IDENTIFICATION

PRODUCT CODE: MAINDEC-8E-D8AC-D

PRODUCT NAME: DK8E CLOCKS DIAGNOSTIC

DATE CREATED: OCTOBER 8, 1971

MAINTAINER: DIAGNOSTIC PROGRAMMING GROUP

AUTHOR: JOHN VROBEL

1. ABSTRACT

THE DK8E CLOCKS DIAGNOSTIC IS DESIGNED TO VERIFY CORRECT OPERATION OF THE DK8-EA, DK8-EC, DK8-ES, AND DK8-EP REAL TIME CLOCK OPTIONS. THE PROGRAM UTILIZES AND TESTS IOT'S ASSOCIATED WITH THE DK8-EA LINE, DK8-EC CRYSTAL, AND THE DK8-EP/DK8-ES PROGRAMMABLE REAL TIME CLOCKS.

2. REQUIREMENTS

2.1 EQUIPTMENT

A PDP-8E WITH THE DK8-EA, DK8-EC, DK8-ES, OR THE DK8-EP OPTION INSTALLED AND AN ASR-33 TELETYPE OR EQUIVALENT.

A SPECIAL TEST CABLE IS NECESSARY TO CONNECT THE CLOCK FRONT PANEL TO THE PDP8/E POWER SUPPLY FOR THE DK8-ES CLOCK OPTION.

A SPECIAL CABLE IS NECESSARY TO CONNECT THE DK8-EA CLOCK MODULE TO THE PDP8/E POWER SUPPLY FOR THE DK8-EA CLOCK OPTION.

2.2 STORAGE

THE PROGRAM OCCUPIES LOCATIONS 0000-6600.

2.3 PRELIMINARY PROGRAMS

ALL PROGRAMS FOR THE BASIC PDP-8E MUST HAVE BEEN RUN SUCCESSFULLY.

3. LOADING PROCEDURE

3.1 METHOD

THE PROGRAM IS LOADED INTO BANK 0, USING THE STANDARD BINARY LOADER TECHNIQUE.

4. STARTING PROCEDURE

4.1 CONTROL SWITCH SETTINGS

SWR0=1	FOR DK8-EP/DK8-ES REGISTER TEST
SWR1=1	FOR DK8-ES SCHMITT TRIGGER LOGIC TEST
SWR2=1	FOR INHIBIT ERROR PRINT OUT
SWR3=1	FOR INHIBIT ERROR BELL
SWR4=1	FOR INHIBIT ERROR HALT
SWR5=1	FOR ENTER SCOPE LOOP ON ERROR
SWR6=1	FOR LOOP ON NON-FAILING TEST
SWR7=1	FOR DK8-EP/DK8-ES EXTERNAL PULSE SCOPE LOOP TEST

SWR8=1 FOR DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST

4.1.1 FREQUENCY SWITCH SETTINGS FOR DK8-EA/DK8-EC TEST

SWR9-11=0 TEST 1 CPS CRYSTAL CLOCK
SWR9-11=1 TEST 50 CPS CRYSTAL CLOCK
SWR9-11=2 TEST 50 CPS LINE CLOCK
SWR9-11=3 TEST 60 CPS LINE CLOCK
SWR9-11=4 TEST 500 CPS CRYSTAL CLOCK
SWR9-11=5 TEST 5000 CPS CRYSTAL CLOCK

4.2 STARTING ADDRESS

THE STARTING ADDRESS IS 0200 OCTAL.

4.3 OPERATOR ACTION

4.3.1 DK8-EA/DK8-EC TEST

WITH THE PROGRAM IN BANK 0, SET SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD.

SET THE SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE FREQUENY OF DK8-EA
OR DK8-EC CLOCK UNDER TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

THE PROGRAM SHOULD RUN UNTIL AN ERROR OCCURES OR UNTIL
STOPPED BY THE OPERATOR.

THE TTY WILL SIGNAL "DK8E PASS COMPLETE" AT
THE COMPLETION OF EVERY PASS.

4.3.2 DK8-EP/DK8-ES REGISTER TEST

WITH THE PROGRAM IN BANK 0, SET SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD.

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE DK8-EP/DK8-ES REGISTER TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

THE PROGRAM SHOULD RUN UNTIL AN ERROR OCCURES OR UNTIL
STOPPED BY THE OPERATOR.

THE TTY WILL SIGNAL "DK8E PASS COMPLETE" AT
THE COMPLETION OF EVERY PASS.

4.3.3 DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST

WITH THE PROGRAM IN BANK 0, SET THE SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD.

SET SWITCH REGISTER TO 0000.

SET THE SWITCH REGISTER TO INDICATE DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST.

PRESS CLEAR AND THEN CONTINUE.

THE PROGRAM SHOULD RUN UNTIL AN ERROR OCCURES OR UNTIL STOPPED BY THE OPERATOR.

THE TTY WILL SIGNAL "DK8E PASS COMPLETE" AT THE COMPLETION OF EVERY PASS.

4.3.4 DK8-EP/DK8-ES EXTERNAL PULSE SCOPE LOOP TEST

WITH THE PROGRAM IN MEMORY, SET THE SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD.

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE EXTERNAL PULSE SCOPE LOOP TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

USE OSCILLOSCOPE TO VERIFY 40 MICRO SECOND PULSE RATE AT FJ2,FJ1,HM1, AND HM2 ON THE DK8-EP/DK8-ES MODULES.

USE OSCILLOSCOPE TO VERIFY 40 MICRO SECOND PULSE RATE AT OVERFLOW ON DK8-ES CLOCK FRONT PANEL. (DK8-ES ONLY)

4.3.5 DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST

WITH THE PROGRAM IN MEMORY, SET THE SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD.

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE EXTERNAL CLOCK SCOPE LOOP TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

GROUND CLOCK IN ON DK8-ES CLOCK FRONT PANEL.

THE TTY BELL WILL SIGNAL, IF AN EXTERNAL CLOCK IN WAS RECEIVED.

5. OPERATING PROCEDURE

5.1 OPERATIONAL SWITCH SETTINGS

NONE

5.2 SUBROUTINE ABSTRACTS

NONE

5.3 OPERATOR TEST SELECTION

5.3.1 DK8-EA OR DK8-EC CLOCK OPTION

INSTALL DK8-EA OR DK8-EC CLOCK OPTION

RUN DK8-EA/DK8-EC TEST 4.3.1.

5.3.2 DK8-EP CLOCK OPTION

INSTALL DK8-EP CLOCK OPTION.

RUN DK8-EP/DK8-ES REGISTER TEST 4.3.2.

RUN DK8-EP/DK8-ES EXTERNAL PULSE SCOPE LOOP TEST 4.3.4.

5.3.3. DK8-ES CLOCK OPTION

INSTALL DK8-ES CLOCK OPTION.

RUN DK8-EP/DK8-ES REGISTER TEST 4.3.2.

CONNECT EXTERNAL SOURCE FREQUENCY LOCATED AT J5 ON THE PDP8/E POWER SUPPLY TO THE EXTERNAL SCHMITT TRIGGER INPUT LOGIC VIA THE DK8-ES CLOCK FRONT PANEL WITH THE SPECIAL TEST CABLE.

SET THE THREE SLOPE SELECTION SWITCHES ON DK8-ES CLOCK FRONT PANEL TO THE POSITIVE POSITION.

ADJUST THE THREE INPUT THRESHOLD POTENTIOMETERS ON DK8-ES CLOCK FRONT PANEL TO THE CENTER POSITION.

RUN THE DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST 4.3.3.

RUN THE DK8-EP/DK8-ES EXTERNAL PULSE SCOPE LOOP TEST 4.3.4.

RUN THE DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST 4.3.5.

6. ERRORS

ALL RECOVERABLE ERRORS ENCOUNTERED IN THE PROGRAM WILL RESULT IN AN ERROR HALT OR AN ERROR TYPEOUT AND THEN AN ERROR HALT.

6.1 ERRORS AND DISCRIPTION

6.1.1 ERROR HALTS

ERROR HALTS IN PROGRAM ARE AS FOLLOWS:

EHLT1: MONITOR ERROR HALT, READ ERROR TYPE-OUT.

EHLT2: SKIP TRAP, CLZE

EHLT3: SKIP TRAP, CLOE

EHLT4: SKIP TRAP, CLOE

EHLT5: SKIP TRAP, CLAB

EHLT6: SKIP TRAP, CLEN

EHLT7: SKIP TRAP, CLSA

EHLT10: SKIP TRAP, CLBA

EHLT11: SKIP TRAP, CLCA

6.1.2 ERROR TYPECUTS

ERROR TYPECUTS IN PROGRAM ARE AS FOLLOWS:

TEST XXXX FAILED, STARTING ADDRESS XXXX

THE GOOD AC = XXXX AND BAD AC = XXXX

CLOCK BUFFER REGISTER AND AC TRANSFER FAILED

CLOCK COUNTER REGISTER AND AC TRANSFER FAILED

CLOCK ENABLE REGISTER AND AC TRANSFER FAILED

THE AC WAS CHANGED BY A CLOCK IOT

PROGRAM INTERRUPT FAILED, NO INTERRUPT EXPECTED

PROGRAM INTERRUPT FAILED, INTERRUPT EXPECTED

CLOCK SKIP FAILED, NO SKIP EXPECTED

CLOCK SKIP FAILED, SKIP EXPECTED

CLOCK OUTPUT FAILED, CLOCK FREQUENCY FAST

CLOCK OUTPUT FAILED, CLOCK FREQUENCY SLOW

6.2 ERROR RECOVERY

ALL ERRORS ENCOUNTERED MUST BE CORRECTED BEFORE PROCEDING ON IN THE PROGRAM. IN ALL CASES ACCESS THE LISTING FOR

FURTHER INFORMATION.

6.2.1 SCOPE LOOPS

A SCOPE LOOP IS AVAILABLE FOR ALL MONITOR ERROR HALTS. THE OPERATOR MAY ENTER A SCOPE LOOP AFTER A MONITOR ERROR HALT BY DOING THE FOLLOWING.

SET SWR4=1 TO INDICATE INHIBIT ERROR HALT.

SET SWR5=1 TO INDICATE ENTER SCOPE LOOP.

SET SWR6=1 TO INDICATE LOOP ON THIS TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

SET SWR2=1 TO INHIBIT ERROR TYPEOUT.

SET SWR3=1 TO INHIBIT ERROR BELL.

7. RESTRICTIONS

7.1 STARTING RESTRICTIONS

NONE

7.2 OPERATING RESTRICTIONS

THE PROGRAM MUST RESIDE IN BANK Ø .

PDP-8E WITH THE DK8-EA, DK8-EC, DK8-ES, OR THE DK8-EP CLOCK OPTION INSTALLED.

THE EXT. CPS SOURCE USED IN THE DK8-ES EXTERNAL SCHMITT TRIGGER INPUT LOGIC TEST MUST BE DISCONNECTED WHEN RUNNING THE DK8-EP/DK8-ES REGISTER TEST.

THE PDP-8E MUST BE RUNNING FAST CYCLE "1.2" MICRO. SECONDS.

ALL CLOCK OUTPUTS SHOULD BE VERIFIED WITH AN OSCILLOSCOPE TO INSURE CORRECT OPERATION.

8. MISCELLANECUS

8.1 SPECIFICATIONS

THE DK8-EA CLOCK COUNTS AT INTERVALS OF TIME AT 100 OR 120 TIMES A SECOND. THE FREQUENCY IS DETERMINED BY THE FULL WAVE RECTIFIER NETWORK WHICH OPERATES OFF THE 50 OR 60 CPS LINE WHICH EVER IT MAY BE. THIS MAKES THE CLOCK CAPABLE OF SUPPLYING PROGRAM INTERRUPT REQUESTS AT A RATE OF 100 OR 120 TIMES A SECOND.

8.2 EXECUTION TIME

DK8-EA/DK8-EC TEST, APPROXIMATIVELY 2.5 MINUTES PER PASS.

DK8-EP/DK8-ES REGISTER TEST, APPROXIMATIVELY 3.5 MINUTES PER PASS.

DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST, APPROXIMATIVELY 2 MINUTES PER PASS.

9. PROGRAM DISCRIPTION

9.1 DK8-EA OR DK8-EC CLOCK

THE PROGRAM EXERCISES AND TESTS THE FOLLOWING IOT'S FOR CORRECT OPERATION AND FUNCTION.

SKIP ON A CLOCK FLAG AND CLEAR THE FLAG (CLSK)
OCTAL CODE: 6133
OPERATION: SENSES THE CLOCK FLAG, WHICH IS SET WITH EACH CLOCK PULSE; IF IT IS SET, THE NEXT SEQUENTIAL INSTRUCTION IS SKIPPED AND THE FLAG IS THEN CLEARED.

ENABLE CLOCK INTERRUPT (CLEI)
OCTAL CODE: 6131
OPERATION: ENABLES THE CLOCK FLAG, WHICH IS SET WITH EACH CLOCK PULSE; TO CAUSE A PROGRAM INTERRUPT REQUEST. THE FLAG WILL REMAIN SET UNTIL CLEARED WITH CLSK.

DISABLE CLOCK INTERRUPT (CLED)
OCTAL CODE: 6132
OPERATION: DISABLES THE CLOCK FLAG FROM CAUSING AN INTERRUPT REQUEST. THE FLAG IS NOT AFFECTED.

9.2 DK8-EP/DK8-ES CLOCK

THE PROGRAM EXERCISES AND TESTS THE FOLLOWING IOT'S FOR CORRECT OPERATION AND FUNCTION.

CLEAR THE CLOCK ENABLE REGISTER PER AC (CLZE)
OCTAL CODE: 6130
OPERATION: CLEARS THE BITS IN THE CLOCK ENABLE REGISTER CORRESPONDING TI THOSE BITS SET IN THE AC. THE AC IS NOT AFFECTED.

SKIP ON A CLOCK INTERRUPT (CLSK)
OCTAL CODE: 6131
OPERATION: SENSES FOR INTERRUPT CONDITIONS, IF THE CONDITIONS ARE PRESENT THE NEXT SEQUENCIAL INSTRUCTION IS SKIPPED. THE CONDITIONS ARE AS FOLLOWS:

A. ENABLE EVENT INTERRUPT 1 AND INPUT 4
B. ENABLE EVENT INTERRUPT 2 AND INPUT 2
C. ENABLE EVENT INTERRUPT 3 AND INPUT 1
D. ENABLE OVERFLOW INTERRUPT AND OVERFLOW

AC TO CLOCK ENABLE REGISTER (CLOE)

OCTEL CODE: 6132

OPERATION: CAUSES THE CONTENTS OF THE AC TO BE LOADED INTO THE CLOCK ENABLE REGISTER CORRESPONDING TO THOSE BITS SET IN THE AC . THE AC IS NOT AFFECTED. CLOCK ENABLE REGISTER FUNCTIONS ARE AS FOLLOWS.

AC BIT	FUNCTION
0	ENABLE CLOCK OVERFLOW
1 & 2	MODE CONTROL 00 COUNTER RUNS AT SELECTED RATE. OVERFLOW OCCURS EVERY 4096 COUNTS. OVERFLOW REMAINS SET UNTIL CLEARED BY (CLSA) IOT 6135. 01 COUNTER RUNS AT SELECTED RATE. OVERFLOW CAUSES THE CLOCK BUFFER REGISTER TO BE TRANSFERED TO THE CLOCK COUNTER REGISTER WHICH WILL CONTINUE TO RUN AFTER TRANSFER. OVERFLOW WILL REMAIN SET UNTIL CLEARED BY (CLSA) IOT 6135. 10 COUNTER RUNS AT SELECTED RATE. AN EXTERNAL SCHMITT TRIGGER SIGNAL, IF ENABLED, CAUSES THE CLOCK COUNTER REGISTER TO BE TRANSFERED TO THE CLOCK BUFFER REGISTER AND THE CLOCK COUNTER CONTINUES TO RUN. 11 COUNTER RUNS AT SELECTED RATE. AN EXTERNAL SCHMITT TRIGGER SIGNAL, IF ENABLED, CAUSES THE CLOCK COUNTER REGISTER TO BE TRANSFERED TO THE CLOCK BUFFER REGISTER AND THE CLOCK COUNTER WILL CONTINUE TO RUN FROM 0.
3,4 &5	COUNT RATE 000 STOP 001 EXTERNAL CLOCK SOURCE 010 100 CPS 011 1000 CPS 100 10000 CPS 101 100000 CPS 110 1000000 CPS 111 STOP
6	WHEN SET TO A 1, OVERFLOW CAUSES AN EXTERNAL PULSE.

7	WHEN SET TO A 1, THE CLOCK COUNTER IS INHIBITED FROM COUNTING.
8	WHEN SET TO A 1, ENABLES EXTERNAL SCHMITT TRIGGER SIGNALS AND THE OVERFLOW FLOP TO CAUSE AN INTERRUPT REQUEST IF THEY ARE ENABLED.
9,10 & 11	ENABLE SCHMITT TRIGGER EVENTS 100 INPUT 4 010 INPUT 2 001 INPUT 1

AC TO CLOCK BUFFER REGISTER (CLAB)
OCTAL CODE: 6133
OPERATION: CAUSES THE CONTENTS OF THE AC TO BE TRANSFERED INTO THE CLOCK BUFFER REGISTER; THE CONTENTS OF BUFFER REGISTER IS THEN TRANSFERED TO THE CLOCK COUNTER REGISTER. THE AC IS NOT AFFECTED.

CLOCK ENABLE REGISTER TO AC (CLEN)
OCTAL CODE: 6134
OPERATION: CAUSES THE CONTENTS OF THE CLOCK ENABLE REGISTER TO BE TRANSFERRED TO THE AC. THE ENABLE REGISTER IS NOT AFFECTED.

CLOCK STATUS TO AC (CLSA)
OCTAL CODE: 6135
OPERATION: CAUSES THE CONTENTS OF THE CLOCK STATUS REGISTER TO BE TRANSFERED INTO THE AC. THE STATUS BITS ARE THEN CLEARED CORRESPONDING TO THOSE BITS THAT WERE SET IN THE AC. THE STATUS REGISTER FUNCTIONS ARE AS FOLLOWS.

AC BIT	STATUS CONDITION
0	OVERFLOW
1-8	NOT USED
9	INPUT 4
10	INPUT 2
11	INPUT 1

CLOCK BUFFER REGISTER TO AC (CLBA)
OCTAL CODE: 6136
OPERATION: CAUSES THE CONTENTS OF THE CLOCK BUFFER REGISTER TO BE TRANSFERED INTO THE AC. THE BUFFER REGISTER IS NOT AFFECTED.

CLOCK COUNTER REGISTER TO AC (CLCA)
OCTAL CODE: 6137

OPERATION: CAUSES THE CONTENTS OF THE CLOCK COUNTER TO BE TRANSFERED INTO THE CLOCK BUFFER REGISTER. THE BUFFER REGISTER IS THEN TRANSFERED INTO THE AC. THE COUNTER REGISTER IS NOT AFFECTED.

10. LISTING

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                        /
                        /DK8E CLOCKS DIAGNOSTIC
                        /
                        /COPYRIGHT 1971, DIGITAL EQUIP. CORP., MAYNARD, MASS.
                        /
                        /THE STARTING ADDRESS 0200 OCTAL.
                        /
                        /PLEASE READ DOCUMENT FOR FURTHER INFORMATION.
                        /
            0000        *0000
                        /
0000  0000  0000        0000
0001  5001  5001        5001
0002  0002  0002        0002
0003  0003  0003        0003
0004  0000              0000
0005  0000              0000
0006  0207  K0207,      0207
0007  0007  K0007,      0007
0010  0000  AUTO10,     0000
0011  0000  SAVAC,      0000
0012  7700  K7700,      7700
0013  0100  K0100,      0100
0014  4000  K4000,      4000
0015  0200  K0200,      0200
0016  2525  K2525,      2525
0017  5252  K5252,      5252
0020  5102  XIOTA,      IOTA
0021  5107  XIOTB,      IOTB
0022  5114  XIOTC,      IOTC
0023  5121  XIOTD,      IOTD
0024  5127  XIOTE,      IOTE
0025  5134  XIOTF,      IOTF
0026  5142  XIOTF1,     IOTF1
0027  5146  XIOTG,      IOTG
0030  5154  XIOTH,      IOTH
0031  5163  XIOTI,      IOTI
0032  5200  XIOTJ,      IOTJ
0033  5207  XIOTK,      IOTK
0034  5350  XIOTS,      IOTS
0035  5360  XIOTS1,     IOTS1
0036  5370  XIOTS2,     IOTS2
0037  5400  XIOTS3,     IOTS3
0040  0000  REGA,       0000
0041  0000  REGB,       0000
0042  0000  REGC,       0000
0043  0000  REGD,       0000
0044  0000  REGE,       0000
0045  0000  REGF,       0000
0046  5642  SKPWAT,     XWAIT
0047  5255  XPIGO1,     PIGO1
0050  5270  XPIGO2,     PIGO2
0051  5323  XPIGO3,     PIGO3
0052  5336  XPIGO4,     PIGO4
0053  5234  XPIGO5,     PIGO5
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0054  5310    XISZ,   ISZLOP
0055  5224    RANDY,  RANDOM
0056  5216    XSNDRV, SNDRV
0057  5302    XSYNC,  SYNC
0060  5065    XCLREG, CLRREG
0061  0215    OVER2,  BGNEAC
0062  0217    OVER2A, BGNEAC +2
0063  0570    XDKSEP, TST30
0064  3561    XMITT,  TST202
0065  3556    XMITT1, TST202 -3
0066  5660    XLAS,   SWLAS
0067  5746    XGTAD,  GTAD
0070  0000    SEND,   0000
0071  0000    RECEV,  0000
0072  5000    NERROR, NERRO
0073  5020    ERROR,  ERRO
0074  5413    XCLOCK, CLOCK
0075  0000    CLOCKS, 0000
0076  0000    KREGC,  0000
0077  0000    LOOP,   0000
0100  5402    JMPI2,  JMP I 2
0101  5441    XCRLF,  CRLF
0102  5563    XREG,   PREG
0103  5471    XSORT,  SORT
0104  5420    XOCTEL, OCTEL
0105  5542    XMESS,  MESS
0106  5604    XPRINT, PRINT
0107  5056    XTYPE,  TYPE
0110  5046    XBELL,  BELL
0111  7730    KPRMTI, 7730
0112  7400    K7400,  7400
0113  0000    KT1CPS, 0000
0114  6007    K6007,  6007
0115  0006    K0006,  0006
0116  0400    K0400,  0400
0117  6000    K6000,  6000
0120  3000    K3000,  3000
0121  5000    K5000,  5000
0122  7770    K7770,  7770
0123  0260    K0260,  0260
0124  4100    K4100,  4100
0125  3740    K3740,  3740
0126  0240    K0240,  0240
0127  0017    K0017,  0017
0130  7774    K7774,  7774
0131  7773    K7773,  7773
0132  7772    K7772,  7772
0133  0077    K0077,  0077
0134  0215    K0215,  0215
0135  0212    K0212,  0212
0136  0377    K0377,  0377
0137  0040    K0040,  0040
0140  0020    K0020,  0020
0141  7000    K7000,  7000
0142  0010    K0010,  0010
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0143  2000    K2000,  2000
0144  1000    K1000,  1000
0145  0300    K0300,  0300
0146  0500    K0500,  0500
0147  0600    K0600,  0600
0150  0700    K0700,  0700
0151  2725    KTA,    2725
0152  2650    KTA1,   2650
0153  7425    KTB,    7425
0154  7350    KTB1,   7350
0155  7753    KTC,    7753
0156  0225    KTC1,   0225
0157  0150    KTC2,   0150
0160  1450    KTD,    1450
0161  1425    KTD1,   1425
0162  6575    KTE,    6575
0163  6525    KTE1,   6525
0164  5600    XSETO,  SETO
0165  5450    XOPR,   POPR
0166  0070    PATCH,  0070
0167  5771    XGETM,  TIMCLK
0170  5740    XPASS,  PASS
0171  1775    XCRS1,  T122B
0172  2200    XCRS2,  T127A
0173  2603    XCRS3,  T150A
0174  2565    XCRS4,  T150B
0175  4003    XCRS5,  T215A
                /
      0200    *0200
                /
0200  7300    BEGIN,  CLA CLL          /CLEAR THE AC AND LINK
0201  6007            6007             /CAF OR CLEAR THE WORLD
0202  4501            JMS I XCRLF      /CRLF
0203  4506            JMS I XPRINT     /PRINT DK8E CLOCKS DIAGNOSTIC
0204  6000            DKMES            /MESSAGE POINTER
0205  4501            JMS I XCRLF      /CRLF
0206  4460            JMS I XCLREG     /CLEAR ALL MY REGISTERS
0207  4564            JMS I XSETO      /SET UP FOR PI RETURN
0210  4466            JMS I XLAS       /GET HIS SWITCHES
0211  5465            JMP I XMITT1     /TEST SCHMITT
0212  5463            JMP I XDK8EP     /TEST DK8EP CLOCK
0213  4474            JMS I XCLOCKS    /TEST DK8EA OR DK8EC
0214  4565            JMS I XOPR       /SORT AND PRINT FREQ. SELECTED
0215  4567    BGNEAC, JMS I XGETM      /GET TIME LENGTH
0216  3077            DCA LOOP         /SET LOOP COUNTER
0217  4460            JMS I XCLREG     /CLEAR ALL REGISTERS
0220  3040            DCA REGA
                /
                /DOES IOT CLEI CHANGE AC ?
                /CHECK ALL COMBINATIONS
                /
0221  1040    TST0,   TAD REGA         /GET AC NUMBER
0222  3070            DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
0223  1070            TAD SEND
0224  4420            JMS I XIOTA      /IOT 6131, CLEI
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0225  3071          DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
0226  1071          TAD RECEV
0227  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0230  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER.
0231  4473          JMS I ERROR     /ERROR: CLEI CHANGED AC.
0232  3000          3000            /TST0 ERROR MESSAGE.
0233  0221          TST0            /SCOPE LOOP.
0234  3040          DCA REGA
                    /
                    /DOES IOT CLED CHANGE AC ?
                    /CHECK ALL COMBINATIONS
                    /
0235  1040  TST1,   TAD REGA        /GET AC NUMBER
0236  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
0237  1070          TAD SEND
0240  4421          JMS I XIOTB     /IOT 6132, CLED
0241  3071          DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
0242  1071          TAD RECEV
0243  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0244  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER.
0245  4473          JMS I ERROR     /ERROR: CLED CHANGED AC.
0246  3001          3001            /TST1 ERROR MESSAGE.
0247  0235          TST1            /SCOPE LOOP.
0250  3040          DCA REGA
                    /
                    /DOES IOT CLSK CHANGE AC ?
                    /CHECK ALL COMBINATIONS
                    /
0251  1040  TST2,   TAD REGA        /GET AC NUMBER
0252  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
0253  1070          TAD SEND
0254  4422          JMS I XIOTC     /IOT 6133, CLSK
0255  7000          NOP             /WAIT JUST IN CASE !
0256  3071          DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
0257  1071          TAD RECEV
0260  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0261  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER.
0262  4473          JMS I ERROR     /ERROR: CLSK CHANGED AC.
0263  3002          3002            /TST2 ERROR MESSAGE.
0264  0251          TST2            /SCOPE LOOP.
                    /
                    /TEST FOR NO INTERRUPT RQST.
                    /
0265  6007  TST3,   6007            /CAF OR CLEAR THE WORLD
0266  4447          JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
0267  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0270  4473          JMS I ERROR     /ERROR:PI OR INT. RQST. FAILED
0271  1003          1003            /TST3 ERROR MESSAGE
0272  0265          TST3            /SCOPE LOOP
                    /
                    /DOES CLSK SKIP ON A CLOCK FLAG
                    /
0273  1113  TST4,   TAD KT1CPS
0274  3045          DCA REGF        /SET UP TIMER
0275  4422          JMS I XIOTC     /IOT 6133, CLSK
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0276  7000          NOP
0277  4422          JMS I XIOTC     /IOT 6133, CLSK
0300  4446          JMS I SKPWAT    /GO WAIT FOR FLAG
0301  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0302  4473          JMS I ERROR     /ERROR: CLSK OR FLAG FAILED
0303  0404          0404            /TST4 ERROR MESSAGE
0304  0273          TST4            /SCOPE LOOP
                    /
                    /DOES CLSK CLEAR THE FLAG ?
                    /
0305  1113    TST5, TAD KT1CPS
0306  3045          DCA REGF        /SET UP TIMER
0307  4422          JMS I XIOTC     /IOT 6133, CLSK
0310  7000          NOP
0311  4422          JMS I XIOTC     /IOT 6133, CLSK
0312  4446          JMS I SKPWAT    /GO WAIT FOR FLAG
0313  7410          SKP             /GOT THE FLAG
0314  5704          JMP I .-10      /GO BACK TO TEST 4
0315  4422          JMS I XIOTC     /IOT 6133, CLSK
0316  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0317  4473          JMS I ERROR     /ERROR: CLSK CLEAR THE FLAG FAILED
0320  0005          0005            /TST5 ERROR MESSAGE
0321  0305          TST5            /SCOPE LOOP
                    /
                    /DOES CLEI ENABLE CLOCK INTERRUPT ?
                    /
0322  4420    TST6, JMS I XIOTA     /IOT 6131, CLEI
0323  4450          JMS I XPIGO2    /GO TO PI, PI EXPECTED
0324  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER,
0325  4473          JMS I ERROR     /ERROR: DID CLEI ENABLE CLOCK INTERRUPT ?
0326  1406          1406            /TST6 ERROR MESSAGE
0327  0322          TST6            /SCOPE LOOP.
                    /
                    /DOES CLED DISABLE CLOCK INTERRUPT ?
                    /
0330  4420    TST7, JMS I XIOTA     /IOT 6131, CLEI
0331  4421          JMS I XIOTB     /IOT 6132, CLED
0332  4447          JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
0333  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER,
0334  4473          JMS I ERROR     /ERROR: DID CLED DISABLE CLOCK INTERRUPT?
0335  1007          1007            /TST7 ERROR MESSAGE
0336  0330          TST7            /SCOPE LOOP.
                    /
                    /DOES CAF DISABLE CLOCK INTERRUPT ?
                    /
0337  4420    TST10, JMS I XIOTA    /IOT 6131, CLEI
0340  6007          6007            /CAF OR CLEAR THE WORLD
0341  4447          JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
0342  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER,
0343  4473          JMS I ERROR     /ERROR: DID CAF DISABLE CLOCK INTERRUPT ?
0344  1010          1010            /TST10 ERROR MESSAGE
0345  0337          TST10           /SCOPE LOOP.
                    /
                    /DOES CLEI ENABLE CLOCK INTERRUPT ?
                    /
```

```
0346  4420  TST11,  JMS I XIOTA      /IOT 6131, CLEI
0347  4447         JMS I XPIGO1     /GO TO PI, PI EXPECTED
0350  5354         JMP T11A
0351  4420         JMS I XIOTA      /IOT 6131, CLEI
0352  4450         JMS I XPIGO2     /GO TO PI, PI EXPECTED
0353  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER,
0354  4473  T11A,  JMS I ERROR      /ERROR: CLEI AND CLED FAST TOGGLE
0355  1411         1411             /TS11 ERROR MESSAGE
0356  0346         TST11            /SCOPE.
                   /
                   /DOES CLED DISABLE CLOCK INTERRUPT ?
                   /
0357  4420  TST12,  JMS I XIOTA      /IOT 6131, CLEI
0360  4421         JMS I XIOTB      /IOT 6132, CLED
0361  4450         JMS I XPIGO2     /GO TO PI, NO PI EXPECTED
0362  5366         JMP T12A
0363  4421         JMS I XIOTB      /IOT 6132, CLED
0364  4447         JMS I XPIGO1     /GO TO PI, NO PI EXPECTED
0365  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER,
0366  4473  T12A,  JMS I ERROR      /ERROR: CLEI AND CLED FAST TOGGLE
0367  1012         1012             /TST12 ERROR MESSAGE
0370  0357         TST12            /SCOPE LOOP.
                   /
                   /TEST DECODER FOR 6135, NOT CLEI
                   /
0371  4421  TST13,  JMS I XIOTB      /IOT 6132, CLED
0372  4431         JMS I XIOTI      /IOT 6135, NOT AN IOT 6131
0373  4447         JMS I XPIGO1     /GO TO PI, NO PI EXPECTED
0374  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER,
0375  4473         JMS I ERROR      /ERROR: DID DECODER WORK
0376  1013         1013             /TST13 ERROR MESSAGE
0377  0371         TST13            /SCOPE LOOP.
                   /
                   /TEST DECODER FOR A 6136, NOT CLED
                   /
0400  4420  TST14,  JMS I XIOTA      /IOT 6131, CLEI
0401  4432         JMS I XIOTJ      /IOT 6136, NOT AN IOT 6132.
0402  4450         JMS I XPIGO2     /GO TO PI, PI EXPECTED
0403  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER,
0404  4473         JMS I ERROR      /ERROR: DID DECODER WORK
0405  1414         1414             /TST14 ERROR MESSAGE
0406  0400         TST14            /SCOPE LOOP.
                   /
                   /TEST DECODER FOR 6137, NOT CLSK
                   /
0407  1113  TST15,  TAD KT1CPS
0410  3045         DCA REGF         /SET UP TIMER
0411  4422         JMS I XIOTC      /IOT 6132, CLED
0412  7000         NOP
0413  4433         JMS I XIOTK      /IOT 6137, NOT AN IOT 6133
0414  4446         JMS I SKPWAT     /GO WAIT FOR FLAG
0415  7410         SKP              /ERROR, SKIP OCCURRED
0416  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER,
0417  4473         JMS I ERROR      /ERROR: DID DECODER WORK
0420  0015         0015             /TST15 ERROR MESSAGE
```

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0421  0407          TST15           /SCOPE LOOP.
                    /
                    /DOES CLSK ENABLE CLOCK INTERRUPT ?
                    /
0422  4422  TST16,  JMS I XIOTC      /IOT 6133, CLSK
0423  7000          NOP
0424  4447          JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
0425  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER,
0426  4473          JMS I ERROR     /ERROR: DID CLSK CAUSE INTERRUPT
0427  1016          1016            /TST16 ERROR MESSAGE
0430  0422          TST16           /SCOPE LOOP.
                    /
                    /DOES CLSK DISABLE CLOCK INTERRUPT ?
                    /
0431  4420  TST17,  JMS I XIOTA      /IOT 6131, CLEI
0432  4422          JMS I XIOTC     /IOT 6133, CLSK
0433  7000          NOP
0434  4450          JMS I XPIGO2    /GO TO PI, PI EXPECTED
0435  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER,
0436  4473          JMS I ERROR     /ERROR: CLSK DISABLED CLOCK INTERRUPT
0437  1417          1417            /TST17 ERROR MESSAGE
0440  0431          TST17           /SCOPE LOOP.
                    /
                    /DOES CLEI CAUSE A SKIP ON FLAG ?
                    /
0441  1113  TST20,  TAD KT1CPS
0442  3045          DCA REGF        /SET UP TIMER
0443  4420          JMS I XIOTA     /IOT 6131, CLEI
0444  4446          JMS I SKPWAT    /GO WAIT FOR FLAG
0445  7410          SKP             /ERROR, SKIP OCCURRED
0446  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER,
0447  4473          JMS I ERROR     /ERROR: DID CLEI CAUSE A SKIP
0450  0020          0020            /TST20 ERROR MESSAGE
0451  0441          TST20           /SCOPE LOOP.
                    /
                    /DOES CLED CAUSE A SKIP ON FLAG ?
                    /
0452  1113  TST21,  TAD KT1CPS
0453  3045          DCA REGF        /SET UP TIMER
0454  4421          JMS I XIOTB     /IOT 6132, CLED
0455  4446          JMS I SKPWAT    /GO WAIT FOR FLAG
0456  7410          SKP             /ERROR, SKIP OCCURRED
0457  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER,
0460  4473          JMS I ERROR     /ERROR: DID CLED CAUSE A SKIP ON FLAG
0461  0021          0021            /TST21 ERROR MESSAGE
0462  0452          TST21           /SCOPE LOOP.
                    /
                    /DOES INT. RQST STAY DOWN ?
                    /
0463  4457  TST22,  JMS I XSYNC     /SYNC WITH CLOCK
0464  4420          JMS I XIOTA     /IOT 6131, CLEI
0465  4447          JMS I XPIGO1    /GO TO PI, PI EXPECTED
0466  5273          JMP T22A        /ERROR, PI FAILED
0467  2041          ISZ REGB
0470  5267          JMP .-1         /WAIT 15.5 MS
```

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0471  4452          JMS I XPIGO4    /GO TO PI, PI EXPECTED
0472  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0473  4473  T22A,   JMS I ERROR     /ERROR:DID RQST. LAST ?
0474  1422          1422            /TST21 ERROR MESSAGE
0475  0463          TST22           /SCOPE LOOP
                    /
                    /DOES CLSK CLEAR RQST. LINE ?
                    /
0476  4420  TST23,  JMS I XIOTA     /IOT 6131, CLEI
0477  4457          JMS I XSYNC     /SYNC WITH CLOCK FLAG
0500  4451          JMS I XPIGO3    /GO TO PI, NO PI EXPECTED
0501  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0502  4473          JMS I ERROR     /ERROR: DID CLSK CLEAR RQST. FLAG
0503  1023          1023            /TST23 ERROR MESSAGE
0504  0476          TST23           /SCOPE LOOP
                    /
                    /SYNC WITH CLOCK AND
                    /CHECK FOR FAST OUTPUT
                    /
0505  4467  TST24,  JMS I XGTAD     /GET TIME CONSTANTS
0506  0000          0000            /MODIFIED BY TEST
0507  1706          TAD I .-1
0510  3043          DCA REGD
0511  4420          JMS I XIOTA     /IOT 6131, CLEI
0512  4457          JMS I XSYNC     /SYNC WITH CLOCK
0513  4447          JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
0514  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER.,
0515  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST.
0516  2024          2024            /TST24 ERROR MESSAGE.
0517  0505          TST24           /SCOPE LOOP.
                    /
                    /SYNC WITH CLOCK AND
                    /CHECK FOR SLOW OUTPUT
                    /
0520  1115  TST25,  TAD K0006       /SETUP FOR SLOW CLOCK
0521  4467          JMS I XGTAD     /GET TIME CONSTANTS
0522  0000          0000            /MODIFIED BY TEST
0523  1722          TAD I .-1
0524  3043          DCA REGD
0525  4420          JMS I XIOTA     /IOT 6131, CLEI
0526  4457          JMS I XSYNC     /SYNC WITH CLOCK
0527  4450          JMS I XPIGO2    /GO TO PI, PI EXPECTED
0530  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER,
0531  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW,
0532  2425          2425            /TST25 ERROR MESSAGE.
0533  0520          TST25           /SCOPE LOOP.
                    /
                    /CHECK FOR FAST CLOCK AND
                    /BAD CLOCK FLAG WITH CLSK.
                    /
0534  4467  TST26,  JMS I XGTAD     /GET TIME CONSTANTS
0535  0000          0000            /MODIFIED BY TEST
0536  1735          TAD I .-1
0537  3043          DCA REGD
0540  4457          JMS I XSYNC     /SYNC WITH CLOCK
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0541  4454          JMS I XISZ      /WAIT
0542  4422          JMS I XIOTC     /IOT 6133, CLSK
0543  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0544  4473          JMS I ERROR     /ERROR: CLOCK FAILED
0545  2026          2026            /TST26 ERROR MESSAGE
0546  0534          TST26           /SCOPE LOOP
                    /
                    /CHECK FOR SLOW CLOCK AND
                    /BAD CLOCK FLAG WITH CLSK
                    /
0547  1115  TST27,  TAD K0006       /SET UP FOR SLOW CLOCK
0550  4467          JMS I XGTAD     /GET TIME CONSTANTS
0551  0000          0000            /MODIFIED BY TEST
0552  1751          TAD I .-1
0553  3043          DCA REGD
0554  4457          JMS I XSYNC     /SYNC WITH CLOCK
0555  4454          JMS I XISZ      /WAIT
0556  4422          JMS I XIOTC     /IOT 6133, CLSK
0557  7410          SKP             /ERROR, SKIP OCCURRED
0560  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0561  4473          JMS I ERROR     /ERROR: CLSK OR CLOCK FLAG FAILED
0562  2427          2427            /TST27 ERROR MESSAGE
0563  0547          TST27           /SCOPE LOOP
0564  2077          ISZ LOOP
0565  5462          JMP I OVER2A    /LOOP ON TEST
0566  4570          JMS I XPASS     /TYPE PASS COMPLETE
0567  5461          JMP I OVER2     /RESET COUNTER AND CONTINUE TESTING
                    /
                    /DOES IOT CLZE CHANGE AC?
                    /CHECK ALL COMBINATIONS.
                    /
                    /
0570  1040  TST30,  TAD REGA        /GET AC NUMBER
0571  4423          JMS I XIOTD     /IOT 6130,CLZE
0572  3071          DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
0573  1071          TAD RECEV
0574  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0575  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0576  4473          JMS I ERROR     /ERROR:CLZE CHANGED AC
0577  3030          3030            /TST30 ERROR MESSAGE
0600  0570          TST30           /SCOPE LOOP
                    /
                    /DOES IOT CLSK CHANGE AC?
                    /CHECK ALL COMBINATIONS
                    /
0601  1040  TST31,  TAD REGA        /GET AC NUMBER
0602  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
0603  1070          TAD SEND
0604  4424          JMS I XIOTE     /IOT 6131, CLSK
0605  7000          NOP
0606  3071          DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
0607  1071          TAD RECEV
0610  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0611  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0612  4473          JMS I ERROR     /ERROR:CLSK CHANGED AC.
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0613  3031            3031            /TST31 ERROR MESSAGE
0614  0601            TST31           /SCOPE LOOP
                      /
                      /DOES IOT CLOE CHANGE AC?
                      /CHECK ALL COMBINATIONS
                      /
0615  1040  TST32,     TAD REGA        /GET AC NUMBER
0616  4425            JMS I XIOTF     /IOT 6132, CLOE
0617  3071            DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
0620  1071            TAD RECEV
0621  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0622  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0623  4473            JMS I ERROR     /ERROR:CLOE CHANGED AC
0624  3032            3032            /TST32 ERROR MESSAGE
0625  0615            TST32           /SCOPE LOOP


                      /
                      /DOES IOT CLAB CHANGE AC?
                      /CHECK ALL COMBINATIONS
                      /
0626  1040  TST33,     TAD REGA        /GET AC NUMBER
0627  4427            JMS I XIOTG     /IOT 6133, CLAB
0630  3071            DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
0631  1071            TAD RECEV
0632  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0633  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0634  4473            JMS I ERROR     /ERROR:CLAB CHANGED AC
0635  3033            3033            /TST33 ERROR MESSAGE
0636  0626            TST33           /SCOPE LOOP
                      /
                      /DOES CAF CLEAR BUFFER REGISTER?
                      /CHECK FOR JAM TO AC, CLBA.
                      /
0637  6007  TST34,     6007            /CAF OR CLEAR THE WORLD
0640  7340            CLA CLL CMA     /AC TO 7777
0641  4432            JMS I XIOTJ     /IOT 6136, CLBA
0642  7650            SNA CLA         /WAS BUFFER ALL 0'S?
0643  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0644  4473            JMS I ERROR     /ERROR:CAF OR CLBA FAILED,
0645  3434            3434            /TST34 ERROR MESSAGE
0646  0637            TST34           /SCOPE LOOP
                      /
                      /DOES CAF CLEAR ENABLE REGISTER?
                      /CHECK FOR JAM TO AC, CLEN.
                      /
0647  6007  TST35,     6007            /CAF OR CLEAR THE WORLD
0650  7340            CLA CLL CMA     /AC TO 7777
0651  4430            JMS I XIOTH     /IOT 6134, CLEN
0652  7650            SNA CLA         /WAS ENABLE REGISTER ALL 0'S?
0653  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0654  4473            JMS I ERROR     /ERROR:CAL OR CLEN FAILED,
0655  4435            4435            /TST35 ERROR MESSAGE
0656  0647            TST35           /SCOPE LOOP
```

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                    /
                    /DOES CAF CLEAR STATUS REGISTER ?
                    /CHECK JAM TO AC CLSA
                    /
0657  6007    TST36,  6007            /CAF OR THE CLEAR THE WORLD
0660  7340            CLA CLL CMA     /AC TO 7777
0661  4431            JMS I XIOTI     /IOT 6135, CLSA
0662  7650            SNA CLA         /WAS STATUS REGISTER ALL 0'S ?
0663  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0664  4473            JMS I ERROR     /CAF OR CLSA FAILED
0665  5036            5036            /TST36 ERROR MESSAGE
0666  0657            TST36           /SCOPE LOOP
                    /
                    /DOES AC LOAD BUFFER REGISTER?
                    /CHECK ALL 0'S TRANSFER
                    /CHECK JAM TO AC, CLBA
                    /
0667  4427    TST37,  JMS I XIOTG     /IOT 6133, CLAB
0670  7340            CLA CLL CMA     /AC TO 7777
0671  4432            JMS I XIOTJ     /IOT 6136, CLBA
0672  7650            SNA CLA         /WAS BUFFER ALL 0'S?
0673  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0674  4473            JMS I ERROR     /ERROR:CLAB OR CLBA FAILED
0675  3437            3437            /TST37 ERROR MESSAGE
0676  0667            TST37           /SCOPE LOOP
                    /
                    /DOES AC LOAD BUFFER REGISTER ?
                    /CHECK ALL 1'S TRANSFER
                    /CHECK JAM TO AC , CLBA
                    /
0677  7340    TST40,  CLA CLL CMA     /AC TO 7777
0700  4427            JMS I XIOTG     /IOT 6133, CLAB
0701  7300            CLA CLL         /CLEAR THE AC AND LINK
0702  4432            JMS I XIOTJ     /IOT 6136, CLBA
0703  7040            CMA             /COMPLEMENT THE AC
0704  7650            SNA CLA         /WAS BUFFER ALL 1'S?
0705  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0706  4473            JMS I ERROR     /ERROR:CLAB OR CLBA FAILED
0707  3440            3440            /TST40 ERROR MESSAGE
0710  0677            TST40           /SCOPE LOOP
                    /
                    /DOES BUFFER SURVIVE PATTERN 2525 ?
                    /
0711  1016    TST41,  TAD K2525       /GET AC NUMBER
0712  4427            JMS I XIOTG     /IOT 6133, CLAB
0713  7040            CMA             /COMPLEMENT AC
0714  4432            JMS I XIOTJ     /IOT 6136, CLBA
0715  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0716  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0717  4473            JMS I ERROR     /ERROR: BUFFER OR AC FAILED
0720  3441            3441            /TST41 ERROR MESSAGE
0721  0711            TST41           /SCOPE LOOP
                    /
                    /DOES BUFFER SURVIVE PATTERN 5252 ?
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                        /
0722  1017    TST42,  TAD K5252       /GET AC NUMBER
0723  4427            JMS I XIOTG     /IOT 6133, CLXB
0724  7040            CMA             /COMPLEMENT AC
0725  4432            JMS I XIOTJ     /IOT 6136, CLBA
0726  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0727  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0730  4473            JMS I ERROR     /ERROR: BUFFER OR AC FAILED
0731  3442            3442            /TST42 ERROR MESSAGE
0732  0722            TST42           /SCOPE LOOP
                        /
                        /DOES CAF REALLY CLEAR BUFFER ?
                        /
0733  7240    TST43,  CLA CLA CMA     /AC TO ALL 7777
0734  4427            JMS I XIOTG     /IOT 6133, CLAB
0735  6007            6007            /CAF OR CLEAR THE WORLD
0736  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
0737  7340            CLA CLL CMA
0740  4432            JMS I XIOTJ     /IOT 6136, CLBA
0741  7650            SNA CLA         /WAS BUFFER ALL  0'S ?
0742  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0743  4473            JMS I ERROR     /ERROR: CAF OR BUFFER FAILED
0744  3443            3443            /TST43 ERROR MESSAGE
0745  0733            TST43           /SCOPE LOOP
                        /
                        /DOES CAF REALLY CLEAR BUFFER ?
                        /DO ALL COMBINATIONS
                        /
0746  1040    TST44,  TAD REGA        /GET AC NUMBER
0747  4427            JMS I XIOTG     /IOT 6133, CLAB
0750  6007            6007            /CAF OR CLEAR THE WORLD
0751  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
0752  7340            CLA CLL CMA
0753  4432            JMS I XIOTJ     /IOT 6136, CLBA
0754  7650            SNA CLA         /WAS BUFFER ALL 0'S ?
0755  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0756  4473            JMS I ERROR     /ERROR: CAF OR BUFFER FAILED
0757  3444            3444            /TST44 ERROR MESSAGE
0760  0746            TST44           /SCOPE LOOP
                        /
                        /CHECK AC TO BUFFER REGISTER AND
                        /BUFFER REGISTER TO AC TRANSFERS.
                        /CHECK ALL COMBINATIONS.
                        /CHECK LOAD ON BUFFER REGISTER.
                        /
0761  7340    TST45,  CLA CLL CMA
0762  3040            DCA REGA
0763  1041    T45B,   TAD REGB        /GET AC NUMBER
0764  4427            JMS I XIOTG     /IOT 6133, CLAB
0765  7040            CMA             /COMPLEMENT THE AC
0766  4432            JMS I XIOTJ     /IOT 6136, CLBA
0767  4456            JMS I XSNDRV    /CHECK SEND RECEV REGISTERS
0770  7610            SKP CLA
0771  5375            JMP T45A
0772  2041            ISZ REGB        /UPDATE AC NUMBER
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0773  5363            JMP T45B
0774  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
0775  4473  T45A,     JMS I ERROR     /ERROR: AC OR BUFFER FAILED.
0776  3445            3445            /TST45 ERROR MESSAGE
0777  0761            TST45           /SCOPE LOOP
                      /
                      /DOES READING BUFFER CHANGE ITS CONTENTS ?
                      /
1000  7340  TST46,     CLA CLL CMA     /AC TO 7777
1001  3040            DCA REGA
1002  1016            TAD K2525       /GET AC NUMBER
1003  4427            JMS I XIOTG     /IOT 6133, CLAB
1004  7040            CMA             /COMPLEMENT AC
1005  4432  T46B,     JMS I XIOTJ     /IOT 6136, CLBA
1006  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1007  7610            SKP CLA
1010  5214            JMP T46A
1011  2041            ISZ REGB        /UPDATE COUNTER
1012  5205            JMP T46B        /DO 4096 TIMES
1013  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
1014  4473  T46A,     JMS I ERROR     /ERROR: BUFFER FAILED
1015  3446            3446            /TST46 ERROR MESSAGE
1016  1000            TST46           /SCOPE LOOP
                      /
                      /DOES READING BUFFER CHANGE ITS CONTENTS ?
                      /
1017  7340  TST47,     CLA CLL CMA     /AC TO 7777
1020  3040            DCA REGA
1021  1017            TAD K5252       /GET AC NUMBER
1022  4427            JMS I XIOTG     /IOT 6133, CLAB
1023  7040            CMA             /COMPLEMENT AC
1024  4432  T47B,     JMS I XIOTJ     /IOT 6136, CLBA
1025  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1026  7610            SKP CLA
1027  5233            JMP T47A
1030  2041            ISZ REGB        /UPDATE COUNTER
1031  5224            JMP T47B        /DO 4096 TIMES
1032  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
1033  4473  T47A,     JMS I ERROR     /ERROR: BUFFER FAILED
1034  3447            3447            /TST47 ERROR MESSAGE
1035  1017            TST47           /SCOPEPLOOP
                      /
                      /DOES BUFFER SURVIVE RANDOM PATTERNS ?
                      /
1036  7340  TST50,     CLA CLL CMA     /AC TO 7777
1037  3040            DCA REGA
1040  4455  T50B,     JMS I RANDY     /GET RANDOM NUMBER
1041  4427            JMS I XIOTG     /IOT 6133, CLAB
1042  7040            CMA             /COMPLEMENT AC
1043  4432            JMS I XIOTJ     /IOT 6136, CLBA
1044  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1045  7610            SKP CLA
1046  5252            JMP T50A
1047  2041            ISZ REGB        /UPDATE COUNTER
1050  5240            JMP T50B        /DO 4096 TIMES
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1051  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1052  4473  T50A,   JMS I ERROR      /ERROR: BUFFER FAILED
1053  3450          3450            /TST50 ERROR MESSAGE
1054  1036          TST50           /SCOPE LOOP
                    /
                    /DOES BUFFER SURVIVE FAST TOGGLE ?
                    /
1055  1040  TST51,  TAD REGA        /GET AC NUMBER
1056  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1057  1040          TAD REGA
1060  4435          JMS I XIOTS1    /IOT'S 6133 AND 6136
1061  3071          DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
1062  1071          TAD RECEV
1063  4456          JMS I XSNDRV    /CHECK SEND RECEV REGISTERS
1064  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1065  4473          JMS I ERROR     /ERROR: BUFFER FAILED
1066  3451          3451            /TST51 ERROR MESSAGE
1067  1055          TST51           /SCOPE LOOP
                    /
                    /DOES AC SET ENABLE REGISTER?
                    /CHECK ALL 1'S TRANSFER.
                    /CHECK JAM TO AC, CLEN
                    /
1070  7340  TST52,  CLA CLL CMA     /AC TO 7777
1071  4425          JMS I XIOTF     /IOT 6132, CLOE
1072  7040          CMA             /COMPLEMENT AC
1073  4430          JMS I XIOTH     /IOT 6134, CLEN
1074  7040          CMA             /COMPLEMENT AC
1075  7650          SNA CLA         /WAS ENABLE REGISTER ALL 1'S ?
1076  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1077  4473          JMS I ERROR     /ERROR:CLOE OR CLEN FAILED.
1100  4452          4452            /TST52 ERROR MESSAGE
1101  1070          TST52           /SCOPE LOOP
                    /
                    /DOES AC SET ENABLE REGISTER?
                    /CHECK ALL 0'S TRANSFER.

                    /CHECK FOR JAM TO AC , CLEN
                    /
1102  7340  TST53,  CLA CLL CMA     /AC TO 7777
1103  4425          JMS I XIOTF     /IOT 6132, CLOE
1104  7300          CLA CLL         /CLEAR THE AC AND LINK
1105  4426          JMS I XIOTF1    /IOT 6132, CLOE
1106  4430          JMS I XIOTH     /IOT 6134, CLEN
1107  7040          CMA             /COMPLEMENT THE AC
1110  7650          SNA CLA         /WAS ENABLE REGISTER ALL 1'S?
1111  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1112  4473          JMS I ERROR     /ERROR:CLOE OR CLEN FAILED
1113  4453          4453            /TST53 ERROR MESSAGE
1114  1102          TST53           /SCOPE LOOP
                    /
                    /DOES CAF REALLY CLEAR ENABLE REGISTER?
                    /
1115  7340  TST54,  CLA CLL CMA     /AC TO 7777
1116  4425          JMS I XIOTF     /IOT 6132, CLOE
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1117  6007            6007            /CAF OR CLEAR THE WORLD
1120  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1121  7340            CLA CLL CMA     /AC TO 7777
1122  4430            JMS I XIOTH     /IOT 6134, CLEN
1123  7650            SNA CLA         /WAS REGISTER ALL 0'S
1124  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
1125  4473            JMS I ERROR     /ERROR:CAF,CLOE,OR CLEN FAILED
1126  4454            4454            /TST54 ERROR MESSAGE
1127  1115            TST54           /SCOPE LOOP
                      /
                      /DOES CAF REALLY CLEAR ENABLE REGISTER ?
                      /DO ALL COMBINATIONS
                      /
1130  1040  TST55,    TAD REGA        /GET AC NUMBER
1131  4426            JMS I XIOTF1    /IOT 6132, CLOE
1132  6007            6007            /CAF OR CLEAR THE WORLD
1133  7340            CLA CLL CMA     /AC TO 7777
1134  4430            JMS I XIOTH     /IOT 6134, CLEN
1135  7650            SNA CLA         /WAS ENABLE REGISTER ALL 0'S ?
1136  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
1137  4473            JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1140  4455            4455            /TST55 ERROR MESSAGE
1141  1130            TST55           /SCOPE LOOP
                      /
                      /DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?
                      /
1142  1016  TST56,    TAD K2525       /GET AC NUMBER
1143  4425            JMS I XIOTF     /IOT 6132, CLOE
1144  7040            CMA             /COMPLEMENT AC
1145  4430            JMS I XIOTH     /IOT 6134, CLEN
1146  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1147  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
1150  4473            JMS I ERROR     /ERROR: EBABLE REGISTER FAILED
1151  4456            4456            /TST56 ERROR MESSAGE
1152  1142            TST56           /SCOPE LOOP
                      /
                      /DOES ENABLE REGISTER SURVIVE PATTERN 5252 ?
                      /
1153  1017  TST57,    TAD K5252       /GET AC NUMBER
1154  4425            JMS I XIOTF     /IOT 6132, CLOE
1155  7040            CMA             /COMPLEMENT AC
1156  4430            JMS I XIOTH     /IOT 6134, CLEN
1157  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1160  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
1161  4473            JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1162  4457            4457            /TST57 ERROR MESSAGE
1163  1153            TST57           /SCOPE LOOP
                      /
                      /DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?
                      /
1164  1016  TST60,    TAD K2525       /GET AC NUMBER
1165  4425            JMS I XIOTF     /IOT 6132, CLOE
1166  7300            CLA CLL         /CLEAR THE AC AND LINK
1167  4426            JMS I XIOTF1    /IOT 6132, CLOE
1170  7340            CLA CLL CMA     /AC TO 7777
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1171  4430          JMS I XIOTH     /IOT 6134, CLEN
1172  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1173  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1174  4473          JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1175  4460          4460            /TST60 ERROR MESSAGE
1176  1164          TST60           /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE PATTERN 5252 ?
                    /
1177  1017  TST61,  TAD K5252       /GET AC NUMBER
1200  4425          JMS I XIOTF     /IOT 6132, CLOE
1201  7300          CLA CLL         /CLEAR THE AC AND LINK
1202  4426          JMS I XIOTF1    /IOT 6132, CLOE
1203  7340          CLA CLL CMA     /AC TO 7777
1204  4430          JMS I XIOTH     /IOT 6134, CLEN
1205  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1206  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1207  4473          JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1210  4461          4461            /TST61 ERROR MESSAGE
1211  1177          TST61           /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?
                    /
1212  7340  TST62,  CLA CLL CMA     /AC TO 7777
1213  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1214  1016          TAD K2525       /GET AC NUMBER
1215  4426          JMS I XIOTF1    /IOT 6132, CLOE
1216  7040          CMA             /COMPLEMENT AC
1217  4426          JMS I XIOTF1    /IOT 6132, CLOE
1220  7300          CLA CLL         /CLAER THE AC AND LINK
1221  4430          JMS I XIOTH     /IOT 6134, CLEN
1222  4456          JMS I XSNDRV    /CHECK SEND RECEV REGISTERS
1223  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1224  4473          JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1225  4462          4462            /TST62 ERROR MESSAGE
1226  1212          TST62           /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?
                    /
1227  7340  TST63,  CLA CLL CMA     /AC TO 7777
1230  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1231  1017          TAD K5252       /GET AC NUMBER
1232  4426          JMS I XIOTF1    /IOT 6132, CLOE
1233  7040          CMA             /COMPLEMENT AC
1234  4426          JMS I XIOTF1    /IOT 6132, CLOE
1235  7300          CLA CLL
1236  4430          JMS I XIOTH     /IOT 6134, CLEN
1237  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1240  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1241  4473          JMS I ERROR     /ERROR: ENABLE REGISTERS
1242  4463          4463            /TST63 ERROR MESSAGE
1243  1227          TST63           /SCOPE LOOP
                    /
                    /DO AC TO ENABLE REGISTER AND
                    /ENABLE REGISTER TO AC TRANSFERS
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                        /CHECK ALL COMBINATIONS
                        /
1244  1040      TST64,  TAD REGA          /GET AC NUMBER
1245  4425              JMS I XIOTF       /IOT 6132, CLOE
1246  7340              CLA CLL CMA       /AC TO 7777
1247  4430              JMS I XIOTH       /IOT 6134, CLEN
1250  4456              JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1251  4472              JMS I NERROR      /CHECK NON-ERROR HANDLER
1252  4473              JMS I ERROR       /ERROR: AC OR ENABLE REGISTER FAILED.
1253  4464              4464              /TST64 ERROR MESSAGE
1254  1244              TST64             /SCOPE LOOP
                        /
                        /DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN,
                        /DO ALL COMBINATIONS.
                        /
1255  7340      TST65,  CLA CLL CMA       /AC TO 7777
1256  3070              DCA SEND          /SAVE OUTPUT FOR ERROR PRINTER
1257  1040              TAD REGA          /GET AC NUMBER
1260  4426              JMS I XIOTF1      /IOT 6132, CLOE
1261  7040              CMA               /COMPLEMENT THE AC
1262  4426              JMS I XIOTF1      /IOT 6132, CLOE
1263  4430              JMS I XIOTH       /IOT 6134, CLEN
1264  4456              JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1265  4472              JMS I NERROR      /CHECK NON-ERROR HANDLER
1266  4473              JMS I ERROR       /ERROR: AC OR ENABLE REGISTER FAILED.
1267  4465              4465              /TST65 ERROR MESSAGE
1270  1255              TST65             /SCOPE LOOP
                        /
                        /DOES ENABLE REGISTER SURVIVE RANDOM PATTERN ?
                        /
1271  4455      TST66,  JMS I RANDY       /GET RANDOM NUMBER
1272  4425              JMS I XIOTF       /IOT 6132, CLOE
1273  7300              CLA CLL           /CLEAR THE AC AND LINK
1274  4430              JMS I XIOTH       /IOT 6134, CLEN
1275  4456              JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1276  4472              JMS I NERROR      /CHECK NON-ERROR HANDLER
1277  4473              JMS I ERROR       /ERROR: ENABLE REGISTER FAILED
1300  4466              4466              /TST66 ERROR MESSAGE
1301  1271              TST66             /SCOPE LOOP
                        /
                        /DOES ENABLE REGISTER SURVIVE RANDOM COMPLEMENT PATTERN ?
                        /
1302  7340      TST67,  CLA CLL CMA       /AC TO 7777
1303  3070              DCA SEND          /SAVE OUTPUT FOR ERROR PRINTER
1304  4455              JMS I RANDY       /GET RANDOM NUMBER
1305  4426              JMS I XIOTF1
1306  7040              CMA               /COMPLEMENT AC
1307  4426              JMS I XIOTF1      /IOT 6132, CLOE
1310  4430              JMS I XIOTH       /IOT 6134, CLEN
1311  4456              JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1312  4472              JMS I NERROR      /CHECK NON-ERROR HANDLER
1313  4473              JMS I ERROR       /ERROR: ENABLE REGISTER FAILED
1314  4467              4467              /TST67 ERROR MESSAGE
1315  1302              TST67             /SCOPE LOOP
                        /
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                    /DOES READING ENABLE REGISTER CHANGE ITS CONTENTS ?
                    /
1316  7340  TST70,  CLA CLL CMA      /AC TO 7777
1317  3040           DCA REGA
1320  1016           TAD K2525       /GET AC NUMBER
1321  4425           JMS I XIOTF     /IOT 6132, CLOE
1322  7340  T70B,    CLA CLL CMA     /AC TO 7777
1323  4430           JMS I XIOTH     /IOT 6134, CLEN
1324  4456           JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1325  7610           SKP CLA
1326  5332           JMP T70A
1327  2041           ISZ REGB        /UPDATE COUNTER
1330  5322           JMP T70B        /DO 4096 TIMES
1331  4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
1332  4473  T70A,    JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1333  4470           4470            /TST70 ERROR MESSAGE
1334  1316           TST70           /SCOPE LOOP
                    /
                    /DOES READING ENABLE REGISTER CHANGE TIS CONTENTS ?
                    /
1335  7340  TST71,  CLA CLL CMA      /AC TO 7777
1336  3040           DCA REGA
1337  1017           TAD K5252       /GET AC NUMBER
1340  4425           JMS I XIOTF     /IOT 6132, CLOE
1341  7300  T71B,    CLA CLL         /CLEAR THE AC AND LINK
1342  4430           JMS I XIOTH     /IOT 6134, CLEN
1343  4456           JMS I XSNDRV    /CHECK SEND RECEV REGISTERS
1344  7610           SKP CLA
1345  5351           JMP T71A
1346  2041           ISZ REGB        /UPDATE COUNTER
1347  5341           JMP T71B        /DO 4096 TIMES
1350  4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
1351  4473  T71A,    JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1352  4471           4471            /TST71 ERROR MESSAGE
1353  1335           TST71           /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE FAST TOGGLE ?
                    /
1354  1040  TST72,  TAD REGA         /GET AC NUMBER
1355  3070           DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1356  1040           TAD REGA
1357  4434           JMS I XIOTS     /IOT'S 6132 AND 6134
1360  3071           DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
1361  1071           TAD RECEV
1362  4456           JMS I XSNDRV    /CHECK SEND RECEV REGISTERS
1363  4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
1364  4473           JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1365  4472           4472            /TST72 ERROR MESSAGE
1366  1354           TST72           /SCOPE LOOP
                    /
                    /DOES CLEE CLEAR ENABLE REGISTER?
                    /
1367  7340  TST73,  CLA CLL CMA      /AC TO 7777
1370  4426           JMS I XIOTF1    /IOT 6132, CLOE
1371  7340           CLA CLL CMA
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1372  4423          JMS I XIOTD     /IOT 6130, CLŻE
1373  7300          CLA CLL         /CLEAR THE AC AND LINK
1374  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1375  7340          CLA CLL CMA     /AC TO 7777
1376  4430          JMS I XIOTH     /IOT 6134, CLEN
1377  7650          SNA CLA         /WAS REGISTER ALL Ø'S
1400  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1401  4473          JMS I ERROR     /ERROR:CLŻE OR CLEN FAILED.
1402  4473          4473            /TST73 ERROR MESSAGE
1403  1367          TST73           /SCOPE LOOP
                    /
                    /DOES CLŻE CLEAR ENABLE REGISTER?
                    /
1404  7340  TST74,  CLA CLL CMA     /AC TO 7777
1405  4425          JMS I XIOTF     /IOT 6132, CLOE
1406  7300          CLA CLL
1407  4423          JMS I XIOTD     /IOT 6130, CLŻE
1410  7340          CLA CLL CMA     /AC TO 7777
1411  3070          DCA SEND        /SAVE OUTPUT ERROR PRINTER
1412  4430          JMS I XIOTH     /IOT 6134, CLEN
1413  7040          CMA             /COMPLEMENT AC
1414  7650          SNA CLA         /WAS REGISTER ALL Ø'S?
1415  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1416  4473          JMS I ERROR     /ERROR:CLŻE OR CLEN FAILED.
1417  4474          4474            /TST74 ERROR MESSAGE
1420  1404          TST74           /SCOPE LOOP
                    /
                    /DOES CLŻE CLEAR ENABLE REGISTER?
                    /
1421  1016  TST75,  TAD K2525
1422  4425          JMS I XIOTF     /IOT 6132,CLOE
1423  7040          CMA             /COMPLEMENT THE AC
1424  4423          JMS I XIOTD     /IOT 6130, CLŻE
1425  7040          CMA             /COMPLEMENT AC
1426  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1427  4430          JMS I XIOTH     /IOT 6134, CLEN
1430  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1431  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1432  4473          JMS I ERROR     /ERROR:CLŻE,CLOE, OR CLEN FAILED
1433  4475          4475            /TST75 ERROR MESSAGE
1434  1421          TST75           /SCOPE LOOP
                    /
                    /DOES CLŻE CLEAR ENABLE REGISTER ?
                    /
1435  1017  TST76,  TAD K5252       /GET AC NUMBER
1436  4425          JMS I XIOTF     /IOT 6132, CLOE
1437  7040          CMA             /COMPLEMENT AC
1440  4423          JMS I XIOTD     /IOT 6130, CLŻE
1441  7040          CMA             /COMPLEMENT AC
1442  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1443  4430          JMS I XIOTH     /IOT 6134, CLEN
1444  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1445  4472          JMS I NERROR    /CHECL NON-ERROR HANDLER
1446  4473          JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1447  4476          4476            /TST76 ERROR MESSAGE
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1450  1435          TST76           /SCOPE LOOP
                    /
                    /DOES CLZE CLEAR ENABLE REGISTER?
                    /CHECK ALL COMBINATIONS
                    /
1451  1040  TST77,  TAD REGA        /GET AC NUMBER
1452  4425          JMS I XIOTF     /IOT 6132, CLOE
1453  4423          JMS I XIOTD     /IOT 6130, CLZE
1454  7300          CLA CLL         /CLEAR THE AC AND LINK
1455  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1456  7340          CLA CLL CMA     /AC TO ALL 1'S
1457  4430          JMS I XIOTH     /IOT 6134, CLEN
1460  7650          SNA CLA         /WAS REGISTER ALL 0'S?
1461  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1462  4473          JMS I ERROR     /ERROR:CLZE,CLOE, OR CLEN FAILED
1463  4477          4477            /TST77 ERROR MESSAGE
1464  1451          TST77           /SCOPE LOOP


                    /
                    /DOES CLZE CLEAR ENABLE REGISTER?
                    /DO ALL COMBINATIONS
                    /
1465  1040  TST100, TAD REGA        /GET AC NUMBER
1466  4425          JMS I XIOTF     /IOT 6132, CLOE
1467  7040          CMA             /COMPLEMENT THE AC
1470  4423          JMS I XIOTD     /IOT 6130, CLZE
1471  7040          CMA             /COMPLEMENT THE AC
1472  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1473  4430          JMS I XIOTH     /IOT 6134, CLEN
1474  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1475  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1476  4473          JMS I ERROR     /ERROR:CLZE, CLOE, OR CLEN FAILED
1477  4500          4500            /TST100 ERROR MESSAGE
1500  1465          TST100          /SCOPE LOOP
                    /
                    /DOES CLZE SURVIVE RANDOM PATTERN ?
                    /
1501  4455  TST101, JMS I RANDY     /GET RANDOM NUMBER
1502  4425          JMS I XIOTF     /IOT 6132, CLOE
1503  4423          JMS I XIOTD     /IOT 6130, CLZE
1504  7300          CLA CLL         /CLEAR THE AC AND LINK
1505  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1506  4430          JMS I XIOTH     /IOT 6134, CLEN
1507  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1510  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1511  4473          JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1512  4501          4501            /TST101 ERROR MESSAGE
1513  1501          TST101          /SCOPE LOOP
                    /
                    /DOES CLZE SURVIVE RANDOM COMPLEMENT PATTERN ?
                    /
1514  4455  TST102, JMS I RANDY     /GET RANDOM NUMBER
1515  4425          JMS I XIOTF     /IOT 6132, CLOE
1516  7040          CMA             /COMPLEMENT AC
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1517  4423          JMS I XIOTD     /IOT 6130, CLEK
1520  7040          CMA             /COMPLEMENT AC
1521  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1522  4430          JMS I XIOTH     /IOT 6134, CLEN
1523  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1524  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1525  4473          JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1526  4502          4502            /TST102 ERROR MESSAGE
1527  1514          TST102          /SCOPE LOOP
                    /
                    /DOES CLZE SURVIVE FAST TOGGLE ?
                    /
1530  1040    TST103, TAD RLGA      /GET AC NUMBER
1531  4425          JMS I XIOTF     /IOT 6132, CLOE
1532  4437          JMS I XIOTS3    /IOT'S 6130 AND 6134
1533  3071          DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
1534  1071          TAD RECEV
1535  4456          JMS I XSNDRV    /CHECK SEND RECEV REGISTERS
1536  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1537  4473          JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1540  4503          4503            /TST103 ERROR MESSAGE
1541  1530          TST103          /SCOPE LOOP
                    /
                    /
                    /DOES AC TRANSFER TO BUFFER THEN TO COUNTER ?
                    /
1542  4427    TST104, JMS I XIOTG   /IOT 6133, CLAB
1543  7340          CLA CLL CMA     /AC TO ALL 1'S
1544  4433          JMS I XIOTK     /IOT 6137, CLCA
1545  7650          SNA CLA         /WAS COUNTER ALL 0'S?
1546  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1547  4473          JMS I ERROR     /ERROR: CLAB OR CLCA FAILED
1550  4104          4104            /TST104 ERROR MESSAGE
1551  1542          TST104          /SCOPE LOOP
                    /
                    /DOES AC TRANSFER TO BUFFER THEN TO COUNTER?
                    /
1552  7340    TST105, CLA CLL CMA
1553  4427          JMS I XIOTG     /IOT 6133, CLAB
1554  4433          JMS I XIOTK     /IOT 6137, CLCA
1555  7040          CMA             /COMPLEMENT THE AC
1556  7650          SNA CLA         /WAS COUNTER ALL 1'S?
1557  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1560  4473          JMS I ERROR     /ERROR: CLAB OR CLCA FAILED
1561  4105          4105            /TST105 ERROR MESSAGE
1562  1552          TST105          /SCOPE LOOP
                    /
                    /DOES COUNTER SURVIVE PATTERN 2525 ?
                    /
1563  1016    TST106, TAD K2525     /GET AC NUMBER
1564  4427          JMS I XIOTG     /IOT 6133, CLAB
1565  7300          CLA CLL         /CLEAR THE AC AND LINK
1566  4433          JMS I XIOTK     /IOT 6137, CLCA
1567  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1570  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
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1571 4473          JMS I ERROR      /ERROR: COUNTER FAILED
1572 4106          4106             /TST106 ERROR MESSAGE
1573 1563          TST106           /SCOPE LOOP
                   /
                   /DOES COUNTER SURVIVE PATTERN 5252 ?
                   /
1574 1017  TST107, TAD K5252        /GET AC NUMBER
1575 4427          JMS I XIOTG      /IOT 6133, CLAB
1576 7340          CLA CLL CMA      /AC TO ALL 7777
1577 4433          JMS I XIOTK      /IOT 6137, CLCA
1600 4456          JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1601 4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1602 4473          JMS I ERROR      /ERROR: COUNTER FAILED
1603 4107          4107             /TST107 ERROR MESSAGE
1604 1574          TST107           /SCOPE LOOP
                   /
                   /DOES AC TRANSFER TO BUFFER THEN TO COUNTER?
                   /CHECK ALL COMBINATIONS
                   /
1605 1040  TST110, TAD REGA
1606 4427          JMS I XIOTG      /IOT 6133, CLAB
1607 7040          CMA              /COMPLEMENT THE AC
1610 4433          JMS I XIOTK      /IOT 6137, CLCA
1611 4456          JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1612 4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1613 4473          JMS I ERROR      /ERROR: CLAB OR CLCA FAILED
1614 4110          4110             /TST110 ERROR MESSAGE
1615 1605          TST110           /SCOPE LOOP


                   /
                   /DOES COUNTER SURVIVE FAST TOGGLE?
                   /
1616 1040  TST111, TAD REGA         /GET AC NUMBER
1617 3070          DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
1620 1070          TAD SEND
1621 4436          JMS I XIOTS2     /IOT 6133 AND 6137
1622 3071          DCA RECEV        /SAVE INPUT FOR ERROR PRINTER
1623 1071          TAD RECEV
1624 4456          JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1625 4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1626 4473          JMS I ERROR      /ERROR:CLAB OR CLCA FAILED
1627 4111          4111             /TST111 ERROR MESSAGE
1630 1616          TST111           /SCOPE LOOP
                   /
                   /DOES CAF AFFECT COUNTER ?
                   /
1631 1040  TST112, TAD REGA         /GET AC NUMBER
1632 4427          JMS I XIOTG      /IOT 6133, CLAB
1633 6007          6007             /CAF OR CLEAR THE WORLD
1634 4433          JMS I XIOTK      /IOT 6137, CLCA
1635 4456          JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1636 4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1637 4473          JMS I ERROR      /ERROR:  CLAB OR CLCA FAILED.
1640 4112          4112             /TST112 ERROR MESSAGE
```

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1641  1631            TST112          /SCOPE LOOP


                      /
                      /DOES READING COUNTER CHANGE ITS CONTENTS?
                      /PATTERN 2525.
                      /
1642  7340    TST113, CLA CLL CMA     /AC TO 7777
1643  3040            DCA REGA
1644  1016            TAD K2525
1645  4427            JMS I XIOTG     /IOT 6133, CLAB
1646  4433    T113B,  JMS I XIOTK     /IOT 6137, CLCA
1647  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1650  7410            SKP
1651  5255            JMP T113A
1652  2041            ISZ REGB
1653  5246            JMP T113B
1654  4472            JMS I NERROR    /CHECK NON-ERROR
1655  4473    T113A,  JMS I ERROR     /ERROR:  CLAR OR CLCA FAILED
1656  4113            4113            /TST113 ERROR MESSAGE
1657  1642            TST113          /SCOPE LOOP
                      /
                      /DOES READING COUNTER CHANGE ITS CONTENTS?
                      /PATTERN 5252
                      /
1660  7340    TST114, CLA CLL CMA     /AC TO 7777
1661  3040            DCA REGA
1662  1017            TAD K5252
1663  4427            JMS I XIOTG     /IOT 6133, CLAB
1664  4433    T114B,  JMS I XIOTK     /IOT 6137, CLCA
1665  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1666  7410            SKP
1667  5273            JMP T114A
1670  2041            ISZ REGB
1671  5264            JMP T114B
1672  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
1673  4473    T114A,  JMS I ERROR     /ERROR: COUNTER FAILED
1674  4114            4114            /TST114 ERROR MESSAGE
1675  1660            TST114          /SCOPE LOOP
                      /
                      /DOES COUNTER SURVIVE RANDOM PATTERN ?
                      /
1676  4455    TST115, JMS I RANDY     /GET RANDOM NUMBER
1677  4427            JMS I XIOTG     /IOT 6133, CLAB
1700  7340            CLA CLL CMA
1701  4433            JMS I XIOTK     /IOT 6137, CLCA
1702  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1703  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
1704  4473            JMS I ERROR     /ERROR: COUNTER FAILED
1705  4115            4115            /TST115 ERROR MESSAGE
1706  1676            TST115          /SCOPE LOOP
                      /
                      /TEST FOR NO INT. RQST.
                      /
1707  7340    TST116, CLA CLL CMA     /AC TO 7777
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1710  4427          JMS I XIOTG     /IOT 6133, CLAB
1711  3040          DCA REGA
1712  1142          TAD K0010
1713  1147          TAD K0600       /GET ENABLES
1714  4425          JMS I XIOTF     /IOT 6132, CLOE
1715  4447          JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
1716  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1717  4473          JMS I ERROR     /ERROR: INT. RQST. FAILED
1720  1116          1116            /TST116,  ERROR MESSAGE
1721  1707          TST116          /SCOPE LOOP
                    /
                    /DOES CLSK SKIP ON CLOCK OVERFLOW?
                    /SKIP EXPECTED, MODE 0, RATE 6
                    /
1722  7340    TST117, CLA CLL CMA   /AC TO 7777
1723  4427          JMS I XIOTG     /IOT 6133, CLAB
1724  7300          CLA CLL         /CLEAR THE AC AND LINK
1725  1147          TAD K0600       /GET RATE 6
1726  4425          JMS I XIOTF     /IOT 6132, CLOE
1727  4424          JMS I XIOTE     /IOT 6131, CLSK
1730  7410          SKP
1731  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1732  4473          JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
1733  0517          0517            /TST117 ERROR MESSAGE
1734  1722          TST117          /SCOPE LOOP
                    /
                    /DOES OVERFLOW REMAIN SET ?
                    /
1735  7340    TST120, CLA CLL CMA
1736  4427          JMS I XIOTG     /IOT 6133, CLAB
1737  3040          DCA REGA
1740  1147          TAD K0600       /GET ENABLES
1741  4425          JMS I XIOTF     /IOT 6132, CLOE
1742  4424          JMS I XIOTE     /IOT 6131, CLSK
1743  5351          JMP T120A
1744  2041          ISZ REGB
1745  5344          JMP .-1         /WAIT ABOUT 15 MS
1746  4424          JMS I XIOTE     /IOT 6131, CLSK
1747  7410          SKP
1750  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1751  4473    T120A,  JMS I ERROR   /ERROR: CLSK OR OVERFLOW FAILED
1752  0520          0520            /TST120 ERROR MESSAGE
1753  1735          TST120          /SCOPE LOOP
                    /
                    /DOES CAF CLEAR THAT FLAG ?
                    /
1754  7340    TST121, CLA CLL CMA
1755  4427          JMS I XIOTG     /IOT 6133, CLAB
1756  3040          DCA REGA
1757  1147          TAD K0600       /GET ENABLES
1760  4425          JMS I XIOTF     /IOT 6132, CLOE
1761  4424          JMS I XIOTE     /IOT 6131, CLSK
1762  5361          JMP .-1
1763  6007          6007            /CAF OR CLEAR THE WORLD
1764  4424          JMS I XIOTE     /IOT 6131, CLSK
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1765  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
1766  4473  T121A,    JMS I ERROR     /ERROR: CAF OR OVERFLOW FAILED
1767  0121            0121            /TST121 ERROR MESSAGE
1770  1754            TST121          /SCOPE LOOP
                      /
                      /DOES CLSK SKIP ON OVERFLOW ?
                      /SKIP EXPECTED, RATE 2-6, MODE 0
                      /
1771  1131  TST122,   TAD K7773
1772  3041            DCA REGB
1773  1015            TAD K0200
1774  3044            DCA REGE
1775  7340  T122B,    CLA CLL CMA     /AC TO 7777
1776  4427            JMS I XIOTG     /IOT 6133, CLAB
1777  3040            DCA REGA
2000  1044            TAD REGE        /GET ENABLES
2001  4425            JMS I XIOTF     /IOT 6132, CLOE
2002  2043            ISZ REGD
2003  5202            JMP .-1         /WAIT
2004  4424            JMS I XIOTE     /IOT 6131, CLSK
2005  5214            JMP T122A       /NO OVERFLOW FOUND
2006  1013            TAD K0100
2007  3044            DCA REGE        /UPDATE CLOCK RATE
2010  6007            6007            /CAF OR CLEAR THE WORLD
2011  2041            ISZ REGB
2012  5571            JMP I XCRS1
2013  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2014  4473  T122A,    JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
2015  0522            0522            /TST122 ERROR MESSAGE
2016  1771            TST122          /SCOPE LOOP
                      /
                      /DOES CLSK SKIP ON OVERFLOW ?
                      /SKIP EXPECTED, RATE 2-6, MODE 1
                      /
2017  1131  TST123,   TAD K7773
2020  3041            DCA REGB
2021  1144            TAD K1000
2022  1015            TAD K0200
2023  3044            DCA REGE
2024  7340  T123B,    CLA CLL CMA     /AC TO 7777
2025  4427            JMS I XIOTG     /IOT 6133, CLAB
2026  3040            DCA REGA
2027  1044            TAD REGE        /GET ENABLES
2030  4425            JMS I XIOTF     /IOT 6132, CLOE
2031  2043            ISZ REGD
2032  5231            JMP .-1         /WAIT
2033  4424            JMS I XIOTE     /IOT 6131, CLSK
2034  5243            JMP T123A       /NO OVERFLOW FOUND
2035  1013            TAD K0100
2036  3044            DCA REGE        /UPDATE CLCOK RATE
2037  6007            6007            /CAF OR CLEAR THE WORLD
2040  2041            ISZ REGB
2041  5224            JMP T123B       /DO RATES 2-6
2042  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2043  4473  T123A,    JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
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2044  0523            0523            /TST123 ERROR MESSAGE
2045  2017            TST123          /SCOPE LOOP
                      /
                      /DOES CLSK SKIP ON OVERFLOW ?
                      /SKIP EXPECTED, MODE 2, RATE 2-6
                      /
2046  1131  TST124,   TAD K7773
2047  3041            DCA REGB
2050  1143            TAD K2000
2051  1015            TAD K0200       /MAKE ENABLES
2052  3044            DCA REGE
2053  7340  T124B,    CLA CLL CMA
2054  4427            JMS I XIOTG     /IOT 6133, CLAB
2055  3040            DCA REGA
2056  1044            TAD REGE        /GET ENABLES
2057  4425            JMS I XIOTF     /IOT 6132, CLOE
2060  2043            ISZ REGD
2061  5260            JMP .-1         /WAIT ABOUT 15 MS
2062  4424            JMS I XIOTE     /IOT 6131, CLSK
2063  5272            JMP T124A
2064  1013            TAD K0100       /UPDATE RATE
2065  3044            DCA REGE
2066  6007            6007            /CAF OR CLEAR THE WORLD
2067  2041            ISZ REGB
2070  5253            JMP T124B       /DO RATES 2-6
2071  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2072  4473  T124A,    JMS I ERROR     /ERROR! CLSK OR OVERFLOW FAILED
2073  0524            0524            /TST124 ERROR MESSAGE
2074  2046            TST124          /SCOPE LOOP
                      /
                      /DOES CLSK SKIP ON OVERFLOW ?
                      /SKIP EXPECTED, RATE 2-6, MODE 3
                      /
2075  1131  TST125,   TAD K7773
2076  3041            DCA REGB
2077  1120            TAD K3000
2100  1015            TAD K0200       /MAKE ENABLES
2101  3044            DCA REGE        /SAVE ENABLES
2102  7340  T125B,    CLA CLL CMA
2103  4427            JMS I XIOTG     /IOT 6133, CLAB
2104  3040            DCA REGA
2105  1044            TAD REGE        /GET ENABLES
2106  4425            JMS I XIOTF     /IOT 6132, CLOE
2107  2043            ISZ REGD
2110  5307            JMP .-1         /WAIT ABOUT 15 MS
2111  4424            JMS I XIOTE     /IOT 6131, CLSK
2112  5320            JMP T125A
2113  1013            TAD K0100       /UPDATE RATE
2114  3044            DCA REGE
2115  2041            ISZ REGB
2116  5302            JMP T125B       /DO RATES 2-6
2117  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2120  4473  T125A,    JMS I ERROR     /ERROR! CLSK OR OVERFLOW FAILED
2121  0525            0525            /TST125 ERROR MESSAGE
2122  2075            TST125          /SCOPE LOOP
```

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                        /
                        /DOES CLSK SKIP ON OVERFLOW ?
                        /NO SKIP EXPECTED, RATE 0-7, MODE 0, DISABLE BIT 7
                        /
2123  1122    TST126, TAD K7770
2124  3043            DCA REGD
2125  7340    T126B,  CLA CLL CMA     /AC TO 7777
2126  4427            JMS I XIOTG     /IOT 6133, CLAB
2127  3040            DCA REGA
2130  1140            TAD K0020
2131  1041            TAD REGB        /GET ENABLES
2132  4425            JMS I XIOTF     /IOT 6132, CLOE
2133  2042            ISZ REGC
2134  5333            JMP .-1         /WAIT
2135  4424            JMS I XIOTE     /IOT 6131, CLSK
2136  7410            SKP
2137  5347            JMP T126A       /OVERFLOW FOUND
2140  0150            AND K0700       /MASK BITS 3-5
2141  1013            TAD K0100
2142  3041            DCA REGB        /UPDATE RATE
2143  6007            6007            /CAF OR CLEAR THE WORLD
2144  2043            ISZ REGD
2145  5325            JMP T126B       /DO RATES 0-7
2146  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2147  4473    T126A,  JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
2150  0126            0126            /TST126 ERROR MESSAGE
2151  2123            TST126          /SCOPE LOOP
                        /
                        /DOES CLSK SKIP ON OVERFLOW ?
                        /NO SKIP EXPECTED, RATE 0,1,7 MODE 0
                        /
2152  7340    TST127, CLA CLL CMA
2153  4427            JMS I XIOTG     /IOT 6133, CLAB
2154  3040            DCA REGA
2155  4425            JMS I XIOTF     /IOT 6132, CLOE
2156  2041            ISZ REGB
2157  5356            JMP .-1         /WAIT ABOUT 15 MS
2160  4424            JMS I XIOTE     /IOT 6131, CLSK
2161  7410            SKP
2162  5572            JMP I XCRS2
2163  1013            TAD K0100       /UPDATE ENABLE
2164  4426            JMS I XIOTF1    /IOT 6132, CLOE
2165  2042            ISZ REGC
2166  5365            JMP .-1         /WAIT ABOUT 15 MS
2167  4424            JMS I XIOTE     /IOT 6131, CLSK
2170  7410            SKP
2171  5572            JMP I XCRS2
2172  1147            TAD K0600       /UPDATE ENABLE
2173  4426            JMS I XIOTF1    /IOT 6132, CLOE
2174  2043            ISZ REGD
2175  5374            JMP .-1         /WAIT ABOUT 15 MS
2176  4424            JMS I XIOTE     /IOT 6131, CLSK
2177  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2200  4473    T127A,  JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
2201  0127            0127            /TST127 ERRROR MESSAGE
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2202  2152            TST127          /SCOPE LOOP
                      /
                      /DOES CLSA READ OVERFLOW BIT ?
                      /
2203  7340    TST130, CLA CLL CMA
2204  4427            JMS I XIOTG     /IOT 6132, CLOE
2205  7330            CLA CLL CML RAR /AC TO 4000
2206  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
2207  7313            CLA CLL IAC RTR /AC TO 4000
2210  1147            TAD K0600       /GET ENABLE
2211  4426            JMS I XIOTF1
2212  4424            JMS I XIOTE     /IOT 6131, CLSK
2213  5212            JMP .-1
2214  7350            CLA CLL CMA RAR /AC TO 3777
2215  4431            JMS I XIOTI     /IOT 6135, CLSA
2216  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
2217  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2220  4473    T130A,  JMS I ERROR     /ERROR: CLSI OR OVERFLOW FAILED
2221  5130            5130            /TST130 ERROR MESSAGE
2222  2203            TST130          /SCOPE LOOP
                      /
                      /DOES CLSA CLEAR OVERFLOW FLOP ?
                      /
2223  7340    TST131, CLA CLL CMA     /AC TO 7777
2224  4427            JMS I XIOTG     /IOT 6133, CLAB
2225  7313            CLA CLL IAC RTR /AC TO 4000
2226  1147            TAD K0600       /GET ENABLE
2227  4426            JMS I XIOTF1    /IOT 6132, CLOE
2230  4424            JMS I XIOTE     /IOT 6131, CLSK
2231  5230            JMP .-1
2232  7350            CLA CLL CMA RAR /AC TO 3777
2233  4431            JMS I XIOTI     /IOT 6135, CLSA
2234  7300            CLA CLL         /CLEAR AC AND LINK
2235  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
2236  7340            CLA CLL CMA     /AC TO 7777
2237  4431            JMS I XIOTI     /IOT 6135, CLSA
2240  7650            SNA CLA         /WAS STATUS REGISTER ALL 0'S ?
2241  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2242  4473            JMS I ERROR     /ERROR: CLSA OR OVERFLOW FAILED
2243  5131            5131            /TST131 ERROR MESSAGE
2244  2223            TST131          /SCOPE LOOP
                      /
                      /DOES CLSA READ OVERFLOW BIT ?
                      /
2245  7340    TST132, CLA CLL CMA
2246  4427            JMS I XIOTG     /IOT 6133, CLAB
2247  7300            CLA CLL
2250  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
2251  1147            TAD K0600       /GET ENABLES
2252  4426            JMS I XIOTF1    /IOT 6132, CLOE
2253  4424            JMS I XIOTE     /IOT 6131, CLSK
2254  5253            JMP .-1
2255  7344            CLA CLL CMA RAL /AC TO 3777
2256  4431            JMS I XIOTI     /IOT 6135, CLSA
2257  7650            SNA CLA         /WAS STATUS 0 ?
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2260  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2261  4473          JMS I ERROR     /ERROR: CLSA OR STATUS FAILED
2262  5132          5132            /TST132 ERROR MESSAGE
2263  2245          TST132          /SCOPE LOOP
                    /
                    /DOES BUFFER TO COUNTER ON OVERFLOW ?
                    /MODE 1, RATE 2
                    /
2264  7340    TST133, CLA CLL CMA
2265  4427          JMS I XIOTG     /IOT 6133, CLAB
2266  3040          DCA REGA
2267  7313          CLA CLL IAC RTR /AC TO 4000
2270  1116          TAD K0400
2271  1144          TAD K1000       /GET ENABLES
2272  4426          JMS I XIOTF1    /IOT 6132, CLOE
2273  4424    T133B, JMS I XIOTE    /IOT 6131, CLSK
2274  5273          JMP .-1         /WAIT FOR FLAG
2275  7300          CLA CLL         /CLEAR THE AC AND LINK
2276  4433          JMS I XIOTK     /IOT 6137, CLCA
2277  7040          CMA             /FOR TESTING
2300  7440          SZA             /WAS COUNTER ALL 1'S ?
2301  5306          JMP T133A
2302  4431          JMS I XIOTI     /IOT 6135, CLSA
2303  2041          ISZ REGB
2304  5273          JMP T133B       /DO TEST 4096 TIMES
2305  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2306  4473    T133A, JMS I ERROR    /ERROR: COUNTER FAILED
2307  4133          4133            /TST133 ERROR MESSAGE
2310  2264          TST133          /SCOPE LOOP
                    /
                    /DOES BUFFER TO COUNTER ON OVERFLOW ?
                    /MODE 1, RATE 4
                    /
2311  1017    TST134, TAD K5252     /GET AC NUMBER
2312  4427          JMS I XIOTG     /IOT 6133, CLAB
2313  7340          CLA CLL CMA     /AC TO 7777
2314  3040          DCA REGA
2315  1144          TAD K1000
2316  1116          TAD K0400       /GET ENABLES
2317  4426          JMS I XIOTF1    /IOT 6132, CLOE
2320  4424          JMS I XIOTE     /IOT 6131, CLSK
2321  5320          JMP .-1         /WAIT FOR FLAG
2322  7340          CLA CLL CMA     /AC TO 7777
2323  4433          JMS I XIOTK     /IOT 6137, CLCA
2324  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
2325  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2326  4473          JMS I ERROR     /ERROR: COUNTER FAILED
2327  4134          4134            /TST134 ERROR MESSAGE
2330  2311          TST134          /SCOPE LOOP
                    /
                    /DOES BUFFER TO COUNTER ON OVERFLOW ?
                    /MODE 1, RATE 4
                    /
2331  1016    TST135, TAD K2525     /GET AC NUMBER
2332  4427          JMS I XIOTG     /IOT 6133, CLAB
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2333  7340          CLA CLL CMA     /AC TO 7777
2334  3040          DCA REGA
2335  1144          TAD K1000
2336  1116          TAD K0400       /GET ENABLES
2337  4426          JMS I XIOTF1    /IOT 6132, CLOE
2340  4424          JMS I XIOTE     /IOT 6131, CLSK
2341  5340          JMP .-1         /WAIT FOR OVERFLOW
2342  4433          JMS I XIOTK     /IOT 6137, CLCA
2343  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
2344  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2345  4473          JMS I ERROR     /ERROR: COUNTER FAILED
2346  4135          4135            /TST135 ERROR MESSAGE
2347  2331          TST135          /SCOPE LOOP
                /
                /DOES BUFFER TO COUNTER ON OVERFLOW ?
                /RATE 4, MODE 2
                /
2350  7340    TST136, CLA CLL CMA   /AC TO 7777
2351  4427          JMS I XIOTG     /IOT 6133, CLAB
2352  3040          DCA REGA
2353  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
2354  1116          TAD K0400
2355  1143          TAD K2000       /GET ENABLES
2356  4426          JMS I XIOTF1    /IOT 6132, CLOE
2357  4424          JMS I XIOTE     /IOT 6131, CLSK
2360  5357          JMP .-1         /WAIT FOR FLAG
2361  4433          JMS I XIOTK     /IOT 6137, CLCA
2362  7650          SNA CLA         /WAS COUNTER ALL 0'S ?
2363  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2364  4473          JMS I ERROR     /ERROR: COUNTER FAILED
2365  4136          4136            /TST136 ERROR MESSAGE
2366  2350          TST136          /SCOPE LOOP
                /
                /DOES BUFFER TO COUNTER ON OVERFLOW ?
                /MODE 3, RATE 4
                /
2367  7340    TST137, CLA CLL CMA
2370  4427          JMS I XIOTG     /IOT 6133, CLAB
2371  3040          DCA REGA
2372  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
2373  1116          TAD K0400
2374  1120          TAD K3000       /GET ENABLES
2375  4426          JMS I XIOTF1    /IOT 6132, CLOE
2376  4424          JMS I XIOTE     /IOT 6131, CLSK
2377  5376          JMP .-1         /WAIT FOR OVERFLOW
2400  7340          CLA CLL CMA
2401  4433          JMS I XIOTK     /IOT 6137, CLCA
2402  7650          SNA CLA         /WAS COUNTER ALL 0'S ?
2403  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2404  4473          JMS I ERROR     /ERROR: COUNTER FAILED
2405  4137          4137            /TST137 ERROR MESSAGE
2406  2367          TST137          /SCOPE LOOP
                /
                /DOES INT, WITHOUT BIT 8 ?
                /
```

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2407  7340  TST140, CLA CLL CMA
2410  4427          JMS I XIOTG     /IOT 6133, CLAB
2411  3040          DCA REGA
2412  7313          CLA CLL IAC RTR /AC TO 4000
2413  1007          TAD K0007
2414  1147          TAD K0600       /GET ENABLES
2415  4425          JMS I XIOTF     /IOT 6132, CLOE
2416  4447          JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
2417  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2420  4473          JMS I ERROR     /ERROR: INT, RQST, OR ENA 0 FAILED
2421  1140          1140            /TST140 ERROR MESSAGE
2422  2407          TST140          /SCOPE LOOP
                    /
                    /DOES OVERFLOW CAUSE INT, RQST. ?
                    /RATE 6, MODE 0
                    /
2423  7340  TST141, CLA CLL CMA     /AC TO 7777
2424  4427          JMS I XIOTG     /IOT 6133, CLAB
2425  7300          CLA CLL         /CLEAR THE AC AND LINK
2426  1014          TAD K4000
2427  1142          TAD K0010
2430  1147          TAD K0600       /GET RATE + MODE
2431  4425          JMS I XIOTF     /IOT 6132, CLOE
2432  4452          JMS I XPIGO4    /GO TO PI, PI EXPECTED
2433  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2434  4473          JMS I ERROR     /ERROR: OVERFLOW OR ENA 0 FAILED
2435  1541          1541            /TST141 ERROR MESSAGE
2436  2423          TST141          /SCOPE LOOP
                    /
                    /DOES INT, RQST, WITHOUT ENA 0 ?
                    /RATE 6, MODE 0
                    /
2437  7340  TST142, CLA CLL CMA     /AC TO 7777
2440  4427          JMS I XIOTG     /IOT 6133, CLAB
2441  7300          CLA CLL         /CLEAR THE AC AND LINK
2442  1142          TAD K0010
2443  1147          TAD K0600       /GET RATE + MODE
2444  4425          JMS I XIOTF     /IOT 6132, CLOE
2445  4451          JMS I XPIGO3    /GO TO PI,NO PI EXPECTED
2446  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2447  4473          JMS I ERROR     /ERROR: ENA 0 FAILED
2450  1142          1142            /TST142 ERROR MESSAGE
2451  2437          TST142          /SCOPE LOOP
                    /
                    /DOES COUNTER COUNT ?
                    /RATE 6, MODE 0
                    /
2452  7340  TST143, CLA CLL CMA     /AC TO 7777
2453  3040          DCA REGA
2454  4427          JMS I XIOTG     /IOT 6133, CLAB
2455  1014          TAD K4000
2456  1142          TAD K0010
2457  1147          TAD K0600       /GET RATE + MODE
2460  4425          JMS I XIOTF     /IOT 6132, CLOE
2461  4450          JMS I XPIGO2    /GO TO PI
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2462  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2463  4473          JMS I ERROR     /ERROR: OVERFLOW OR COUNTER FAILED
2464  1543          1543            /TST143 ERROR MESSAGE
2465  2452          TST143          /SCOPE LOOP
                    /
                    /DOES COUNTER COUNT ?
                    /RATE 6, MODE 1
                    /
2466  7340  TST144, CLA CMA CLL
2467  3040          DCA REGA
2470  4427          JMS I XIOTG     /IOT 6133, CLAB
2471  1121          TAD K5000
2472  1142          TAD K0010
2473  1147          TAD K0600       /GET RATE + MODE
2474  4425          JMS I XIOTF     /IOT 6132, CLOE
2475  4450          JMS I XPIG02    /GO TO PI
2476  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2477  4473          JMS I ERROR     /ERROR: OVERFLOW OR COUNTER FAILED
2500  1544          1544            /TST144 ERROR MESSAGE
2501  2466          TST144          /SCOPE LOOP
                    /
                    /DOES COUNTER COUNT ?
                    /RATE 6, MODE 2
                    /
2502  7340  TST145, CLA CLL CMA     /AC TO 7777
2503  3040          DCA REGA
2504  4427          JMS I XIOTG     /IOT 6133, CLAB
2505  1117          TAD K6000
2506  1142          TAD K0010
2507  1147          TAD K0600       /GET ENABLES
2510  4425          JMS I XIOTF     /IOT 6132, CLOE
2511  4450          JMS I XPIG02    /GO TO PI, PI EXPECTED
2512  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2513  4473          JMS I ERROR     /ERROR: OVERFLOW OR COUNTER FAILED
2514  1545          1545            /TST145 ERROR MESSAGE
2515  2502          TST145          /SCOPE LOOP
                    /
                    /DOES COUNTER COUNT ?
                    /RATE 6, MODE 3
                    /
2516  7340  TST146, CLA CLL CMA     /AC TO 7777
2517  3040          DCA REGA
2520  4427          JMS I XIOTG     /IOT 6133, CLAB
2521  1141          TAD K7000
2522  1142          TAD K0010
2523  1147          TAD K0600       /GET ENABLES
2524  4425          JMS I XIOTF     /IOT 6132, CLOE
2525  4450          JMS I XPIG02    /GO TO PI, PI EXPECTED
2526  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2527  4473          JMS I ERROR     /ERROR: COUNTER OR MODE 3 FAILED
2530  1546          1546            /TST146 ERROR MESSAGE
2531  2516          TST146          /SCOPE LOOP
                    /
                    /DOES OVERFLOW CAUSE ROST. ?
                    /RATE 2-6, MODE 0
```

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                    /
2532  1131  TST147, TAD K7773
2533  3041        DCA REGB
2534  1014        TAD K4000
2535  1142        TAD K0010
2536  1015        TAD K0200
2537  3044  T147B, DCA REGE              /SET UP ENABLES
2540  7340        CLA CLL CMA     /AC TO 7777
2541  4427        JMS I XIOTG     /IOT 6133, CLAB
2542  3040        DCA REGA
2543  1044        TAD REGE        /GET ENABLES
2544  4425        JMS I XIOTF     /IOT 6132, CLOE
2545  4447        JMS I XPIGO1    /GO TO PI, PI EXPECTED
2546  5355        JMP T147A
2547  6007        6007            /CAF OR CLEAR THE WORLD
2550  1013        TAD K0100
2551  1044        TAD REGE
2552  2041        ISZ REGB
2553  5337        JMP T147B               /DO RATES 2-6
2554  4472        JMS I NERROR    /CHECK NON-ERROR HANDLER
2555  4473  T147A, JMS I ERROR    /ERROR: OVERFLOW OR MODE FAILED
2556  1547        1547            /TST147 ERRROR MESSAGE
2557  2532        TST147          /SCOPE LOOP
                    /
                    /DOES OVERFLOW CAUSE ROST. ?
                    /RATE 2-6, MODE 1
                    /
2560  1131  TST150, TAD K7773
2561  3041        DCA REGB
2562  1121        TAD K5020
2563  1142        TAD K0010
2564  1015        TAD K0200       /MAKE ENABLES
2565  3044  T150B, DCA REGE
2566  7340        CLA CLL CMA     /AC TO 7777
2567  4427        JMS I XIOTG     /IOT 6133, CLAB
2570  3040        DCA REGA
2571  1044        TAD REGE        /GET ENABLES
2572  4425        JMS I XIOTF     /IOT 6132, CLOE
2573  4447        JMS I XPIGO1    /GO TO PI, PI EXPECTED
2574  5573        JMP I XCRS3
2575  6007        6007            /CAF OR CLEAR THE WORLD
2576  1013        TAD K0100
2577  1044        TAD REGE
2600  2041        ISZ REGB
2601  5574        JMP I XCRS4
2602  4472        JMS I NERROR    /CHECK NON-ERROR HANDLER
2603  4473  T150A, JMS I ERROR    /ERROR: OVERFLOW OR MODE FAILED
2604  1550        1550            /TST150 ERROR MESSAGE
2605  2560        TST150          /SCOPE LOOP
                    /
                    /DOES OVERFLOW CAUSE ROST. ?
                    /RATE 2-6, MODE 2
                    /
2606  1131  TST151, TAD K7773
2607  3041        DCA REGB
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2610  1117          TAD K6000
2611  1142          TAD K0010
2612  1015          TAD K0200
2613  3044  T151B, DCA REGE          /MAKE ENABLES
2614  7340          CLA CLL CMA      /AC TO 7777
2615  4427          JMS I XIOTG      /IOT 6133, CLAB
2616  3040          DCA REGA
2617  1044          TAD REGE         /GET ENABLES
2620  4425          JMS I XIOTF      /IOT 6132, CLOE
2621  4447          JMS I XPIGO1             /GO TO PI, PI EXPECTED
2622  5251          JMP T151A
2623  6007          6007             /CAF OR CLEAR THE WORLD
2624  1013          TAD K0100
2625  1044          TAD REGE
2626  2041          ISZ REGB
2627  5213          JMP T151B
2630  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
2631  4473  T151A, JMS I ERROR      /ERROR: OVERFLOW OR MODE FAILED
2632  1551          1551             /TST151 ERROR MESSAGE
2633  2606          TST151           /SCOPE LOOP
                    /
                    /DOES OVERFLOW CAUSE RQST. ?
                    /RATE 2-6, MODE 3
                    /
2634  1131  TST152, TAD K7773
2635  3041          DCA REGB
2636  1141          TAD K7000
2637  1142          TAD K0010
2640  1015          TAD K0200                /MAKE ENABLES
2641  3044  T152B, DCA REGE
2642  7340          CLA CLL CMA      /AC TO 7777
2643  4427          JMS I XIOTG      /IOT 6133, CLAB
2644  3040          DCA REGA
2645  1044          TAD REGE         /GET ENABLES
2646  4425          JMS I XIOTF      /IOT 6132, CLOE
2647  4447          JMS I XPIGO1     /GO TO PI, PI EXPECTED
2650  5257          JMP T152A
2651  6007          6007             /CAF OR CLEAR THE WORLD
2652  1013          TAD K0100
2653  1044          TAD REGE
2654  2041          ISZ REGB
2655  5241          JMP T152B        /DO RATES 2-6
2656  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
2657  4473  T152A, JMS I ERROR      /ERROR: OVERFLOW OR MODE FAILED
2660  1552          1552             /TST152 ERROR MESSAGE
2661  2634          TST152           /SCOPE LOOP
                    /
                    /DOES OVERFLOW CAUSE RQST. ?
                    /RATE 0-7, MODE 1, DISABLE BIT 7
                    /
2662  1142  TST153, TAD K7770
2663  3041          DCA REGB
2664  1141          TAD K5000
2665  1142          TAD K0010
2666  1140          TAD K0020
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2667  3044  T153B,  DCA REGE                /MAKE ENABLES
2670  7340           CLA CLL CMA      /AC TO 7777
2671  4427           JMS I XIOTG      /IOT 6133, CLAB
2672  3040           DCA REGA
2673  1044           TAD REGE         /GET ENABLES
2674  4425           JMS I XIOTF      /IOT 6132, CLOE
2675  4450           JMS I XPIGO2     /GO TO PI, NO PI EXPECTED
2676  5305           JMP T153A
2677  6007           6007             /CAF OR CLEAR THE WORLD
2700  1013           TAD K0100
2701  1044           TAD REGE
2702  2041           ISZ REGB
2703  5267           JMP T153B        /DO RATE 0-7
2704  4472           JMS I NERROR     /CHECK NON-ERROR HANDLER
2705  4473  T153A,   JMS I ERROR      /ERROR: OVERFLOW OR CLK ENA FAILED
2706  1153           1153             /TST153 ERROR MESSAGE
2707  2662           TST153           /SCOPE LOOP
                     /
                     /DOES OVERFLOW CAUSE RQST. ?
                     /RATE 0-7, MODE 2, DISABLE INT. RQST. BIT
                     /
2710  1142  TST154,  TAD K7770
2711  3041           DCA REGB
2712  1117           TAD K6000
2713  1142           TAD K0010
2714  1140           TAD K0020
2715  3044  T154B,   DCA REGE                /MAKE ENABLES
2716  7340           CLA CLL CMA      /AC TO 7777
2717  4427           JMS I XIOTG      /IOT 6133, CLAB
2720  3040           DCA REGA
2721  1044           TAD REGE         /GET ENABLES
2722  4425           JMS I XIOTF      /IOT 6132, CLOE
2723  4450           JMS I XPIGO2     /GO TO PI, NO PI EXPECTED
2724  5333           JMP T154A
2725  6007           6007             /CAF OR CLEAR THE WORLD
2726  1013           TAD K0100
2727  1044           TAD REGE
2730  2041           ISZ REGB
2731  5315           JMP T154B                /DO RATE 0-7
2732  4472           JMS I NERROR     /CHECK NON-ERROR HANDLER
2733  4473  T154A,   JMS I ERROR      /ERROR: OVERFLOW OR CLK ENA FAILED
2734  1154           1154             /TST154 ERROR MESSAGE
2735  2710           TST154           /SCOPE LOOP
                     /
                     /DOES OVERFLOW CAUSE INT. RQST. ?
                     /MODE 0, RATE 6
                     /
2736  7340  TST155,  CLA CLL CMA      /AC TO 7777
2737  4427           JMS I XIOTG      /IOT 6133, CLAB
2740  7330           CLA CLL CML RAR  /AC TO 4000
2741  1147           TAD K0600
2742  1142           TAD K0010        /GET ENABLES
2743  4425           JMS I XIOTF      /IOT 6132, CLOE
2744  4452           JMS I XPIGO4     /GO TO PI, PI EXPECTED
2745  4472           JMS I NERROR     /CHECK NON-ERROR HANDLER
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2746 4473           JMS I ERROR     /ERROR: OVERFLOW OR COUNTER FAILED
2747 1555           1555            /TST155 ERROR MESSAGE
2750 2736           TST155          /SCOPE LOOP
                    /
                    /DOES CLSK SKIP THEN INTERRUPT ?
                    /RATE 6, MODE 0
                    /
2751 7340   TST156, CLA CLL CMA      /AC TO 7777
2752 4427           JMS I XIOTG     /IOT 6133, CLAB
2753 7330           CLA CLL CML RAR
2754 1142           TAD K0010
2755 1147           TAD K0600       /MAKE ENABLES
2756 4425           JMS I XIOTF     /IOT 6132, CLOE
2757 4424           JMS I XIOTE     /IOT 6131, CLSK
2760 5357           JMP .-1         /WAIT FOR OVERFLOW
2761 4452           JMS I XPIG04    /GO TO PI, PI EXPECTED
2762 4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
2763 4473           JMS I ERROR     /ERROR: CLSK OR PI FAILED
2764 1556           1556            /TST156 ERROR MESSAGE
2765 2751           TST156          /SCOPE LOOP
                    /
                    /CHECK FOR NO INT. RQST.
                    /MODE 0, RATE 6, DISABLE WITH CLSA
                    /
2766 7340   TST157, CLA CLL CMA      /AC TO 7777
2767 4427           JMS I XIOTG     /IOT 6133, CLAB
2770 7330           CLA CLL CML RAR /AC TO 4000
2771 1147           TAD K0600
2772 1142           TAD K0010
2773 4425           JMS I XIOTF     /IOT 6132, CLOE
2774 4424           JMS I XIOTE     /IOT 6131,  CLSK
2775 5374           JMP .-1         /WAIT FOR OVERFLOW
2776 4431           JMS I XIOTI     /IOT 6135, CLSA
2777 4451           JMS I XPIG03    /GO TO PI, NO PI EXPECTED
3000 4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
3001 4473           JMS I ERROR     /ERROR: INT. RQST. FAILED
3002 1157           1157            /TST157 ERROR MESSAGE
3003 2766           TST157          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 2, MODE 0
                    /
3004 7340   TST160, CLA CLL CMA      /AC TO 7777
3005 3040           DCA REGA
3006 1151           TAD KTA
3007 3076           DCA KREGC
3010 4427           JMS I XIOTG     /IOT 6133, CLAB
3011 1014           TAD K4000
3012 1142           TAD K0010
3013 1015           TAD K0200       /MAKE ENABLES
3014 4425           JMS I XIOTF     /IOT 6132, CLOE
3015 4453           JMS I XPIG05
3016 7610           SKP CLA
3017 4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
3020 4473           JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST
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3021  2160            2160            /TST160 ERROR MESSAGE
3022  3004            TST160          /SCOPE LOOP
                      /
                      /DOES CLOCK FREQUENCY TIME OUT ?
                      /RATE 2, MODE 0
                      /
3023  7340    TST161, CLA CLL CMA     /AC TO 7777
3024  3040            DCA REGA
3025  1152            TAD KTA1
3026  3076            DCA KREGC
3027  4427            JMS I XIOTG     /IOT 6133, CLAB
3030  1014            TAD K4000
3031  1142            TAD K0010
3032  1015            TAD K0200       /MAKE ENABLES
3033  4425            JMS I XIOTF     /IOT 6132, CLOE
3034  4453            JMS I XPIG05
3035  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
3036  4473            JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW
3037  2561            2561            /TST161 ERROR MESSAGE
3040  3023            TST161          /SCOPE LOOP
                      /
                      /DOES CLOCK FREQUENCY TIME OUT ?
                      /RATE 3, MODE 0
                      /
3041  7340    TST162, CLA CLL CMA     /AC TO 7777
3042  3040            DCA REGA
3043  1153            TAD KTB
3044  3076            DCA KREGC
3045  4427            JMS I XIOTG     /IOT 6133, CLAB
3046  1014            TAD K4000
3047  1142            TAD K0010
3050  1145            TAD K0300       /MAKE ENABLES
3051  4425            JMS I XIOTF     /IOT 6132, CLOE
3052  4453            JMS I XPIG05
3053  7610            SKP CLA
3054  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
3055  4473            JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST
3056  2162            2162            /TST162 ERROR MESSAGE
3057  3041            TST162          /SCOPE LOOP
                      /
                      /DOES CLOCK FREQUENCY TIME OUT ?
                      /RATE 3, MODE 0
                      /
3060  7340    TST163, CLA CLL CMA     /AC TO 7777
3061  3040            DCA REGA
3062  1154            TAD KTB1
3063  3076            DCA KREGC
3064  4427            JMS I XIOTG     /IOT 6133, CLAB
3065  1014            TAD K4000
3066  1142            TAD K0010
3067  1145            TAD K0300       /MAKE ENABLES
3070  4425            JMS I XIOTF     /IOT 6132, CLOE
3071  4453            JMS I XPIG05
3072  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
3073  4473            JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW
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3074  2563          2563            /TST163 ERROR MESSAGE
3075  3060          TST163          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 4, MODE 0
                    /
3076  7340    TST164, CLA CLL CMA   /AC TO 7777
3077  3040          DCA REGA
3100  1155          TAD KTC
3101  3076          DCA KREGC
3102  1156          TAD KTC1
3103  3043          DCA REGD        /SET TIMER FOR 10000 CPS CLOCK
3104  4427          JMS I XIOTG     /IOT 6133, CLAB
3105  1014          TAD K4000
3106  1142          TAD K0010
3107  1116          TAD K0400       /MAKE ENABLES
3110  4425          JMS I XIOTF     /IOT 6132, CLOE
3111  4453          JMS I XPIG05
3112  7610          SKP CLA
3113  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3114  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST
3115  2164          2164            /TST164 ERROR MESSAGE
3116  3076          TST164          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 4, MODE 0
                    /
3117  7340    TST165, CLA CLL CMA   /AC TO 7777
3120  3040          DCA REGA
3121  1155          TAD KTC
3122  3076          DCA KREGC
3123  1157          TAD KTC2
3124  3043          DCA REGD        /SET TIMER FOR 10000 CLOCK
3125  4427          JMS I XIOTG     /IOT 6133, CLAB
3126  1014          TAD K4000
3127  1142          TAD K0010
3130  1116          TAD K0400       /MAKE ENABLES
3131  4425          JMS I XIOTF     /IOT 6132, CLOE
3132  4453          JMS I XPIG05
3133  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3134  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW
3135  2565          2565            /TST165 ERROR MESSAGE
3136  3117          TST165          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 5, MODE 0
                    /
3137  7340    TST166, CLA CLL CMA   /AC TO 7777
3140  3040          DCA REGA
3141  7350          CLA CLL CMA RAR
3142  4427          JMS I XIOTG     /IOT 6133, CLAB
3143  7300          CLA CLL         /CLEAR THE AC AND LINK
3144  1160          TAD KTD
3145  3043          DCA REGD        /SET TIMER FOR 10000 CPS CLOCK
3146  1014          TAD K4000
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3147  1142          TAD K0010
3150  1146          TAD K0500       /MAKE ENABLES
3151  4425          JMS I XIOTF     /IOT 6132, CLOE
3152  4447          JMS I XPIG01
3153  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3154  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST
3155  2166          2166            /TST166 ERROR MESSAGE
3156  3137          TST166          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 5, MODE 0
                    /
3157  7340    TST167, CLA CLL CMA   /AC TO 7777
3160  3040          DCA REGA
3161  7350          CLA CLL CMA RAR
3162  4427          JMS I XIOTG     /IOT 6133, CLAB
3163  7300          CLA CLL         /CLEAR THE AC AND LINK
3164  1161          TAD KTD1
3165  3043          DCA REGD        /SET TIMER FOR 100000 CPS CLOCK
3166  1014          TAD K4000
3167  1142          TAD K0010
3170  1146          TAD K0500       /MAKE ENABLES
3171  4425          JMS I XIOTF     /IOT 6132, CLOE
3172  4450          JMS I XPIG02
3173  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3174  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW
3175  2567          2567            /TST167 ERROR MESSAGE
3176  3157          TST167          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 6, MODE 0
                    /
3177  7340    TST170, CLA CLL CMA   /AC TO 7777
3200  3040          DCA REGA
3201  1162          TAD KTE
3202  3043          DCA REGD        /SET TIMER FOR 1000000 CPS CLOCK
3203  4427          JMS I XIOTG     /IOT 6133, CLAB
3204  1014          TAD K4000
3205  1142          TAD K0010
3206  1147          TAD K0600       /MAKE ENABLES
3207  4425          JMS I XIOTF     /IOT 6132, CLOE
3210  4447          JMS I XPIG01
3211  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3212  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST
3213  2170          2170            /TST170 ERROR MESSAGE
3214  3177          TST170          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 6, MODE 0
                    /
3215  7340    TST171, CLA CLL CMA   /AC TO 7777
3216  3040          DCA REGA
3217  1163          TAD KTE1
3220  3043          DCA REGD                /SET TIMER FOR 1000000 CPS CLOCK
3221  4427          JMS I XIOTG     /IOT 6133, CLAB
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3222  1014          TAD K4000
3223  1142          TAD K0010
3224  1147          TAD K0600               /MAKE ENABLES
3225  4425          JMS I XIOTF     /IOT 6132, CLOE
3226  4450          JMS I XPIG02
3227  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3230  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW
3231  2571          2571            /TST171 ERROR MESSAGE
3232  3215          TST171          /SCOPE LOOP
                    /
                    /DOES COUNTER REALLY COUNT ?
                    /RATE 2, MODE 0
                    /
3233  7340    TST172, CLA CLL CMA     /AC TO 7777
3234  4427          JMS I XIOTG     /IOT 6133, CLAB
3235  3040          DCA REGA
3236  1015          TAD K0200               /GET RATE + MODE
3237  4426          JMS I XIOTF1    /IOT 6132, CLOE
3240  7300    T17281, CLA CLL         /CLEAR THE AC AND LINK
3241  3042          DCA REGC
3242  1041          TAD REGB
3243  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3244  4433    T172B,  JMS I XIOTK     /IOT 6137, CLCA
3245  7041          CIA
3246  1041          TAD REGB        /COMPARE TO THIS REGISTER
3247  7650          SNA CLA         /ARE THEY THE SAME YET ?
3250  5254          JMP T172A       /YES, TEST NEXT NUMBER
3251  2042          ISZ REGC
3252  5244          JMP T172B       /WAIT ABOUT 15 MS FOR REGISTER
3253  5257          JMP T172A1      /NUMBER NOT FOUND
3254  2041    T172A,  ISZ REGB        /UPDATE COMPARE REGISTER
3255  5240          JMP T17281      /TEST FOR NEXT COUNTER PULSE
3256  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3257  4473    T172A1, JMS I ERROR     /ERROR: COUNTER FAILED
3260  4172          4172            /TST172 ERROR MESSAGE
3261  3233          TST172          /SCOPE LOOP
                    /
                    /DOES COUNTER REALLY COUNT ?
                    /RATE 3, MODE 0
                    /
3262  7340    TST173, CLA CLL CMA     /AC TO 7777
3263  4427          JMS I XIOTG     /IOT 6133, CLAB
3264  3040          DCA REGA
3265  1145          TAD K0300       /GET RATE + MODE
3266  4426          JMS I XIOTF1    /IOT 6132, CLOE
3267  7300    T17381, CLA CLL         /CLEAR THE AC AND LINK
3270  3042          DCA REGC
3271  1041          TAD REGB
3272  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3273  4433    T173B,  JMS I XIOTK     /IOT 6137, CLCA
3274  7041          CIA
3275  1041          TAD REGB        /COMPARE TO THIS REGISTER
3276  7650          SNA CLA         /ARE THEY THE SAME YET ?
3277  5303          JMP T173A       /YES, TEST NEXT NUMBER
3300  2042          ISZ REGC
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3301  5273          JMP T173B       /WAIT ABOUT 15 MS FOR REGISTER
3302  5306          JMP T173A1      /NUMBER NOT FOUND
3303  2041  T173A,  ISZ REGB       /UPDATE COMPARE REGISTER
3304  5267          JMP T173B1      /TEST FOR NEXT COUNTER PULSE
3305  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3306  4473  T173A1, JMS I ERROR     /ERROR: COUNTER FAILED
3307  4173          4173            /TST173 ERROR MESSAGE
3310  3262          TST173          /SCOPE LOOP
                    /
                    /DOES COUNTER REALLY COUNT ?
                    /RATE 2, MODE 1
                    /
3311  7340  TST174, CLA CLL CMA     /AC TO 7777
3312  4427          JMS I XIOTG     /IOT 6133, CLAB
3313  3040          DCA REGA
3314  1015          TAD K0200
3315  1144          TAD K1000       /GET RATE + MODE
3316  4426          JMS I XIOTF1    /IOT 6132, CLOE
3317  4424          JMS I XIOTE     /IOT 6131, CLSK
3320  5317          JMP .-1
3321  7300          CLA CLL         /CLEAR THE AC AND LINK
3322  4427          JMS I XIOTG     /IOT 6133, CLAB
3323  3042  T174B1, DCA REGC
3324  1041          TAD REGB
3325  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3326  4433  T174B,  JMS I XIOTK     /IOT 6137, CLCA
3327  7041          CIA
3330  1041          TAD REGB        /COMPARE TO THIS REGISTER
3331  7650          SNA CLA         /ARE THEY THE SAME YET ?
3332  5336          JMP T174A       /YES, TEST NEXT NUMBER
3333  2042          ISZ REGC
3334  5326          JMP T174B       /WAIT ABOUT 15 MS FOR REGISTER
3335  5341          JMP T174A1      /NUMBER NOT FOUND
3336  2041  T174A,  ISZ REGB       /UPDATE COMPARE REGISTER
3337  5323          JMP T174B1      /TEST FOR NEXT COUNTER PULSE
3340  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3341  4473  T174A1, JMS I ERROR     /ERROR: COUNTER FAILED
3342  4174          4174            /TST174 ERROR MESSAGE
3343  3311          TST174          /SCOPE LOOP
                    /
                    /DOES COUNTER REALLY COUNT ?
                    /RATE 4, MODE 1
                    /
3344  7340  TST175, CLA CLL CMA     /AC TO 7777
3345  4427          JMS I XIOTG     /IOT 6133, CLAB
3346  3040          DCA REGA
3347  1116          TAD K0400
3350  1144          TAD K1000       /GET RATE + MODE
3351  4426          JMS I XIOTF1    /IOT 6132, CLOE
3352  4424          JMS I XIOTE     /IOT 6131, CLSK
3353  5352          JMP .-1
3354  7300          CLA CLL         /CLEAR THE AC AND LINK
3355  4427          JMS I XIOTG     /IOT 6133, CLAB
3356  3042  T175B1, DCA REGC
3357  1041          TAD REGB
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3360  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3361  4433  T175B,   JMS I XIOTK     /IOT 6137, CLCA
3362  7041            CIA
3363  1041            TAD REGB        /COMPARE TO THIS REGISTER
3364  7650            SNA CLA         /ARE THEY THE SAME YET ?
3365  5371            JMP T175A       /YES, TEST NEXT NUMBER
3366  2042            ISZ REGC
3367  5361            JMP T175B       /WAIT ABOUT 15 MS FOR REGISTER
3370  5374            JMP T175A1      /NUMBER NOT FOUND
3371  2041  T175A,   ISZ REGB        /UPDATE COMPARE REGISTER
3372  5356            JMP T175B1      /TEST FOR NEXT COUNTER PULSE
3373  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
3374  4473  T175A1,  JMS I ERROR     /ERROR: COUNTER FAILED
3375  4175            4175            /TST175 ERROR MESSAGE
3376  3344            TST175          /SCOPE LOOP
                      /
                      /DOES COUNTER REALLY COUNT ?
                      /RATE 2, MODE 2
                      /
3377  7340  TST176,  CLA CLL CMA     /AC TO 7777
3400  4427            JMS I XIOTG     /IOT 6133, CLAB
3401  3040            DCA REGA
3402  1015            TAD K0200
3403  1143            TAD K2000       /GET RATE + MODE
3404  4426            JMS I XIOTF1    /IOT 6132, CLOE
3405  7300  T176B1,  CLA CLL         /CLEAR THE AC AND LINK
3406  3042            DCA REGC
3407  1041            TAD REGB
3410  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3411  4433  T176B,   JMS I XIOTK     /IOT 6137, CLCA
3412  7041            CIA
3413  1041            TAD REGB        /COMPARE TO THIS REGISTER
3414  7650            SNA CLA         /ARE THEY THE SAME YET ?
3415  5221            JMP T176A       /YES, TEST NEXT NUMBER
3416  2042            ISZ REGC
3417  5211            JMP T176B       /WAIT ABOUT 15 MS FOR REGISTER
3420  5224            JMP T176A1      /NUMBER NOT FOUND
3421  2041  T176A,   ISZ REGB        /UPDATE COMPARE REGISTER
3422  5205            JMP T176B1      /TEST FOR NEXT COUNTER PULSE
3423  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
3424  4473  T176A1,  JMS I ERROR     /ERROR: COUNTER FAILED
3425  4176            4176            /TST176 ERROR MESSAGE
3426  3377            TST176          /SCOPE LOOP
                      /
                      /DOES COUNTER REALLY COUNT ?
                      /RATE 4, MODE 2
                      /
3427  7340  TST177,  CLA CLL CMA     /AC TO 7777
3430  4427            JMS I XIOTG     /IOT 6133, CLAB
3431  3040            DCA REGA
3432  1116            TAD K0400
3433  1143            TAD K2000       /GET RATE + MODE
3434  4426            JMS I XIOTF1    /IOT 6132, CLOE
3435  7300  T177B1,  CLA CLL         /CLEAR THE AC AND LINK
3436  3042            DCA REGC
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3437  1041          TAD REGB
3440  3070          DCA SEND          /SAVE OUTPUT FOR ERROR PRINTER
3441  4433  T177B,  JMS I XIOTK       /IOT 6137, CLCA
3442  7041          CIA
3443  1041          TAD REGB          /COMPARE TO THIS REGISTER
3444  7650          SNA CLA           /ARE THEY THE SAME YET ?
3445  5251          JMP T177A         /YES, TEST NEXT NUMBER
3446  2042          ISZ REGC
3447  5241          JMP T177B         /WAIT ABOUT 15 MS FOR REGISTER
3450  5254          JMP T177A1        /NUMBER NOT FOUND
3451  2041  T177A,  ISZ REGB          /UPDATE COMPARE REGISTER
3452  5265          JMP T177B1        /TEST FOR NEXT COUNTER PULSE
3453  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
3454  4473  T177A1, JMS I ERROR       /ERROR: COUNTER FAILED
3455  4177          4177              /TST177 ERROR MESSAGE
3456  3427          TST177            /SCOPE LOOP
                    /
                    /DOES COUNTER REALLY COUNT ?
                    /RATE 4, MODE 3
                    /
3457  7340  TST200, CLA CLL CMA       /AC TO 7777
3460  4427          JMS I XIOTG       /IOT 6133, CLAB
3461  3040          DCA REGA
3462  1116          TAD K0400
3463  1120          TAD K3000         /GET RATE + MODE
3464  4426          JMS I XIOTF1      /IOT 6132, CLOE
3465  7300  T200B1, CLA CLL           /CLEAR THE AC AND LINK
3466  3042          DCA REGC
3467  1041          TAD REGB
3470  3070          DCA SEND          /SAVE OUTPUT FOR ERROR PRINTER
3471  4433  T200B,  JMS I XIOTK       /IOT 6137, CLCA
3472  7041          CIA
3473  1041          TAD REGB          /COMPARE TO THIS REGISTER
3474  7650          SNA CLA           /ARE THEY THE SAME YET ?
3475  5301          JMP T200A         /YES, TEST NEXT NUMBER
3476  2042          ISZ REGC
3477  5271          JMP T200B         /WAIT ABOUT 15 MS FOR REGISTER
3500  5304          JMP T200A1        /NUMBER NOT FOUND
3501  2041  T200A,  ISZ REGB          /UPDATE COMPARE REGISTER
3502  5265          JMP T200B1        /TEST FOR NEXT COUNTER PULSE
3503  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
3504  4473  T200A1, JMS I ERROR       /ERROR: MODE 3, COUNTER FAILED
3505  4200          4200              /TST200 ERROR MESSAGE
3506  3457          TST200            /SCOPE LOOP
                    /
                    /DO IOT'S AFFECT AC ?
                    /
3507  7340  TST201, CLA CLL CMA       /AC TO 7777
3510  4427          JMS I XIOTG       /IOT 6133, CLAB
3511  3040          DCA REGA          /PASS COUNT 1
3512  6007          6007              /CAF OR CLEAR THE WORLD
3513  1144          TAD K1000
3514  1015          TAD K0200         /GET ENABLES
3515  4426          JMS I XIOTF1      /IOT 6132, CLOE
3516  4424          JMS I XIOTE       /IOT 6131, CLSK
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3517  5316            JMP .-1          /WAIT FOR COUNTER TO GET CLEARED
3520  7340            CLA CLL CMA
3521  4423            JMS I XIOTD      /IOT 6130, CLZE
3522  7300  T201B,     CLA CLL          /CLEAR AC AND LINK
3523  3070            DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
3524  1041            TAD REGB         /GET AC NUMBER
3525  4432            JMS I XIOTJ      /IOT 6136, CLBA
3526  7640            SZA CLA          /WAS AC ALL 0'S ?
3527  5351            JMP T201A
3530  1041            TAD REGB         /GET AC NUMBER
3531  4433            JMS I XIOTK      /IOT 6137, CLCA
3532  7640            SZA CLA          /WAS AC ALL 0'S ?
3533  5351            JMP T201A
3534  1041            TAD REGB         /GET AC NUMBER
3535  4430            JMS I XIOTH      /IOT 6134, CLEN
3536  7640            SZA CLA          /WAS AC ALL 0'S ?
3537  5351            JMP T201A
3540  1041            TAD REGB         /GET AC NUMBER
3541  4431            JMS I XIOTI      /IOT 6135, CLSA
3542  7640            SZA CLA          /WAS AC ALL 0'S ?
3543  5351            JMP T201A
3544  4424            JMS I XIOTE      /IOT 6131, CLSK
3545  5344            JMP .-1          /WAS FLAG STILL SET ?
3546  2041            ISZ REGB         /UPDATE PASS COUNTER
3547  5322            JMP T201B        /TEST IOT'S AGAIN
3550  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
3551  4473  T201A,     JMS I ERROR      /ERROR: IOT FAILED
3552  3201            3201             /TST201 ERROR MESSAGE
3553  3507            TST201           /SCOPE LOOP
                      /
3554  4570            JMS I XPASS      /TYPE PASS COMPLETE
3555  5463            JMP I XDK8EP     /CONTINUE TESTING
                      /
                      /DOES INPUT 4 CAUSE INT. RQST.
                      /
3556  7300            CLA CLL
3557  1112            TAD K7400
3560  3077            DCA LOOP         /LOAD LOOP COUNTER
3561  7340  TST202,    CLA CLL CMA      /AC TO 7777
3562  3040            DCA REGA
3563  7307            CLA CLL IAC RTL  /AC TO 0004
3564  1142            TAD K0010        /GET ENABLES
3565  4425            JMS I XIOTF      /IOT 6132, CLOE
3566  4450            JMS I XPIGO2     /GO TO PI, PI EXPECTED
3567  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
3570  4473            JMS I ERROR      /ERROR:INPUT 4 FAILED
3571  1602            1602             /TST202 ERROR MESSAGE
3572  3561            TST202           /SCOPE LOOP
                      /
                      /DOES INPUT 2 CAUSE INT. RQST.
                      /
3573  7340  TST203,    CLA CLL CMA      /AC TO 7777
3574  3040            DCA REGA
3575  7326            CLA CLL CML RTL  /AC TO 0002
3576  1142            TAD K0010        /GET ENABLES
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3577  4425          JMS I XIOTF     /IOT 6132, CLOE
3600  4450          JMS I XPIGO2    /GO TO PI, PI EXPECTED
3601  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3602  4473          JMS I ERROR     /ERROR: INPUT 2 FAILED
3603  1603          1603            /TST203 ERROR MESSAGE
3604  3573          TST203          /SCOPE LOOP
                    /
                    /DOES INPUT 1 CAUSE INT. RQST.
                    /
3605  7340    TST204, CLA CLL CMA   /AC TO 7777
3606  3040          DCA REGA
3607  7324          CLA CLL CML RAL /AC TO 0001
3610  1142          TAD K0010       /GET ENABLES
3611  4425          JMS I XIOTF     /IOT 6132, CLOE
3612  4450          JMS I XPIGO2    /GO TO PI, PI EXPECTED
3613  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3614  4473          JMS I ERROR     /ERROR: INPUT 1 FAILED
3615  1604          1604            /TST204 ERROR MESSAGE
3616  3605          TST204          /SCOPE LOOP
                    /
                    /DOES INPUT 4 RQST. LAST ?
                    /
3617  7340    TST205, CLA CLL CMA   /AC TO 7777
3620  3040          DCA REGA
3621  7307          CLA CLL IAC RTL /AC TO 0004
3622  1142          TAD K0010       /GET ENABLES
3623  4425          JMS I XIOTF     /IOT 6132, CLOE
3624  4447          JMS I XPIGO1    /GO TO PI, PI EXPECTED
3625  5252          JMP T205A       /NO RQST, FOUND
3626  2041          ISZ REGB        /UPDATE COUNTER
3627  5226          JMP .-1         /WAIT 15 MS
3630  4450          JMS I XPIGO2    /GO TO PI, PI EXPECTED
3631  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3632  4473    T205A, JMS I ERROR    /ERROR: INPUT 4 FAILED
3633  1605          1605            /TST205 ERROR MESSAGE
3634  3617          TST205          /SCOPE LOOP
                    /
                    /DOES INPUT 2 RQST. LAST ?
                    /
3635  7340    TST206, CLA CLL CMA   /AC TO 7777
3636  3040          DCA REGA
3637  7305          CLA CLL IAC RAL /AC TO 0002
3640  1142          TAD K0010       /GET ENABLES
3641  4425          JMS I XIOTF     /IOT 6132, CLOE
3642  4447          JMS I XPIGO1    /GO TO PI, PI EXPECTED
3643  5250          JMP T206A       /NO RQST, FOUND
3644  2041          ISZ REGB        /UPDATE COUNTER
3645  5244          JMP .-1         /WAIT 15 MS
3646  4450          JMS I XPIGO2    /GO TO PI, PI EXPECTED
3647  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3650  4473    T206A, JMS I ERROR    /ERROR: INPUT 2 FAILED
3651  1606          1606            /TST206 ERROR MESSAGE
3652  3635          TST206          /SCOPE LOOP
                    /
                    /DOES INPUT 1 RQST. LAST ?
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                    /
3653  7340  TST207, CLA CLL CMA      /AC TO 7777
3654  3040         DCA REGA
3655  7324         CLA CLL CML RAL /AC TO 0001
3656  1142         TAD K0010       /GET ENABLES
3657  4425         JMS I XIOTF     /IOT 6132, CLOE
3660  4447         JMS I XPIGO1    /GO TO PI, PI EXPECTED
3661  5266         JMP T207A       /NO RQST, FOUND
3662  2041         ISZ REGB        /UPDATE COUNTER
3663  5262         JMP .-1         /WAIT 15 MS
3664  4450         JMS I XPIGO2    /GO TO PI, PI EXPECTED
3665  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER
3666  4473  T207A, JMS I ERROR     /ERROR: INPUT 1 FAILED
3667  1607         1607            /TST207 ERROR MESSAGE
3670  3653         TST207          /SCOPE LOOP
                    /
                    /DOES INPUTS 4,2,1 WITHOUT BIT 8 ?
                    /
3671  7340  TST210, CLA CLL CMA      /AC TO 7777
3672  3040         DCA REGA
3673  7313         CLA CLL IAC RTR /AC TO 4000
3674  1007         TAD K0007
3675  1147         TAD K0600
3676  4425         JMS I XIOTF     /IOT 6132, CLOE
3677  4447         JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
3700  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER
3701  4473         JMS I ERROR     /ERROR:ENABLE BIT 8 FAILED
3702  1210         1210            /TST210 ERROR MESSAGE
3703  3671         TST210          /SCOPE LOOP
                    /
                    /DOES INPUT 4 CAUSE SKIP ?
                    /
3704  7340  TST211, CLA CLL CMA      /AC TO 7777
3705  3040         DCA REGA
3706  1113         TAD KT1CPS
3707  3045         DCA REGF
3710  7307         CLA CLL IAC RTL /AC TO 0004
3711  4425         JMS I XIOTF     /IOT 6132, CLOE
3712  4424         JMS I XIOTE     /IOT 6131, CLSK
3713  4446         JMS I SKPWAT    /LET'S WAIT FOR A FLAG
3714  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER
3715  4473         JMS I ERROR     /ERROR: INPUT 4 OR SKIP FAILED
3716  0611         0611            /TST211 ERROR MESSAGE
3717  3704         TST211          /SCOPE LOOP
                    /
                    /DOES INPUT 2 CAUSE SKIP ?
                    /
3720  7340  TST212, CLA CLL CMA      /AC TO 7777
3721  3040         DCA REGA
3722  1113         TAD KT1CPS
3723  3045         DCA REGF
3724  7326         CLA CLL CML RTL /AC TO 0002
3725  4425         JMS I XIOTF     /IOT 6132, CLOE
3726  4424         JMS I XIOTE     /IOT 6131, CLSK
3727  4446         JMS I SKPWAT    /LET'S WAIT FOR A FLAG
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3730  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3731  4473          JMS I ERROR     /ERROR: INPUT 2 OR SKIP FAILED
3732  0612          0612            /TST212 ERROR MESSAGE
3733  3720          TST212          /SCOPE LOOP
                    /
                    /DOES INPUT 1 CAUSE SKIP ?
                    /
3734  7340    TST213, CLA CLL CMA   /AC TO 7777
3735  3040          DCA REGA
3736  1113          TAD KT1CPS
3737  3045          DCA REGF
3740  7301          CLA CLL IAC     /AC TO 0001
3741  4425          JMS I XIOTF     /IOT 6132, CLOE
3742  4424          JMS I XIOTE     /IOT 6131, CLSK
3743  4446          JMS I SKPWAT    /LET'S WAIT FOR FLAG
3744  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3745  4473          JMS I ERROR     /ERROR: INPUT 1 OR SKIP FAILED
3746  0613          0613            /TST213 ERROR MESSAGE
3747  3734          TST213          /SCOPE LOOP
                    /
                    /DOES INPUT 4 RQST. THEN SKIP AND VICE-VERSA ?
                    /
3750  7340    TST214, CLA CLL CMA   /AC TO 7777
3751  3040          DCA REGA
3752  7307          CLA CLL IAC RTL /AC TO 0004
3753  1142          TAD K0010       /GET ENABLES
3754  4425          JMS I XIOTF     /IOT 6132, CLOE
3755  4424          JMS I XIOTE     /IOT 6131, CLSK
3756  5355          JMP .-1
3757  4447          JMS I XPIGO1    /GO TO PI, PI EXPECTED
3760  5364          JMP T214A       /NO RQST, FOUND
3761  4424          JMS I XIOTE     /IOT 6131, CLSK
3762  5361          JMP .-1
3763  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3764  4473    T214A, JMS I ERROR    /ERROR: INPUT 4 SKIP OR INT, RQST, FAILED
3765  1614          1614            /TST214 ERROR FAILED
3766  3750          TST214          /SCOPE LOOP
                    /
                    /DOES INPUT 2 SKIP THEN INT, RQST, AND VICE-VERSA ?
                    /
3767  7340    TST215, CLA CLL CMA   /AC TO 7777
3770  3040          DCA REGA
3771  7305          CLA CLL IAC RAL /AC TO 0002
3772  1142          TAD K0010       /GET ENABLES
3773  4425          JMS I XIOTF     /IOT 6132, CLOE
3774  4424          JMS I XIOTE     /IOT 6131, CLSK
3775  5374          JMP .-1
3776  4447          JMS I XPIGO1    /GO TO PI, PI EXPECTED
3777  5575          JMP I XCRS5
4000  4424          JMS I XIOTE     /IOT 6131, CLSK
4001  5200          JMP .-1
4002  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4003  4473    T215A, JMS I ERROR    /ERROR: INPUT 2 SKIP OR RQST, FAILED
4004  1615          1615            /TST215 ERROR MESSAGE
4005  3767          TST215          /SCOPE LOOP
```

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                    /
                    /DOES INPUT 1 SKIP THEN INT. RQST. AND VICE-VERSA ?
                    /
4006  7340  TST216, CLA CLL CMA      /AC TO 7777
4007  3040         DCA REGA
4010  7301         CLA CLL IAC      /AC TO 0001
4011  1142         TAD K0010        /GET ENABLES
4012  4425         JMS I XIOTF      /IOT 6132, CLOE
4013  4424         JMS I XIOTE      /IOT 6131, CLSK
4014  5213         JMP .-1
4015  4447         JMS I XPIGO1     /GO TO PI, PI EXPECTED
4016  5222         JMP T216A
4017  4424         JMS I XIOTE      /IOT 6131, CLSK
4020  5217         JMP .-1
4021  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER
4022  4473  T216A, JMS I ERROR      /ERROR: INPUT 1 SKIP OR INT. RQST. FAILED
4023  1616         1616             /TST216 ERROR MESSAGE
4024  4006         TST216           /SCOPE LOOP
                    /
                    /DOES CAF CLEAR INPUT 4 INT. RQST. ?
                    /
4025  7340  TST217, CLA CLL CMA      /AC TO 7777
4026  3040         DCA REGA
4027  7307         CLA CLL IAC RTL  /AC TO 0004
4030  4425         JMS I XIOTF      /IOT 6132, CLOE
4031  4424         JMS I XIOTE      /IOT 6131, CLSK
4032  5231         JMP .-1          /WAIT FOR FIRST FLAG
4033  6007         6007             /CAF OR CLEAR THE WORLD
4034  7307         CLA CLL IAC RTL  /AC TO 0004
4035  4425         JMS I XIOTF      /IOT 6132,CLOE
4036  4424         JMS I XIOTE      /IOT 6131, CLSK
4037  5236         JMP .-1          /WAIT FOR SECOND FLAG
4040  6007         6007             /CAF OR CLEAR THE WORLD
4041  7307         CLA CLL IAC RTL
4042  4425         JMS I XIOTF      /IOT 6132, CLOE
4043  4424         JMS I XIOTE      /IOT 6131, CLSK
4044  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER
4045  4473         JMS I ERROR      /ERROR: INPUT 4 SKIP OR RQST. FAILED
4046  0217         0217             /TST217 ERROR MESSAGE
4047  4025         TST217           /SCOPE LOOP
                    /
                    /DOES CAF CLEAR INPUT 2 RQST. ?
                    /
4050  7340  TST220, CLA CLL CMA      /AC TO 7777
4051  3040         DCA REGA
4052  7305         CLA CLL IAC RAL  /AC TO 0002
4053  4425         JMS I XIOTF      /IOT 6132, CLOE
4054  4424         JMS I XIOTE      /IOT 6131, CLSK
4055  5254         JMP .-1          /WAIT FOR FIRST FLAG
4056  6007         6007             /CAF OR CLEAR THE WORLD
4057  7305         CLA CLL IAC RAL  /AC TO 0002
4060  4425         JMS I XIOTF      /IOT 6132, CLOE
4061  4424         JMS I XIOTE      /IOT 6131, CLSK
4062  5261         JMP .-1          /WAIT FOR SECOND FLAG
4063  6007         6007             /CAF OR CLEAR THE WORLD
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4064  7305          CLA CLL IAC RAL /AC TO 0002
4065  4425          JMS I XIOTF     /IOT 6132, CLOE
4066  4424          JMS I XIOTE     /IOT 6131, CLSK
4067  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4070  4473          JMS I ERROR     /ERROR: INPUT 2 SKIP OR RQST, FAILED
4071  0220          0220            /TST220 ERROR MESSAGE
4072  4050          TST220          /SCOPE LOOP
                    /
                    /DOES CAF CLEAR INTPUT 3 RQST, ?
                    /
4073  7340    TST221, CLA CLL CMA   /AC TO 7777
4074  3040          DCA REGA
4075  7301          CLA CLL IAC     /AC TO 0001
4076  4425          JMS I XIOTF     /IOT 6132, CLOE
4077  4424          JMS I XIOTE     /IOT 6131, CLSK
4100  5277          JMP .-1         /WAIT FOR FIRST FLAG
4101  6007          6007            /CAF OR CLEAR THE WORLD
4102  7301          CLA CLL IAC     /AC TO 0001
4103  4425          JMS I XIOTF     /IOT 6132, CLOE
4104  4424          JMS I XIOTE     /IOT 6131, CLSK
4105  5304          JMP .-1         /WAIT FOR SECONED FLAG
4106  6007          6007            /CAF OR CLEAR THE WORLD
4107  7301          CLA CLL IAC
4110  4425          JMS I XIOTF     /IOT 6132, CLOE
4111  4424          JMS I XIOTE     /IOT 6131, CLSK
4112  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4113  4473          JMS I ERROR     /ERROR: INPUT 1 SKIP OR RQST, FAILED
4114  0221          0221            /TST221 ERROR MESSAGE
4115  4073          TST221          /SCOPE LOOP
                    /
                    /DOES CLSA READ RQST, INPUT 4 ?
                    /
4116  7340    TST222, CLA CLL CMA   /AC TO 7777
4117  3040          DCA REGA
4120  7307          CLA CLL IAC RTL /AC TO 0004
4121  4425          JMS I XIOTF     /IOT 6132, CLOE
4122  4424          JMS I XIOTE     /IOT 6131, CLSK
4123  5322          JMP .-1         /WAIT FOR FLAG
4124  7040          CMA             /AC TO 7773
4125  4431          JMS I XIOTI     /IOT 6135, CLSA
4126  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4127  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4130  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 4 FAILED
4131  5222          5222            /TST222 ERROR MESSAGE
4132  4116          TST222          /SCOPE LOOP
                    /
                    /DOES CLSA READ RQST, INPUT 2 ?
                    /
4133  7340    TST223, CLA CLL CMA   /AC TO 7777
4134  3040          DCA REGA
4135  7305          CLA CLL IAC RAL /AC TO 0002
4136  4425          JMS I XIOTF     /IOT 6132, CLOE
4137  4424          JMS I XIOTE     /IOT 6131, CLSK
4140  5337          JMP .-1         /WAIT FOR FLAG
4141  7040          CMA             /AC TO 7775
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4142  4431          JMS I XIOTI     /IOT 6135, CLSA
4143  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4144  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4145  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 2 FAILED
4146  5223          5223            /TST223 ERROR MESSAGE
4147  4133          TST223          /SCOPE LOOP
                    /
                    /DOES CLSA READ RQST. INPUT 1 ?
                    /
4150  7340    TST224, CLA CLL CMA   /AC TO 7777
4151  3040          DCA REGA
4152  7301          CLA CLL IAC     /AC TO 0001
4153  4425          JMS I XIOTF     /IOT 6132, CLOE
4154  4424          JMS I XIOTE     /IOT 6131, CLSK
4155  5354          JMP .-1         /WAIT FOR FLAG
4156  7040          CMA             /AC TO 7776
4157  4431          JMS I XIOTI     /IOT 6135, CLSA
4160  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4161  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4162  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 1 FAILED
4163  5224          5224            /TST224 ERROR MESSAGE
4164  4150          TST224          /SCOPE LOOP
                    /
                    /DOES CLSA CLEAR INPUT 4 RQST. ?
                    /
4165  7340    TST225, CLA CLL CMA   /AC TO 7777
4166  3040          DCA REGA
4167  7307          CLA CLL IAC RTL /AC TO 0004
4170  4426          JMS I XIOTF1    /IOT 6132, CLOE
4171  4424          JMS I XIOTE     /IOT 6131, CLSK
4172  5371          JMP .-1         /WAIT FOR FIRST FLAG
4173  4431          JMS I XIOTI     /IOT 6135, CLSA
4174  4424          JMS I XIOTE     /IOT 6131, CLSK
4175  5374          JMP .-1         /WAIT FOR SECOND FLAG
4176  4431          JMS I XIOTI     /IOT 6135, CLSA
4177  4424          JMS I XIOTE     /IOT 6131, CLSK
4200  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4201  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 1 FAILED
4202  0225          0225            /TST225 ERROR MESSAGE
4203  4165          TST225          /SCOPE LOOP
                    /
                    /DOES CLSA CLEAR INPUT 2 RQST. ?
                    /
4204  7340    TST226, CLA CLL CMA   /AC TO 7777
4205  3040          DCA REGA
4206  7305          CLA CLL IAC RAL /AC TO 0002
4207  4425          JMS I XIOTF     /IOT 6132, CLOE
4210  4424          JMS I XIOTE     /IOT 6131, CLSK
4211  5210          JMP .-1         /WAIT FOR FIRST FLAG
4212  4431          JMS I XIOTI     /IOT 6135, CLSA
4213  4424          JMS I XIOTE     /IOT 6131, CLSK
4214  5213          JMP .-1         /WAIT FOR SECOND FLAG
4215  4431          JMS I XIOTI     /IOT 6135, CLSA
4216  4424          JMS I XIOTE     /IOT 6131, CLSK
4217  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
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4220  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 2 FAILED
4221  0226          0226            /TST226 ERROR MESSAGE
4222  4204          TST226          /SCOPE LOOP
                    /
                    /DOES CLSA CLEAR INPUT 4 RQST. ?
                    /
4223  7340    TST227, CLA CLL CMA   /AC TO 7777
4224  3040          DCA REGA
4225  7301          CLA CLL IAC     /AC TO 0001
4226  4425          JMS I XIOTF     /IOT 6132, CLOE
4227  4424          JMS I XIOTE     /IOT 6131, CLSK
4230  5227          JMP .-1         /WAIT FOR FIRST FLAG
4231  4431          JMS I XIOTI     /IOT 6135, CLSA
4232  4424          JMS I XIOTE     /IOT 6131, CLSK
4233  5232          JMP .-1         /WAIT FOR SECOND FLAG
4234  4431          JMS I XIOTI     /IOT 6135, CLSA
4235  4424          JMS I XIOTE     /IOT 6131, CLSK
4236  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4237  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 1 FAILED
4240  0227          0227            /TST227 ERROR MESSAGE
4241  4223          TST227          /SCOPE LOOP
                    /
                    /DOES CLSA READ INPUT 4,2,1 ?
                    /
4242  7340    TST230, CLA CLL CMA   /AC TO 7777
4243  3040          DCA REGA
4244  1007          TAD K0007       /GET ENABLES
4245  4425          JMS I XIOTF     /IOT 6132, CLOE
4246  7000          NOP
4247  2041          ISZ REGB
4250  5246          JMP .-2         /WAIT FOR ALL
4251  4424          JMS I XIOTE     /IOT 6131, CLOE
4252  5251          JMP .-1         /WAIT FOR FLAGS
4253  7340          CLA CLL CMA     /AC TO 7777
4254  4431          JMS I XIOTI     /IOT 6135, CLSA
4255  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4256  7610          SKP CLA
4257  5265          JMP T230A       /ERROR, STATUS REGISTER
4260  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
4261  7340          CLA CLL CMA     /AC TO 7777
4262  4431          JMS I XIOTI     /IOT 6135, CLSA
4263  7650          SNA CLA         /WAS STATUS ALL 0'S ?
4264  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4265  4473    T230A, JMS I ERROR    /ERROR: CLSA OR INPUTS 1,2,3 FAILED
4266  5230          5230            /TST230 ERROR MESSAGE
4267  4242          TST230          /SCOPE LOOP
                    /
                    /DOES INPUT 4 CLEAR BIT 7 ?
                    /
4270  7340    TST231, CLA CLL CMA
4271  3040          DCA REGA
4272  7307          CLA CLL IAC RTL /AC TO 0004
4273  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
4274  1070          TAD SEND
4275  1140          TAD K0020       /GET ENABLES
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4276  4426          JMS I XIOTF1    /IOT 6132, CLOE
4277  4424          JMS I XIOTE     /IOT 6131, CLSK
4300  5277          JMP .-1         /WAIT FOR FLAG
4301  7340          CLA CLL CMA     /AC TO 7777
4302  4430          JMS I XIOTH     /IOT 6134, CLEN
4303  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4304  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4305  4473          JMS I ERROR     /ERROR:BIT 7 OR INPUT 4 FAILED
4306  4631          4631            /TST231 ERROR MESSAGE
4307  4270          TST231          /SCOPE LOOP
                    /
                    /DOES INPUT 2 CLEAR BIT 7 ?
                    /
4310  7340    TST232, CLA CLL CMA
4311  3040          DCA REGA
4312  7305          CLA CLL IAC RAL /AC TO 0002
4313  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
4314  1070          TAD SEND
4315  1140          TAD K0020
4316  4426          JMS I XIOTF1    /IOT 6132, CLOE
4317  4424          JMS I XIOTE     /IOT 6131, CLSK
4320  5317          JMP .-1         /WAIT FOR FLAG
4321  7340          CLA CLL CMA
4322  4430          JMS I XIOTH     /IOT 6134, CLEN
4323  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4324  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4325  4473          JMS I ERROR     /ERROR: BIT 7 OR INPUT 2 FAILED
4326  4632          4632            /TST232 ERROR MESSAGE
4327  4310          TST232          /SCOPE LOOP
                    /
                    /DOES INPUT 1 CLEAR BIT 7 ?
                    /
4330  7340    TST233, CLA CLL CMA     /AC TO 7777
4331  3040          DCA REGA
4332  7301          CLA CLL IAC     /AC TO 0001
4333  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
4334  1070          TAD SEND
4335  1140          TAD K0020
4336  4426          JMS I XIOTF1    /IOT 6132, CLOE
4337  4424          JMS I XIOTE     /IOT 6131, CLSK
4340  5337          JMP .-1         /WAIT FOR FLAG
4341  7340          CLA CLL CMA     /AC TO 7777
4342  4430          JMS I XIOTH     /IOT 6134, CLEN
4343  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4344  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4345  4473          JMS I ERROR     /ERROR: BIT 7 OR INPUT 1 FAILED
4346  4633          4633            /TST233 ERROR MESSAGE
4347  4330          TST233          /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 GENERATE CLR CNT ?
                    /MODE 3, RATE 0
                    /
4350  7340    TST234, CLA CLL CMA     /AC TO 7777
4351  3040          DCA REGA
4352  1016          TAD K2525       /GET AC NUMBER
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4353  4427          JMS I XIOTG      /IOT 6133, CLAB
4354  7307          CLA CLL IAC RTL  /AC TO 0004
4355  1140          TAD K3000        /GET ENABLES
4356  4426          JMS I XIOTF1     /IOT 6132, CLOE
4357  4424          JMS I XIOTE      /IOT 6131, CLSK
4360  5357          JMP .-1          /WAIT FOR FLAG
4361  7300          CLA CLL
4362  3070          DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
4363  7340          CLA CLL CMA      /AC TO 7777
4364  4433          JMS I XIOTK      /IOT 6137, CLCA
4365  7650          SNA CLA          /WAS COUNTER ALL 0'S ?
4366  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
4367  4473          JMS I ERROR      /ERROR: CLR CNT FAILED
4370  4234          4234             /TST234 ERROR MESSAGE
4371  4350          TST234           /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 CAUSE CLR CNT ?
                    /MODE 3, RATE 0
                    /
4372  7340    TST235, CLA CLL CMA    /AC TO 7777
4373  3040          DCA REGA
4374  1017          TAD K5252        /GET AC NUMBER
4375  4427          JMS I XIOTG      /IOT 6133, CLAB
4376  7305          CLA CLL IAC RAL  /AC TO 0002
4377  1140          TAD K3000        /GET ENABLES
4400  4426          JMS I XIOTF1     /IOT 6132, CLOE
4401  4424          JMS I XIOTE      /IOT 6131, CLSK
4402  5201          JMP .-1          /WAIT FOR FLAG
4403  7300          CLA CLL
4404  3070          DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
4405  7340          CLA CLL CMA      /AC TO 7777
4406  4433          JMS I XIOTK      /IOT 6137, CLCA
4407  7650          SNA CLA          /WAS COUNTER ALL 0'S ?
4410  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
4411  4473          JMS I ERROR      /ERROR: CLR CNT FAILED ?
4412  4235          4235             /TST235 ERROR MESSAGE
4413  4372          TST235           /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 TRANSFER COUNTER TO BUFFER ?
                    /
4414  7340    TST236, CLA CLL CMA    /AC TO 7777
4415  3040          DCA REGA
4416  1016          TAD K2525        /GET AC NUMBER
4417  4427          JMS I XIOTG      /IOT 6133, CLAB
4420  6007          6007             /CAF OR CLEAR THE WORLD
4421  7301          CLA CLL IAC      /AC TO 0001
4422  1140          TAD K3000        /GET ENABLES
4423  4426          JMS I XIOTF1     /IOT 6132, CLOE
4424  4424          JMS I XIOTE      /IOT 6131, CLSK
4425  5224          JMP .-1          /WAIT FOR FLAG
4426  7340          CLA CLL CMA      /AC TO 7777
4427  4432          JMS I XIOTJ      /IOT 6136, CLBA
4430  4456          JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
4431  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
4432  4473          JMS I ERROR      /ERROR: COUNTER TO BUFFER FAILED
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4433  3636          3636            /TST236 ERROR MESSAGE
4434  4414          TST236          /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 TRANSFER COUNTER TO BUFFER ?
                    /
4435  7340    TST237, CLA CLL CMA   /AC TO 7777
4436  3040          DCA REGA
4437  1017          TAD K5252       /GET AC NUMBER
4440  4427          JMS I XIOTG     /IOT 6133, CLAB
4441  6007          6007            /CAF OR CLEAR THE WORLD
4442  7301          CLA CLL IAC     /AC TO 0001
4443  1140          TAD K3000       /GET ENABLES
4444  4426          JMS I XIOTF1    /IOT 6132, CLOE
4445  4424          JMS I XIOTE     /IOT 6131, CLSK
4446  5245          JMP .-1         /WAIT FOR FLAG
4447  7340          CLA CLL CMA     /AC TO 7777
4450  4432          JMS I XIOTJ     /IOT 6136, CLBA
4451  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4452  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4453  4473          JMS I ERROR     /ERROR: COUNTER TO BUFFER FAILED
4454  3637          3637            /TST237 ERROR MESSAGE
4455  4435          TST237          /SCOPE LOOP
                    /
                    /
                    /DOES INPUT 4,2,1 GENERATE CLR CNT ?
                    /MODE 2, RATE 0
                    /
4456  7340    TST240, CLA CLL CMA   /AC TO 7777
4457  3040          DCA REGA
4460  1016          TAD K2525       /GET AC NUMBER
4461  4427          JMS I XIOTG     /IOT 6133, CLAB
4462  6007          6007            /CAF OR CLEAR THE WORLD
4463  7307          CLA CLL IAC RTL /AC TO 0004
4464  1143          TAD K2000       /GET ENABLES
4465  4426          JMS I XIOTF1    /IOT 6132, CLOE
4466  4424          JMS I XIOTE     /IOT 6131, CLSK
4467  5266          JMP .-1         /WAIT FOR FLAG
4470  7340          CLA CLL CMA     /AC TO 7777
4471  4433          JMS I XIOTK     /IOT 6137, CLCA
4472  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4473  4472          JMS I NERROR    /CHECK NON-ERROR MESSAGE
4474  4473          JMS I ERROR     /ERROR:CLR CNT FAILED, MODE 2
4475  4240          4240            /TST240 ERROR MESSAGE
4476  4456          TST240          /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 CAUSE CLR CNT ?
                    /MODE 2, RATE 0
                    /
4477  7340    TST241, CLA CLL CMA
4500  3040          DCA REGA
4501  1017          TAD K5252       /GET AC NUMBER
4502  4427          JMS I XIOTG     /IOT 6133, CLAB
4503  6007          6007            /CAF OR CLEAR THE WORLD
4504  7305          CLA CLL IAC RAL /AC TO 0002
4505  1143          TAD K2000       /GET ENABLES
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4506  4426          JMS I XIOTF1    /IOT 6132, CLOE
4507  4424          JMS I XIOTE     /IOT 6131, CLSK
4510  5307          JMP .-1         /WAIT FOR FLAG
4511  7340          CLA CLL CMA     /AC TO 7777
4512  4433          JMS I XIOTK     /IOT 6137, CLCA
4513  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4514  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4515  4473          JMS I ERROR     /ERROR: CLR CNT FAILED, MODE 2
4516  4241          4241            /TST241 ERROR MESSAGE
4517  4477          TST241          /SCOPE LOOP
                    /
                    /DOES COUNTER TRANSFER TO BUFFER ?
                    /MODE 2, RATE 0
                    /
4520  7340    TST242, CLA CLL CMA   /AC TO 7777
4521  3040          DCA REGA
4522  1016          TAD K2525       /GET AC NUMBER
4523  4427          JMS I XIOTG     /IOT 6133, CLAB
4524  6007          6007            /CAF OR CLEAR THE WORLD
4525  7307          CLA CLL IAC RTL
4526  1143          TAD K2000       /GET ENABLES
4527  4426          JMS I XIOTF1    /IOT 6132, CLOE
4530  4424          JMS I XIOTE     /IOT 6131, CLSK
4531  5330          JMP .-1         /WAIT FOR FLAG
4532  7340          CLA CLL CMA     /AC TO 7777
4533  4432          JMS I XIOTJ     /IOT 6136, CLBA
4534  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4535  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4536  4473          JMS I ERROR     /ERROR: COUNTER TO BUFFER FAILED
4537  3642          3642            /TST242 ERROR MESSAGE
4540  4520          TST242          /SCOPE LOOP
                    /
                    /DOES COUNTER TRANSFER TO BUFFER ?
                    /MODE 2, RATE 0
                    /
4541  7340    TST243, CLA CLL CMA   /AC TO 7777
4542  3040          DCA REGA
4543  1017          TAD K5252       /GET AC NUMBER
4544  4427          JMS I XIOTG     /IOT 6133, CLAB
4545  6007          6007            /CAF OR CLEAR THE WORLD
4546  7305          CLA CLL IAC RAL /AC TO 0002
4547  1143          TAD K2000       /GET ENABLES
4550  4426          JMS I XIOTF1    /IOT 6132, CLOE
4551  4424          JMS I XIOTE     /IOT 6131, CLSK
4552  5351          JMP .-1         /WAIT FOR FLAG
4553  7340          CLA CLL CMA
4554  4432          JMS I XIOTJ     /IOT 6136, CLBA
4555  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4556  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4557  4473          JMS I ERROR     /ERROR: COUNTER TO BUFFER FAILED
4560  3643          3643            /TST243 ERROR MESSAGE
4561  4541          TST243          /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 AFFECT MODE 0 ?
                    /
```

```
4562  7340  TST244, CLA CLL CMA
4563  3040         DCA REGA
4564  1016         TAD K2525        /GET AC NUMBER
4565  4427         JMS I XIOTG      /IOT 6133, CLAB
4566  6007         6007             /CAF OR CLEAR THE WORLD
4567  7307         CLA CLL IAC RTL  /AC TO 0004
4570  4426         JMS I XIOTF1     /IOT 6132, CLOE
4571  4424         JMS I XIOTE      /IOT 6131, CLSK
4572  5371         JMP .-1          /WAIT FOR FLAG
4573  7340         CLA CLL CMA      /AC TO 7777
4574  4433         JMS I XIOTK      /IOT 6137, CLCA
4575  4456         JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
4576  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER
4577  4473         JMS I ERROR      /ERROR: MODE 0 FAILED
4600  4244         4244             /TST 244 ERROR MESSAGE
4601  4562         TST244           /SCOPE LOOP
                   /
                   /DOES INPUT 4,2,1 AFFECT MODE 0 ?
                   /
4602  7340  TST245, CLA CLL CMA      /AC TO 7777
4603  3040         DCA REGA
4604  1017         TAD K5252        /GET AC NUMBER
4605  4427         JMS I XIOTG      /IOT 6133, CLAB
4606  7301         CLA CLL IAC      /AC TO 0001
4607  4426         JMS I XIOTF1     /IOT 6132, CLOE
4610  4424         JMS I XIOTE      /IOT 6131, CLSK
4611  5210         JMP .-1          /WAIT FOR FLAG
4612  7340         CLA CLL CMA      /AC TO 7777
4613  4432         JMS I XIOTJ      /IOT 6136, CLBA
4614  4456         JMS I XSNDRV     /CHECK SEND RECEV REGISTERS
4615  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER
4616  4473         JMS I ERROR      /ERROR: MODE 0 FAILED
4617  3645         3645             /TST245 ERROR MESSAGE
4620  4602         TST245           /SCOPE LOOP
                   /
                   /DOES INPUT 4,2,1 AFFECT MODE 1 ?
                   /
4621  7340  TST246, CLA CLL CMA      /AC TO 7777
4622  3040         DCA REGA
4623  1016         TAD K2525        /GET AC NUMBER
4624  4427         JMS I XIOTG      /IOT 6133, CLAB
4625  6007         6007             /CAF OR CLEAR THE WORLD
4626  3070         DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
4627  7301         CLA CLL IAC      /AC TO 0001
4630  1144         TAD K1000        /GET ENABLES
4631  4426         JMS I XIOTF1     /IOT 6132, CLOE
4632  4424         JMS I XIOTE      /IOT 6131, CLOE
4633  5232         JMP .-1          /WAIT FOR FLAG
4634  7340         CLA CLL CMA      /AC TO 7777
4635  4432         JMS I XIOTJ      /IOT 6136, CLBA
4636  7650         SNA CLA          /WAS BUFFER STILL ALL 0'S ?
4637  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER
4640  4473         JMS I ERROR      /ERROR: MODE 1 FAILED
4641  4246         4246             /TST246 ERROR MESSAGE
4642  4621         TST246           /SCOPE LOOP
```

```
                    /
                    /DOES INPUT 4,2,1 AFFECT MODE 1 ?
                    /
4643  7340  TST247, CLA CLL CMA      /AC TO 7777
4644  3040         DCA REGA
4645  1017         TAD K5252        /GET AC NUMBER
4646  4427         JMS I XIOTG      /IOT 6133, CLAB
4647  7307         CLA CLL IAC RTL  /AC TO 0004
4650  1144         TAD K1000
4651  4426         JMS I XIOTF1     /IOT 6132, CLOE
4652  4424         JMS I XIOTE      /IOT 6131, CLSK
4653  5252         JMP .-1          /WAIT FOR FLAG
4654  7340         CLA CLL CMA      /AC TO 7777
4655  4432         JMS I XIOTJ      /IOT 6136, CLBA
4656  4456         JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
4657  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER
4660  4473         JMS I ERROR      /ERROR: MODE 1 FAILED
4661  3647         3647             /TST247 ERROR MESSAGE
4662  4643         TST247           /SCOPE LOOP
                    /
                    /DOES CLSA READ INPUTS 4,2,1 ?
                    /
4663  7340  TST250, CLA CLL CMA      /AC TO 7777
4664  3040         DCA REGA
4665  1007         TAD K0007        /GET ENABLES
4666  4426         JMS I XIOTF1     /IOT 6132, CLOE
4667  7000         NOP
4670  2041         ISZ REGB
4671  5267         JMP .-2          /WAIT FOR ALL
4672  4424         JMS I XIOTE      /IOT 6131, CLSK
4673  5272         JMP .-1
4674  4423         JMS I XIOTD      /IOT 6130, CLEE
4675  7300         CLA CLL          /CLEAR THE AC AND LINK
4676  3070         DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
4677  7340         CLA CLL CMA      /AC TO 7777
4700  4431         JMS I XIOTI      /IOT 6135, CLSA
4701  7650         SNA CLA          /WAS STATUS ALL 0'S ?
4702  4472         JMS I NERROR     /CHECK NON-ERROR HANDLER
4703  4473         JMS I ERROR      /ERROR:INPUT 4,2,1 OR STATUS FAILED
4704  5250         5250             /TEST250 ERROR MESSAGE
4705  4663         TST250           /SCOPE LOOP
                    /
                    /DOES CLSA READ STATUS REGISTER ?
                    /
4706  7340  TST251, CLA CLL CMA      /AC TO 7777
4707  3040         DCA REGA
4710  1007         TAD K0007        /GET ENABLES
4711  4425         JMS I XIOTF      /IOT 6132, CLOE
4712  7000         NOP
4713  2041         ISZ REGB
4714  5312         JMP .-2          /WAIT FOR FLAGS
4715  4424         JMS I XIOTE      /IOT 6131, CLSK
4716  5315         JMP .-1
4717  7340         CLA CLL CMA      /AC TO 7777
4720  4431         JMS I XIOTI      /IOT 6135, CLSA
```

```
4721  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4722  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4723  4473          JMS I ERROR     /ERROR: CLSA OR STATUS REGISTER
4724  5251          5251            /TST251 ERROR MESSAGE
4725  4706          TST251          /SCOPE LOOP
                    /
4726  7300          CLA CLL
4727  2077          ISZ LOOP
4730  5464          JMP I XMITT     /DO TEST 4096 TIMES
4731  4570          JMS I XPASS     /TYPE PASS COMPLETE
4732  5465          JMP I XMITT1    /CONTINUE TESTING
                    /
                    /NON-ERROR HANDLER FOR PROGRAM
                    /
      5000          *5000
                    /
5000  0000  NERRO, 0000
5001  6007          6007            /CAF OR CLEAR THE WORLD
5002  2200          ISZ NERRO
5003  2200          ISZ NERRO
5004  2040          ISZ REGA
5005  5215          JMP OUT
5006  4460          JMS I XCLREG    /CLEAR ALL REGISTERS
5007  7604          LAS
5010  0137          AND K0040       /IS IT LOOP ON NON-
5011  7640          SZA CLA         /FAILING TEST.
5012  5215          JMP OUT
5013  2200          ISZ NERRO
5014  5600          JMP I NERRO     /TO NEXT TEST
                    /
5015  1600  OUT,    TAD I NERRO
5016  3220          DCA ERRO
5017  5620          JMP I ERRO
                    /
                    /ERROR HANDLER FOR PROGRAM
                    /
5020  0000  ERRO,   0000
5021  6007          6007            /CAF OR CLEAR THE WORLD
5022  7604          LAS
5023  7006          RTL
5024  7700          SMA CLA         /CHECK SWR2 FOR INH. PRINT
5025  4503          JMS I XSORT     /GET ERROR MESSAGE
5026  4510          JMS I XBELL     /RING BELL
5027  4460          JMS I XCLREG
5030  2220          ISZ ERRO
5031  7604          LAS
5032  0015          AND K0200
5033  7650          SNA CLA         /CHECK SWR4 FOR INH. HLT
5034  7402  EHLT1,  HLT             /MONITOR ERROR HALT, READ TYPEOUT
                                    /AND REFERENCE LISTING.
5035  7604          LAS
5036  0013          AND K0100
5037  7640          SZA CLA         /CHECK SWR5 FOR SCOPE LOOP
5040  5243          JMP IN
5041  2220          ISZ ERRO
```

```
5042  5620          JMP I ERRO      /ENTER SCOPE LOOP
                    /
5043  1620  IN,     TAD I ERRO
5044  3200          DCA NERRO
5045  5600          JMP I NERRO
                    /
5046  0000  BELL,   0000
5047  7604          LAS
5050  0116          AND K0400
5051  7640          SZA CLA
5052  5646          JMP I BELL
5053  1006          TAD K0207
5054  4507          JMS I XTYPE
5055  5646          JMP I BELL
                    /
5056  0000  TYPE,   0000
5057  6046          TLS
5060  6041          TSF
5061  5260          JMP .-1
5062  7200          CLA
5063  6042          TCF
5064  5656          JMP I TYPE
                    /
5065  0000  CLRREG, 0000
5066  7300          CLA CLL         /CLEAR THE AC AND LINK
5067  3041          DCA REGB
5070  3042          DCA REGC
5071  3043          DCA REGD
5072  3070          DCA SEND
5073  3071          DCA RECEV
5074  7604          LAS
5075  0117          AND K6000
5076  7650          SNA CLA
5077  7340          CLA CLL CMA
5100  3040          DCA REGA
5101  5665          JMP I CLRREG
                    /
5102  0000  IOTA,   0000
5103  6131          6131            /FIELD SERVICE CHANGE
5104  5702          JMP I IOTA
5105  2302          ISZ IOTA
5106  5702          JMP I IOTA
                    /
5107  0000  IOTB,   0000
5110  6132          6132            /FIELD SERVICE CHANGE
5111  5707          JMP I IOTB
5112  2307          ISZ IOTB
5113  5707          JMP I IOTB
                    /
5114  0000  IOTC,   0000
5115  6133          6133            /FIELD SERVICE CHANGE
5116  5714          JMP I IOTC
5117  2314          ISZ IOTC
5120  5714          JMP I IOTC
                    /
```

```
5121  0000  IOTD,   0000
5122  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
5123  1070          TAD SEND
5124  6130          6130            /FIELD SERVICE CHANGE
5125  5721          JMP I IOTD
5126  7402  EHLT2,  HLT             /SKIP TRAP, CLEE
              /
5127  0000  IOTE,   0000
5130  6131          6131            /FIELD SERVICE CHANGE
5131  5727          JMP I IOTE
5132  2327          ISZ IOTE
5133  5727          JMP I IOTE
              /
5134  0000  IOTF,   0000
5135  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
5136  1070          TAD SEND
5137  6132          6132            /FIELD SERVICE CHANGE
5140  5734          JMP I IOTF
5141  7402  EHLT3,  HLT             /SKIP TRAP, CLOE
              /
5142  0000  IOTF1,  0000
5143  6132          6132    /FIELD SERVICE CHANGE
5144  5742          JMP I IOTF1
5145  7402  EHLT4,  HLT             /SKIP TRAP, CLOE
              /
5146  0000  IOTG,   0000
5147  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
5150  1070          TAD SEND
5151  6133          6133            /FIELD SERVICE CHANGE
5152  5746          JMP I IOTG
5153  7402  EHLT5,  HLT             /SKIP TRAP, CLAB
              /
5154  0000  IOTH,   0000
5155  6134          6134            /FIELD SERVICE CHANGE
5156  7410          SKP
5157  7402  EHLT6,  HLT             /SKIP TRAP, CLEN
5160  3071          DCA RECEV       /SAVE OUTPUT FOR ERROR PRINTER
5161  1071          TAD RECEV
5162  5754          JMP I IOTH
              /
5163  0000  IOTI,   0000
5164  6135          6135            /FIELD SERVICE CHANGE
5165  7410          SKP
5166  7402  EHLT7,  HLT             /SKIP TRAP, CLSA
5167  3071          DCA RECEV       /SAVE OUTPUT FOR ERROR PRINTER
5170  1071          TAD RECEV
5171  5763          JMP I IOTI
              /
      5200  *5200
              /
5200  0000  IOTJ,   0000
5201  6136          6136            /FIELD SERVICE CHANGE
5202  7410          SKP
5203  7402  EHLT10, HLT             /SKIP TRAP, CLBA
5204  3071          DCA RECEV       /SAVE OUTPUT FOR ERROR PRINTER
```

```
5205  1071          TAD RECEV
5206  5600          JMP I IOTJ
                    /
5207  0000  IOTK,   0000
5210  6137          6137              /FIELD SERVICE CHENGE
5211  7410          SKP
5212  7402  EHLT11, HLT               /SKIP TRAP, CLCA
5213  3071          DCA RECEV         /SAVE OUTPUT FOR ERROR PRINTER
5214  1071          TAD RECEV
5215  5607          JMP I IOTK
                    /
5216  0000  SNDRV,  0000
5217  7041          CIA
5220  1070          TAD SEND
5221  7640          SZA CLA           /WAS SEND AND RECEV THE SAME ?
5222  2216          ISZ SNDRV
5223  5616          JMP I SNDRV
                    /
5224  0000  RANDOM, 0000
5225  1044          TAD REGE
5226  7004          RAL
5227  7430          SZL
5230  1410          TAD I 10
5231  3044          DCA REGE
5232  1044          TAD REGE
5233  5624          JMP I RANDOM
5234  0000  PIGO5,  0000
5235  7300          CLA CLL           /CLEAR THE AC AND LINK
5236  1254          TAD PRET5
5237  3002          DCA 2             /SET FOR PI RETURN
5240  6001          ION
5241  7300          CLA CLL           /CLEAR THE AC AND LINK
5242  1076          TAD KREGC
5243  3042          DCA REGC
5244  4433          JMS I XIOTK       /READ THE COUNTER
5245  2042          ISZ REGC
5246  5245          JMP .-1
5247  2043          ISZ REGD
5250  5241          JMP .-7
5251  2254          ISZ PIGO5
5252  6002  PIRET5, IOF               /DISABLE PROGRAM INTERRUPT
5253  5634          JMP I PIGO5
                    /
5254  5252  PRET5,  PIRET5
                    /
5255  0000  PIGO1,  0000
5256  7300          CLA CLL           /CLEAR THE AC AND LINK
5257  1267          TAD PRET1
5260  3002          DCA 2             /SET FOR PI RETURN
5261  6001          ION               /ENABLE PROGRAM INTERRUPT
5262  4454          JMS I XISZ
5263  7410          SKP
5264  2255  PIRET1, ISZ PIGO1
5265  6002          IOF               /DISABLE PROGRAM INTERRUPT
5266  5655          JMP I PIGO1
```

```
                        /
5267  5264    PRET1,  PIRET1
                        /
5270  0000    PIGO2,  0000
5271  7300              CLA CLL           /CLEAR THE AC AND LINK
5272  1301              TAD PRET2
5273  3002              DCA 2             /SET FOR PI RETURN
5274  6001              ION
5275  4454              JMS I XISZ        /WAIT
5276  2270              ISZ PIGO2
5277  6002    PIRET2, IOF
5300  5670              JMP I PIGO2
                        /
5301  5277    PRET2,  PIRET2
                        /
5302  0000    SYNC,   0000
5303  4422              JMS I XIOTC
5304  5303              JMP .-1
5305  4422              JMS I XIOTC
5306  5305              JMP .-1
5307  5702              JMP I SYNC
                        /
5310  0000    ISZLOP, 0000
5311  7300              CLA CLL
5312  1113              TAD KT1CPS
5313  3045              DCA REGF
5314  7001              IAC
5315  7000              NOP
5316  2043              ISZ REGD
5317  5314              JMP .-3
5320  2045              ISZ REGF
5321  5314              JMP .-5
5322  5710              JMP I ISZLOP
                        /
5323  0000    PIGO3,  0000
5324  7300              CLA CLL           /CLEAR THE AC AND LINK
5325  1335              TAD PRETC
5326  3002              DCA 2
5327  6001              ION
5330  7000              NOP
5331  7410              SKP
5332  2323    RETC,   ISZ PIGO3
5333  6002              IOF
5334  5723              JMP I PIGO3
                        /
5335  5332    PRETC,  RETC
                        /
5336  0000    PIGO4,  0000
5337  7300              CLA CLL           /CLEAR THE AC AND LINK
5340  1347              TAD PRETD
5341  3002              DCA 2
5342  6001              ION
5343  7000              NOP
5344  2336              ISZ PIGO4
5345  6002    RETD,   IOF
```

```
5346  5736            JMP I PIGO4
                      /
5347  5345    PRETD,  RETD
                      /
5350  0000    IOTS,   0000
5351  6132            6132
5352  6134            6134
5353  6132            6132
5354  6134            6134
5355  6132            6132
5356  6134            6134
5357  5750            JMP I IOTS
                      /
5360  0000    IOTS1,  0000
5361  6133            6133
5362  6136            6136
5363  6133            6133
5364  6136            6136
5365  6133            6133
5366  6136            6136
5367  5760            JMP I IOTS1
                      /
5370  0000    IOTS2,  0000
5371  6133            6133
5372  6137            6137
5373  6133            6133
5374  6137            6137
5375  6133            6133
5376  6137            6137
5377  5770            JMP I IOTS2
                      /
      5400    *5400
                      /
5400  0000    IOTS3,  0000
5401  6134            6134
5402  7040            CMA             /COMPLEMENT THE AC
5403  6130            6130
5404  7040            CMA             /COMPLEMENT THE AC
5405  6134            6134
5406  7040            CMA             /COMPLEMENT THE AC
5407  6130            6130
5410  7040            CMA             /COMPLEMENT THE AC
5411  6134            6134
5412  5600            JMP I IOTS3
                      /
5413  0000    CLOCK,  0000
5414  7604            LAS
5415  0007            AND K0007
5416  3075            DCA CLOCKS
5417  5613            JMP I CLOCK
                      /
                      /ROUTINE TO TYPE OCTAL NUMBERS
                      /ENTER WITH NUMBER IN AC AND LINK 0
                      /
5420  0000    OCTEL,  0000
```

```
5421  7006          RTL
5422  7006          RTL
5423  3041          DCA REGB        /SAVE NUMBER
5424  1130          TAD K7774
5425  3042          DCA REGC        /SET UP COUNTER
5426  1041          TAD REGB        /GET NUMBER
5427  0007          AND K0007
5430  1163          TAD K0260
5431  4507          JMS I XTYPE
5432  1041          TAD REGB        /GET NUMBER
5433  7006          RTL
5434  7004          RAL
5435  3041          DCA REGB        /SAVE THE REST
5436  2042          ISZ REGC
5437  5226          JMP .-11
5440  5620          JMP I OCTEL
                    /
                    /ROUTINE FOR CRLF
                    /
5441  0000    CRLF, 0000
5442  7300          CLA CLL         /CLEAR THE AC AND LINK
5443  1134          TAD K0215
5444  4507          JMS I XTYPE
5445  1135          TAD K0212
5446  4507          JMS I XTYPE
5447  5641          JMP I CRLF
                    /ROUTINE TO TYPE CLOCK
                    /
5450  0000    POPR, 0000
5451  7300          CLA CLL         /CLEAR THE AC AND LINK
5452  1262          TAD KTADCK      /GET CLOCK TAD
5453  1075          TAD CLOCKS      /MAKE IT
5454  3255          DCA .+1
5455  1262          TAD KTADCK      /MODIFIED BY TEST
5456  4504          JMS I XOCTEL    /PRINT NUMBER
5457  4506          JMS I XPRINT    /PRINT CLOCKS
5460  6026          FMES
5461  5650          JMP I POPR
                    /
5462  1263    KTADCK, TAD CLKNO
                    /
5463  0001    CLKNO,  0001
5464  0050          0050
5465  0100          0100
5466  0120          0120
5467  0500          0500
5470  5000          5000
                    /
                    /ROUTINE TO SORT ERROR MESSAGES
                    /
5471  0000    SORT, 0000
5472  7300          CLA CLL         /CLEAR THE AC AND LINK
5473  4501          JMS I XCRLF     /CRLF
5474  1473          TAD I ERROR     /GET MESSAGE POINT
5475  3044          DCA REGE
```

```
5476  4505          JMS I XMESS     /GO PRINT TEST + ADDRESS
5477  1444          TAD I REGE
5500  7012          RTR
5501  7012          RTR
5502  7012          RTR
5503  7012          RTR             /MOVE IT TO BITS 8-11
5504  0127          AND K0017       /MASK 8-11
5505  3044          DCA REGE        /SAVE POINTER
5506  7300          CLA CLL         /CLEAR THE AC AND LINK
5507  1044          TAD REGE        /GET POINTER
5510  1326          TAD KTADM
5511  3312          DCA .+1
5512  1326          TAD KTADM       /MODIFIED BY TEST
5513  3316          DCA .+3         /STORE MESSAGE POINTER
5514  4501          JMS I XCRLF     /CRLF
5515  4506          JMS I XPRINT    /PRINT MESSAGE
5516  0000          0000            /MODIFIED MESSAGE POINTER
5517  7300          CLA CLL
5520  1044          TAD REGE        /GET MESSAGE POINTER
5521  1132          TAD K7772       /IS IT GREATER THAN
5522  7620          SNL CLA
5523  5671          JMP I SORT
5524  4502          JMS I XREG
5525  5671          JMP I SORT
                    /
5526  1327    KTADM, TAD KTMX
                    /
5527  6107    KTMX,  MES1
5530  6131           MES2
5531  6152           MES3
5532  6202           MES4
5533  6231           MES5
5534  6256           MES6
5535  6303           MES7
5536  6324           MES8
5537  6353           MES9
5540  6402           MES10
5541  6431           MES11
                    /
                    /ROUTINE TO PRINT TEST + ADDRESS
                    /
5542  0000    MESS,  0000
5543  7300           CLA CLL         /CLEAR THE AC AND LINK
5544  4501           JMS I XCRLF     /CRLF
5545  4506           JMS I XPRINT    /GO PRINT TEST
5546  6046           TMES
5547  1473           TAD I ERROR     /GET ERROR MESSAGE
5550  3043           DCA REGD        /STORE MESSAGE POINTER
5551  1443           TAD I REGD
5552  0136           AND K0377       /MASK 4-11
5553  4504           JMS I XOCTEL    /GO PRINT NUMBER
5554  2043           ISZ REGD        /UPDATE POINTER
5555  4506           JMS I XPRINT    /GO PRINT STARTING ADDRESS
5556  6051           AMES
5557  1443           TAD I REGD
```

```
5560  4524          JMS I XOCTEL    /GO PRINT NUMBER
5561  7300          CLA CLL         /CLEAR THE AC AND LINK
5562  5742          JMP I MESS
                    /
                    /ROUTINE TO PRINT AC
                    /
5563  0000    PREG, 0000
5564  4521          JMS I XCRLF     /CRLF
5565  4526          JMS I XPRINT    /GO PRINT MESSAGE
5566  6067          GMES
5567  1070          TAD SEND        /GET GOOD AC
5570  4524          JMS I XOCTEL    /PRINT IT
5571  4526          JMS I XPRINT    /PRINT BAD AC
5572  6077          BMES
5573  1071          TAD RECEV       /GET BAD AC
5574  4524          JMS I XOCTEL    /PRINT IT
5575  7300          CLA CLL         /CLEAR THE AC AND LINK
5576  5763          JMP I PREG
                    /
      5600    *5600
                    /
5600  0000    SETO, 0000
5601  1100          TAD JMPI2       /GET JMP I 2
5602  3001          DCA 1           /SET FOR PI RETURN
5603  5600          JMP I SETO
                    /
                    /ROUTINE TO TYPE LISTING
                    /ENTER WITH JMS +1 EQUAL TO START OF LIST
                    /
5604  0000    PRINT, 0000
5605  7300          CLA CLL         /CLEAR THE AC AND LINK
5606  1604          TAD I PRINT
5607  2204          ISZ PRINT       /SET FOR RETURN +1
5610  3041          DCA REGB        /SAVE THE POINTER
5611  1441          TAD I REGB      /GET THE CHARACTER
5612  0012          AND K7700       /MASK BITS 0-5
5613  7450          SNA             /END OF MESSAGE
5614  5240          JMP EXIT        /YES, EXIT
5615  7500          SMA             /IS AC MINUS
5616  7020          CML             /NO, SET THE LINK
5617  7001          IAC
5620  7012          RTR
5621  7012          RTR
5622  7012          RTR
5623  4527          JMS I XTYPE     /PRINT THE CHARACTER
5624  1441          TAD I REGB      /GET THE WORD
5625  0133          AND K0077       /MASK BITS 6-11
5626  7450          SNA             /END OF MESSAGE
5627  5240          JMP EXIT        /YES EXIT
5630  1125          TAD K3740       /NO, ADD A CONSTANT
5631  7500          SMA
5632  1124          TAD K4100
5633  1126          TAD K0240
5634  4527          JMS I XTYPE     /TYPE THE CHARACTER
5635  2041          ISZ REGB        /UPDATE WORD LIST
```

```
5636  7300          CLA CLL          /CLEAR THE AC AND LINK
5637  5211          JMP PRINT+5
                    /
5640  7300    EXIT, CLA CLL          /CLEAR THE AC AND LINK
5641  5604          JMP I PRINT      /YES EXIT
                    /
                    /ROUTINE TO WAIT FOR OVERFLOWS
                    /
5642  0000    XWAIT, 0000
5643  3011          DCA SAVAC        /SAVE THE AC
5644  7344          CLA CLL CMA RAL
5645  1242          TAD XWAIT
5646  3242          DCA XWAIT        /SET FOR RETURN ADDRESS
5647  2041          ISZ REGB
5650  5256          JMP RETURN
5651  2045          ISZ REGF
5652  5256          JMP RETURN
5653  7325          CLA CLL CML IAC RAL
5654  1242          TAD XWAIT
5655  3242          DCA XWAIT        /UPDATE FOR ERROR RETURN
5656  1011    RETURN, TAD SAVAC
5657  5642          JMP I XWAIT
                    /
5660  0000    SWLAS, 0000
5661  7604          LAS
5662  0142          AND K0010
5663  7640          SZA CLA          /CHECK FOR EXTERNAL CLOCK SCOPE LOOP
5664  5625          JMP CLKIN        /ENTER SCOPE LOOP
5665  7604          LAS
5666  0140          AND K0020        /CHECK FOR EXTERNAL PULSE SCOPE LOOP
5667  7640          SZA CLA
5670  5313          JMP EXTER        /ENTER SCOPE LOOP
5671  7340          CLA CLL CMA      /AC TO 7777
5672  3113          DCA KT1CPS
5673  7604          LAS
5674  0114          AND K6007
5675  7640          SZA CLA
5676  5301          JMP .+3
5677  1111          TAD KPRMTI
5700  3113          DCA KT1CPS
5701  7604          LAS              /GET HIS SWITCHES
5702  7004          RAL              /GET BIT 1
5703  7710          SPA CLA
5704  5660          JMP I SWLAS      /TEST SCHMITT
5705  2260          ISZ SWLAS
5706  7604          LAS              /GET HIS SWITCHES
5707  7710          SPA CLA
5710  5660          JMP I SWLAS      /TEST DK8-EP
5711  2260          ISZ SWLAS
5712  5660          JMP I SWLAS      /TEST DK8-EA OR DK8-EC
                    /
5713  7340    EXTER, CLA CLL CMA
5714  4427          JMS I XIOTG      /IOT 6133, CLAB
5715  7300          CLA CLL
5716  1137          TAD K0040
```

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5717  1147          TAD K0600       /GET ENABLES
5720  4425          JMS I XIOTF     /IOT 6132, CLOE
5721  4424          JMS I XIOTE     /IOT 6131, CLSK
5722  5321          JMP .-1         /WAIT FOR OVERFLOW
5723  6007          6007            /CAF OR CLEAR THE WORLD
5724  5313          JMP EXTER       /CONTINUE WITH SCOPE LOOP
                    /
5725  7340  CLKIN,  CLA CLL CMA     /AC TO 7777
5726  4427          JMS I XIOTG     /IOT 6133, CLAB
5727  7300          CLA CLL
5730  1013          TAD K0100       /GET ENABLES
5731  4426          JMS I XIOTF1    /IOT 6132, CLOE
5732  4424          JMS I XIOTE     /IOT 6131, CLSK
5733  5332          JMP .-1         /WAIT FOR OPERATOR
5734  6007          6007            /CAF OR CLEAR THE WORLD
5735  1006          TAD K0207
5736  4507          JMS I XTYPE     /TTY SIGNAL
5737  5325          JMP CLKIN       /LOOP
                    /
5740  0000  PASS,   0000
5741  4501          JMS I XCRLF     /CRLF
5742  4506          JMS I XPRINT    /PRINT MESSAGE
5743  6014          PMES
5744  6007          6007
5745  5740          JMP I PASS
                    /
5746  0000  GTAD,   0000
5747  1075          TAD CLOCKS      /GET SELECTED CLOCK
5750  1354          TAD CLTAD
5751  3746          DCA I GTAD
5752  2346          ISZ GTAD
5753  5746          JMP I GTAD
                    /
5754  5755  CLTAD,  CLTAD +1
5755  6000          6000
5756  1612          1612
5757  4776          4776
5760  5367          5367
5761  7306          7306
5762  7747          7747
5763  4000          4000
5764  1527          1527
5765  4552          4552
5766  5217          5217
5767  7276          7276
5770  7741          7741
                    /
5771  0000  TIMCLK, 0000
5772  7604          LAS
5773  0114          AND K6007
5774  7650          SNA CLA
5775  1166          TAD PATCH
5776  1012          TAD K7700
5777  5771          JMP I TIMCLK
                    /
```

```
6000  0413    DKMES,  TEXT ?DK8E CLOCKS DIAGNOSTIC?
6001  7005
6002  4003
6003  1417
6004  0313
6005  2340
6006  0411
6007  0107
6010  1617
6011  2324
6012  1103
6013  0000
6014  0413    PMES,   TEXT ?DK8E PASS COMPLETE?
6015  7005
6016  4020
6017  0103
6020  2340
6021  0317
6022  1520
6023  1405
6024  2405
6025  0000
6026  4003    FMES,   TEXT ? CPS CLOCK SELECTED BY OPERATOR?
6027  2023
6030  4003
6031  1417
6032  0313
6033  4023
6034  0514
6035  0503
6036  2405
6037  0440
6040  0201
6041  4017
6042  2005
6043  2201
6044  2417
6045  2200
6046  2405    TMES,   TEXT ?TEST ?
6047  2324
6050  4000
6051  4006    AMES,   TEXT ? FAILED, STARTING ADDRESS ?
6052  0111
6053  1405
6054  0454
6055  4023
6056  2401
6057  2224
6060  1116
6061  0740
6062  0104
6063  0422
6064  0523
6065  2340
6066  0000
```

```
6067  2410    GMES,   TEXT ?THE GOOD AC = ?
6070  0540
6071  0717
6072  1704
6073  4001
6074  0340
6075  7540
6076  0000
6077  4001    BMES,   TEXT ? AND BAD AC = ?
6100  1604
6101  4002
6102  0104
6103  4001
6104  0340
6105  7540
6106  0000
6107  0314    MES1,   TEXT ?CLOCK SKIP FAILED, NO SKIP EXPECTED?
6110  1703
6111  1340
6112  2313
6113  1120
6114  4006
6115  0111
6116  1405
6117  0454
6120  4016
6121  1740
6122  2313
6123  1120
6124  4005
6125  3020
6126  0503
6127  2405
6130  0400
6131  0314    MES2,   TEXT ?CLOCK SKIP FAILED, SKIP EXPECTED?
6132  1703
6133  1340
6134  2313
6135  1120
6136  4006
6137  0111
6140  1405
6141  0454
6142  4023
6143  1311
6144  2040
6145  0530
6146  2005
6147  0324
6150  0504
6151  0000
6152  2022    MES3,   TEXT ?PROGRAM INTERRUPT FAILED, NO INTERRUPT EXPECTED?
6153  1707
6154  2201
6155  1540
```

```
6156  1116
6157  2405
6160  2222
6161  2520
6162  2440
6163  0601
6164  1114
6165  0504
6166  5440
6167  1617
6170  4011
6171  1624
6172  0522
6173  2225
6174  2024
6175  4005
6176  3020
6177  0503
6200  2405
6201  0400
6202  2022    MES4,   TEXT ?PROGRAM INTERRUPT FAILED, INTERRUPT EXPECTED?
6203  1707
6204  2201
6205  1540
6206  1116
6207  2405
6210  2222
6211  2520
6212  2440
6213  0601
6214  1114
6215  0504
6216  5440
6217  1116
6220  2405
6221  2222
6222  2520
6223  2440
6224  0530
6225  2005
6226  0524
6227  0504
6230  0000
6231  0314    MES5,   TEXT ?CLOCK OUTPUT FAILED, CLOCK FREQUENCY FAST?
6232  1703
6233  1340
6234  1725
6235  2420
6236  2524
6237  4006
6240  0111
6241  1405
6242  0454
6243  4003
6244  1417
```

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6245  0313
6246  4006
6247  2205
6250  2145
6251  0516
6252  0331
6253  4006
6254  0143
6255  2400
6256  0314    MES6,   TEXT ?CLOCK OUTPUT FAILED, CLOCK FREQUENCY SLOW?
6257  1703
6260  1340
6261  1725
6262  2420
6263  2524
6264  4006
6265  0111
6266  1405
6267  0454
6270  4003
6271  1417
6272  0313
6273  4006
6274  2205
6275  2145
6276  0516
6277  0331
6300  4023
6301  1417
6302  2700
6303  2410    MES7,   TEXT ?THE AC WAS CHANGED BY A CLOCK IOT?
6304  0540
6305  0103
6306  4027
6307  0143
6310  4003
6311  1001
6312  1607
6313  0504
6314  4002
6315  3140
6316  0140
6317  0314
6320  1703
6321  1340
6322  1117
6323  2400
6324  0314    MES8,   TEXT ?CLOCK BUFFER REGISTER AND AC TRANSFER FAILED?
6325  1703
6326  1340
6327  0225
6330  0606
6331  0522
6332  4022
6333  0507
```

```
6334  1163
6335  2405
6336  2240
6337  0116
6340  0440
6341  0103
6342  4024
6343  2201
6344  1623
6345  0605
6346  2240
6347  0601
6350  1114
6351  0504
6352  0000
6353  0314    MES9,   TEXT ?CLOCK COUNTER REGISTER AND AC TRANSFER FAILED?
6354  1703
6355  1340
6356  0317
6357  2516
6360  2405
6361  2240
6362  2205
6363  0711
6364  2324
6365  0522
6366  4001
6367  1604
6370  4001
6371  0340
6372  2422
6373  0116
6374  2306
6375  0522
6376  4006
6377  0111
6400  1405
6401  0400
6402  0314    MES10,  TEXT ?CLOCK ENABLE REGISTER AND AC TRANSFER FAILED?
6403  1703
6404  1340
6405  0516
6406  0102
6407  1405
6410  4022
6411  0507
6412  1163
6413  2405
6414  2240
6415  0116
6416  0440
6417  0103
6420  4024
6421  2201
6422  1623
```

```
6423  0605
6424  2240
6425  0601
6426  1114
6427  0504
6430  0000
6431  0314    MES11,  TEXT ?CLOCK STATUS REGISTER AND AC TRANSFER FAILED?
6432  1703
6433  1340
6434  2324
6435  0124
6436  2523
6437  4022
6440  0507
6441  1123
6442  2405
6443  2240
6444  0116
6445  0440
6446  0103
6447  4024
6450  2201
6451  1623
6452  0605
6453  2240
6454  0601
6455  1114
6456  0504
6457  0000
```

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```
0000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
0100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111100

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
```

```
4000  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  11100000  00000000  00000000  00000000  00000000


5000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
5100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11000000

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  11111110

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  00000000  00000000
6500  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000

6600
6700


7000
7100

7200
7300

7400
7500

7600
7700
```

```
AMES    6051        K0017   0127        LOOP    0077        SETO    5600
AUTO10  0010        K0020   0140        MES1    6107        SKPWAT  0046
BEGIN   0200        K0040   0137        MES10   6402        SNDRV   5216
BELL    5046        K0077   0133        MES11   6431        SORT    5471
BGNEAC  0215        K0100   0013        MES2    6131        SWLAS   5660
BMES    6077        K0200   0015        MES3    6152        SYNC    5302
CLKIN   5725        K0207   0006        MES4    6202        T113A   1655
CLKNO   5463        K0212   0135        MES5    6231        T113B   1646
CLOCK   5413        K0215   0134        MES6    6256        T114A   1673
CLOCKS  0075        K0240   0126        MES7    6303        T114B   1664
CLRREG  5065        K0260   0123        MES8    6324        T11A    0354
CLTAD   5754        K0300   0145        MES9    6353        T120A   1751
CRLF    5441        K0377   0136        MESS    5542        T121A   1766
DKMES   6000        K0400   0116        NERRO   5000        T122A   2014
EHLT1   5034        K0500   0146        NERROR  0072        T122B   1775
EHLT10  5203        K0600   0147        OCTEL   5420        T123A   2043
EHLT11  5212        K0700   0150        OUT     5015        T123B   2024
EHLT2   5146        K1000   0144        OVER2   0061        T124A   2072
EHLT3   5141        K2000   0143        OVER2A  0062        T124B   2053
EHLT4   5145        K2525   0016        PASS    5740        T125A   2120
EHLT5   5153        K3000   0120        PATCH   0166        T125B   2102
EHLT6   5157        K3740   0125        PIGO1   5255        T126A   2147
EHLT7   5166        K4000   0014        PIGO2   5270        T126B   2125
ERRO    5020        K4100   0124        PIGO3   5323        T127A   2200
ERROR   0073        K5000   0121        PIGO4   5336        T12A    0366
EXIT    5640        K5252   0017        PIGO5   5234        T130A   2220
EXTER   5713        K6000   0117        PIRET1  5264        T133A   2306
FMES    6026        K6007   0114        PIRET2  5277        T133B   2273
GMES    6067        K7000   0141        PIRET5  5252        T147A   2555
GTAD    5746        K7400   0112        PMES    6014        T147B   2537
IN      5043        K7700   0012        POPR    5450        T150A   2603
IOTA    5102        K7770   0122        PREG    5563        T150B   2565
IOTB    5107        K7772   0132        PRET1   5267        T151A   2631
IOTC    5114        K7773   0131        PRET2   5301        T151B   2613
IOTD    5121        K7774   0130        PRET5   5254        T152A   2657
IOTE    5127        KPRMTI  0111        PRETC   5335        T152B   2641
IOTF    5134        KREGC   0076        PRETD   5347        T153A   2705
IOTF1   5142        KT1CPS  0113        PRINT   5604        T153B   2667
IOTG    5146        KTA     0151        RANDOM  5224        T154A   2733
IOTH    5154        KTA1    0152        RANDY   0055        T154B   2715
IOTI    5163        KTADCK  5462        RECEV   0071        T172A   3254
IOTJ    5200        KTADM   5526        REGA    0040        T172A1  3257
IOTK    5207        KTB     0153        REGB    0041        T172B   3244
IOTS    5350        KTB1    0154        REGC    0042        T172B1  3240
IOTS1   5360        KTC     0155        REGD    0043        T173A   3303
IOTS2   5370        KTC1    0156        REGE    0044        T173A1  3306
IOTS3   5400        KTC2    0157        REGF    0045        T173B   3273
ISZLOP  5310        KTD     0160        RETC    5332        T173B1  3267
JMPI2   0100        KTD1    0161        RETD    5345        T174A   3336
K0006   0115        KTE     0162        RETURN  5656        T174A1  3341
K0007   0007        KTE1    0163        SAVAC   0011        T174B   3326
K0010   0142        KTMX    5527        SEND    0070        T174B1  3323
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T175A	3371	TST110	1605	TST167	3157	TST244	4562
T175A1	3374	TST111	1616	TST17	0431	TST245	4602
T175B	3361	TST112	1631	TST170	3177	TST246	4621
T175B1	3356	TST113	1642	TST171	3215	TST247	4643
T176A	3421	TST114	1660	TST172	3233	TST25	0520
T176A1	3424	TST115	1676	TST173	3262	TST250	4663
T176B	3411	TST116	1707	TST174	3311	TST251	4706
T176B1	3405	TST117	1722	TST175	3344	TST26	0534
T177A	3451	TST12	0357	TST176	3377	TST27	0547
T177A1	3454	TST120	1735	TST177	3427	TST3	0265
T177B	3441	TST121	1754	TST2	0251	TST30	0570
T177B1	3435	TST122	1771	TST20	0441	TST31	0601
T200A	3501	TST123	2017	TST200	3457	TST32	0615
T200A1	3504	TST124	2046	TST201	3507	TST33	0626
T200B	3471	TST125	2075	TST202	3561	TST34	0637
T200B1	3465	TST126	2123	TST203	3573	TST35	0647
T201A	3551	TST127	2152	TST204	3605	TST36	0657
T201B	3522	TST13	0371	TST205	3617	TST37	0667
T205A	3632	TST130	2203	TST206	3635	TST4	0273
T206A	3650	TST131	2223	TST207	3653	TST40	0677
T207A	3666	TST132	2245	TST21	0452	TST41	0711
T214A	3764	TST133	2264	TST210	3671	TST42	0722
T215A	4003	TST134	2311	TST211	3704	TST43	0733
T216A	4022	TST135	2331	TST212	3720	TST44	0746
T22A	0473	TST136	2350	TST213	3734	TST45	0761
T230A	4265	TST137	2367	TST214	3750	TST46	1000
T45A	0775	TST14	0400	TST215	3767	TST47	1017
T45B	0763	TST140	2407	TST216	4006	TST5	0305
T46A	1014	TST141	2423	TST217	4025	TST50	1036
T46B	1005	TST142	2437	TST22	0463	TST51	1055
T47A	1033	TST143	2452	TST220	4050	TST52	1070
T47B	1024	TST144	2466	TST221	4073	TST53	1102
T50A	1052	TST145	2502	TST222	4116	TST54	1115
T50B	1040	TST146	2516	TST223	4133	TST55	1130
T70A	1332	TST147	2532	TST224	4150	TST56	1142
T70B	1322	TST15	0407	TST225	4165	TST57	1153
T71A	1351	TST150	2560	TST226	4204	TST6	0322
T71B	1341	TST151	2606	TST227	4223	TST60	1164
TIMCLK	5771	TST152	2634	TST23	0476	TST61	1177
TMES	6046	TST153	2662	TST230	4242	TST62	1212
TST0	0221	TST154	2710	TST231	4270	TST63	1227
TST1	0235	TST155	2736	TST232	4310	TST64	1244
TST10	0337	TST156	2751	TST233	4330	TST65	1255
TST100	1465	TST157	2766	TST234	4350	TST66	1271
TST101	1501	TST16	0422	TST235	4372	TST67	1302
TST102	1514	TST160	3004	TST236	4414	TST7	0330
TST103	1530	TST161	3023	TST237	4435	TST70	1316
TST104	1542	TST162	3041	TST24	0505	TST71	1335
TST105	1552	TST163	3060	TST240	4456	TST72	1354
TST106	1563	TST164	3076	TST241	4477	TST73	1367
TST107	1574	TST165	3117	TST242	4520	TST74	1404
TST11	0346	TST166	3137	TST243	4541	TST75	1421

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TST76   1435
TST77   1451
TYPE    5056
XBELL   0110
XCLOCK  0074
XCLREG  0060
XCRLF   0101
XCRS1   0171
XCRS2   0172
XCRS3   0173
XCRS4   0174
XCRS5   0175
XDKBEP  0063
XGETM   0167
XGTAD   0067
XIOTA   0020
XIOTB   0021
XIOTC   0022
XIOTD   0023
XIOTE   0024
XIOTF   0025
XIOTF1  0026
XIOTG   0027
XIOTH   0030
XIOTI   0031
XIOTJ   0032
XIOTK   0033
XIOTS   0034
XIOTS1  0035
XIOTS2  0036
XIOTS3  0037
XISZ    0054
XLAS    0066
XMESS   0105
XMITT   0064
XMITT1  0065
XOCTEL  0104
XOPR    0165
XPASS   0170
XPIGO1  0047
XPIGO2  0050
XPIGO3  0051
XPIGO4  0052
XPIGO5  0053
XPRINT  0106
XREG    0102
XSETO   0164
XSNDRV  0056
XSORT   0103
XSYNC   0057
XTYPE   0107
XWAIT   5642
```

ERRORS DETECTED: 0

LINKS GENERATED: 0

RUN-TIME: 39 SECONDS

3K CORE USED