOR
2403  4426  FD55,   JMS I ERROR              /400 KC FAILED
2404  6644          TST55M                    /MESSAGE POINTER
2405  7402          HLT                       /ERROR HALT
2406  7410          SKP                       /TO NEXT TEST
2407  2365          TST55                     /ISZ LOOP; SCOPE LOOP
2410  7340          CLA CLL CMA               /SET AC = 7777
2411  3046          DCA REGA                  /PRESET REGA
                    /
                    /CHECK 100 KHZ RATE
                    /
2412  7300  TST56,   CLA CLL                  /CLEAR AC
2413  1163          TAD     M5400             /GET PRESET
2414  3047          DCA     REGB              /SET UP TIMER
2415  1132          TAD     K2000             /GET AC 01
2416  6132          CLLR                      /SET 100 KHZ RATE
2417  7300          CLA CLL
2420  2047          ISZ     REGB              /INCREMENT COUNT
2421  7410          SKP                       /TIMER OK
2422  5230          JMP     .+6               /TIMER NOT OK
2423  6135          CLSA                      /GET STATUS
2424  7000          NOP                       /WAIT
2425  7700          SMA CLA                   /OVERFLOW?
2426  5220          JMP     .-6               /TRY AGAIN
2427  4430          JMS I   NERROR            /CHECK MONITOR
2430  4426          JMS I   ERROR             /100KC FAILED
2431  6661          TST56M                    /MESSAGE POINTER
2432  7402          HLT                       /ERROR HALT
2433  7410          SKP                       /TO NEXT TEST
2434  2412          TST56                     /ISZ LOOP; SCOPE LOOP
2435  7340          CLA CLL CMA               /SET AC = 7777
2436  3046          DCA     REGA              /PRESET REGA
```

```
                    /
                    /CHECK 10 KHZ RATE
                    /
2437  7300  TST57, CLA CLL                 /CLEAR AC
2440  1147        TAD     M0010           /GET PRESET
2441  3050        DCA     REGC            /SET UP FOR X10
2442  1156        TAD     M1000
2443  3047        DCA     REGB
2444  1133        TAD     K3000
2445  6132        CLLR                    /SET 10KC RATE
2446  7300        CLA CLL
2447  2047        ISZ     REGB            /INCREMENT COUNT
2450  7410        SKP                     /TIMER OK
2451  2050        ISZ     REGC            /INCREMENT MULTIPLIER
2452  7410        SKP                     /MULTIPLIER OK
2453  5261        JMP     .+6             /TIMER NOT OK
2454  6135        CLSA                    /GET STATUS
2455  7000        NOP                     /WAIT
2456  7700        SMA CLA                 /OVERFLOW?
2457  5247        JMP     .-10            /TRY AGAIN
2460  4430        JMS I   NERROR          /CHECK MONITOR
2461  4426        JMS I   ERROR           /10KC FAILED
2462  6676        TST57M                  /MESSAGE POINTER
2463  7402        HLT                     /ERROR HALT
2464  7410        SKP                     /TO NEXT TEST
2465  2437        TST57                   /ISZ LOOP; SCOPE LOOP
2466  7340        CLA CLL CMA             /SET AC = 7777
2467  3046        DCA     REGA            /PRESET REGA
2470  3047        DCA     REGB            /CLEAR REGB
                    /
                    /TEST 1KHZ RATE
                    /
2471  7300  TST58, CLA CLL                 /CLEAR AC
2472  1153        TAD     M0100           /GET PRESET
2473  3050        DCA     REGC            /SET UP FOR X100
2474  1136        TAD     K4100           /SET 1KC RATE
2475  6132        CLLR
2476  7300        CLA CLL
2477  2047        ISZ     REGB            /INCREMENT COUNT
2500  7410        SKP                     /TIMER OK
2501  2050        ISZ     REGC            /INCREMENT MULTIPLIER
2502  7410        SKP                     /MULTIPLIER OK
2503  5311        JMP     .+6             /TIMER NOT OK
2504  6135        CLSA                    /GET STATUS
2505  7000        NOP                     /WAIT
2506  7700        SMA CLA                 /OVERFLOW?
2507  5277        JMP     .-10            /TRY AGAIN
2510  4430        JMS I   NERROR          /CHECK MONITOR
2511  4426        JMS I   ERROR           /1KC FAILED
2512  6713        TST58M                  /MESSAGE POINTER
2513  7402        HLT                     /ERROR HALT
2514  7410        SKP                     /TO NEXT TEST
2515  2471        TST58                   /ISZ LOOP; SCOPE LOOP
2516  7340        CLA CLL CMA             /SET AC = 7777
2517  3046        DCA     REGA            /PRESET REGA
```

```
                    /
                    /CHECK 100 CPS RATE
                    /
2520  7300  TST59,  CLA CLL                  /CLEAR AC
2521  3047          DCA     REGB            /CLEAR REGB
2522  1153          TAD     M0100           /GET PRESET
2523  3050          DCA     REGC            /SET FOR X100
2524  1155          TAD     M0400           /GET PRESET
2525  6133          CLAB                    /PRESET BUFFER
2526  7300          CLA CLL                 /CLEAR AC
2527  1116          TAD     K0200           /SET AC 05=1
2530  6134          CLEN                    /ENABLE PRESET
2531  7300          CLA CLL
2532  1137          TAD     K5100           /SET 100 CPS RATES
2533  6132          CLLR                    /ENABLE RATE
2534  7300          CLA CLL                 /CLEAR AC
2535  2047          ISZ     REGB            /INCREMENT TIME
2536  7410          SKP
2537  2050          ISZ     REGC            /INCREMENT MULTIPLIER
2540  7410          SKP                     /TIME OK
2541  5347          JMP     .+6             /TIME NOT OK; RATE FAILED
2542  6135          CLSA                    /GET STATUS
2543  7000          NOP                     /WAIT
2544  7700          SMA CLA                 /OVERFLOW?
2545  5335          JMP     .-10            /TRY AGAIN
2546  4430          JMS I   NERROR          /CHECK MONITOR
2547  4426          JMS I   ERROR           /RATE 100 HE FAILED
2550  6727          TST59M
2551  7402          HLT
2552  7610          SKP CLA
2553  2520          TST59
2554  1153          TAD     M0100
2555  3046          DCA     REGA
2556  3047          DCA     REGB            /CLEAR REGB
```

```
                    /
                    /CHECK CHANNEL 1 INPUT RATE (RATE MUST BE BETWEEN 47 CPS AND 180 KHZ)
                    /(INSURE THAT AN INPUT IS PROVIDED)
                    /
2557  7300  TST60,  CLA CLL                    /CLEAR AC
2560  1107        TAD     K0020               /GET AC 05
2561  6134        CLEN                        /ENABLE CHANNEL 1 INPUT
2562  7200        CLA
2563  1142        TAD     K6000               /GET AC 00, 01
2564  6132        CLLR                        /ENABLE RATE=CHANNEL 1 INPUT
2565  7300  TST60N, CLA CLL                   /CLEAR AC
2566  6137        CLCA                        /GET COUNTER
2567  3054        DCA     SEND                /SAVE IT
2570  2047        ISZ     REGB                /WAIT
2571  5370        JMP     .-1
2572  6137        CLCA                        /GET COUNTER
2573  7041        CIA                         /2'S COMPLEMENT
2574  1054        TAD     SEND                /COMPARE
2575  7440        SZA CLA                     /HAS IT CHANGED?
2576  4430        JMS I   NERROR              /CHECK MONITOR
2577  4426        JMS I   ERROR               /CHAN 1 LOCKED UP
2600  6745        TST60M                      /MESSAGE POINTER
2601  7402        HLT                         /ERROR HALT
2602  7410        SKP                         /TO NEXT TEST
2603  2565        TST60N                      /SCOPE LOOP; ISZ LOOP
```

```
                    /
                    /SIMULATED INPUT TESTS CHANNEL 3
                    /
2604  1075  TST61,  TAD     K0001          /SET AC 11=1
2605  6134          CLEN                   /ENABLE CHANNEL 3
2606  6132          CLLR                   /SET EVENT FLOP
2607  6132          CLLR                   /SET SET PRE-EVENT FLOP
2610  7300          CLA CLL                /CLEAR AC
2611  6134          CLEN                   /CLEAR ENABLES
2612  6135          CLSA                   /GET STATUS
2613  0134          AND     K3777          /IGNORE O'FLO
2614  3054          DCA     SEND           /SAVE IT
2615  6135          CLSA                   /GET STATUS AGAIN
2616  0077          AND     K0003          /SAVE CHANNEL 3
2617  3053          DCA     RXED           /SAVE IT
2620  1053          TAD     RXED           /FETCH IT
2621  7640          SZA CLA                /CHANNEL 3 0?
2622  5470          JMP I   UP61           /CLSA DOESN'T 0 INPUT CHANNEL 3 (,+6)
2623  1054          TAD     SEND           /GET STATUS
2624  7041          CIA                    /2'S COMPLEMENT
2625  1077          TAD     K0003          /SUBTRACT SET
2626  7650          SNA CLA                /EQUAL?
2627  4430          JMS I   NERROR         /CHECK MONITOR
2630  4426  FD61,   JMS I   ERROR          /BOTH PRE-EVENT  AND EVENT NOT SET
2631  6766          TST61M                 /MESSAGE POINTER
2632  7402          HLT                    /ERROR HALT
2633  7410          SKP                    /TO NEXT TEST
2634  2604          TST61                  /ISZ LOOP) SCOPE LOOP
```

```
                    /
                    /SIM INPUT TESTS CHAN 2
                    /
2635  1100  TST62,  TAD     K0004          /SET AC 0?#1
2636  6134          CLEN                   /ENABLE CHAN 2
2637  6132          CLLR                   /SET EVENT FLOP
2640  6132          CLLR                   /SET PREVENT FLOP
2641  7300          CLA CLL                /CLEAR AC
2642  6134          CLEN                   /CLEAR ENABLES
2643  6135          CLSA                   /GET STATUS
2644  0134          AND     K3777          /IGNORE O'FLO
2645  3054          DCA     SEND           /SAVE IT
2646  6135          CLSA                   /GET STATUS
2647  0104          AND     K0014          /SAVE CHANNEL 2
2650  3053          DCA     RXED           /SAVE IT
2651  1053          TAD     RXED           /FETCH IT
2652  7640          SZA CLA                /0?
2653  5261          JMP     .+6            /CLSA DOESN'T 0 INPUT CHANNEL 2
2654  1054          TAD     SEND           /GET FIRST STATUS
2655  7041          CIA                    /2'S COMPLEMENT
2656  1104          TAD     K0014          /SUBTRACT SET
2657  7650          SNA CLA                /EQUAL?
2660  4430          JMS I   .ERROR         /CHECK MONITOR
2661  4426          JMS I   ERROR          /BOTH PRE-EVENT AND EVENT NOT SET
2662  7010          TST62M                 /MESSAGE POINTER
2663  7402          HLT                    /ERROR HALT
2664  7410          SKP                    /TO NEXT TEST
2665  2635          TST62                  /ISR LOOP; SCOPE LOOP
```

```
                        /
                        /SIM INPUT TESTS CHAN 1
                        /
2666  1107  TST63,  TAD     K0020          /SET AC 07=1
2667  6134           CLEN                  /SET ENABLE
2670  6132           CLLR                  /SET EVENT FLOP
2671  6132           CLLR                  /SET PREVENT FLOP
2672  7300           CLA CLL               /CLEAR AC
2673  6134           CLEN                  /CLEAR ENABLES
2674  6135           CLSA                  /GET STATUS
2675  0134           AND     K3777         /IGNORE O'FLO
2676  3054           DCA     SEND          /SAVE IT
2677  6135           CLSA                  /GET STATUS
2700  0112           AND     K0060         /SAVE CHANNEL 1
2701  3053           DCA     RXED          /SAVE IT
2702  1053           TAD     RXED          /FETCH IT
2703  7640           SZA CLA               /ZERO?
2704  5312           JMP     .+6           /CLSA DOESN'T 0 INPUT CHANNEL 1
2705  1054           TAD     SEND          /GET FIRST STATUS
2706  7041           CIA                   /2'S COMPLEMENT
2707  1112           TAD     K0060         /SUBTRACT SET
2710  7650           SNA CLA               /EQUAL?
2711  4430           JMS I   NERROR        /CHECK MONITOR
2712  4426           JMS I    ERROR        /BOTH PRE-EVENT AND EVENT NOT SET
2713  7032           TST63M                /MESSAGE POINTER
2714  7402           HLT                   /ERROR HALT
2715  7410           SKP                   /TO NEXT TEST
2716  2666           TST63                 /ISZ LOOP; SCOPE LOOP
2717  7340           CLA CLL CMA           /SET AC=7777
2720  3046           DCA     REGA          /PRESET REGA
```

```
                        /
                        /TEST INPUT CHANNEL INTERRUPT CHAN 1
                        /
2721  1036    TST64,    TAD     PNTD            /GET RETURN POINTER TO LOCD
2722  3052              DCA     RETURN          /SET UP INTERRUPT RETURN
2723  1112              TAD     K0060           /ENABLE INPUT AND INTERRUPT
2724  6134              CLEN                    /ENABLE
2725  6132              CLLR                    /SIMULATE INPUT CHANNEL ONE
2726  6001              ION                     /ENABLE INTERRUPTS
2727  7000              NOP                     /WAIT
2730  7410              SKP                     /NO INTERRUPT
2731  4430    LOCD,     JMS I   NERROR          /CHECK MONITOR
2732  4426              JMS I   ERROR           /NO INTERRUPT ERROR
2733  7054              TST64M                  /MESSAGE POINTER
2734  7402              HLT                     /ERROR HALT
2735  7610              SKP CLA                 /TO NEXT TEST
2736  2721              TST64                   /ISZ LOOP
2737  7340              CLA CLL CMA             /SET AC=7777
2740  3046              DCA     REGA            /PRESET REGA
                        /
                        /TEST WITH INTERRUPTS DISABLED
                        /
2741  1107    TST65,    TAD     K0020           /CLEAR INTERRUPT ENABLE SET SIMULATE INPUT
2742  6134              CLEN                    /ENABLE
2743  7300              CLA CLL                 /CLEAR AC
2744  1037              TAD     PNTE            /GET RETURN POINTER TO LOCE
2745  3052              DCA     RETURN          /PUT IT IN INTERRUPT HANDLER
2746  6001              ION                     /ENABLE INTERRUPTS
2747  7000              NOP                     /WAIT
2750  6002              IOF                     /DISABLE INTERRUPTS
2751  6135              CLSA                    /CLEAR CLOCK STATUS
2752  4430              JMS I   NERROR          /CHECK MONITOR
2753  4426    LOCE,     JMS I   ERROR           /INTERRUPT IN ERROR
2754  7072              TST65M                  /MESSAGE POINTER
2755  7402              HLT                     /ERROR HALT
2756  7610              SKP CLA                 /TO NEXT TEST
2757  2741              TST65                   /ISZ LOOP; SCOPE LOOP
2760  7340              CLA CLL CMA             /SET AC=7777
2761  3046              DCA     REGA            /PRESET REGA
2762  2047              ISZ     REGB            /DO THE PAIR OF TESTS 4096 TIMES
2763  5321              JMP     TST64           /BACK
```

```
                    /
                    /TEST INPUT CHANNEL INTERRUPT CHAN 2
                    /
2764  1040  TST66,  TAD     PNTF            /GET RETURN POINTER TO LOCF
2765  3052          DCA     RETURN          /SET UP INTERRUPT RETURN
2766  1104          TAD     K0014           /SET AC 08, 0981
2767  6134          CLEN                    /ENABLE CHANNEL 2
2770  6132          CLLR                    /ENABLE RATES
2771  6001          ION                     /ENABLE INTERRUPTS
2772  7000          NOP                     /WAIT
2773  7410          SKP                     /TO HERE IF NO INTERRUPT
2774  4430  LOCF,   JMS I   NERROR          /CHECK MONITOR
2775  4426          JMS I   ERROR           /NO INTERRUPT
2776  7112          TST66M                  /MESSAGE POINTER
2777  7402          HLT                     /ERROR HALT
3000  7410          SKP                     /TO NEXT TEST
3001  2764          TST66                   /ISZ LOOP: SCOPE LOOP
3002  7340          CLA CLL CMA             /SET AC=7777
3003  3046          DCA     REGA            /PRESET REGA
                    /
                    /TEST WITH INTERRUPTS DISABLED
                    /
3004  1100  TST67,  TAD     K0004           /SET AC 0981
3005  6134          CLEN                    /ENABLE CHANNEL 2
3006  7300          CLA CLL                 /CLEAR AC
3007  1041          TAD     PNTG            /GET RETURN POINTER TO LOCG
3010  3052          DCA     RETURN          /PUT IT IN INTERRUPT HANDLER
3011  6001          ION                     /ENABLE INTERRUPTS
3012  7000          NOP                     /WAIT
3013  6002          IOF                     /DISABLE INTERRUPTS
3014  6135          CLSA                    /CLEAR CLOCK STATUS
3015  4430          JMS I   NERROR          /CHECK MONITOR
3016  4426  LOCG,   JMS I   ERROR           /INTERRUPT IN ERROR--CLEA EN EVENT 2 INT BAD
3017  7133          TST67M                  /MESSAGE POINTER
3020  7402          HLT                     /ERROR HALT
3021  7410          SKP                     /TO NEXT TEST
3022  3004          TST67                   /ISZ LOOP: SCOPE LOOP
3023  7340          CLA CLL CMA             /SET AC=7777
3024  3046          DCA     REGA            /PRESET REGA
3025  2047          ISZ     REGB            /DO THIS PAIR OF TESTS 4096 TIMES
3026  5460          JMP I   TST66N          /BACK
```

```
                        /
                        /TEST INPUT CHANNEL INTERRUPT CHAN 3
                        /
3027  1042    TST68,    TAD     PNTH          /GET RETURN POINTER TO LOCH
3030  3052              DCA     RETURN        /SET UP INTERRUPT RETURN
3031  1077              TAD     K0003         /SET AC10,11=1
3032  6134              CLEN                  /ENABLE CHANNEL 3
3033  6132              CLLR                  /ENABLE RATES
3034  6001              ION                   /ENABLE INTERRUPTS
3035  7000              NOP                   /WAIT
3036  6002              IOF                   /DISABLE INTERRUPTS
3037  7410              SKP                   /NO INTERRUPT
3040  4430    LOCH,     JMS I   NERROR        /CHECK MONITOR
3041  4426              JMS I   ERROR         /NO INTERRUPT
3042  7152              TST68M                /MESSAGE POINTER
3043  7402              HLT                   /ERROR HALT
3044  7410              SKP                   /TO NEXT TEST
3045  3027              TST68                 /ISZ LOOP; SCOPE LOOP
3046  7340              CLA CLL CMA           /SET AC=7777
3047  3046              DCA     REGA          /PRESET REGA
                        /
                        /TEST WITH INTERRUPTS DISABLED
                        /
3050  3075    TST69,    AND     K0001         /SET AC 11=1
3051  6134              CLEN                  /ENABLE CHANNEL 3
3052  7300              CLA CLL               /CLEAR AC
3053  1043              TAD     PNTI          /GET RETURN POINTER TO LOCI
3054  3052              DCA     RETURN        /PUT IT IN INTERRUPT HANDLER
3055  6001              ION                   /ENABLE INTERRUPTS
3056  7000              NOP                   /WAIT
3057  6002              IOF                   /DISABLE INTERRUPTS
3060  6135              CLSA                  /CLEAR CLOCK STATUS
3061  4430              JMS I   NERROR        /CHECK MONITOR
3062  4426    LOCI,     JMS I   ERROR         /INTERRUPT IN ERROR
3063  7173              TST69M                /MESSAGE POINTER
3064  7402              HLT                   /ERROR HALT
3065  7410              SKP                   /TO NEXT TEST
3066  3050              TST69                 /ISZ LOOP; SCOPE LOOP
3067  7340              CLA CLL CMA           /SET AC=7777
3070  3046              DCA     REGA          /PRESET REGA
3071  2047              ISZ     REGB          /DO THIS PAIR OF TESTS 4096 TIMES
3072  5227              JMP     TST68         /BACK
3073  1151              TAD     M0042
3074  3046              DCA     REGA          /PRESET REGA IF NEXT TEST IS TO BE EXECUTED
```

```
                    /
                    /TEST OF INPUT CHNNEL 3
                    /KNOBS OF CHAN1,CHAN2,CHAN3 SET TO LINEFREQ, LEVEL IS DISABLED,
                    /
3075  6135  TST70,  CLSA                        /CLEAR STATUS
3076  7300        CLA CLL                       /CLEAR AC
3077  6132        CLLR                          /CLEAR ALL MODES
3100  1077        TAD     K0003                 /SET AC 10, 11=1
3101  6134        CLEN                          /ENABLE CHAN3 INPUT AND INTER,
3102  7200        CLA                           /CLEAR AC
3103  2047        ISZ     REGB                  /INCREMENT TIMER
3104  7410        SKP                           /NOT DONE YET
3105  5310        JMP     .+3                   /TIMER OUT; ERROR CONDITION
3106  6131        CLSK                          /SKIP ON CLOCK INTER,
3107  5303        JMP     .-4                   /WAIT
3110  6135        CLSA                          /GET CLOCK STATUS
3111  3053        DCA     RXED                  /SAVE IT
3112  3047        DCA     REGB                  /CLEAR COUNT
3113  1053        TAD     RXED                  /RESTORE IT
3114  7041        CIA                           /2'S COMPLEMENT
3115  1076        TAD     K0002                 /ADD EVENT 3
3116  7650        SNA CLA                       /EQUAL?
3117  4430        JMS I   NERROR               /CHECK WITH MONITOR
3120  4426        JMS I   ERROR                 /CHAN 3 EVENT NOT SET, OR PRE-EVENT WAS SET, OR OTHER CHAN UP
3121  7212        TST70M                        /MESSAGE POINTER
3122  7402        HLT                           /ERROR HALT
3123  7410        SKP                           /TO NEXT TEST
3124  3075        TST70                         /ISZ LOOP; SCOPE LOOP
3125  1151        TAD     M0040
3126  3046        DCA     REGA                  /PRESET REGA
```

```
                    /
                    /TEST OF INPUT CHANNEL 2
                    /
3127  6135  TST71, CLSA                    /CLEAR STATUS
3130  7300        CLA CLL                  /CLEAR AC
3131  6132        CLLR                     /ZERO ALL MODES
3132  1104        TAD     K0014            /ENAB, CHAN, 2 INPUT AND INTERRUPT FLOPS
3133  6134        CLEN                     /ENABLE
3134  7200        CLA                      /CLEAR AC
3135  2047        ISZ     REGB             /INCREMENT TIMER
3136  7410        SKP                      /NOT DONE YET
3137  5342        JMP     .+3              /TIMER OUT! ERROR CONDITION
3140  6131        CLSK                     /CHECK FOR CLOCK INTER,
3141  5335        JMP     .-4              /WAIT
3142  6135        CLSA                     /GET STATUS
3143  3053        DCA     RXED             /SAVE IT
3144  3047        DCA     REGB             /CLEAR COUNT
3145  1053        TAD     RXED             /RESTORE IT
3146  7041        CIA                      /2'S COMPLEMENT
3147  1102        TAD     K0010            /ADD EVENT 2
3150  7650        SNA CLA                  /EQUAL?
3151  4430        JMS I   NERROR           /CHECK MONITOR
3152  4426        JMS I   ERROR            /CHAN 2 EVENT NOT SET, OR PRE-EVENT WAS SET, OR OTHER CH UP
3153  0240        TST71M                   /MESSAGE POINTER
3154  7402        HLT                      /ERROR HALT
3155  7410        SKP                      /TO NEXT TEST
3156  3127        TST71                    /ISZ LOOP; SCOPE LOOP
3157  1151        TAD     M0040
3160  3046        DCA     REGA             /PRESET REGA
```

```
                    /
                    /TEST OF INPUT CHAN 1
                    /
3161  6135  TST72,  CLSA                    /CLEAR STATUS
3162  7300          CLA CLL                 /CLEAR AC
3163  6132          CLLR                    /CLEAR ALL MODES
3164  1112          TAD     K0060           /SET AC6,7=1
3165  6134          CLEN                    /ENABLE CHAN 1 INPUT AND INTERRUPT
3166  7200          CLA                     /CLEAR AC
3167  2047          ISZ     REGB            /INCREMENT TIMER
3170  7410          SKP                     /NOT DONE YET
3171  5374          JMP     .+3             /TIMER OUT; ERROR CONDITION
3172  6131          CLSK                    /CHECK FOR CLOCK INTER,
3173  5367          JMP     .-4             /WAIT
3174  6135          CLSA                    /GET CLOCK STATUS
3175  3053          DCA     RXED            /SAVE IT
3176  3047          DCA     REGB            /CLEAR COUNT
3177  1053          TAD     RXED            /RESTORE IT
3200  7041          CIA                     /COMPLEMENT
3201  1111          TAD     K0040           /ADD INPUT 1
3202  7650          SNA CLA                 /EQUAL?
3203  4430          JMS I   NERROR          /CHECK MONITOR
3204  4426          JMS I   ERROR           / CHAN 1 EVENT NOT SET, OR PREVENT WAS SET, OR OTHER CHAN UP
3205  7266          TST72M                  /MESSAGE POINTER
3206  7402          HLT                     /ERROR HALT
3207  7410          SKP                     /TO NEXT TEST
3210  3161          TST72                   /ISZ LOOP; SCOPE LOOP
3211  7340          CLA CLL CMA             /SET AC=7777
3212  3046          DCA     REGA            /PRESET REGA
```

```
                        /
                        /TEST FAST SAMPLE MODE IF BIT 04=0
                        /
3213  7404    TST73,    OSR                     /IF RIGHT SW BIT 2(1)
3214  7006              RTL                     /SKIP FAST SAM TEST?
3215  7006              RTL
3216  7004              RAL                     /RSW 04=1?
3217  7710              SPA CLA
3220  5462              JMP I   TST77N          /INDIRECT REF TO TST77
3221  6141              LINC                    /ENTER LINC MODE
3222  7011              CLR                     /CLEAR AC
3223  6004              ESF                     /CLEAR SPEC. IN REG.
3224  6100              SAM0                    /READ KNOB ZERO
3225  6002              PDP                     /BACK TO PMODE
3226  3054              DCA     SEND            /TO PAGE 0
3227  6141              LINC                    /BACK TO LMODE
3230  6101              SAM1                    /READ KNOB 1
3231  7011              CLR                     /CLEAR AC
3232  1020              TAD I   20              /PICK UP AC BIT 03
3233  6100              6100
3234  6004              ESF                     /ENABLE FAST SAM
3235  6002              PDP                     /ENTER PDP-8 MODE
3236  6135              CLSA                    /CLEAR CLOCK STATUS
3237  7300              CLA CLL                 /CLEAR AC
3240  1122              TAD     K0400           /SET MODE BIT8=1
3241  6132              CLLR                    /ENABLE COUNT
3242  6141              LINC                    /ENTER LINC MODE
3243  6100              SAM0                    /FAST SAM SET THEREFORE READ IN KNOB 1
3244  6100              SAM0                    /SHOULD STILL READ KNOB1
3245  6002              PDP                     /ENTER PDP-8 MODE
3246  3053              DCA     RXED            /SAVE VALUE
3247  1053              TAD     RXED            /RESTORE IT
3250  7041              CIA                     /2'S COMPLEMENT
3251  1054              TAD     SEND            /COMPARE IT
3252  7640              SZA CLA                 /EQUAL?
3253  4433              JMS I   NERROR          /CHECK MONITOR
3254  4426              JMS I   ERROR           /READING FAST SAM CONVERTED WRONG
3255  7314              TST73M                  /MESSAGE POINTER
3256  7402              HLT                     /ERROR HALT
3257  7410              SKP                     /TO NEXT TEST
3260  3213              TST73                   /ISZ LOOP; SCOPE LOOP
3261  7340              CLA CLL CMA             /SET AC=7777
3262  3046              DCA     REGA            /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /TEST FAST SAMPLE WITH MODE 2=1 (CHECK THAT KNOBS 0 & 1 ARE SET PROPERLY)
                    /
3263  1123  TST74,  TAD      K0500          /SET AC 03,05=1
3264  6132          CLLR                    /MODE 2(1),0(1)
3265  7330          CLA CLL CML RAR         /SET AC=4000
3266  6133          CLAB                    /SET BUFF=4000
3267  7200          CLA                     /CLEAR AC
3270  1116          TAD      K0200          /SET AC 04=1
3271  6134          CLEN                    /LOAD CTN FROM BUF
3272  7200          CLA                     /CLEAR AC
3273  6133          CLAB                    /CLR BUF
3274  7200          CLA                     /CLEAR AC
3275  6132          CLLR                    /CLEAR ALL MODES
3276  1123          TAD      K0500          /SET AC 03,05=1
3277  6132          CLLR                    /SET OVERFLOW MODE 0(1)
3300  6141          LINC                    /ENTER LINC MODE
3301  0100          SAM0                    /SAMPLE KNOB 0
3302  0002          PDP                     /ENTER PDP-8 MODE
3303  3053          DCA      RXED           /STORE
3304  1053          TAD      RXED           /RESTORE
3305  7041          CIA                     /2'S COMPLEMENT
3306  1054          TAD      SEND           /ADD FIRST SAMPLE
3307  7650          SNA CLA                 /EQUAL?
3310  4430          JMS I    NERROR         /CHECK MONITOR
3311  4426          JMS I    ERROR          /CONVERSION NOT INITIATED BY OVFLOW
3312  7333          TST74M                  /MESSAGE POINTER
3313  7402          HLT                     /ERROR HALT
3314  7410          SKP                     /TO NEXT TEST
3315  3263          TST74                   /ISZ LOOP; SCOPE LOOP
3316  7340          CLA CLL CMA             /SET AC=7777
3317  3046          DCA      REGA           /REGA FOR NEXT TEST
3320  2047          ISZ      REGB           /DONE?
3321  5213          JMP      TST73          /BACK
3322  1151          TAD      M0040
3323  3047          DCA      REGB
```

```
                        /
                        /CHECK THAT MODE 0(0),1(1),2(1) DO NOT AFFECT SAMPLE
                        /
3324  7200      TST75,  CLA                             /CLEAR AC
3325  6132              CLLR                            /ZERO ALL MODES
3326  1120              TAD     K0300                   /SET AC04,05=1
3327  6132              CLLR                            /MODE 1(1),2(1),0(0)
3330  6141              LINC                            /ENTER LINC MODE
3331  0011              CLR                             /CLEAR AC
3332  0004              ESF                             /ZERO SPEC. IN. REG.
3333  0100              SAM0                            /SAMPLE KNOB 0
3334  0002              PDP                             /TO PMODE
3335  3054              DCA     SEND                    /SAVE KNOB 0
3336  6141              LINC                            /TO LMODE
3337  0101              SAM1                            /SAMPLE KNOB 1
3340  1020              LDAI                            /PICK UP AC 05
3341  0100              0100
3342  0004              ESF                             /SET FAST SAM FLOP
3343  0100              SAM0                            /GET KNOB 1 SETTING
3344  0002              PDP                             /ENTER PDP MODE
3345  3053              DCA     RXED                    /STORE
3346  1053              TAD     RXED                    /RECEIVE
3347  7041              CIA                             /2'S COMPLEMENT
3350  1054              TAD     SEND                    /COMPARE
3351  7640              SPA CLA                         /EQUAL?
3352  4430              JMS I   NERROR                  /CHECK MONITOR
3353  4426              JMS I   ERROR                   /FAST SAM NOT SET
3354  7355              TST75M                          /MESSAGE POINTER
3355  7402              HLT                             /ERROR HALT
3356  7410              SKP                             /TO NEXT TEST
3357  3324              TST75                           /ISZ LOOP; SCOPE LOOP
3360  7340              CLA CLL CMA                     /SET AC=7777
3361  3046              DCA     REGA                    /PRESET REGA FOR NEXT TEST
```

```
                    /
                    /NOW CHECK FOR INHIBITING OF FAST SAM
                    /
3362  6141  TST76,  LINC                          /ENTER LINC MODE
3363  0100        SAM0                           /READ KNOB 0
3364  0002        PDP                            /ENTER PDP MODE
3365  3053        DCA     RXED                   /STORE
3366  1053        TAD     RXED                   /RESTORE
3367  7041        CIA                            /2'S COMPLEMENT
3370  1054        TAD     SEND                   /COMPARE
3371  7650        SNA CLA                        /EQUAL?
3372  4430        JMS I   NERROR                 /CHECK MONITOR
3373  4426        JMS I   ERROR                  /MODE 2(1),1(1) INHIBIT FAST SAM
3374  7376        TST76M                         /MESSAGE POINTER
3375  7402        HLT                            /ERROR HALT
3376  7410        SKP                            /TO NEXT TEST
3377  3362        TST76                          /ISZ LOOP; SCOPE LOOP
3400  7340        CLA CLL CMA                    /SET AC=7777
3401  3046        DCA     REGA                   /PRESET REGA FOR NEXT TEST
3402  2047        ISZ     REGB                   /DONE?
3403  5461        JMP I   TST75N                 /BACK VIA PAGE 0
3404  1151        TAD     M0040
3405  3047        DCA     REGB                   /PRESET REGB
```

```
                        /DOES TO PRESET CLEAR OVFLO, ENABLES, RATES AND MODES
                        /PROGRAMED IO PRESET USED
                        /
3406  7200      TST77,  CLA                             /CLEAR AC
3407  6132              CLLR                            /CLEAR ALL MODES
3410  6134              CLEN                            /CLEAR ALL ENABLES
3411  1133              TAD     K3000                   /SET AC 01,02=1
3412  6132              CLLR                            /SET RATE=10KHS
3413  7200              CLA
3414  1142              TAD     K6000                   /SET AC 00,01=1
3415  7001              IAC                             /INCREMENT COUNTER
3416  7440              SZA                             /DONE?
3417  5215              JMP     .-2                     /WAIT LOOP 4.92 MSEC
                        /
                        /NOW DO IO PRESET CHECK IF RATE BITS 1,2 CLEAR
                        /
3420  6141              LINC                            /ENTER LINC MODE
3421  1020              LDAI                            /PICK UP AC BIT 07
3422  0020              0020
3423  0004              ESF                             /DO IO PRESET
3424  0002              PDP                             /ENTER PDP MODE
3425  6137              CLCA                            /GET COUNTER
3426  3054              DCA     SEND                    /STORE
3427  1142              TAD     K6000                   /SET UP DELAY
3430  7001              IAC                             /INCREMENT COUNTER
3431  7440              SZA                             /DONE?
3432  5230              JMP     .-2                     /WAIT LOOP 4.92 MSEC
3433  6137              CLCA                            /READ COUNTER AGAIN
3434  7041              CIA                             /2'S COMPLEMENT
3435  1054              TAD     SEND                    /COMPARE
3436  7650              SNA CLA                         /HAS COUNTER CHANGED?
3437  4430              JMS I   NERROR                  /CHECK MONITOR
3440  4426              JMS I   ERROR                   /IO PRESET FAILED TO CLEAR RATE BITS 1 & 2
3441  7423              TST77M                          /MESSAGE POINTER
3442  7402              HLT                             /ERROR HALT
3443  7410              SKP                             /TO NEXT TEST
3444  3406              TST77                           /ISZ LOOP! SCOPE LOOP
3445  7340              CLA CLL CMA                     /SET AC=7777
3446  3046              DCA     REGA                    /PRESET REGA FOR NEXT TEST
3447  2047              ISZ     REGB                    /LOOP BACK
3450  5206              JMP     TST77
3451  1151              TAD     M0040                   /
3452  3047              DCA     REGB                    /PRESET REGB
```

```
                    /
                    /NOW ENABLE RATE BIT 0
                    /
3453  7200  TST79,  CLA                          /CLEAR AC
3454  6132          CLLR                         /CLEAR ALL MODES
3455  6134          CLEN                         /CLEAR ENABLES
3456  1135          TAD     K4000                /SET AC 00=1
3457  6132          CLLR                         /SET RATE=1KHZ
3460  7200          CLA
3461  7001          IAC                          /INCREMENT COUNTER
3462  7440          SZA                          /DONE?
3463  5261          JMP     .-2                  /WAIT LOOP 16 MSEC
                    /
                    /NOW DO IO PRESET AND SEE IF BIT 0 CLEARED
                    /
3464  6141          LINC                         /ENTER LINC MODE
3465  1020          LDAI                         /PICK UP AC 07
3466  0020          0020
3467  0004          ESF                          /DO IO PRESET
3470  0002          PDP                          /ENTER PDP MODE
3471  6137          CLCA                         /READ COUNTER
3472  3054          DCA     SEND                 /STORE
3473  7001          IAC                          /INCRMENT COUNTER
3474  7440          SZA                          /DONE?
3475  5273          JMP     .-2                  /WAIT 16 MSEC
3476  6137          CLCA                         /READ COUNTER AGAIN
3477  7041          CIA                          /2'S COMPLEMENT
3500  1054          TAD     SEND                 /COMPARE
3501  7650          SNA CLA                      /COUNTER STILL THE SAME
3502  4430          JMS I   NERROR               /CHECK MONITOR
3503  4426          JMS I   ERROR                /RATE BIT 0 SET AFTER IO PRESET
3504  7457          TST79M                       /MESSAGE POINTER
3505  7402          HLT                          /ERROR HALT
3506  7410          SKP                          /TO NEXT TEST
3507  3453          TST79                        /ISZ LOOP: SCOPE LOOP
3510  7340  CLA CLL CMA                          /SET AC=7777
3511  3046          DCA     REGA                 /PRESET REGA
3512  2047          ISZ     REGB                 /LOOP BACK
3513  5463          JMP I   TST79N               /BACK VIA PAGE 0
3514  3046          DCA     REGA                 /CLEAR REGA IF EXECUTING NEXT TEST
```

```
                    /
                    /DOES OVERFLOW AND OVFLO INT. FLOP
                    /CLEAR WITH IO PRESET
                    /
3515  7200  TST81,  CLA                          /CLEAR AC
3516  6132        CLLR                         /CLEAR ALL MODES
3517  1114        TAD     K0100
3520  6132        CLLR                         /SET MODE 2(1)
3521  6135        CLSA                         /CLEAR STATUS
3522  7200        CLA
3523  1135        TAD     K4000
3524  6133        CLAB                         /SET BUF TO 4000
3525  7200        CLA
3526  1116        TAD     K0200
3527  6134        CLEN                         /LOAD COUNTER
3530  7200        CLA
3531  6133        CLAB                         /ZERO BUF
3532  6132        CLLR                         /CLEAR ALL MODES
3533  1114        TAD     K0100
3534  6132        CLLR                         /GEN "CLR CNT"
3535  6141        LINC                         /ENTER LINC MODE
3536  1020        LDAI
3537  0020        0020
3540  6004        ESF                          /SO IO PRESET
3541  6002        PDP                          /ENTER PDP MODE
3542  6135        CLSA                         /GET STATUS
3543  7700        SMA CLA
3544  4430        JMS I   NERROR               /CHECK MONITOR
3545  4426        JMS I   ERROR                /OVFLO STILL SET AFTER IO PRESET
3546  7511        TST81M                       /MESSAGE POINTER
3547  7402        HLT                          /ERROR HALT
3550  7410        SKP                          /TO NEXT TEST
3551  3515        TST81                        /ISZ LOOP: SCOPE LOOP
```

```
                        /
                        /TEST OVFLO INT ENABLE
                        /
3552  7200      TST82,  CLA                     /CLEAR AC
3553  1114              TAD     K0100
3554  6132              CLLR                    /SET MODE 2(1)
3555  6135              CLSA                    /CLEAR STATUS
3556  7200              CLA
3557  1135              TAD     K4000
3560  6133              CLAB                    /SET BUF PRESET REG,
3561  7200              CLA
3562  1116              TAD     K0200
3563  6134              CLEN                    /LOAD CNT WITH 4000
3564  7200              CLA
3565  1114              TAD     K0100
3566  6134              CLEN                    /SET INT,
3567  6141              LINC                    /ENTER LINE MODE
3570  1020              LDAI
3571  0020              0020
3572  0004              ESF                     /DO IO PRESET
3573  0002              PDP                     /ENTER PDP MODE
3574  7200              CLA
3575  6132              CLLR                    /CLEAR ALL MODES
3576  1114              TAD     K0100
3577  6132              CLLR                    /GEN,
3600  6131              CLSK
3601  4430              JMS I   NERROR          /CHECK MONITOR
3602  4426              JMS I   ERROR           /OVFLO INTER, SET AFTER I/O PRESET
3603  7534              TST82M                  /MESSAGE POINTER
3604  7402              HLT                     /ERROR HALT
3605  7610              SKP CLA                 /TO NEXT TEST
3606  3552              TST82                   /ISZ LOOP; SCOPE LOOP
```

```
                    /
                    /DOES IO PRESET CLEAR INPUT ENABLE FLOPS
                    /
3607  7200  TST83, CLA
3610  6132        CLLR
3611  1113        TAD     K0077           /CLEAR ALL MODES
3612  6134        CLEN                    /ENABLE INPUTS TO ALL CHAN
3613  6141        LINC                    /ENTER LINC MODE
3614  1020        LDAI
3615  0020        0020
3616  6004        ESF                     /DO IO PRESET
3617  6002        PDP                     /ENTER PDP MODE
3620  6135        CLSA                    /CLEAR STATUS
3621  7200        CLA
3622  1113        TAD     K0077
3623  6132        CLLR                    /SIMULATE INPUTS ON ALL CHAN
3624  7200        CLA
3625  6135        CLSA                    /GET STATUS
3626  0134        AND     K3777           /IGNORE O'FLO
3627  7650        SNA CLA
3630  4430        JMS I   NERROR          /CHECK MONITOR
3631  4426        JMS I   ERROR           /STATUS NOT ZERO I/O PRESET FAILED
3632  4333        TST83M                  /MESSAGE POINTER
3633  7402        HLT                     /ERROR HALT
3634  7610        SKP CLA                 /TO NEXT TEST
3635  3607        TST83                   /ISZ LOOP; SCOPE LOOP
```

```
                    /
                    /DOES IO PRESET CLEAR MODE 2
                    /
3636  6133  TST84,  CLAB
3637  6132          CLLR                        /CLEAR MODES
3640  1114          TAD     K0100
3641  6132          CLLR                        /SET MODE 2(1) = CLR CNT
3642  6141          LINC                        /ENTER LINC MODE
3643  1020          LDAI
3644  0020          0020
3645  6004          ESF                         /DO IO PRESET
3646  6002          PDP                         /ENTER PDP MODE
3647  7200          CLA
3650  1141          TAD     K5555
3651  6133          CLAB                        /LOAD BUF WITH 5555
3652  7200          CLA
3653  1116          TAD     K0200
3654  6134          CLEN                        /GEN LOAD CNT
3655  6137          CLCA                        /LOAD CNT TO AC
3656  7700          SMA CLA
3657  4430          JMS I   NERROR              /CHECK MONITOR
3660  4426          JMS I   ERROR               /MODE 2 NOT CLEARED BY I/O PRESET
3661  4357          TST84M                      /MESSAGE POINTER
3662  7402          HLT                         /ERROR HALT
3663  7610          SKP CLA                     /TO NEXT TEST
3664  3636          TST84                       /ISZ LOOP; SCOPE LOOP
3665  7340          CLA CLL CMA                 /SET AC = 7777
3666  3046          DCA     REGA                /PRESET REGA
```

```
                        /
                        /DOES IO PRESET CLEAR MODE 0
                        /
3667  7604  TST85,  LAS                     /IF RIGHT SW BIT 4(1)
3670  7006        RTL                     /SKIP FAST SAM TEST
3671  7006        RTL
3672  7710        SPA CLA
3673  5354        JMP     RESET
3674  7200        CLA
3675  6132        CLLR                    /CLEAR ALL MODES
3676  6141        LINC                    /ENTER LINC MODE
3677  0100        SAM0                    /READ KNOB 0
3700  0002        PDP
3701  3054        DCA     SEND
3702  6141        LINC
3703  0101        SAM1                    /READ KNOB 1
3704  0002        PDP                     /ENTER PDP MODE
3705  7200        CLA
3706  1122        TAD     K0400
3707  6132        CLLR                    /SET MODE 0(1)
3710  6141        LINC                    /ENTER LINC MODE
3711  1020        LDAI
3712  0020        0020
3713  0004        ESF                     /DO IO PRESET
3714  1020        LDAI
3715  0100        0100                    /ENABLE FAST SAM
3716  0004        ESF
3717  0100        SAM0                    /READ KNOB 1=FAST S, MODE
3720  0002        PDP                     /ENTER PDP MODE
3721  7041        CIA
3722  1054        TAD     SEND
3723  7640        SZA CLA
3724  4430        JMS I   NERROR          /CHECK MONITOR
3725  4426        JMS I   ERROR           /FAST SAM NOT SET
3726  4403        TST85M                  /MESSAGE POINTER
3727  7402        HLT                     /ERROR HALT
3730  7410        SKP                     /TO NEXT TAPE
3731  3667        TST85                   /ISZ LOOP! SCOPE LOOP
3732  7340        CLA CLL CMA             /SET AC = 7777
3733  3046        DCA     REGA            /PRESET REGA
```

```
                        /
                        /NOW CHECK FOR MODE 0 CLEARED
                        /
3734  6141    TST86,    LINC                        /ENTER LINC MODE
3735  0100              SAM0                        /READ KNOB 0
3736  0002              PDP                         /ENTER PDP MODE
3737  7041              CIA
3740  1054              TAD       SEND
3741  7650              SNA CLA
3742  4430              JMS I     NERROR            /CHECK MONITOR
3743  4426              JMS I     ERROR             /MODE 0 NOT CLEARED
3744  4430              TST86M                      /MESSAGE POINTER
3745  7402              HLT                         /ERROR HALT
3746  7410              SKP                         /TO NEXT TEST
3747  3734              TST86                       /ISZ LOOP! SCOPE LOOP
3750  7340              CLA CLL CMA                 /SET AC = 7777
3751  3046              DCA       REGA              /PRESET REGA
3752  2047              ISZ       REGB              /LOOP BACK
3753  5267              JMP       TST85
                        /
                        /RESET ANYTHING LEFT HANGING
                        /
3754  1107    RESET,    TAD       K0020             /PICK UP AC BIT 07
3755  6141              LINC                        /TO LMODE
3756  0004              ESF                         /DO IO PRESET
3757  0002              PDP                         /TO PMODE
3760  7200              CLA                         /CLEAR THE AC
3761  1151              TAD       M0040
3762  3046              DCA       REGA              /PRESET REGA PRIOR TO NEXT TEST
```

```
                        /
                        /DOES MODE 1(1) WORK CHAN 1
                        /
3763  7200      TST87,  CLA
3764  6132              CLLR                    /CLEAR ALL MODES
3765  6133              CLAB                    /CLEAR BUF
3766  4445              JMS I   RANDOM          /GET RANDOM NUM
3767  3054              DCA     SEND
3770  1054              TAD     SEND
3771  6133              CLAB                    /SEND RANDOM NUM TO BUF
3772  7200              CLA
3773  1114              TAD     K0100
3774  6132              CLLR                    /GEN "CLR CNT"
3775  6135              CLSA                    /CLEAR CLOCK STATUS
3776  7200              CLA
3777  1116              TAD     K0200
4000  6134              CLEN                    /GEN LOAD CNT
4001  6132              CLLR                    /SET MODE BIT 1(1)
4002  7200              CLA
4003  6133              CLAB                    /CLEAR BUFFER
4004  1112              TAD     K0060
4005  6134              CLEN                    /ENABLE INPT 1 AND INT CHAN1
4006  2047              ISZ     REGB            /INCREMENT TIMER
4007  7410              SKP                     /NOT DONE YET
4010  5213              JMP     .+3             /TIME OUT
4011  6131              CLSK                    /SKP ON CLOCK INT
4012  5206              JMP     .+4
4013  6135              CLSA                    /CLEAR STATUS
4014  7200              CLA
4015  3047              DCA     REGB            /CLEAR REGB
4016  6136              CLBA                    /GET BUFFER
4017  7041              CIA
4020  1054              TAD     SEND            /COMPARE
4021  7650              SNA CLA
4022  4430              JMS I   NERROR          /CHECK MONITOR
4023  4426              JMS I   ERROR           /CHAN 1 INPUT FAILED TO CAUSE CNT TO BUF TRANSFER
4024  4450              TST87M                  /MESSAGE POINTER
4025  7402              HLT                     /ERROR HALT
4026  7410              SKP                     /TO NEXT TEST
4027  3763              TST87                   /ISZ LOOP: SCOPE LOOP
4030  1151              TAD     M0040
4031  3046              DCA     REGA
```

```
                    /
                    /DOES MODE 1 (1) WORK CHAN 2
                    /
4032  6134  TST88,  CLEN                    /CLEAR ENABLES
4033  6135        CLSA                     /CLEAR CLOCK STATUS
4034  7200        CLA
4035  6133        CLAB                     /CLEAR BUFFER
4036  1104        TAD     K0014
4037  6134        CLEN                     /ENABLE CHAN 2 INPUT AND INT
4040  2047        ISZ     REGB             /INCREMENT TIMER
4041  7410        SKP                      /NOT DONE YET
4042  5245        JMP     .+3              /TIME OUT
4043  6131        CLSK                     /SKP ON CLOCK INT
4044  5240        JMP     .-4
4045  6135        CLSA                     /CLEAR STATUS
4046  7200        CLA
4047  3047        DCA     REGB             /CLEAR REGB
4050  6136        CLBA                     /GET BUFFER
4051  7041        CIA
4052  1054        TAD     SEND             /COMPARE
4053  7650        SNA CLA
4054  4430        JMS I   NERROR           /CHECK MONITOR
4055  4426        JMS I   ERROR            /CHAN2 INPUT FAILED TO CAUSE CNT TO BUF TRANSFER
4056  4476        TST88M                   /MESSAGE POINTER
4057  7402        HLT                      /ERROR HALT
4060  7410        SKP                      /TO NEXT TEST
4061  4032        TST88                    /ISZ LOOP; SCOPE LOOP
4062  1151        TAD     M0040
4063  3046        DCA     REGA
```

```
                    /
                    /DOES MODE 1 (1) WORK CHAN 3
                    /
4064  6134  TST89,  CLEN                    /CLEARS ENABLE
4065  6135        CLSA                     /CLEAR STATUS
4066  7200        CLA
4067  6133        CLAB                     /CLEAR BUFFER
4070  1077        TAD     K0003
4071  6134        CLEN                     /ENABLES CHAN 3 INPUT AND INT
4072  2047        ISZ     REGB             /INCREMENT TIMER
4073  7410        SKP                      /NOT DONE YET
4074  5277        JMP     .-3              /TIME OUT
4075  6131        CLSK                     /SKIP ON CK INT
4076  5272        JMP     .-4
4077  6135        CLSA                     /CLEAR CLOCK STATUS
4100  7200        CLA
4101  3047        DCA     REGB             /CLEAR REGB
4102  6136        CLBA                     /GET BUF
4103  7041        CIA
4104  1054        TAD     SEND             /COMPARE
4105  7650        SNA CLA
4106  4430        JMS I   NERROR           /CHECK MONITOR
4107  4426        JMS I   ERROR            /CHAN 3 INPUT FAILED TO CAUSE CNT TO BUF TRANSFER
4110  1524        TST89M                   /MESSAGE POINTER
4111  7402        HLT                      /ERROR HALT
4112  7410        SKP                      /TO NEXT TEST
4113  4064        TST89                    /ISZ LOOP; SCOPE LOOP
4114  7340        CLA CLL CMA              /SET AC=7777
4115  3046        DCA     REGA             /PRESET REGA
4116  1151        TAD     M0040            /
4117  3047        DCA     REGB             /PRESET REGB
```

```
                    /
                    /TEST MODE 1(1) AND MODE 2(1) CHAN 1
                    /
4120  6134  TST90,  CLEN                    /CLEARS ENABLES
4121  1120        TAD     K0300
4122  1127        TAD     K1000
4123  6132        CLLR                      /START CNT RATE=400KHZ - MODE 1(1) AND 2(1)
4124  7200        CLA
4125  1120        TAD     K0300
4126  6132        CLLR                      /STOP CNT - MODE 1(1) AND 2(1)
4127  6137        CLCA                      /GET CNT
4130  3054        DCA     SEND              /STORE
4131  6135        CLSA
4132  7200        CLA
4133  6133        CLAB                      /CLEAR BUF
4134  1112        TAD     K0060
4135  6134        CLEN                      /ENABLE CHAN1 INPUT AND INT
4136  2051        ISZ     REGT              /INCREMENT TIMER
4137  7410        SKP                       /NOT DONE YET
4140  5343        JMP     .+3               /TIME OUT
4141  6131        CLSK                      /SKP ON CLOCK INT
4142  5336        JMP     .-4
4143  6135        CLSA                      /CLEAR CLOCK STATUS
4144  7200        CLA
4145  3051        DCA     REGT              /CLEAR TIMER
4146  6136        CLBA                      /GET BUF
4147  7041        CIA
4150  1054        TAD     SEND              /COMAPRE
4151  7650        SNA CLA
4152  4430        JMS I   NERROR            /CHECK MONITOR
4153  4426        JMS I   ERROR             /CHAN1 FAILED TO CAUSE CNT TO BUF TRANSFER
4154  4552        TST90M                    /MESSAGE POINTER
4155  7402        HLT                       /ERROR HALT
4156  7410        SKP                       /TO NEXT TEST
4157  4120        TST90                     /ISZ LOOP! SCOPE LOOP
4160  7340        CLA CLL CMA
4161  3046        DCA     REGA
```

```
                    /
                    /TEST MODE 1 (1) AND MODE 2 (1) CHAN 2
                    /
4162  6134  TST91,  CLEN                    /CLEARS ENABLES
4163  6135        CLSA                     /CLEAR STATUS
4164  7200        CLA
4165  6133        CLAB                     /CLEA  BUF
4166  1104        TAD     K0014
4167  6134        CLEN                     /ENABLE CHAN 2 INPUT AND INT
4170  2051        ISZ     REGT             /INCREMENT TIMER
4171  7410        SKP                      /NOT DONE YET
4172  5375        JMP     .+3              /TIME OUT
4173  6131        CLSK                     /SKP ON  OCK INT
4174  5370        JMP     .-4
4175  6135        CLSA                     /CLEAR STATUS
4176  7200        CLA
4177  3051        DCA     REGT             /CLEAR REGT
4200  7000        NOP
4201  6136        CLBA                     /GET BUF
4202  7041        CIA
4203  1054        TAD     SEND             /COMPARE
4204  7650        SNA CLA
4205  4430        JMS I   NERROR           /CHECK MONITOR
4206  4426        JMS I   ERROR            /CHAN 2 INPUT FAILED TO CAUSE CNT TO BUF TRANSFER
4207  4600        TST91M
4210  7402        HLT
4211  7610        SKP CLA
4212  4162        TST91
4213  7340        CLA CLL CMA
4214  3046        DCA     REGA             /PRESET REGA
```

```
                    /
                    /TEST MODE 1 (1) AND MODE 2 (1) CHAN 3
                    /
4215  6134    TST92,  CLEN                    /CLEAR ENABLES
4216  6135            CLSA
4217  7200            CLA
4220  6133            CLAB                    /CLEAR BUF
4221  1077            TAD     K0003
4222  6134            CLEN                    /ENABLES CHAN3 INPUT AND INT
4223  2051            ISZ     REGT            /INCREMENT TIMER
4224  7410            SKP                     /NOT DONE YET
4225  5230            JMP     .+3             /TIME OUT
4226  6131            CLSK                    /SKP ON CLOCK INT
4227  5223            JMP     .-4
4230  6135            CLSA                    /CLEAR CLOCK STATUS
4231  7200            CLA
4232  3051            DCA     REGT            /CLEAR REGT
4233  7000            NOP
4234  6136            CLBA                    /GET BUF
4235  7041            CIA
4236  1054            TAD     SEND            /COMPARE
4237  7650            SNA CLA
4240  4430            JMS I   NERROR
4241  4426            JMS I   ERROR           /CHAN 3 INPUT FAILED TO CAUSE CNT TO BUF TRANSFER
4242  4626            TST92M                  /MESSAGE POINTER
4243  7402            HLT                     /ERROR HALT
4244  7410            SKP                     /TO NEXT TEST
4245  4215            TST92                   /ISZ LOOP! SCOPE LOOP
4246  7340            CLA CLL CMA             /SET AC = 7777
4247  3046            DCA     REGA            /PRESET REGA
```

```
                    /
                    /CHECK THAT CHAN 3 CLEARED COUNTER FROM TEST 92
                    /
4250  6137  TST93,  CLCA                    /GET CNT
4251  3053        DCA     RXED
4252  1053        TAD     RXED
4253  7650        SNA CLA                   /ZERO?
4254  4430        JMS I   NERROR            /CHECK MONITOR
4255  4426        JMS I   ERROR             /CHAN3 INPUT FAILED TO CLEAR CNT
4256  4654        TST93M                    /MESSAGE POINTER
4257  7402        HLT                       /ERROR HALT
4260  7410        SKP                       /TO NEXT TEST
4261  4250        TST93                     /ISZ LOOP; SCOPE LOOP
4262  7340        CLA CLL CMA               /SET AC = 7777
4263  3046        DCA     REGA              /PRESET REGA
4264  2047        ISZ     REGB              /DO TESTS 90-93 40 TIMES
4265  5464        JMP I   TST90N            /TO TEST 90
4266  1151        TAD     M0040
4267  3046        DCA     REGA              /PRESET REGA

                    /
                    /CHECK THAT DIFLO ALWAYS TRANSFERS BUFFER TO COUNTER ON MODE 2(1)
                    /
4270  1071  TST94,  TAD     KPRE              /GET PRESET
4271  6133        CLAB                      /PRESET BUFFER
4272  7200        CLA                       /
4273  1073        TAD     KRTE              /GET RATE
4274  6132        CLLR                      /START CLOCK
4275  7200        CLA                       //
4276  1072        TAD     KENA              /GET ENABLES
4277  6134        CLEN                      /INTERRUPT ON OVERFLOW
4300  6131        CLSK                      /WAIT FOR INTERRUPT
4301  5300        JMP     .-1               /
4302  2051        ISZ     REGT              /WAIT FOR ANOTHER OVERFLOW
4303  5302        JMP     .-1               /22 MSEC DELAY
4304  7200        CLA
4305  6132        CLLR
4306  6134        CLEN
4307  6135        CLSA
4310  6137        CLCA                      /GET THE COUNTER
4311  7440        SZA                       /0 IS OK
4312  7710        SPA CLA                   /COUNTER SHOULD NEVER GO POSITIVE
4313  4430        JMS I   NERROR            /
4314  4426        JMS I   ERROR             /ECO EM12-00033 IS EITHER NOT INSTALLED OR NOT WORKING
4315  4702        TST94M                    /
4316  7402        HLT                       /
4317  7410        SKP                       /
4320  4270        TST94                     /
```

```
                    /
                    /ALERT OPERATOR OF PASS COMPLETION
                    /SUPPRESS PRINTOUT IF RSW 06 = 1
                    /
4321  2032    TST95,  ISZ     PASS            /INCREMENT PASS
4322  7000            NOP                     /DON'T SKIP
4323  7604            LAS                     /READ SWITCHES
4324  0111            AND     K0040           /PICK OUT RSW 06
4325  7640            SZA CLA                 /SET?
4326  5176            JMP     176             /YES, NO PRINTOUT
4327  1044            TAD     PNTJ            /GET POINTER
4330  3426            DCA I   ERROR           /CHEAT MONITOR
4331  5431            JMP I   OUTPAS          /GO TYPE ALARM
4332  4741    LOCJ,   TST95M                  /MESSAGE POINTER
                    /
                    /RETURN TO LOC 176 FROM ASCII TYPEOUT (MONITOR WILL HANDLE LINK)
                    /
```

```
                5000    *5000
                        /
                        /NON ERROR MONITOR DETERMINES IF OPERATOR WANTS TO LOOP ON NONFAILING 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          /UPDATE RETURN ADDRESS
5004    1600            TAD I   NERROS          /GET SCOPE LOOP ADDRESS
5005    3220            DCA     ERRORS          /STORE IT
5006    2046            ISZ     REGA            /UPDATE DATA
5007    5620            JMP I   ERRORS          /EXIT
5010    7604            LAS                     /READ SWITCHES
5011    0122            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    5251            JMP     ASCII           /NO TYPE A MESSAGE
5025    4421            JMS I   BELL            /RING THE BELL
5026    1220    ASCRXT, TAD     ERRORS          /GET CURRENT ERROR ADDRESS
5027    7041            CIA                     /INVERT IT
5030    3027            DCA     LSTERR          /STORE IN LAST ERROR
5031    2220            ISZ     ERRORS          /YES INDEX ESCAPE
5032    7604            LAS                     /READ SWITCHES
5033    7700            SMA CLA                 /IS SR0 SET
5034    7402            HLT                     /NO, ERROR HALT
5035    2220            ISZ     ERRORS          /YES INDEX ESCAPE TO JUMP OUT
5036    2220            ISZ     ERRORS          /INDEX ERRORS TO SCOPE MODE
5037    1620            TAD I   ERRORS          /GET SCOPE ADDRESS
5040    3200            DCA     NERROS          /STORE IN TYPE
5041    7604            LAS                     /READ SWITCHES
5042    7006            RTL                     /MOVE SR02 TO AC0
5043    7710            SPA CLA                 /IS SCOPE MODE SELECTED
5044    5600            JMP I   NERROS          /YES CONTINUE IN SCOPE LOOP
5045    7040            CMA                     /NO SET AC=7777 (=-1)
5046    1220            TAD     ERRORS          /SUBTRACT ONE FROM ERRORS
5047    3220            DCA     ERRORS          /STORE SELECTED ADDRESS
5050    5620            JMP I   ERRORS          /EXIT TO NEXT TEST
```

```
5051  7240    ASCII,  CLA CMA                 /SET D(AC)=-1
5052  1620            TAD I   ERRORS          /GET MESSAGE ADDRESS STORAGE
5053  3010            DCA     PINT            /STORE IT IN AUTO INDEX REGISTER
5054  1220            TAD     ERRORS          /GET RETURN ADDRESS
5055  1027            TAD     LSTERR          /SUBTRACT LAST ERROR ADDRESS
5056  7650            SNA CLA                 /TEST
5057  5363            JMP     DATYP           /SAME GO TYPE DATA
5060  1410            TAD I   PINT           /GET FIRST CHARACTER
5061  3200            DCA     NERROS          /SAVE IT
5062  1200            TAD     NERROS          /GET IT
5063  7450            SNA                     /TEST IT
5064  5226            JMP     ASCRXT          /NUMBER=EXIT,
5065  7040            CMA                     /INVERT IT
5066  7450            SNA                     /NUMBER=EXITA
5067  5315            JMP     DATUM           /TYPE OUT DATA ROUTINE
5070  7040            CMA                     /CHANGE IT BACK
5071  7112            RTR CLL                 /SWAP AC TO THE RIGHT
5072  7012            RTR                     /MOVE
5073  7012            RTR                     /MOVE
5074  4300            JMS     TYPECH          /TYPE IT
5075  1200            TAD     NERROS          /GET IT AGAIN
5076  4300            JMS     TYPECH          /TYPE IT
5077  5260            JMP     ASCII+7         /MUST BE MORE WORDS THAT NEED TYPING
5100  0000    TYPECH, 0
5101  0113            AND     K0077           /SAVE SIGNIFICENT PART
5102  3056            DCA     SPACE           /STORE WORD
5103  1056            TAD     SPACE           /FETCH IT
5104  7650            SNA CLA                 /TEST FOR 00 CRLF CODE
5105  4354            JMS     CRLF            /YES IT WAS
5106  1056            TAD     SPACE           /NO TYPE IT
5107  1151            TAD     M0040           /SUBTRACT 40
5110  7510            SPA                     /TEST POLARITY
5111  1114            TAD     K0100           /ADD 340
5112  1117            TAD     K240            /ADD 240
5113  4465            JMS I   TYPE            /TYPE
5114  5700            JMP I   TYPECH          /EXIT
```

```
5115  1410    DATUM,  TAD I   PINT            /GET ADDRESS OF REGISTER
5116  3200            DCA     NERROS          /STORE IN TEMP
5117  1200            TAD     NERROS          /GET TEMP
5120  7650            SNA CLA                 /TEST FOR EXIT
5121  5226            JMP     ASCRXT          /EQUALS 0000 EXIT
5122  1200            TAD     NERROS          /GET TEMP
5123  1162            TAD     M4444           /SS?
5124  7650            SNA CLA                 /TEST
5125  5176            JMP     176             /SPECIAL RESTART
5126  1600            TAD I   NERROS          /GET DATA
5127  4333            JMS     OCTYP           /TYPE IT
5130  1117            TAD     K240            /SPACE
5131  4465            JMS I   TYPE            /TYPE IT
5132  5315            JMP     DATUM           /TYPE NUMERIC DATA
5133  0000    OCTYP,  0                       /RETURN ADDRESS STORAGE
5134  3300            DCA     TYPECH          /STORE DATA TO BE PRINTED
5135  1143            TAD     K7774           /SET UP TALLY
5136  3056            DCA     SPACE           /SET IT
5137  1130    HERE,   TAD     K1026           /GET FLAG NUMBER
5140  3354    REDO,   DCA     CRLF            /STORE
5141  1300            TAD     TYPECH
5142  7004            RAL
5143  3300            DCA     TYPECH
5144  1354            TAD     CRLF
5145  7004            RAL
5146  7420            SNL
5147  5340            JMP     REDO
5150  4465            JMS I   TYPE
5151  2056            ISZ     SPACE
5152  5337            JMP     HERE
5153  5733            JMP I   OCTYP           /EXIT
5154  0000    CRLF,   0                       /RETURN ADDRESS STORAGE
5155  1374            TAD     K0215           /GET CR
5156  4465            JMS I   TYPE            /TYPE IT
5157  1375            TAD     K0212           /GET LF
5160  4465            JMS I   TYPE            /TYPE IT
5161  1115            TAD     K0177           /SET TO RUBOUT
5162  5754            JMP I   CRLF            /EXIT
5163  1410    DATYP,  TAD I   PINT            /GET A TERM OFF OF TYPE LIST
5164  7450            SNA                     /END OF LIST?
5165  5226            JMP     ASCRXT          /YES EXIT
5166  7040            CMA                     /INVERT
5167  7640            SZA CLA                 /BEGINNING OF DATA
5170  5363            JMP     DATYP           /NO
5171  4354            JMS     CRLF            /YES OK RETURN THE TTY CARRIAGE AND LINE FEED
5172  7300            CLA CLL                 /CLEAR AC AND LINK
5173  5315            JMP     DATUM           /GO TYPE THE DATA
5174  0215    K0215,  0215
5175  0212    K0212,  0212
```

```
                5200            *5200
5200  0000      BELLS,  0                       /RING THE BELL
5201  7604              LAS
5202  0114              AND     K0100
5203  7640              SZA CLA
5204  5600              JMP I   BELLS
5205  1101              TAD     K0007
5206  4465              JMS I   TYPE
5207  5600              JMP I   BELLS
5210  0000      RANDY,  0
5211  1240              TAD     RNA             /RANDOM NUMBER GENERATOR
5212  1241              TAD     RNB
5213  1242              TAD     RNC
5214  1140              TAD     K5252
5215  3240              DCA     RNA
5216  7004              RAL
5217  1240              TAD     RNA
5220  1241              TAD     RNB
5221  1242              TAD     RNC
5222  1140              TAD     K5252
5223  3241              DCA     RNB
5224  7004              RAL
5225  1240              TAD     RNA
5226  1241              TAD     RNB
5227  1242              TAD     RNC
5230  1140              TAD     K5252
5231  3242              DCA     RNC
5232  7004              RAL
5233  1240              TAD     RNA
5234  3240              DCA     RNA
5235  1241              TAD     RNB
5236  1242              TAD     RNC
5237  5610              JMP I   RANDY
5240  7601      RNA,    7601
5241  3542      RNB,    3542
5242  3755      RNC,    3755

5243  0000      TYPOUT, 0
5244  6046              TLS
5245  6041              TSF
5246  5245              JMP     .-1
5247  6042              TCF                     /CLEAR FLAG
5250  7300              CLA CLL
5251  5643              JMP I   TYPOUT
5252  0000      SETN,   0                       /RESET PASS COUNTER
5253  7300              CLA CLL
5254  3032              DCA     PASS
5255  3046              DCA     REGA
5256  3047              DCA     REGB
5257  3027              DCA     LSTERR
5260  5652              JMP I   SETN
```

```
                    /
                    /TEXT TEST ERROR MESSAGES
                    /
5261  0024  TST10M, 0024                    /TST10 CLAB CHANGED AC
5262  2324         2324
5263  6160         6160
5264  4003         4003
5265  1401         1401
5266  0240         0240
5267  0310         0310
5270  0116         0116
5271  0705         0705
5272  0440         0440
5273  0103         0103
5274  4000         4000
5275  7777         EXITA
5276  0046         REGA
5277  0053         RXED
5300  0000         EXIT

5301  0024  TST11M, 0024                    /TST11 CLBA FAILED
5302  2324         2324
5303  6161         6161
5304  4003         4003
5305  1402         1402
5306  0140         0140
5307  0601         0601
5310  1114         1114
5311  0504         0504
5312  4000         4000
5313  7777         EXITA
5314  0054         SEND
5315  0053         RXED
5316  0000         EXIT

5317  0024  TST12M, 0024                    /TST12 CLAB FAILED
5320  2324         2324
5321  6162         6162
5322  4003         4003
5323  1401         1401
5324  0240         0240
5325  0601         0601
5326  1114         1114
5327  0504         0504
5330  4000         4000
5331  7777         EXITA
5332  0054         SEND
5333  0053         RXED
5334  0000         EXIT

5335  0024  TST13M, 0024                    /TST13 CLAB FAILED
5336  2324         2324
5337  6163         6163
5340  4003         4003
5341  1401         1401
```

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5342  0240              0240
5343  0601              0601
5344  1114              1114
5345  0504              0504
5346  4000              4000
5347  7777              EXITA
5350  0046              REGA
5351  0053              RXED
5352  0000              EXIT

5353  0024    TST14M,   0024                    /TST14 CLAB FAILED
5354  2324              2324
5355  6164              6164
5356  4003              4003
5357  1401              1401
5360  0240              0240
5361  0601              0601
5362  1114              1114
5363  0504              0504
5364  4000              4000
5365  7777              EXITA
5366  0054              SEND
5367  0053              RXED
5370  0000              EXIT

5371  0024    TST15M,   0024                    /TST15 CLBA CHANGED BUFFER
5372  2324              2324
5373  6165              6165
5374  4003              4003
5375  1402              1402
5376  0140              0140
5377  0310              0310
5400  0116              0116
5401  0705              0705
5402  0440              0440
5403  0225              0225
5404  0606              0606
5405  0522              0522
5406  4000              4000
5407  7777              EXITA
5410  0054              SEND
5411  0053              RXED
5412  0000              EXIT

5413  0024    TST16M,   0024                    /TST16 CLAB <> CLBA FAILED
5414  2324              2324
5415  6166              6166
5416  4003              4003
5417  1401              1401
5420  0274              0274
5421  7603              7603
5422  1402              1402
5423  0140              0140
5424  0601              0601
5425  1114              1114
```

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5426  0504              0504
5427  4000              4000
5430  7777              EXITA
5431  0046              REGA
5432  0053              RXED
5433  0000              EXIT

5434  0024    TST17M,   0024                /TST17 CLAB <> CLBA FAILED
5435  2324              2324
5436  6167              6167
5437  4003              4003
5440  1401              1401
5441  0274              0274
5442  7603              7603
5443  1402              1402
5444  0140              0140
5445  0601              0601
5446  1114              1114
5447  0504              0504
5450  4000              4000
5451  7777              EXITA
5452  0054              SEND
5453  0053              RXED
5454  0000              EXIT

5455  0024    TST18M,   0024                /TST18 CLAB <> CLBA FAILED
5456  2324              2324
5457  6170              6170
5460  4003              4003
5461  1401              1401
5462  0274              0274
5463  7603              7603
5464  1402              1402
5465  0140              0140
5466  0601              0601
5467  1114              1114
5470  0504              0504
5471  4000              4000
5472  7777              EXITA
5473  0054              SEND
5474  0053              RXED
5475  0000              EXIT

5476  0024    TST19M,   0024                /TST19 CLEN CHANGED AC
5477  2324              2324
5500  6171              6171
5501  4003              4003
5502  1405              1405
5503  1640              1640
5504  0310              0310
5505  0116              0116
5506  0705              0705
5507  2440              2440
5510  0103              0103
5511  4000              4000
```

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5512  7777          EXITA
5513  0046          REGA
5514  0053          RXED
5515  0000          EXIT

5516  0024    TST20M, 0024                  /TST20 CLEN CHANGED BUFFER
5517  2324          2324
5520  6260          6260
5521  4003          4003
5522  1405          1405
5523  1640          1640
5524  0310          0310
5525  0116          0116
5526  0705          0705
5527  2440          0440
5530  0225          0225
5531  0606          0606
5532  0522          0522
5533  4000          4000
5534  7777          EXITA
5535  0046          REGA
5536  0053          RXED
5537  0000          EXIT

5540  0024    TST21M, 0024                  /TST21 CLCA FAILED
5541  2324          2324
5542  6261          6261
5543  4003          4003
5544  1403          1403
5545  0140          0140
5546  0601          0601
5547  1114          1114
5550  0504          0504
5551  4000          4000
5552  7777          EXITA
5553  0054          SEND
5554  0053          RXED
5555  0000          EXIT

5556  0024    TST22M, 0024                  /TST22 "CLR CNT" FAILED
5557  2324          2324
5560  6262          6262
5561  4042          4042
5562  0314          0314
5563  2240          2240
5564  0316          0316
5565  2442          2442
5566  4006          4006
5567  0111          0111
5570  1405          1405
5571  0400          0400
5572  7777          EXITA
5573  0054          SEND
5574  0053          RXED
5575  0000          EXIT
```

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5576  0024    TST23M, 0024                    /TST23 CLEN FAILED
5577  2324            2324
5600  6263            6263
5601  4003            4003
5602  1405            1405
5603  1640            1640
5604  0601            0601
5605  1114            1114
5606  0504            0504
5607  4000            4000
5610  7777            EXITA
5611  0046            REGA
5612  0053            RXED
5613  0000            EXIT

5614  0024    TST24M, 0024                    /TST24 CLEN FAILED
5615  2324            2324
5616  6264            6264
5617  4003            4003
5620  1405            1405
5621  1640            1640
5622  0601            0601
5623  1114            1114
5624  0504            0504
5625  4000            4000
5626  7777            EXITA
5627  0054            SEND
5630  0053            RXED
5631  0000            EXIT

5632  0024    TST25M, 0024                    /TST25 CLCA CHANGES COUNT
5633  2324            2324
5634  6265            6265
5635  4003            4003
5636  1403            1403
5637  0140            0140
5640  0310            0310
5641  0116            0116
5642  0705            0705
5643  2340            2340
5644  0317            0317
5645  2516            2516
5646  2400            2400
5647  7777            EXITA
5650  0054            SEND
5651  0053            RXED
5652  0000            EXIT

5653  0024    TST26M, 0024                    /TST26 BUFFER <> COUNTER FAILED
5654  2324            2324
5655  6266            6266
5656  4002            4002
5657  2506            2506
5660  0605            0605
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5661  2274              2274
5662  7603              7603
5663  1725              1725
5664  1624              1624
5665  0522              0522
5666  4006              4006
5667  0111              0111
5670  1405              1405
5671  0400              0400
5672  7777              EXITA
5673  0054              SEND
5674  0053              RXED
5675  0000              EXIT

5676  0024    TST27M,   0024                    /TST27 "LOAD CNT" FAILS TO "OR"
5677  2324              2324
5700  6267              6267
5701  4042              4042
5702  1417              1417
5703  0104              0104
5704  4003              4003
5705  1624              1624
5706  4240              4240
5707  0601              0601
5710  1114              1114
5711  2340              2340
5712  2417              2417
5713  4042              4042
5714  1722              1722
5715  4200              4200
5716  7777              EXITA
5717  0054              SEND
5720  0053              RXED
5721  0000              EXIT

5722  0024    TST28M,   0024                    /TST28 "LOAD CNT" LOADED IN ERROR
5723  2324              2324
5724  6270              6270
5725  4042              4042
5726  1417              1417
5727  0104              0104
5730  4003              4003
5731  1624              1624
5732  4240              4240
5733  1417              1417
5734  0104              0104
5735  0504              0504
5736  4011              4011
5737  1640              1640
5740  0522              0522
5741  2217              2217
5742  2200              2200
5743  7777              EXITA
5744  0054              SEND
5745  0053              RXED
```

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5746  0000            EXIT
5747  0024  TST29M,  0024                /TST29 "LOAD CNT" LOADED IN ERROR
5750  2324            2324
5751  6271            6271
5752  4042            4042
5753  1417            1417
5754  0104            0104
5755  4003            4003
5756  1624            1624
5757  4240            4240
5760  1417            1417
5761  0104            0104
5762  0504            0504
5763  4011            4011
5764  1640            1640
5765  0522            0522
5766  2217            2217
5767  2200            2200
5770  7777            EXITA
5771  0054            SEND
5772  0053            RXED
5773  0000            EXIT

5774  0024  TST30M,  0024                /TST30 MODE REG CAUSES "LOAD CNT"
5775  2324            2324
5776  6360            6360
5777  4015            4015
6000  1704            1704
6001  0540            0540
6002  2205            2205
6003  0740            0740
6004  0301            0301
6005  2523            2523
6006  0523            0523
6007  4042            4042
6010  1417            1417
6011  0104            0104
6012  4003            4003
6013  1624            1624
6014  4200            4200
6015  7777            EXITA
6016  0054            SEND
6017  0053            RXED
6020  0000            EXIT

6021  0024  TST31M,  0024                /TST31 MODE REG CAUSES "LOAD CNT" OR "CLR BUF"
6022  2324            2324
6023  6361            6361
6024  4015            4015
6025  1704            1704
6026  0540            0540
6027  2205            2205
6030  0740            0740
6031  0301            0301
6032  2523            2523
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6033  0523            0523
6034  4042            4042
6035  1417            1417
6036  0104            0104
6037  4003            4003
6040  1624            1624
6041  4240            4240
6042  1722            1722
6043  4042            4042
6044  0314            0314
6045  2240            2240
6046  0225            0225
6047  0642            0642
6050  4000            4000
6051  7777            EXITA
6052  0054            SEND
6053  0053            RXED
6054  0047            REG6
6055  0000            EXIT

6056  0024    TST32M, 0024                    /TST32 MODE 21 1>0 CLOCKED CNTR
6057  2324            2324
6060  6362            6362
6061  4015            4015
6062  1704            1704
6063  0540            0540
6064  6272            6272
6065  4061            4061
6066  7660            7660
6067  4003            4003
6070  1417            1417
6071  0313            0313
6072  0504            0504
6073  4003            4003
6074  1624            1624
6075  2200            2200
6076  7777            EXITA
6077  0054            SEND
6100  0053            RXED
6101  0000            EXIT

6102  0024    TST33M, 0024                    /TST33 MODE 21 0>1 CLOCKED CNTR
6103  2324            2324
6104  6363            6363
6105  4015            4015
6106  1704            1704
6107  0540            0540
6110  6272            6272
6111  4062            4062
6112  7661            7661
6113  4003            4003
6114  1417            1417
6115  0313            0313
6116  0504            0504
6117  4003            4003
```

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6120  1624            1624
6121  2200            2200
6122  7777            EXITA
6123  0074            K0000
6124  0053            RXED
6125  0000            EXIT

6126  0024    TST34M, 0024            /TST34 O'FLO FAILED TO SET O'FLO FLOP
6127  2324            2324
6130  6364            6364
6131  4017            4017
6132  4706            4706
6133  1417            1417
6134  4006            4006
6135  0111            0111
6136  1405            1405
6137  0440            0440
6140  2417            2417
6141  4023            4023
6142  0524            0524
6143  4017            4017
6144  4706            4706
6145  1417            1417
6146  4006            4006
6147  1417            1417
6150  2000            2000
6151  0000            EXIT

6152  0024    TST35M, 0024            /TST35 CLSA FAILED TO CLEAR O'FLO FLOP
6153  2324            2324
6154  6365            6365
6155  4003            4003
6156  1423            1423
6157  0140            0140
6160  0601            0601
6161  1114            1114
6162  0504            0504
6163  4024            4024
6164  1740            1740
6165  0314            0314
6166  0501            0501
6167  2240            2240
6170  4017            4017
6171  4706            4706
6172  1417            1417
6173  4006            4006
6174  1417            1417
6175  2000            2000
6176  0000            EXIT

6177  0024    TST36M, 0024            /TST36 CLSK SKIPPED IN ERROR
6200  2324            2324
6201  6366            6366
6202  4003            4003
6203  1423            1423
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6204  1340            1340
6205  2313            2313
6206  1120            1120
6207  2005            2005
6210  0440            0440
6211  1116            1116
6212  4005            4005
6213  2222            2222
6214  1722            1722
6215  4000            4000
6216  0000            EXIT

6217  0024    TST37M, 0024                    /TST37 ILLEGAL CLOCK INTERRUPT!
6220  2324            2324
6221  6367            6367
6222  4011            4011
6223  1414            1414
6224  0507            0507
6225  0114            0114
6226  4003            4003
6227  1417            1417
6230  0313            0313
6231  4011            4011
6232  1624            1624
6233  0522            0522
6234  2225            2225
6235  2024            2024
6236  4100            4100
6237  0000            EXIT

6240  0024    TST38M, 0024                    /TST38 CLSK FAILED TO SKIP
6241  2324            2324
6242  6370            6370
6243  4003            4003
6244  1423            1423
6245  1340            1340
6246  0601            0601
6247  1114            1114
6250  0504            0504
6251  4024            4024
6252  1740            1740
6253  2313            2313
6254  1120            1120
6255  4000            4000
6256  0000            EXIT

6257  0024    TST39M, 0024                    /TST39 CLOCK INTERRUPT FAILED
6260  2324            2324
6261  6371            6371
6262  4003            4003
6263  1417            1417
6264  0313            0313
6265  4011            4011
6266  1624            1624
6267  0522            0522
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6270  2225            2225
6271  2024            2024
6272  4006            4006
6273  0111            0111
6274  1405            1405
6275  0400            0400
6276  0000            EXIT

6277  0024  TST40M,  0024          /TST40 O'FLO ENABLE WON'T ZERO
6300  2324            2324
6301  6460            6460
6302  4017            4017
6303  4706            4706
6304  1417            1417
6305  4005            4005
6306  1601            1601
6307  0214            0214
6310  0540            0540
6311  2717            2717
6312  1647            1647
6313  2440            2440
6314  3205            3205
6315  2217            2217
6316  4000            4000
6317  0000            EXIT

6320  0024  TST41M,  0024          /TST41 O'FLO FLAG WON'T CLEAR
6321  2324            2324
6322  6461            6461
6323  4017            4017
6324  4706            4706
6325  1417            1417
6326  4006            4006
6327  1401            1401
6330  0740            0740
6331  2717            2717
6332  1647            1647
6333  2440            2440
6334  0314            0314
6335  0501            0501
6336  2200            2200
6337  0000            EXIT

6340  0024  TST42M,  0024          /TST42 CLOCK INTR WON'T CLEAR
6341  2324            2324
6342  6462            6462
6343  4003            4003
6344  1417            1417
6345  0313            0313
6346  4011            4011
6347  1624            1624
6350  2240            2240
6351  2717            2717
6352  1647            1647
6353  2440            2440
```

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6354  0314            0314
6355  0501            0501
6356  2200            2200
6357  0000            EXIT

6360  0024  TST43M,  0024                /TST43 BIT 11 FAILED,
6361  2324            2324
6362  6463            6463
6363  4002            4002
6364  1124            1124
6365  4061            4061
6366  6140            6140
6367  0601            0601
6370  1114            1114
6371  0504            0504
6372  5600            5600
6373  7777            EXITA
6374  0054            SEND
6375  0053            RXED
6376  0000            EXIT

6377  0024  TST44M,  0024                /TST44 BIT 10 FAILED,
6400  2324            2324
6401  6464            6464
6402  4002            4002
6403  1124            1124
6404  4061            4061
6405  6040            6040
6406  0601            0601
6407  1114            1114
6410  0504            0504
6411  5600            5600
6412  7777            EXITA
6413  0054            SEND
6414  0053            RXED
6415  0000            EXIT

6416  0024  TST45M,  0024                /TST45 BIT 09 FAILED,
6417  2324            2324
6420  6465            6465
6421  4002            4002
6422  1124            1124
6423  4060            4060
6424  7140            7140
6425  0601            0601
6426  1114            1114
6427  0504            0504
6430  5600            5600
6431  7777            EXITA
6432  0054            SEND
6433  0053            RXED
6434  0000            EXIT

6435  0024  TST46M,  0024                /TST46 BIT 08 FAILED,
6436  2324            2324
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6437  6466              6466
6440  4002              4002
6441  1124              1124
6442  4060              4060
6443  7040              7040
6444  0601              0601
6445  1114              1114
6446  0504              0504
6447  5600              5600
6450  7777              EXITA
6451  0054              SEND
6452  0053              RXED
6453  0000              EXIT

6454  0024    TST47M,   0024              /TST47 BIT 07 FAILED,
6455  2324              2324
6456  6467              6467
6457  4002              4002
6460  1124              1124
6461  4060              4060
6462  6740              6740
6463  0601              0601
6464  1114              1114
6465  0504              0504
6466  5600              5600
6467  7777              EXITA
6470  0054              SEND
6471  0053              RXED
6472  0000              EXIT

6473  0024    TST48M,   0024              /TST48 BIT 06 FAILED,
6474  2324              2324
6475  6470              6470
6476  4002              4002
6477  1124              1124
6500  4060              4060
6501  6640              6640
6502  0601              0601
6503  1114              1114
6504  0504              0504
6505  5600              5600
6506  7777              EXITA
6507  0054              SEND
6510  0053              RXED
6511  0000              EXIT

6512  0024    TST49M,   0024              /TST49 BIT 05 FAILED,
6513  2324              2324
6514  6471              6471
6515  4002              4002
6516  1124              1124
6517  4060              4060
6520  6540              6540
6521  0601              0601
6522  1114              1114
```

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6523  0504            0504
6524  5600            5600
6525  7777            EXITA
6526  0054            SEND
6527  0053            RXED
6530  0000            EXIT

6531  0024  TST50M,  0024                    /TST50 BIT 04 FAILED.
6532  2324            2324
6533  6560            6560
6534  4002            4002
6535  1124            1124
6536  4060            4060
6537  6440            6440
6540  0601            0601
6541  1114            1114
6542  0504            0504
6543  5600            5600
6544  7777            EXITA
6545  0054            SEND
6546  0053            RXED
6547  0000            EXIT

6550  0024  TST51M,  0024                    /TST51 BIT 03 FAILED.
6551  2324            2324
6552  6561            6561
6553  4002            4002
6554  1124            1124
6555  4060            4060
6556  6340            6340
6557  0601            0601
6560  1114            1114
6561  0504            0504
6562  5600            5600
6563  7777            EXITA
6564  0054            SEND
6565  0053            RXED
6566  0000            EXIT

6567  0024  TST52M,  0024                    /TST52 BIT 02 FAILED.
6570  2324            2324
6571  6562            6562
6572  4002            4002
6573  1124            1124
6574  4060            4060
6575  6240            6240
6576  0601            0601
6577  1114            1114
6600  0504            0504
6601  5600            5600
6602  7777            EXITA
6603  0054            SEND
6604  0053            RXED
6605  0000            EXIT
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6606  0024    TST53M, 0024                    /TST53 BIT 01 FAILED,
6607  2324            2324
6610  6563            6563
6611  4002            4002
6612  1124            1124
6613  4060            4060
6614  6140            6140
6615  0601            0601
6616  1114            1114
6617  0504            0504
6620  5600            5600
6621  7777            EXITA
6622  0054            SEND
6623  0053            RXED
6624  0000            EXIT

6625  0024    TST54M, 0024                    /TST54 BIT 00 FAILED
6626  2324            2324
6627  6564            6564
6630  4002            4002
6631  1124            1124
6632  4060            4060
6633  6040            6040
6634  0601            0601
6635  1114            1114
6636  0504            0504
6637  5600            5600
6640  7777            EXITA
6641  0054            SEND
6642  0053            RXED
6643  0000            EXIT

6644  0024    TST55M, 0024                    /TST55 RATE 400KC FAILS
6645  2324            2324
6646  6565            6565
6647  4022            4022
6650  0124            0124
6651  0540            0540
6652  6460            6460
6653  6013            6013
6654  0340            0340
6655  0601            0601
6656  1114            1114
6657  2300            2300
6660  0000            EXIT

6661  0024    TST56M, 0024                    /TST56 RATE 100KC FAILS
6662  2324            2324
6663  6566            6566
6664  4022            4022
6665  0124            0124
6666  0540            0540
6667  6160            6160
6670  6013            6013
6671  0340            0340
```

```
6672  0001            0001
6673  1114            1114
6674  2300            2300
6675  0000            EXIT

6676  0024    TST57M, 0024                    /TST57 RATE 10KC FAILS
6677  2324            2324
6700  6567            6567
6701  4022            4022
6702  0124            0124
6703  0540            0540
6704  6160            6160
6705  1303            1303
6706  4006            4006
6707  0111            0111
6710  1423            1423
6711  4000            4000
6712  0000            EXIT

6713  0024    TST58M, 0024                    /TST58 RATE 1KC FAILS
6714  2324            2324
6715  6570            6570
6716  4022            4022
6717  0124            0124
6720  0540            0540
6721  6113            6113
6722  0340            0340
6723  0001            0001
6724  1114            1114
6725  2300            2300
6726  0000            EXIT

6727  0024    TST59M, 0024                    /TST59 RATE 100CPS FAILS
6730  2324            2324
6731  6570            6570
6732  4022            4022
6733  0124            0124
6734  0540            0540
6735  6160            6160
6736  6003            6003
6737  2023            2023
6740  4006            4006
6741  0111            0111
6742  1423            1423
6743  4000            4000
6744  0000            EXIT

6745  0024    TST60M, 0024                    /TST60 CHAN 1 INPUT LOCKED OUT
6746  2324            2324
6747  6660            6660
6750  0003            0003
6751  1001            1001
6752  1640            1640
6753  6140            6140
6754  1116            1116
```

```
6755  2025              2025
6756  2440              2440
6757  1417              1417
6760  0313              0313
6761  0504              0504
6762  4017              4017
6763  2524              2524
6764  4000              4000
6765  0000              EXIT

6766  0024    TST61M,   0024                /TST61 CHAN 3 WON'T TOGGLE
6767  2324              2324
6770  6661              6661
6771  4003              4003
6772  1001              1001
6773  1640              1640
6774  6340              6340
6775  2717              2717
6776  1647              1647
6777  2440              2440
7000  2417              2417
7001  0707              0707
7002  1405              1405
7003  4000              4000
7004  7777              EXITA
7005  0054              SEND
7006  0053              RXED
7007  0000              EXIT

7010  0024    TST62M,   0024                /TST62 CHAN 2 WON'T TOGGLE
7011  2324              2324
7012  6662              6662
7013  4003              4003
7014  1001              1001
7015  1640              1640
7016  6240              6240
7017  2717              2717
7020  1647              1647
7021  2440              2440
7022  2417              2417
7023  0707              0707
7024  1405              1405
7025  4000              4000
7026  7777              EXITA
7027  0054              SEND
7030  0053              RXED
7031  0000              EXIT

7032  0024    TST63M,   0024                /TST63 CHAN 1 WON'T TOGGLE
7033  2324              2324
7034  6663              6663
7035  4003              4003
7036  1001              1001
7037  1640              1640
7040  6140              6140
```

```
7041  2717            2717
7042  1647            1647
7043  2440            2440
7044  2417            2417
7045  0707            0707
7046  1405            1405
7047  4000            4000
7050  7777            EXITA
7051  0054            SEND
7052  0053            RXED
7053  0000            EXIT

7054  0024    TST64M, 0024                    /TST64 CHAN 1 WON'T INTR
7055  2324            2324
7056  6664            6664
7057  4003            4003
7060  1001            1001
7061  1640            1640
7062  4061            4061
7063  4027            4027
7064  1716            1716
7065  4724            4724
7066  4011            4011
7067  1624            1624
7070  2200            2200
7071  0000            EXIT

7072  0024    TST65M, 0024                    /TST65 CHAN 1 INTR IN ERROR
7073  2324            2324
7074  6665            6665
7075  4003            4003
7076  1001            1001
7077  1640            1640
7100  4061            4061
7101  4011            4011
7102  1624            1624
7103  2240            2240
7104  1116            1116
7105  4005            4005
7106  2222            2222
7107  1722            1722
7110  4000            4000
7111  0000            EXIT

7112  0024    TST66M, 0024                    /TST66 CHAN 2 WON'T INTR,
7113  2324            2324
7114  6666            6666
7115  4003            4003
7116  1001            1001
7117  1640            1640
7120  6240            6240
7121  2717            2717
7122  1647            1647
7123  2440            2440
7124  1116            1116
```

```
7125  2422              2422
7126  5600              5600
7127  7777              EXITA
7130  0054              SEND
7131  0053              RXED
7132  0000              EXIT

7133  0024    TST67M,   0024          /TST67 CHAN 2 INTR IN ERROR
7134  2324              2324
7135  6667              6667
7136  4003              4003
7137  1001              1001
7140  1640              1640
7141  6240              6240
7142  1116              1116
7143  2422              2422
7144  4011              4011
7145  1640              1640
7146  0522              0522
7147  2217              2217
7150  2200              2200
7151  0000              EXIT

7152  0024    TST68M,   0024          /TST68 CHAN 3 WON'T INTR.
7153  2324              2324
7154  6670              6670
7155  4003              4003
7156  1001              1001
7157  1640              1640
7160  6340              6340
7161  2717              2717
7162  1647              1647
7163  2440              2440
7164  1116              1116
7165  2422              2422
7166  5600              5600
7167  7777              EXITA
7170  0054              SEND
7171  0053              RXED
7172  0000              EXIT

7173  0024    TST69M,   0024          /TST69 CHAN 3 INTR IN ERROR
7174  2324              2324
7175  6671              6671
7176  4003              4003
7177  1001              1001
7200  1640              1640
7201  6340              6340
7202  1116              1116
7203  2422              2422
7204  4011              4011
7205  1640              1640
7206  0522              0522
7207  2217              2217
7210  2200              2200
```

```
7211  0000          EXIT

7212  0024  TST70M, 0024                    /TST70 CHAN 3 INPUT LINE FREQ FAILED
7213  2324          2324
7214  6760          6760
7215  4003          4003
7216  1001          1001
7217  1640          1640
7220  6340          6340
7221  1116          1116
7222  2025          2025
7223  2440          2440
7224  1411          1411
7225  1605          1605
7226  4006          4006
7227  2205          2205
7230  2140          2140
7231  0601          0601
7232  1114          1114
7233  0504          0504
7234  4000          4000
7235  7777          EXITA
7236  0053          RXED
7237  0000          EXIT

7240  0024  TST71M, 0024                    /TST71 CHAN 2 INPUT LINE FREQ FAILED
7241  2324          2324
7242  6761          6761
7243  4003          4003
7244  1001          1001
7245  1640          1640
7246  6240          6240
7247  1116          1116
7250  2025          2025
7251  2440          2440
7252  1411          1411
7253  1605          1605
7254  4006          4006
7255  2205          2205
7256  2140          2140
7257  0601          0601
7260  1114          1114
7261  0504          0504
7262  4000          4000
7263  7777          EXITA
7264  0053          RXED
7265  0000          EXIT

7266  0024  TST72M, 0024                    /TST72 CHAN 1 INPUT LINE FREQ FAILED
7267  2324          2324
7270  6762          6762
7271  4003          4003
7272  1001          1001
7273  1640          1640
7274  6140          6140
```

```
7275  1116            1116
7276  2025            2025
7277  2440            2440
7300  1411            1411
7301  1605            1605
7302  4006            4006
7303  2205            2205
7304  2140            2140
7305  0601            0601
7306  1114            1114
7307  0504            0504
7310  4000            4000
7311  7777            EXITA
7312  0053            RXED
7313  0000            EXIT

7314  0024    TST73M, 0024                    /TST73 FAST SAM FAILS
7315  2324            2324
7316  6763            6763
7317  4006            4006
7320  0123            0123
7321  2440            2440
7322  2301            2301
7323  1540            1540
7324  0601            0601
7325  1114            1114
7326  2300            2300
7327  7777            EXITA
7330  0054            SEND
7331  0053            RXED
7332  0000            EXIT

7333  0024    TST74M, 0024                    /TST74 O'FLO WON'T FAST SAM
7334  2324            2324
7335  6764            6764
7336  4017            4017
7337  4706            4706
7340  1417            1417
7341  4027            4027
7342  1716            1716
7343  4724            4724
7344  4006            4006
7345  0123            0123
7346  2440            2440
7347  2301            2301
7350  1500            1500
7351  7777            EXITA
7352  0054            SEND
7353  0053            RXED
7354  0000            EXIT

7355  0024    TST75M, 0024                    /TST75 FAST SAM WON'T SET
7356  2324            2324
7357  6765            6765
7360  4006            4006
```

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7361  0123            0123
7362  2440            2440
7363  2301            2301
7364  1540            1540
7365  2717            2717
7366  1647            1647
7367  2440            2440
7370  2305            2305
7371  2400            2400
7372  7777            EXITA
7373  0054            SEND
7374  0053            RXED
7375  0000            EXIT

7376  0024    TST76M, 0024                    /TST76 MODES 2,1 INHIBIT FAST SAM
7377  2324            2324
7400  6766            6766
7401  4015            4015
7402  1704            1704
7403  0523            0523
7404  4062            4062
7405  5561            5561
7406  4011            4011
7407  1610            1610
7410  1102            1102
7411  1124            1124
7412  4006            4006
7413  0123            0123
7414  2440            2440
7415  2301            2301
7416  1500            1500
7417  7777            EXITA
7420  0054            SEND
7421  0053            RXED
7422  0000            EXIT

7423  0024    TST77M, 0024                    /TST77 I/O PRESET WON'T STOP CLOCK
7424  2324            2324                    /(RATE BITS 1 & 2)
7425  6770            6770
7426  4011            4011
7427  3417            3417
7430  4020            4020
7431  2205            2205
7432  2305            2305
7433  2440            2440
7434  2717            2717
7435  1647            1647
7436  2440            2440
7437  2324            2324
7440  1720            1720
7441  4003            4003
7442  1417            1417
7443  0313            0313
7444  4000            4000
7445  5022            5022
```

```
7446  0124              0124
7447  0540              0540
7450  0211              0211
7451  2423              2423
7452  4061              4061
7453  4046              4046
7454  4062              4062
7455  5100              5100
7456  0000              EXIT

7457  0024    TST79M,   0024                /TST80 I/O PRESET WON'T STOP CLOCK
7460  2324              2324                /(RATE BIT 00)
7461  7060              7060
7462  4011              4011
7463  3417              3417
7464  4020              4020
7465  2205              2205
7466  2305              2305
7467  2440              2440
7470  2717              2717
7471  1647              1647
7472  2440              2440
7473  2324              2324
7474  1720              1720
7475  4003              4003
7476  1417              1417
7477  0313              0313
7500  4000              4000
7501  5022              5022
7502  0124              0124
7503  0540              0540
7504  0211              0211
7505  2440              2440
7506  6051              6051
7507  4000              4000
7510  0000              EXIT

7511  0024    TST81M,   0024                /TST81 I/O PRESET WON'T CLEAR O'FLO
7512  2324              2324
7513  7061              7061
7514  4011              4011
7515  3417              3417
7516  4020              4020
7517  2205              2205
7520  2305              2305
7521  2440              2440
7522  2717              2717
7523  1647              1647
7524  2440              2440
7525  0314              0314
7526  0501              0501
7527  2240              2240
7530  1747              1747
7531  0614              0614
7532  1700              1700
```

```
7533  0000          EXIT

7534  0024  TST82M, 0024                  /TST82 I/O PRESET WON'T CLEAR INTERRUPT ENABLE
7535  2324          2324
7536  7062          7062
7537  4011          4011
7540  3417          3417
7541  4020          4020
7542  2205          2205
7543  2305          2305
7544  2440          2440
7545  2717          2717
7546  1647          1647
7547  2440          2440
7550  0314          0314
7551  0501          0501
7552  2240          2240
7553  1116          1116
7554  2405          2405
7555  2222          2222
7556  2520          2520
7557  2440          2440
7560  0516          0516
7561  0102          0102
7562  1405          1405
7563  4000          4000
7564  0000          EXIT

      4333  *LOCJ+1                      /FOLD TEXT BACK INTO FREE CORE AREA

4333  0024  TST83M, 0024                  /TST83 I/O PRESET WON'T CLEAR INPUTS
4334  2324          2324
4335  7063          7063
4336  4011          4011
4337  3417          3417
4340  4020          4020
4341  2205          2205
4342  2305          2305
4343  2440          2440
4344  2717          2717
4345  1647          1647
4346  2440          2440
4347  0314          0314
4350  0501          0501
4351  2240          2240
4352  1116          1116
4353  2025          2025
4354  2423          2423
4355  4000          4000
4356  0000          EXIT

4357  0024  TST84M, 0024                  /TST84 I/O PRESET WON'T CLEAR MODE 2
4360  2324          2324
4361  7064          7064
```

```
4362  4011              4011
4363  3417              3417
4364  4020              4020
4365  2205              2205
4366  2305              2305
4367  2440              2440
4370  2717              2717
4371  1647              1647
4372  2440              2440
4373  0314              0314
4374  0501              0501
4375  2240              2240
4376  1517              1517
4377  0405              0405
4400  4062              4062
4401  4000              4000
4402  0000              EXIT

4403  0024    TST85M,   0024                /TST85 I/O PRESET WON'T CLEAR MODE 0
4404  2324              2324
4405  7065              7065
4406  4011              4011
4407  3417              3417
4410  4020              4020
4411  2205              2205
4412  2305              2305
4413  2440              2440
4414  2717              2717
4415  1647              1647
4416  2440              2440
4417  0314              0314
4420  0501              0501
4421  2240              2240
4422  1517              1517
4423  0405              0405
4424  4060              4060
4425  4000              4000
4426  7777              EXITA
4427  0000              EXIT

4430  0024    TST86M,   0024                /TST86 FAST SAM NOT CLEARED
4431  2324              2324
4432  7066              7066
4433  4006              4006
4434  0123              0123
4435  2440              2440
4436  2301              2301
4437  1540              1540
4440  1617              1617
4441  2440              2440
4442  0314              0314
4443  0501              0501
4444  2205              2205
4445  0400              0400
4446  7777              EXITA
```

```
4447  0000            EXIT

4450  0024    TST87M, 0024                    /TST87 CHAN 1 WON'T TRANS CNT TO BUF
4451  2324            2324
4452  7067            7067
4453  4003            4003
4454  1001            1001
4455  1640            1640
4456  6140            6140
4457  2717            2717
4460  1647            1647
4461  2440            2440
4462  2422            2422
4463  0116            0116
4464  2340            2340
4465  0316            0316
4466  2440            2440
4467  2417            2417
4470  4002            4002
4471  2506            2506
4472  4000            4000
4473  7777            EXITA
4474  0116            K0200
4475  0000            EXIT

4476  0024    TST88M, 0024                    /TST88 CHAN 2 WON'T TRANS CNT TO BUF
4477  2324            2324
4500  7070            7070
4501  4003            4003
4502  1001            1001
4503  1640            1640
4504  6240            6240
4505  2717            2717
4506  1647            1647
4507  2440            2440
4510  2422            2422
4511  0116            0116
4512  2340            2340
4513  0316            0316
4514  2440            2440
4515  2417            2417
4516  4002            4002
4517  2506            2506
4520  4000            4000
4521  7777            EXITA
4522  0116            K0200
4523  0000            EXIT

4524  0024    TST89M, 0024                    /TST89 CHAN 3 WON'T TRANS CNT TO BUF
4525  2324            2324
4526  7071            7071
4527  4003            4003
4530  1001            1001
4531  1640            1640
4532  6340            6340
```

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4533  2717              2717
4534  1647              1647
4535  2440              2440
4536  2422              2422
4537  0116              0116
4540  2340              2340
4541  0316              0316
4542  2440              2440
4543  2417              2417
4544  4002              4002
4545  2506              2506
4546  4000              4000
4547  7777              EXITA
4550  0116              K0200
4551  0000              EXIT

4552  0024    TST90M,   0024              /TST90 CHAN 1 WON'T TRANS CNT TO BUF
4553  2324              2324
4554  7160              7160
4555  4003              4003
4556  1001              1001
4557  1640              1640
4560  6140              6140
4561  2717              2717
4562  1647              1647
4563  2440              2440
4564  2422              2422
4565  0116              0116
4566  2340              2340
4567  0316              0316
4570  2440              2440
4571  2417              2417
4572  4002              4002
4573  2506              2506
4574  4000              4000
4575  7777              EXITA
4576  0120              K0300
4577  0000              EXIT

4600  0024    TST91M,   0024              /TST91 CHAN 2 WON'T TRANS CNT TO BUF
4601  2324              2324
4602  7161              7161
4603  4003              4003
4604  1001              1001
4605  1640              1640
4606  6240              6240
4607  2717              2717
4610  1647              1647
4611  2440              2440
4612  2422              2422
4613  0116              0116
4614  2340              2340
4615  0316              0316
4616  2440              2440
4617  2417              2417
```

```
4620  4002            4002
4621  2506            2506
4622  4000            4000
4623  7777            EXITA
4624  0120            K0300
4625  0000            EXIT

4626  0024    TST92M, 0024                    /TST92 CHAN 3 WON'T TRANS CNT TO BUF
4627  2324            2324
4630  7162            7162
4631  4003            4003
4632  1001            1001
4633  1640            1640
4634  6340            6340
4635  2717            2717
4636  1647            1647
4637  2440            2440
4640  2422            2422
4641  0116            0116
4642  2340            2340
4643  0316            0316
4644  2440            2440
4645  2417            2417
4646  4002            4002
4647  2506            2506
4650  4000            4000
4651  7777            EXITA
4652  0120            K0300
4653  0000            EXIT

4654  0024    TST93M, 0024                    /TST93 CHAN 3 INPUT FAILED TO CLR CNT
4655  2324            2324
4656  7163            7163
4657  4003            4003
4660  1001            1001
4661  1640            1640
4662  6340            6340
4663  1116            1116
4664  2025            2025
4665  2440            2440
4666  0601            0601
4667  1114            1114
4670  0504            0504
4671  4024            4024
4672  1740            1740
4673  0314            0314
4674  2240            2240
4675  0316            0316
4676  2400            2400
4677  7777            EXITA
4700  0053            RXED
4701  0000            EXIT

4702  0024    TST94M, 0024                    /TST94 ECO EM12-00034 IS EITHER NOT WORKING OR NOT INSTALLED
4703  2324            2324
```

```
4704  7164            7164
4705  4005            4005
4706  0317            0317
4707  4005            4005
4710  1561            1561
4711  6255            6255
4712  6060            6060
4713  6063            6063
4714  6440            6440
4715  1123            1123
4716  4005            4005
4717  1124            1124
4720  1005            1005
4721  2240            2240
4722  1617            1617
4723  2440            2440
4724  2717            2717
4725  2213            2213
4726  1116            1116
4727  0740            0740
4730  1722            1722
4731  4016            4016
4732  1724            1724
4733  4011            4011
4734  1623            1623
4735  2401            2401
4736  1414            1414
4737  0504            0504
4740  0000            EXIT

4741  0013    TST95M, 0013                    /KW12 PASS==(PASS)
4742  2761            2761
4743  6240            6240
4744  2001            2001
4745  2323            2323
4746  5555            5555
4747  7777            EXITA
4750  0032            PASS
4751  4444            EXITB
                      $
```

```
0000  01000000  10000000  11111111  11111111  11111111  11111111  11111111  11111111
0100  11111111  11111111  11111111  11111111  11111111  11111111  11110000  00000011

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

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

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

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

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

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

1600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
1700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

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

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

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

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

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

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

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

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

```
4200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
4100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

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

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

4600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
4700  11111111  11111111  11111111  11111111  11111111  11000000  00000000  00000000


5000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
5100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111100

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

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

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


6000  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  11111111  11111111

7400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
7500  11111111  11111111  11111111  11111111  11111111  11111111  11111000  00000000

7600
7700
```

```
ASCII   5051        K0215   5174        M4444   0162        TST17   0403
ASCRXT  5026        K0300   0120        M5400   0163        TST17M  5434
BELL    0021        K0377   0121        NERROR  0030        TST18   0466
BELLS   5200        K0400   0122        NERRORS 5000        TST18M  5455
BK43    1572        K0500   0123        OCTYP   5133        TST19   0550
BK47    1775        K0600   0124        OUTPAS  0031        TST19M  5476
BK55    2373        K0700   0125        PASS    0032        TST20   0566
CLAB    6133        K0777   0126        PDP     0002        TST20M  5516
CLBA    6136        K1000   0127        PINT    0010        TST21   0616
CLCA    6137        K1026   0130        PNTA    0033        TST21M  5540
CLEN    6134        K1777   0131        PNTB    0034        TST22   0643
CLLR    6132        K2000   0132        PNTC    0035        TST22M  5556
CLR     0011        K240    0127        PNTD    0036        TST23   0672
CLSA    6135        K3000   0133        PNTE    0037        TST23M  5576
CLSK    6131        K3777   0134        PNTF    0040        TST24   0731
CNTR    0025        K4000   0135        PNTG    0041        TST24M  5614
CRLF    5154        K4100   0136        PNTH    0042        TST25   0753
DATUM   5115        K5100   0137        PNTI    0043        TST25M  5632
DATYP   5163        K5252   0140        PNTJ    0044        TST26   1012
DN43    0022        K5555   0141        RANDOM  0045        TST26M  5653
DN47    0023        K6000   0142        RANDY   5210        TST27   1043
DN55    0024        K7774   0143        REDO    5140        TST27M  5676
ERROR   0026        KENA    0072        REGA    0046        TST28   1077
ERRORS  5020        KPRE    0071        REGB    0047        TST28M  5722
ESP     0004        KRTE    0075        REGC    0050        TST29   1131
EXIT    0000        LDAI    1000        REGT    0051        TST29M  5747
EXITA   7777        LINC    6001        RESET   3750        TST30   1156
EXITB   4444        LOCA    1440        RETURN  0052        TST30M  5774
FD43    1603        LOCB    1473        RNA     5240        TST31   1006
FD55    2403        LOCC    1542        RNB     5241        TST31M  6021
FD61    2030        LOCD    2751        RNC     5242        TST32   1245
HERE    5137        LOCE    2753        RXED    6053        TST32M  6056
K0000   0074        LOCF    2774        SAN0    0100        TST33   1276
K0001   0075        LOCG    3016        SAN1    0101        TST33M  6103
K0002   0076        LOCH    3040        SEND    0054        TST34   1312
K0003   0077        LOCI    3062        SET     0055        TST34M  6126
K0004   0100        LOCJ    4332        SEYN    5252        TST35   1345
K0007   0101        LSTERR  0027        SPACE   0056        TST35M  6152
K0010   0102        M0001   0144        TST10   0201        TST35N  0097
K0012   0103        M0002   0145        TST10M  5261        TST36   1401
K0014   0104        M0004   0146        TST11   0217        TST36M  6177
K0015   0105        M0010   0147        TST11M  5301        TST37   1432
K0017   0106        M0020   0150        TST12   0235        TST37M  6217
K0020   0107        M0040   0151        TST12M  5317        TST38   1447
K0037   0110        M0042   0152        TST13   0254        TST38M  6240
K0040   0111        M0100   0153        TST13M  5335        TST39   1464
K0060   0112        M0200   0154        TST14   0274        TST39M  6257
K0077   0113        M0400   0155        TST14M  5353        TST40   1502
K0100   0114        M1000   0156        TST15   0315        TST40M  6277
K0177   0115        M1400   0157        TST15M  5371        TST41   1515
K0200   0116        M2000   0160        TST16   0340        TST41M  6320
K0212   5175        M4000   0161        TST16M  5413        TST42   1534
```

```
TST42M  6340
TST43   1553
TST43M  6360
TST44   1613
TST44M  6377
TST45   1653
TST45M  6416
TST46   1714
TST46M  6435
TST47   1755
TST47M  6454
TST48   2016
TST48M  6473
TST49   2057
TST49M  6512
TST50   2120
TST50M  6531
TST51   2161
TST51M  6550
TST52   2222
TST52M  6567
TST53   2263
TST53M  6606
TST54   2324
TST54M  6625
TST55   2365
TST55M  6644
TST56   2412
TST56M  6661
TST57   2437
TST57M  6676
TST58   2471
TST58M  6713
TST59   2520
TST59M  6727
TST60   2557
TST60M  6745
TST60N  2565
TST61   2604
TST61M  6766
TST62   2635
TST62M  7010
TST63   2666
TST63M  7032
TST64   2721
TST64M  7054
TST65   2741
TST65M  7072
TST66   2764
TST66M  7112
TST66N  0060
TST67   3004
TST67M  7133
TST68   3027
TST68M  7152
TST69   3050
TST69M  7173
TST70   3075
TST70M  7212
TST71   3127
TST71M  7240
TST72   3161
TST72M  7266
TST73   3213
TST73M  7314
TST74   3263
TST74M  7333
TST75   3324
TST75M  7355
TST75N  0061
TST76   3362
TST76M  7376
TST77   3406
TST77M  7423
TST77N  0062
TST79   3453
TST79M  7497
TST79N  0063
TST81   3515
TST81M  7511
TST82   3552
TST82M  7534
TST83   3607
TST83M  4333
TST84   3636
TST84M  4357
TST85   3667
TST85M  4403
TST86   3734
TST86M  4430
TST87   3763
TST87M  4450
TST88   4032
TST88M  4476
TST89   4064
TST89M  4524
TST90   4120
TST90M  4552
TST90N  0064
TST91   4162
TST91M  4600
TST92   4215
TST92M  4626
TST93   4250
TST93M  4654
TST94   4270
TST94M  4702
TST95   4321
TST95M  4741
TYPE    0065
TYPECH  5100
TYPOUT  5243
UP43    0066
UP55    0067
UP61    0070
```

ERRORS DETECTED: 0

LINKS GENERATED: 0

RUN-TIME: 29 SECONDS

3K CORE USED