IDENTIFICATION

PRODUCT CODE: MAINDEC-08-DHDKA-A-D

PRODUCT NAME: DK8E CLOCKS DIAGNOSTIC

DATE RELEASED: NOVEMBER 1975

MAINTAINER: DIAGNOSTIC ENGINEERING

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 FAMILY OF 8 COMPUTER 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 COMPUTER POWER SUPPLY FOR THE DK8-ES CLOCK OPTION. (NOTE:THIS OUTPUT IS NOT AVAILABLE ON A PDP-8/A).

A SPECIAL CABLE IS NECESSARY TO CONNECT THE DK8-EA CLOCK MODULE TO THE COMPUTER POWER SUPPLY FOR THE DK8-EA CLOCK OPTION. (NOTE: THE DK8-EA CLOCK IS NOT OPERATIONAL ON A PDP-8/A).

2.2 STORAGE

THE PROGRAM OCCUPIES LOCATIONS 0000-6600.

2.3 PRELIMINARY PROGRAMS

ALL PROGRAMS FOR THE BASIC COMPUTER 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 FOR A PDP-8/E, PDP-8/M, OR PDP-8/F WITH CORE MEMORY (1.2 MICRO-SECOND CYCLE TIME) IS LOCATION 0200.

FOR ALL OTHER CONFIGURATIONS (OTHER THAN 1.2 MICRO-SECOND CYCLE TIME) THE STARTING ADDRESS IS LOCATION 0201.

4.3 OPERATOR ACTION

4.3.1 DK8-EA/DK8-EC TEST

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

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 THE
STARTING ADDRESS.

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

(NOTE:THIS TEST IS NOT OPERATIONAL ON A PDP-8/A).

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

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 THE
STARTING ADDRESS.

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 THE STARTING ADDRESS.

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

(NOTE:THIS TEST IS NOT OPERATIONAL ON A PDP-8/A).

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 TYPEOUTS

ERROR TYPEOUTS 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 0 .

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.

IF TESTING A PDP-8/E, PDP-8/M, OR PDP-8/F, IT MUST BE RUNNING FAST CYCLE "1.2" MICRO. SECONDS.

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

8. MISCELLANEOUS

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
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                        /MAINDEC-08-DHDKA-A-L
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                        /COPYRIGHT 1971, 1975, DIGITAL EQUIP. CORP., MAYNARD, MASS.
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                        /DATE REVISED 9-23-75
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              0000      *0000
                        /
    0000      0000      0000
    0001      5001      5001
    0002      0002      0002
    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      0217      OVER2,    BGNEAC
    0062      0221      OVER2A,   BGNEAC +2
    0063      0577      XDK8EP,   TST30
    0064      3605      XMITT,    TST202
    0065      3602      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      CLOCK8,   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  2014    XCRS1,  T122B
0172  2217    XCRS2,  T127A
0173  2622    XCRS3,  T150A
0174  2604    XCRS4,  T150B
0175  4027    XCRS5,  T215A
0176  0000    TIMFLG, 0
                /
      0200    *0200
                /
0200  7610    BEGIN,  SKP CLA          /CLEAR THE AC AND LINK
0201  7240    MOSSTR, CLA CMA          /SET FLAG FOR OTHER CYCLE TIME!
0202  3176            DCA     TIMFLG   /SAVE IT.
0203  6007            6007             /CAF OR CLEAR THE WORLD
0204  4501            JMS I XCRLF      /CRLF
0205  4506            JMS I XPRINT     /PRINT DK8E CLOCKS DIAGNOSTIC
0206  6000            DKMES            /MESSAGE POINTER
0207  4501            JMS I XCRLF      /CRLF
0210  4460            JMS I XCLREG     /CLEAR ALL MY REGISTERS
0211  4564            JMS I XSETO      /SET UP FOR PI RETURN
0212  4466            JMS I XLAS       /GET HIS SWITCHES
0213  5465            JMP I XMITT1     /TEST SCHMITT
0214  5463            JMP I XDK8EP     /TEST DK8EP CLOCK
0215  4474            JMS I XCLOCKS    /TEST DK8EA OR DK8EC
0216  4565            JMS I XOPR       /SORT AND PRINT FREQ. SELECTED
0217  4567    BGNEAC, JMS I XGETM      /GET TIME LENGTH
0220  3077            DCA LOOP         /SET LOOP COUNTER
0221  4460            JMS I XCLREG     /CLEAR ALL REGISTERS
0222  3040            DCA REGA
                /
                /DOES IOT CLEI CHANGE AC ?
                /CHECK ALL COMBINATIONS
                /
0223  1040    TST0,   TAD REGA         /GET AC NUMBER
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0224  3070            DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
0225  1070            TAD SEND
0226  4420            JMS I XIOTA      /IOT 6131, CLEI
0227  3071            DCA RECEV        /SAVE INPUT FOR ERROR PRINTER
0230  1071            TAD RECEV
0231  4456            JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
0232  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER.
0233  4473            JMS I ERROR      /ERROR: CLEI CHANGED AC.
0234  3000            3000             /TST0 ERROR MESSAGE.
0235  0223            TST0             /SCOPE LOOP.
0236  3040            DCA REGA
                /
                /DOES IOT CLED CHANGE AC ?
                /CHECK ALL COMBINATIONS
                /
0237  1040    TST1,   TAD REGA         /GET AC NUMBER
0240  3070            DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
0241  1070            TAD SEND
0242  4421            JMS I XIOTB      /IOT 6132, CLED
0243  3071            DCA RECEV        /SAVE INPUT FOR ERROR PRINTER
0244  1071            TAD RECEV
0245  4456            JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
0246  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER.
0247  4473            JMS I ERROR      /ERROR: CLED CHANGED AC.
0250  3001            3001             /TST1 ERROR MESSAGE.
0251  0237            TST1             /SCOPE LOOP.
0252  3040            DCA REGA
                /
                /DOES IOT CLSK CHANGE AC ?
                /CHECK ALL COMBINATIONS
                /
0253  1040    TST2,   TAD REGA         /GET AC NUMBER
0254  3070            DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
0255  1070            TAD SEND
0256  4422            JMS I XIOTC      /IOT 6133, CLSK
0257  7000            NOP              /WAIT JUST IN CASE !
0260  3071            DCA RECEV        /SAVE INPUT FOR ERROR PRINTER
0261  1071            TAD RECEV
0262  4456            JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
0263  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER.
0264  4473            JMS I ERROR      /ERROR: CLSK CHANGED AC.
0265  3002            3002             /TST2 ERROR MESSAGE.
0266  0253            TST2             /SCOPE LOOP.
                /
                /TEST FOR NO INTERRUPT RQST.
                /
0267  6007    TST3,   6007             /CAF OR CLEAR THE WORLD
0270  4447            JMS I XPIGO!     /GO TO PI, NO PI EXPECTED
0271  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
0272  4473            JMS I ERROR      /ERROR:PI OR INT. RQST. FAILED
0273  1003            1003             /TST3 ERROR MESSAGE
0274  0267            TST3             /SCOPE LOOP
                /
                /DOES CLSK SKIP ON A CLOCK FLAG
                /
```

```
0275  1113  TST4,   TAD KT1CPS
0276  3045         DCA REGF        /SET UP TIMER
0277  4422         JMS I XIOTC     /IOT 6133, CLSK
0300  7000         NOP
0301  4422         JMS I XIOTC     /IOT 6133, CLSK
0302  4446         JMS I SKPWAT    /GO WAIT FOR FLAG
0303  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER
0304  4473         JMS I ERROR     /ERROR: CLSK OR FLAG FAILED
0305  0404         0404            /TST4 ERROR MESSAGE
0306  0275         TST4            /SCOPE LOOP
                   /
                   /DOES CLSK CLEAR THE FLAG ?
                   /
0307  1113  TST5,   TAD KT1CPS
0310  3045         DCA REGF        /SET UP TIMER
0311  4422         JMS I XIOTC     /IOT 6133, CLSK
0312  7000         NOP
0313  4422         JMS I XIOTC     /IOT 6133, CLSK
0314  4446         JMS I SKPWAT    /GO WAIT FOR FLAG
0315  7410         SKP             /GOT THE FLAG
0316  5706         JMP I .-10      /GO BACK TO TEST 4
0317  4422         JMS I XIOTC     /IOT 6133, CLSK
0320  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER
0321  4473         JMS I ERROR     /ERROR: CLSK CLEAR THE FLAG FAILED
0322  0005         0005            /TST5 ERROR MESSAGE
0323  0307         TST5            /SCOPE LOOP
                   /
                   /DOES CLEI ENABLE CLOCK INTERRUPT ?
                   /
0324  4420  TST6,   JMS I XIOTA     /IOT 6131, CLEI
0325  4450         JMS I XPIGO2    /GO TO PI, PI EXPECTED
0326  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER.
0327  4473         JMS I ERROR     /ERROR: DID CLEI ENABLE CLOCK INTERRUPT ?
0330  1406         1406            /TST6 ERROR MESSAGE
0331  0324         TST6            /SCOPE LOOP.
                   /
                   /DOES CLED DISABLE CLOCK INTERRUPT ?
                   /
0332  4420  TST7,   JMS I XIOTA     /IOT 6131, CLEI
0333  4421         JMS I XIOTB     /IOT 6132, CLED
0334  4447         JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
0335  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER.
0336  4473         JMS I ERROR     /ERROR: DID CLED DISABLE CLOCK INTERRUPT?
0337  1007         1007            /TST7 ERROR MESSAGE
0340  0332         TST7            /SCOPE LOOP.
                   /
                   /DOES CAF DISABLE CLOCK INTERRUPT ?
                   /
0341  4420  TST10,  JMS I XIOTA     /IOT 6131, CLEI
0342  6007         6007            /CAF OR CLEAR THE WORLD
0343  4447         JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
0344  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER.
0345  4473         JMS I ERROR     /ERROR: DID CAF DISABLE CLOCK INTERRUPT ?
0346  1010         1010            /TST10 ERROR MESSAGE
0347  0341         TST10           /SCOPE LOOP.
```



```
                   /
                   /DOES CLEI ENABLE CLOCK INTERRUPT ?
                   /
0350  4420  TST11,  JMS I XIOTA     /IOT 6131, CLEI
0351  4447         JMS I XPIGO1    /GO TO PI, PI EXPECTED
0352  5356         JMP T11A
0353  4420         JMS I XIOTA     /IOT 6131, CLEI
0354  4450         JMS I XPIGO2    /GO TO PI, PI EXPECTED
0355  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER.
0356  4473  T11A,  JMS I ERROR     /ERROR: CLEI AND CLED FAST TOGGLE
0357  1411         1411            /TS11 ERROR MESSAGE
0360  0350         TST11           /SCOPE.
                   /
                   /DOES CLED DISABLE CLOCK INTERRUPT ?
                   /
0361  4420  TST12,  JMS I XIOTA     /IOT 6131, CLEI
0362  4421         JMS I XIOTB     /IOT 6132, CLED
0363  4450         JMS I XPIGO2    /GO TO PI, NO PI EXPECTED
0364  5370         JMP T12A
0365  4421         JMS I XIOTB     /IOT 6132, CLED
0366  4447         JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
0367  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER.
0370  4473  T12A,  JMS I ERROR     /ERROR: CLEI AND CLED FAST TOGGLE
0371  1012         1012            /TST12 ERROR MESSAGE
0372  0361         TST12           /SCOPE LOOP.
                   /
                   /TEST DECODER FOR 6135, NOT CLEI
                   /
0373  4421  TST13,  JMS I XIOTB     /IOT 6132, CLED
0374  4431         JMS I XIOTI     /IOT 6135, NOT AN IOT 6131
0375  4447         JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
0376  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER.
0377  4473         JMS I ERROR     /ERROR: DID DECODER WORK
0400  1013         1013            /TST13 ERROR MESSAGE
0401  0373         TST13           /SCOPE LOOP.
                   /
                   /TEST DECODER FOR A 6136, NOT CLED
                   /
0402  4420  TST14,  JMS I XIOTA     /IOT 6131, CLEI
0403  4432         JMS I XIOTJ     /IOT 6136, NOT AN IOT 6132.
0404  4450         JMS I XPIGO2    /GO TO PI, PI EXPECTED
0405  4472         JMS I NERROR    /CHECK NON-ERROR HANDLER.
0406  4473         JMS I ERROR     /ERROR: DID DECODER WORK
0407  1414         1414            /TST14 ERROR MESSAGE
0410  0402         TST14           /SCOPE LOOP.
                   /
                   /TEST DECODER FOR 6137, NOT CLSK
                   /
0411  1113  TST15,  TAD KT1CPS
0412  3045         DCA REGF        /SET UP TIMER
0413  4422         JMS I XIOTC     /IOT 6132, CLED
0414  7000         NOP
0415  4433         JMS I XIOTK     /IOT 6137, NOT AN IOT 6133
0416  4446         JMS I SKPWAT    /GO WAIT FOR FLAG
0417  7410         SKP             /ERROR, SKIP OCCURRED
```

```
0420  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER.
0421  4473          JMS I ERROR     /ERROR: DID DECODER WORK
0422  0015          0015            /TST15 ERROR MESSAGE
0423  0411          TST15           /SCOPE LOOP.
                    /
                    /DOES CLSK ENABLE CLOCK INTERRUPT ?
                    /
0424  4422    TST16,  JMS I XIOTC   /IOT 6133, CLSK
0425  7000          NOP
0426  4447          JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
0427  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER.
0430  4473          JMS I ERROR     /ERROR: DID CLSK CAUSE INTERRUPT
0431  1016          1016            /TST16 ERROR MESSAGE
0432  0424          TST16           /SCOPE LOOP.
                    /
                    /DOES CLSK DISABLE CLOCK INTERRUPT ?
                    /
0433  4420    TST17,  JMS I XIOTA   /IOT 6131, CLEI
0434  4422          JMS I XIOTC     /IOT 6133, CLSK
0435  7000          NOP
0436  4450          JMS I XPIGO2    /GO TO PI, PI EXPECTED
0437  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER.
0440  4473          JMS I ERROR     /ERROR: CLSK DISABLED CLOCK INTERRUPT
0441  1417          1417            /TST17 ERROR MESSAGE
0442  0433          TST17           /SCOPE LOOP.
                    /
                    /DOES CLEI CAUSE A SKIP ON FLAG ?
                    /
0443  1113    TST20,  TAD KT1CPS
0444  3045          DCA REGF        /SET UP TIMER
0445  4420          JMS I XIOTA     /IOT 6131, CLEI
0446  4446          JMS I SKPWAT    /GO WAIT FOR FLAG
0447  7410          SKP             /ERROR, SKIP OCCURRED
0450  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER.
0451  4473          JMS I ERROR     /ERROR: DID CLEI CAUSE A SKIP
0452  0020          0020            /TST20 ERROR MESSAGE
0453  0443          TST20           /SCOPE LOOP.
                    /
                    /DOES CLED CAUSE A SKIP ON FLAG ?
                    /
0454  1113    TST21,  TAD KT1CPS
0455  3045          DCA REGF        /SET UP TIMER
0456  4421          JMS I XIOTB     /IOT 6132, CLED
0457  4446          JMS I SKPWAT    /GO WAIT FOR FLAG
0460  7410          SKP             /ERROR, SKIP OCCURRED
0461  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER.
0462  4473          JMS I ERROR     /ERROR: DID CLED CAUSE A SKIP ON FLAG
0463  0021          0021            /TST21 ERROR MESSAGE
0464  0454          TST21           /SCOPE LOOP.
                    /
                    /DOES INT. RQST STAY DOWN ?
                    /
0465  4457    TST22,  JMS I XSYNC   /SYNC WITH CLOCK
0466  4420          JMS I XIOTA     /IOT 6131, CLEI
0467  4447          JMS I XPIGO1    /GO TO PI, PI EXPECTED
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0470  5275          JMP T22A        /ERROR, PI FAILED
0471  2041          ISZ REGB
0472  5271          JMP .-1         /WAIT 15.5 MS
0473  4452          JMS I XPIGO4    /GO TO PI, PI EXPECTED
0474  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0475  4473    T22A,   JMS I ERROR   /ERROR:DID RQST. LAST ?
0476  1422          1422            /TST21 ERROR MESSAGE
0477  0465          TST22           /SCOPE LOOP
                    /
                    /DOES CLSK CLEAR RQST. LINE ?
                    /
0500  4420    TST23,  JMS I XIOTA   /IOT 6131, CLEI
0501  4457          JMS I XSYNC     /SYNC WITH CLOCK FLAG
0502  4451          JMS I XPIGO3    /GO TO PI, NO PI EXPECTED
0503  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0504  4473          JMS I ERROR     /ERROR: DID CLSK CLEAR RQST. FLAG
0505  1023          1023            /TST23 ERROR MESSAGE
0506  0500          TST23           /SCOPE LOOP
                    /
0507  1176          TAD     TIMFLG  /GET CYCLE TIME FLAG.
0510  7650          SNA CLA         /SET?
0511  5314          JMP     .+3     /NO!
0512  5713          JMP I   .+1     /YES, BYPASS TIME TESTS!
0513  0573          ENDIT
                    /
                    /SYNC WITH CLOCK AND
                    /CHECK FOR FAST OUTPUT
                    /
0514  4467    TST24,  JMS I XGTAD   /GET TIME CONSTANTS
0515  0000          0000            /MODIFIED BY TEST
0516  1715          TAD I .+1
0517  3043          DCA REGD
0520  4420          JMS I XIOTA     /IOT 6131, CLEI
0521  4457          JMS I XSYNC     /SYNC WITH CLOCK
0522  4447          JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
0523  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER..
0524  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST.
0525  2024          2024            /TST24 ERROR MESSAGE.
0526  0514          TST24           /SCOPE LOOP.
                    /
                    /SYNC WITH CLOCK AND
                    /CHECK FOR SLOW OUTPUT
                    /
0527  1115    TST25,  TAD K0006     /SETUP FOR SLOW CLOCK
0530  4467          JMS I XGTAD     /GET TIME CONSTANTS
0531  0000          0000            /MODIFIED BY TEST
0532  1731          TAD I .+1
0533  3043          DCA REGD
0534  4420          JMS I XIOTA     /IOT 6131, CLEI
0535  4457          JMS I XSYNC     /SYNC WITH CLOCK
0536  4450          JMS I XPIGO2    /GO TO PI, PI EXPECTED
0537  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER.
0540  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW.
0541  2425          2425            /TST25 ERROR MESSAGE.
0542  0527          TST25           /SCOPE LOOP.
```

```
                        /
                        /CHECK FOR FAST CLOCK AND
                        /BAD CLOCK FLAG WITH CLSK.
                        /
0543  4467  TST26,  JMS I XGTAD      /GET TIME CONSTANTS
0544  0000          0000            /MODIFIED BY TEST
0545  1744          TAD I .-1
0546  3043          DCA REGD
0547  4457          JMS I XSYNC     /SYNC WITH CLOCK
0550  4454          JMS I XISZ      /WAIT
0551  4422          JMS I XIOTC     /IOT 6133, CLSK
0552  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0553  4473          JMS I ERROR     /ERROR: CLOCK FAILED
0554  2026          2026            /TST26 ERROR MESSAGE
0555  0543          TST26           /SCOPE LOOP
                        /
                        /CHECK FOR SLOW CLOCK AND
                        /BAD CLOCK FLAG WITH CLSK
                        /
0556  1115  TST27,  TAD K0006       /SET UP FOR SLOW CLOCK
0557  4467          JMS I XGTAD     /GET TIME CONSTANTS
0560  0000          0000            /MODIFIED BY TEST
0561  1760          TAD I .-1
0562  3043          DCA REGD
0563  4457          JMS I XSYNC     /SYNC WITH CLOCK
0564  4454          JMS I XISZ      /WAIT
0565  4422          JMS I XIOTC     /IOT 6133, CLSK
0566  7410          SKP             /ERROR, SKIP OCCURRED
0567  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0570  4473          JMS I ERROR     /ERROR: CLSK OR CLOCK FLAG FAILED
0571  2427          2427            /TST27 ERROR MESSAGE
0572  0556          TST27           /SCOPE LOOP
0573  2077  ENDIT,  ISZ LOOP
0574  5462          JMP I OVER2A    /LOOP ON TEST
0575  4570          JMS I XPASS     /TYPE PASS COMPLETE
0576  5461          JMP I OVER2     /RESET COUNTER AND CONTINUE TESTING
                        /
                        /DOES IOT CLZE CHANGE AC?
                        /CHECK ALL COMBINATIONS.
                        /
                        /
0577  1040  TST30,  TAD REGA        /GET AC NUMBER
0600  4423          JMS I XIOTD     /IOT 6130,CLZE
0601  3071          DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
0602  1071          TAD RECEV
0603  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0604  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0605  4473          JMS I ERROR     /ERROR:CLZE CHANGED AC
0606  3030          3030            /TST30 ERROR MESSAGE
0607  0577          TST30           /SCOPE LOOP
                        /
                        /DOES IOT CLSK CHANGE AC?
                        /CHECK ALL COMBINATIONS
                        /
0610  1040  TST31,  TAD REGA        /GET AC NUMBER
```



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0611  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
0612  1070          TAD SEND
0613  4424          JMS I XIOTE     /IOT 6131, CLSK
0614  7000          NOP
0615  3071          DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
0616  1071          TAD RECEV
0617  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0620  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0621  4473          JMS I ERROR     /ERROR:CLSK CHANGED AC.
0622  3031          3031            /TST31 ERROR MESSAGE
0623  0610          TST31           /SCOPE LOOP
                        /
                        /DOES IOT CLOE CHANGE AC?
                        /CHECK ALL COMBINATIONS
                        /
0624  1040  TST32,  TAD REGA        /GET AC NUMBER
0625  4425          JMS I XIOTF     /IOT 6132, CLOE
0626  3071          DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
0627  1071          TAD RECEV
0630  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0631  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
0632  4473          JMS I ERROR     /ERROR:CLOE CHANGED AC
0633  3032          3032            /TST32 ERROR MESSAGE
0634  0624          TST32           /SCOPE LOOP


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

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0656  6007   TST35,  6007            /CAF OR CLEAR THE WORLD
0657  7340           CLA CLL CMA     /AC TO 7777
0660  4430           JMS I XIOTH     /IOT 6134, CLEN
0661  7650           SNA CLA         /WAS ENABLE REGISTER ALL 0'S?
0662  4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
0663  4473           JMS I ERROR     /ERROR:CAL OR CLEN FAILED.
0664  4435           4435            /TST35 ERROR MESSAGE
0665  0656           TST35           /SCOPE LOOP


                /
                /DOES CAF CLEAR STATUS REGISTER ?
                /CHECK JAM TO AC CLSA
                /
0666  6007   TST36,  6007            /CAF OR THE CLEAR THE WORLD
0667  7340           CLA CLL CMA     /AC TO 7777
0670  4431           JMS I XIOTI     /IOT 6135, CLSA
0671  7650           SNA CLA         /WAS STATUS REGISTER ALL 0'S ?
0672  4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
0673  4473           JMS I ERROR     /CAF OR CLSA FAILED
0674  5036           5036            /TST36 ERROR MESSAGE
0675  0666           TST36           /SCOPE LOOP
                /
                /DOES AC LOAD BUFFER REGISTER?
                /CHECK ALL 0'S TRANSFER
                /CHECK JAM TO AC, CLBA
                /
0676  4427   TST37,  JMS I XIOTG     /IOT 6133, CLAB
0677  7340           CLA CLL CMA     /AC TO 7777
0700  4432           JMS I XIOTJ     /IOT 6136, CLBA
0701  7650           SNA CLA         /WAS BUFFER ALL 0'S?
0702  4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
0703  4473           JMS I ERROR     /ERROR:CLAB OR CLBA FAILED
0704  3437           3437            /TST37 ERROR MESSAGE
0705  0676           TST37           /SCOPE LOOP
                /
                /DOES AC LOAD BUFFER REGISTER ?
                /CHECK ALL 1'S TRANSFER
                /CHECK JAM TO AC , CLBA
                /
0706  7340   TST40,  CLA CLL CMA     /AC TO 7777
0707  4427           JMS I XIOTG     /IOT 6133, CLAB
0710  7300           CLA CLL         /CLEAR THE AC AND LINK
0711  4432           JMS I XIOTJ     /IOT 6136, CLBA
0712  7040           CMA             /COMPLEMENT THE AC
0713  7650           SNA CLA         /WAS BUFFER ALL 1'S?
0714  4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
0715  4473           JMS I ERROR     /ERROR:CLAB OR CLBA FAILED
0716  3440           3440            /TST40 ERROR MESSAGE
0717  0706           TST40           /SCOPE LOOP
                /
                /DOES BUFFER SURVIVE PATTERN 2525 ?
                /
0720  1016   TST41,  TAD K2525       /GET AC NUMBER
0721  4427           JMS I XIOTG     /IOT 6133, CLAB
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0722  7040           CMA             /COMPLEMENT AC
0723  4432           JMS I XIOTJ     /IOT 6136, CLBA
0724  4456           JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0725  4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
0726  4473           JMS I ERROR     /ERROR: BUFFER OR AC FAILED
0727  3441           3441            /TST41 ERROR MESSAGE
0730  0720           TST41           /SCOPE LOOP
                /
                /DOES BUFFER SURVIVE PATTERN 5252 ?
                /
0731  1017   TST42,  TAD K5252       /GET AC NUMBER
0732  4427           JMS I XIOTG     /IOT 6133, CLXB
0733  7040           CMA             /COMPLEMENT AC
0734  4432           JMS I XIOTJ     /IOT 6136, CLBA
0735  4456           JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
0736  4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
0737  4473           JMS I ERROR     /ERROR: BUFFER OR AC FAILED
0740  3442           3442            /TST42 ERROR MESSAGE
0741  0731           TST42           /SCOPE LOOP
                /
                /DOES CAF REALLY CLEAR BUFFER ?
                /
0742  7240   TST43,  CLA CLA CMA     /AC TO ALL 7777
0743  4427           JMS I XIOTG     /IOT 6133, CLAB
0744  6007           6007            /CAF OR CLEAR THE WORLD
0745  3070           DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
0746  7340           CLA CLL CMA
0747  4432           JMS I XIOTJ     /IOT 6136, CLBA
0750  7650           SNA CLA         /WAS BUFFER ALL  0'S ?
0751  4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
0752  4473           JMS I ERROR     /ERROR: CAF OR BUFFER FAILED
0753  3443           3443            /TST43 ERROR MESSAGE
0754  0742           TST43           /SCOPE LOOP
                /
                /DOES CAF REALLY CLEAR BUFFER ?
                /DO ALL COMBINATIONS
                /
0755  1040   TST44,  TAD REGA        /GET AC NUMBER
0756  4427           JMS I XIOTG     /IOT 6133, CLAB
0757  6007           6007            /CAF OR CLEAR THE WORLD
0760  3070           DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
0761  7340           CLA CLL CMA
0762  4432           JMS I XIOTJ     /IOT 6136, CLBA
0763  7650           SNA CLA         /WAS BUFFER ALL 0'S ?
0764  4472           JMS I NERROR    /CHECK NON-ERROR HANDLER
0765  4473           JMS I ERROR     /ERROR: CAF OR BUFFER FAILED
0766  3444           3444            /TST44 ERROR MESSAGE
0767  0755           TST44           /SCOPE LOOP
                /
0770  5771           JMP I   .+1     /TO NEXT TEST
0771  1000           TST45
                /
      1000     PAGE
                /
                /CHECK AC TO BUFFER REGISTER AND
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                        /BUFFER REGISTER TO AC TRANSFERS.
                        /CHECK ALL COMBINATIONS.
                        /CHECK LOAD ON BUFFER REGISTER.
                        /
1000  7340    TST45,    CLA CLL CMA
1001  3040              DCA REGA
1002  1041    T45B,     TAD REGB          /GET AC NUMBER
1003  4427              JMS I XIOTG       /IOT 6133, CLAB
1004  7040              CMA               /COMPLEMENT THE AC
1005  4432              JMS I XIOTJ       /IOT 6136, CLBA
1006  4456              JMS I XSNDRV      /CHECK SEND RECEV REGISTERS
1007  7610              SKP CLA
1010  5214              JMP T45A
1011  2041              ISZ REGB          /UPDATE AC NUMBER
1012  5202              JMP T45B
1013  4472              JMS I NERROR      /CHECK NON-ERROR HANDLER
1014  4473    T45A,     JMS I ERROR       /ERROR: AC OR BUFFER FAILED.
1015  3445              3445              /TST45 ERROR MESSAGE
1016  1000              TST45             /SCOPE LOOP
                        /
                        /DOES READING BUFFER CHANGE ITS CONTENTS ?
                        /
1017  7340    TST46,    CLA CLL CMA       /AC TO 7777
1020  3040              DCA REGA
1021  1016              TAD K2525         /GET AC NUMBER
1022  4427              JMS I XIOTG       /IOT 6133, CLAB
1023  7040              CMA               /COMPLEMENT AC
1024  4432    T46B,     JMS I XIOTJ       /IOT 6136, CLBA
1025  4456              JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1026  7610              SKP CLA
1027  5233              JMP T46A
1030  2041              ISZ REGB          /UPDATE COUNTER
1031  5224              JMP T46B          /DO 4096 TIMES
1032  4472              JMS I NERROR      /CHECK NON-ERROR HANDLER
1033  4473    T46A,     JMS I ERROR       /ERROR: BUFFER FAILED
1034  3446              3446              /TST46 ERROR MESSAGE
1035  1017              TST46             /SCOPE LOOP
                        /
                        /DOES READING BUFFER CHANGE ITS CONTENTS ?
                        /
1036  7340    TST47,    CLA CLL CMA       /AC TO 7777
1037  3040              DCA REGA
1040  1017              TAD K5252         /GET AC NUMBER
1041  4427              JMS I XIOTG       /IOT 6133, CLAB
1042  7040              CMA               /COMPLEMENT AC
1043  4432    T47B,     JMS I XIOTJ       /IOT 6136, CLBA
1044  4456              JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1045  7610              SKP CLA
1046  5252              JMP T47A
1047  2041              ISZ REGB          /UPDATE COUNTER
1050  5243              JMP T47B          /DO 4096 TIMES
1051  4472              JMS I NERROR      /CHECK NON-ERROR HANDLER
1052  4473    T47A,     JMS I ERROR       /ERROR: BUFFER FAILED
1053  3447              3447              /TST47 ERROR MESSAGE
1054  1036              TST47             /SCOPEPLOOP
```



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                        /
                        /DOES BUFFER SURVIVE RANDOM PATTERNS ?
                        /
1055  7340    TST50,    CLA CLL CMA       /AC TO 7777
1056  3040              DCA REGA
1057  4455    T50B,     JMS I RANDY       /GET RANDOM NUMBER
1060  4427              JMS I XIOTG       /IOT 6133, CLAB
1061  7040              CMA               /COMPLEMENT AC
1062  4432              JMS I XIOTJ       /IOT 6136, CLBA
1063  4456              JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1064  7610              SKP CLA
1065  5271              JMP T50A
1066  2041              ISZ REGB          /UPDATE COUNTER
1067  5257              JMP T50B          /DO 4096 TIMES
1070  4472              JMS I NERROR      /CHECK NON-ERROR HANDLER
1071  4473    T50A,     JMS I ERROR        /ERROR: BUFFER FAILED
1072  3450              3450              /TST50 ERROR MESSAGE
1073  1055              TST50             /SCOPE LOOP
                        /
                        /DOES BUFFER SURVIVE FAST TOGGLE ?
                        /
1074  1040    TST51,    TAD REGA          /GET AC NUMBER
1075  3070              DCA SEND          /SAVE OUTPUT FOR ERROR PRINTER
1076  1040              TAD REGA
1077  4435              JMS I XIOTS1      /IOT'S 6133 AND 6136
1100  3071              DCA RECEV         /SAVE INPUT FOR ERROR PRINTER
1101  1071              TAD RECEV
1102  4456              JMS I XSNDRV      /CHECK SEND RECEV REGISTERS
1103  4472              JMS I NERROR      /CHECK NON-ERROR HANDLER
1104  4473              JMS I ERROR       /ERROR: BUFFER FAILED
1105  3451              3451              /TST51 ERROR MESSAGE
1106  1074              TST51             /SCOPE LOOP
                        /
                        /DOES AC SET ENABLE REGISTER?
                        /CHECK ALL 1'S TRANSFER.
                        /CHECK JAM TO AC, CLEN
                        /
1107  7340    TST52,    CLA CLL CMA       /AC TO 7777
1110  4425              JMS I XIOTF       /IOT 6132, CLOE
1111  7040              CMA               /COMPLEMENT AC
1112  4430              JMS I XIOTH       /IOT 6134, CLEN
1113  7040              CMA               /COMPLEMENT AC
1114  7650              SNA CLA           /WAS ENABLE REGISTER ALL 1'S ?
1115  4472              JMS I NERROR      /CHECK NON-ERROR HANDLER
1116  4473              JMS I ERROR       /ERROR:CLOE OR CLEN FAILED.
1117  4452              4452              /TST52 ERROR MESSAGE
1120  1107              TST52             /SCOPE LOOP
                        /
                        /DOES AC SET ENABLE REGISTER?
                        /CHECK ALL 0'S TRANSFER.

                        /CHECK FOR JAM TO AC , CLEN
                        /
1121  7340    TST53,    CLA CLL CMA       /AC TO 7777
1122  4425              JMS I XIOTF       /IOT 6132, CLOE
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1123  7300          CLA CLL          /CLEAR THE AC AND LINK
1124  4426          JMS I XIOTF1     /IOT 6132, CLOE
1125  4430          JMS I XIOTH      /IOT 6134, CLEN
1126  7040          CMA              /COMPLEMENT THE AC
1127  7650          SNA CLA          /WAS ENABLE REGISTER ALL 1'S?
1130  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1131  4473          JMS I ERROR      /ERROR:CLOE OR CLEN FAILED
1132  4453          4453             /TST53 ERROR MESSAGE
1133  1121          TST53            /SCOPE LOOP
                    /
                    /DOES CAF REALLY CLEAR ENABLE REGISTER?
                    /
1134  7340  TST54,  CLA CLL CMA      /AC TO 7777
1135  4425          JMS I XIOTF      /IOT 6132, CLOE
1136  6007          6007             /CAF OR CLEAR THE WORLD
1137  3070          DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
1140  7340          CLA CLL CMA      /AC TO 7777
1141  4430          JMS I XIOTH      /IOT 6134, CLEN
1142  7650          SNA CLA          /WAS REGISTER ALL 0'S
1143  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1144  4473          JMS I ERROR      /ERROR:CAF,CLOE,OR CLEN FAILED
1145  4454          4454             /TST54 ERROR MESSAGE
1146  1134          TST54            /SCOPE LOOP
                    /
                    /DOES CAF REALLY CLEAR ENABLE REGISTER ?
                    /DO ALL COMBINATIONS
                    /
1147  1040  TST55,  TAD REGA         /GET AC NUMBER
1150  4426          JMS I XIOTF1     /IOT 6132, CLOE
1151  6007          6007             /CAF OR CLEAR THE WORLD
1152  7340          CLA CLL CMA      /AC TO 7777
1153  4430          JMS I XIOTH      /IOT 6134, CLEN
1154  7650          SNA CLA          /WAS ENABLE REGISTER ALL 0'S ?
1155  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1156  4473          JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
1157  4455          4455             /TST55 ERROR MESSAGE
1160  1147          TST55            /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?
                    /
1161  1016  TST56,  TAD K2525        /GET AC NUMBER
1162  4425          JMS I XIOTF      /IOT 6132, CLOE
1163  7040          CMA              /COMPLEMENT AC
1164  4430          JMS I XIOTH      /IOT 6134, CLEN
1165  4456          JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1166  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1167  4473          JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
1170  4456          4456             /TST56 ERROR MESSAGE
1171  1161          TST56            /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE PATTERN 5252 ?
                    /
1172  1017  TST57,  TAD K5252        /GET AC NUMBER
1173  4425          JMS I XIOTF      /IOT 6132, CLOE
1174  7040          CMA              /COMPLEMENT AC
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1175  4430          JMS I XIOTH      /IOT 6134, CLEN
1176  4456          JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1177  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1200  4473          JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
1201  4457          4457             /TST57 ERROR MESSAGE
1202  1172          TST57            /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?
                    /
1203  1016  TST60,  TAD K2525        /GET AC NUMBER
1204  4425          JMS I XIOTF      /IOT 6132, CLOE
1205  7300          CLA CLL          /CLEAR THE AC AND LINK
1206  4426          JMS I XIOTF1     /IOT 6132, CLOE
1207  7340          CLA CLL CMA      /AC TO 7777
1210  4430          JMS I XIOTH      /IOT 6134, CLEN
1211  4456          JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1212  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1213  4473          JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
1214  4460          4460             /TST60 ERROR MESSAGE
1215  1203          TST60            /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE PATTERN 5252 ?
                    /
1216  1017  TST61,  TAD K5252        /GET AC NUMBER
1217  4425          JMS I XIOTF      /IOT 6132, CLOE
1220  7300          CLA CLL          /CLEAR THE AC AND LINK
1221  4426          JMS I XIOTF1     /IOT 6132, CLOE
1222  7340          CLA CLL CMA      /AC TO 7777
1223  4430          JMS I XIOTH      /IOT 6134, CLEN
1224  4456          JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1225  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1226  4473          JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
1227  4461          4461             /TST61 ERROR MESSAGE
1230  1216          TST61            /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?
                    /
1231  7340  TST62,  CLA CLL CMA      /AC TO 7777
1232  3070          DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
1233  1016          TAD K2525        /GET AC NUMBER
1234  4426          JMS I XIOTF1     /IOT 6132, CLOE
1235  7040          CMA              /COMPLEMENT AC
1236  4426          JMS I XIOTF1     /IOT 6132, CLOE
1237  7300          CLA CLL          /CLAER THE AC AND LINK
1240  4430          JMS I XIOTH      /IOT 6134, CLEN
1241  4456          JMS I XSNDRV     /CHECK SEND RECEV REGISTERS
1242  4472          JMS I NERROR     /CHECK NON-ERROR HANDLER
1243  4473          JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
1244  4462          4462             /TST62 ERROR MESSAGE
1245  1231          TST62            /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?
                    /
1246  7340  TST63,  CLA CLL CMA      /AC TO 7777
1247  3070          DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
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1250  1017          TAD K5252       /GET AC NUMBER
1251  4426          JMS I XIOTF1    /IOT 6132, CLOE
1252  7040          CMA             /COMPLEMENT AC
1253  4426          JMS I XIOTF1    /IOT 6132, CLOE
1254  7300          CLA CLL
1255  4430          JMS I XIOTH     /IOT 6134, CLEN
1256  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1257  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1260  4473          JMS I ERROR     /ERROR: ENABLE REGISTERS
1261  4463          4463            /TST63 ERROR MESSAGE
1262  1246          TST63           /SCOPE LOOP
                    /
                    /DO AC TO ENABLE REGISTER AND
                    /ENABLE REGISTER TO AC TRANSFERS
                    /CHECK ALL COMBINATIONS
                    /
1263  1040    TST64,  TAD REGA        /GET AC NUMBER
1264  4425          JMS I XIOTF     /IOT 6132, CLOE
1265  7340          CLA CLL CMA     /AC TO 7777
1266  4430          JMS I XIOTH     /IOT 6134, CLEN
1267  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1270  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1271  4473          JMS I ERROR     /ERROR: AC OR ENABLE REGISTER FAILED.
1272  4464          4464            /TST64 ERROR MESSAGE
1273  1263          TST64           /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN.
                    /DO ALL COMBINATIONS.
                    /
1274  7340    TST65,  CLA CLL CMA     /AC TO 7777
1275  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1276  1040          TAD REGA        /GET AC NUMBER
1277  4426          JMS I XIOTF1    /IOT 6132, CLOE
1300  7040          CMA             /COMPLEMENT THE AC
1301  4426          JMS I XIOTF1    /IOT 6132, CLOE
1302  4430          JMS I XIOTH     /IOT 6134, CLEN
1303  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1304  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1305  4473          JMS I ERROR     /ERROR: AC OR ENABLE REGISTER FAILED.
1306  4465          4465            /TST65 ERROR MESSAGE
1307  1274          TST65           /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE RANDOM PATTERN ?
                    /
1310  4455    TST66,  JMS I RANDY     /GET RANDOM NUMBER
1311  4425          JMS I XIOTF     /IOT 6132, CLOE
1312  7300          CLA CLL         /CLEAR THE AC AND LINK
1313  4430          JMS I XIOTH     /IOT 6134, CLEN
1314  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1315  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1316  4473          JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1317  4466          4466            /TST66 ERROR MESSAGE
1320  1310          TST66           /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE RANDOM COMPLEMENT PATTERN ?
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                    /
1321  7340    TST67,  CLA CLL CMA     /AC TO 7777
1322  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1323  4455          JMS I RANDY     /GET RANDOM NUMBER
1324  4426          JMS I XIOTF1
1325  7040          CMA             /COMPLEMENT AC
1326  4426          JMS I XIOTF1    /IOT 6132, CLOE
1327  4430          JMS I XIOTH     /IOT 6134, CLEN
1330  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1331  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1332  4473          JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1333  4467          4467            /TST67 ERROR MESSAGE
1334  1321          TST67           /SCOPE LOOP
                    /
                    /DOES READING ENABLE REGISTER CHANGE ITS CONTENTS ?
                    /
1335  7340    TST70,  CLA CLL CMA     /AC TO 7777
1336  3040          DCA REGA
1337  1016          TAD K2525       /GET AC NUMBER
1340  4425          JMS I XIOTF     /IOT 6132, CLOE
1341  7340    T70B,   CLA CLL CMA     /AC TO 7777
1342  4430          JMS I XIOTH     /IOT 6134, CLEN
1343  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1344  7610          SKP CLA
1345  5351          JMP T70A
1346  2041          ISZ REGB        /UPDATE COUNTER
1347  5341          JMP T70B        /DO 4096 TIMES
1350  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1351  4473    T70A,   JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1352  4470          4470            /TST70 ERROR MESSAGE
1353  1335          TST70           /SCOPE LOOP
                    /
                    /DOES READING ENABLE REGISTER CHANGE TIS CONTENTS ?
                    /
1354  7340    TST71,  CLA CLL CMA     /AC TO 7777
1355  3040          DCA REGA
1356  1017          TAD K5252       /GET AC NUMBER
1357  4425          JMS I XIOTF     /IOT 6132, CLOE
1360  7300    T71B,   CLA CLL         /CLEAR THE AC AND LINK
1361  4430          JMS I XIOTH     /IOT 6134, CLEN
1362  4456          JMS I XSNDRV    /CHECK SEND RECEV REGISTERS
1363  7610          SKP CLA
1364  5370          JMP T71A
1365  2041          ISZ REGB        /UPDATE COUNTER
1366  5360          JMP T71B        /DO 4096 TIMES
1367  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1370  4473    T71A,   JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1371  4471          4471            /TST71 ERROR MESSAGE
1372  1354          TST71           /SCOPE LOOP
                    /
                    /DOES ENABLE REGISTER SURVIVE FAST TOGGLE ?
                    /
1373  1040    TST72,  TAD REGA        /GET AC NUMBER
1374  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1375  1040          TAD REGA
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1376  4434          JMS I XIOTS     /IOT'S 6132 AND 6134
1377  3071          DCA RECEV       /SAVE INPUT FOR ERROR PRINTER
1400  1071          TAD RECEV
1401  4456          JMS I XSNDRV    /CHECK SEND RECEV REGISTERS
1402  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1403  4473          JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1404  4472          4472            /TST72 ERROR MESSAGE
1405  1373          TST72           /SCOPE LOOP
                    /
                    /DOES CLZE CLEAR ENABLE REGISTER?
                    /
1406  7340  TST73,  CLA CLL CMA     /AC TO 7777
1407  4426          JMS I XIOTF1    /IOT 6132, CLOE
1410  7340          CLA CLL CMA
1411  4423          JMS I XIOTD     /IOT 6130, CLZE
1412  7300          CLA CLL         /CLEAR THE AC AND LINK
1413  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1414  7340          CLA CLL CMA     /AC TO 7777
1415  4430          JMS I XIOTH     /IOT 6134, CLEN
1416  7650          SNA CLA         /WAS REGISTER ALL 0'S
1417  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1420  4473          JMS I ERROR     /ERROR:CLZE OR CLEN FAILED.
1421  4473          4473            /TST73 ERROR MESSAGE
1422  1406          TST73           /SCOPE LOOP
                    /
                    /DOES CLZE CLEAR ENABLE REGISTER?
                    /
1423  7340  TST74,  CLA CLL CMA     /AC TO 7777
1424  4425          JMS I XIOTF     /IOT 6132, CLOE
1425  7300          CLA CLL
1426  4423          JMS I XIOTD     /IOT 6130, CLZE
1427  7340          CLA CLL CMA     /AC TO 7777
1430  3070          DCA SEND        /SAVE OUTPUT ERROR PRINTER
1431  4430          JMS I XIOTH     /IOT 6134, CLEN
1432  7040          CMA             /COMPLEMENT AC
1433  7650          SNA CLA         /WAS REGISTER ALL 0'S?
1434  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1435  4473          JMS I ERROR     /ERROR:CLZE OR CLEN FAILED.
1436  4474          4474            /TST74 ERROR MESSAGE
1437  1423          TST74           /SCOPE LOOP
                    /
                    /DOES CLZE CLEAR ENABLE REGISTER?
                    /
1440  1016  TST75,  TAD K2525
1441  4425          JMS I XIOTF     /IOT 6132,CLOE
1442  7040          CMA             /COMPLEMENT THE AC
1443  4423          JMS I XIOTD     /IOT 6130, CLZE
1444  7040          CMA             /COMPLEMENT AC
1445  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1446  4430          JMS I XIOTH     /IOT 6134, CLEN
1447  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1450  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1451  4473          JMS I ERROR     /ERROR:CLZE,CLOE, OR CLEN FAILED
1452  4475          4475            /TST75 ERROR MESSAGE
1453  1440          TST75           /SCOPE LOOP
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                    /
                    /DOES CLZE CLEAR ENABLE REGISTER ?
                    /
1454  1017  TST76,  TAD K5252        /GET AC NUMBER
1455  4425          JMS I XIOTF     /IOT 6132, CLOE
1456  7040          CMA             /COMPLEMENT AC
1457  4423          JMS I XIOTD     /IOT 6130, CLZE
1460  7040          CMA             /COMPLEMENT AC
1461  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1462  4430          JMS I XIOTH     /IOT 6134, CLEN
1463  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1464  4472          JMS I NERROR    /CHECL NON-ERROR HANDLER
1465  4473          JMS I ERROR     /ERROR: ENABLE REGISTER FAILED
1466  4476          4476            /TST76 ERROR MESSAGE
1467  1454          TST76           /SCOPE LOOP
                    /
                    /DOES CLZE CLEAR ENABLE REGISTER?
                    /CHECK ALL COMBINATIONS
                    /
1470  1040  TST77,  TAD REGA        /GET AC NUMBER
1471  4425          JMS I XIOTF     /IOT 6132, CLOE
1472  4423          JMS I XIOTD     /IOT 6130, CLZE
1473  7300          CLA CLL         /CLEAR THE AC AND LINK
1474  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1475  7340          CLA CLL CMA     /AC TO ALL 1'S
1476  4430          JMS I XIOTH     /IOT 6134, CLEN
1477  7650          SNA CLA         /WAS REGISTER ALL 0'S?
1500  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1501  4473          JMS I ERROR     /ERROR:CLZE,CLOE, OR CLEN FAILED
1502  4477          4477            /TST77 ERROR MESSAGE
1503  1470          TST77           /SCOPE LOOP


                    /
                    /DOES CLZE CLEAR ENABLE REGISTER?
                    /DO ALL COMBINATIONS
                    /
1504  1040  TST100, TAD REGA        /GET AC NUMBER
1505  4425          JMS I XIOTF     /IOT 6132, CLOE
1506  7040          CMA             /COMPLEMENT THE AC
1507  4423          JMS I XIOTD     /IOT 6130, CLZE
1510  7040          CMA             /COMPLEMENT THE AC
1511  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
1512  4430          JMS I XIOTH     /IOT 6134, CLEN
1513  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1514  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1515  4473          JMS I ERROR     /ERROR:CLZE, CLOE, OR CLEN FAILED
1516  4500          4500            /TST100 ERROR MESSAGE
1517  1504          TST100          /SCOPE LOOP
                    /
                    /DOES CLZE SURVIVE RANDOM PATTERN ?
                    /
1520  4455  TST101, JMS I RANDY     /GET RANDOM NUMBER
1521  4425          JMS I XIOTF     /IOT 6132, CLOE
1522  4423          JMS I XIOTD     /IOT 6130, CLZE
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1523  7300            CLA CLL          /CLEAR THE AC AND LINK
1524  3070            DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
1525  4430            JMS I XIOTH      /IOT 6134, CLEN
1526  4456            JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1527  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
1530  4473            JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
1531  4501            4501             /TST101 ERROR MESSAGE
1532  1520            TST101           /SCOPE LOOP
                      /
                      /DOES CLZE SURVIVE RANDOM COMPLEMENT PATTERN ?
                      /
1533  4455      TST102, JMS I RANDY      /GET RANDOM NUMBER
1534  4425            JMS I XIOTF      /IOT 6132, CLOE
1535  7040            CMA              /COMPLEMENT AC
1536  4423            JMS I XIOTD      /IOT 6130, CLZE
1537  7040            CMA              /COMPLEMENT AC
1540  3070            DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
1541  4430            JMS I XIOTH      /IOT 6134, CLEN
1542  4456            JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1543  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
1544  4473            JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
1545  4502            4502             /TST102 ERROR MESSAGE
1546  1533            TST102           /SCOPE LOOP
                      /
                      /DOES CLZE SURVIVE FAST TOGGLE ?
                      /
1547  1040      TST103, TAD REGA         /GET AC NUMBER
1550  4425            JMS I XIOTF      /IOT 6132, CLOE
1551  4437            JMS I XIOTS3     /IOT'S 6130 AND 6134
1552  3071            DCA RECEV        /SAVE INPUT FOR ERROR PRINTER
1553  1071            TAD RECEV
1554  4456            JMS I XSNDRV     /CHECK SEND RECEV REGISTERS
1555  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
1556  4473            JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
1557  4503            4503             /TST103 ERROR MESSAGE
1560  1547            TST103           /SCOPE LOOP
                      /
                      /
                      /DOES AC TRANSFER TO BUFFER THEN TO COUNTER ?
                      /
1561  4427      TST104, JMS I XIOTG      /IOT 6133, CLAB
1562  7340            CLA CLL CMA      /AC TO ALL 1'S
1563  4433            JMS I XIOTK      /IOT 6137, CLCA
1564  7650            SNA CLA          /WAS COUNTER ALL 0'S?
1565  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
1566  4473            JMS I ERROR      /ERROR: CLAB OR CLCA FAILED
1567  4104            4104             /TST104 ERROR MESSAGE
1570  1561            TST104           /SCOPE LOOP
                      /
                      /DOES AC TRANSFER TO BUFFER THEN TO COUNTER?
                      /
1571  7340      TST105, CLA CLL CMA
1572  4427            JMS I XIOTG      /IOT 6133, CLAB
1573  4433            JMS I XIOTK      /IOT 6137, CLCA
1574  7040            CMA              /COMPLEMENT THE AC
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1575  7650            SNA CLA          /WAS COUNTER ALL 1'S?
1576  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
1577  4473            JMS I ERROR      /ERROR: CLAB OR CLCA FAILED
1600  4105            4105             /TST105 ERROR MESSAGE
1601  1571            TST105           /SCOPE LOOP
                      /
                      /DOES COUNTER SURVIVE PATTERN 2525 ?
                      /
1602  1016      TST106, TAD K2525        /GET AC NUMBER
1603  4427            JMS I XIOTG      /IOT 6133, CLAB
1604  7300            CLA CLL          /CLEAR THE AC AND LINK
1605  4433            JMS I XIOTK      /IOT 6137, CLCA
1606  4456            JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1607  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
1610  4473            JMS I ERROR      /ERROR: COUNTER FAILED
1611  4106            4106             /TST106 ERROR MESSAGE
1612  1602            TST106           /SCOPE LOOP
                      /
                      /DOES COUNTER SURVIVE PATTERN 5252 ?
                      /
1613  1017      TST107, TAD K5252        /GET AC NUMBER
1614  4427            JMS I XIOTG      /IOT 6133, CLAB
1615  7340            CLA CLL CMA      /AC TO ALL 7777
1616  4433            JMS I XIOTK      /IOT 6137, CLCA
1617  4456            JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1620  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
1621  4473            JMS I ERROR      /ERROR: COUNTER FAILED
1622  4107            4107             /TST107 ERROR MESSAGE
1623  1613            TST107           /SCOPE LOOP
                      /
                      /DOES AC TRANSFER TO BUFFER THEN TO COUNTER?
                      /CHECK ALL COMBINATIONS
                      /
1624  1040      TST110, TAD REGA
1625  4427            JMS I XIOTG      /IOT 6133, CLAB
1626  7040            CMA              /COMPLEMENT THE AC
1627  4433            JMS I XIOTK      /IOT 6137, CLCA
1630  4456            JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1631  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
1632  4473            JMS I ERROR      /ERROR: CLAB OR CLCA FAILED
1633  4110            4110             /TST110 ERROR MESSAGE
1634  1624            TST110           /SCOPE LOOP


                      /
                      /DOES COUNTER SURVIVE FAST TOGGLE?
                      /
1635  1040      TST111, TAD REGA         /GET AC NUMBER
1636  3070            DCA SEND         /SAVE OUTPUT FOR ERROR PRINTER
1637  1070            TAD SEND
1640  4436            JMS I XIOTS2     /IOT 6133 AND 6137
1641  3071            DCA RECEV        /SAVE INPUT FOR ERROR PRINTER
1642  1071            TAD RECEV
1643  4456            JMS I XSNDRV     /CHECK SEND AND RECEV REGISTERS
1644  4472            JMS I NERROR     /CHECK NON-ERROR HANDLER
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1645  4473          JMS I ERROR     /ERROR:CLAB OR CLCA FAILED
1646  4111          4111            /TST111 ERROR MESSAGE
1647  1635          TST111          /SCOPE LOOP
                    /
                    /DOES CAF AFFECT COUNTER ?
                    /
1650  1040  TST112, TAD REGA        /GET AC NUMBER
1651  4427          JMS I XIOTG     /IOT 6133, CLAB
1652  6007          6007            /CAF OR CLEAR THE WORLD
1653  4433          JMS I XIOTK     /IOT 6137, CLCA
1654  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1655  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1656  4473          JMS I ERROR     /ERROR:  CLAB OR CLCA FAILED.
1657  4112          4112            /TST112 ERROR MESSAGE
1660  1650          TST112          /SCOPE LOOP


                    /
                    /DOES READING COUNTER CHANGE ITS CONTENTS?
                    /PATTERN 2525.
                    /
1661  7340  TST113, CLA CLL CMA     /AC TO 7777
1662  3040          DCA REGA
1663  1016          TAD K2525
1664  4427          JMS I XIOTG     /IOT 6133, CLAB
1665  4433  T113B,  JMS I XIOTK     /IOT 6137, CLCA
1666  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1667  7410          SKP
1670  5274          JMP T113A
1671  2041          ISZ REGB
1672  5265          JMP T113B
1673  4472          JMS I NERROR    /CHECK NON-ERROR
1674  4473  T113A,  JMS I ERROR     /ERROR:  CLAB OR CLCA FAILED
1675  4113          4113            /TST113 ERROR MESSAGE
1676  1661          TST113          /SCOPE LOOP
                    /
                    /DOES READING COUNTER CHANGE ITS CONTENTS?
                    /PATTERN 5252
                    /
1677  7340  TST114, CLA CLL CMA     /AC TO 7777
1700  3040          DCA REGA
1701  1017          TAD K5252
1702  4427          JMS I XIOTG     /IOT 6133, CLAB
1703  4433  T114B,  JMS I XIOTK     /IOT 6137, CLCA
1704  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1705  7410          SKP
1706  5312          JMP T114A
1707  2041          ISZ REGB
1710  5303          JMP T114B
1711  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1712  4473  T114A,  JMS I ERROR     /ERROR: COUNTER FAILED
1713  4114          4114            /TST114 ERROR MESSAGE
1714  1677          TST114          /SCOPE LOOP
                    /
                    /DOES COUNTER SURVIVE RANDOM PATTERN ?
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                    /
1715  4455  TST115, JMS I RANDY     /GET RANDOM NUMBER
1716  4427          JMS I XIOTG     /IOT 6133, CLAB
1717  7340          CLA CLL CMA
1720  4433          JMS I XIOTK     /IOT 6137, CLCA
1721  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
1722  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1723  4473          JMS I ERROR     /ERROR: COUNTER FAILED
1724  4115          4115            /TST115 ERROR MESSAGE
1725  1715          TST115          /SCOPE LOOP
                    /
                    /TEST FOR NO INT. RQST.
                    /
1726  7340  TST116, CLA CLL CMA     /AC TO 7777
1727  4427          JMS I XIOTG     /IOT 6133, CLAB
1730  3040          DCA REGA
1731  1142          TAD K0010
1732  1147          TAD K0600       /GET ENABLES
1733  4425          JMS I XIOTF     /IOT 6132, CLOE
1734  4447          JMS I XPIG01    /GO TO PI, NO PI EXPECTED
1735  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1736  4473          JMS I ERROR     /ERROR: INT. RQST. FAILED
1737  1116          1116            /TST116,  ERROR MESSAGE
1740  1726          TST116          /SCOPE LOOP
                    /
                    /DOES CLSK SKIP ON CLOCK OVERFLOW?
                    /SKIP EXPECTED, MODE 0, RATE 6
                    /
1741  7340  TST117, CLA CLL CMA     /AC TO 7777
1742  4427          JMS I XIOTG     /IOT 6133, CLAB
1743  7300          CLA CLL         /CLEAR THE AC AND LINK
1744  1147          TAD K0600       /GET RATE 6
1745  4425          JMS I XIOTF     /IOT 6132, CLOE
1746  4424          JMS I XIOTE     /IOT 6131, CLSK
1747  7410          SKP
1750  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1751  4473          JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
1752  0517          0517            /TST117 ERROR MESSAGE
1753  1741          TST117          /SCOPE LOOP
                    /
                    /DOES OVERFLOW REMAIN SET ?
                    /
1754  7340  TST120, 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  5370          JMP T120A
1763  2041          ISZ REGB
1764  5363          JMP .-1         /WAIT ABOUT 15 MS
1765  4424          JMS I XIOTE     /IOT 6131, CLSK
1766  7410          SKP
1767  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
1770  4473  T120A,  JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
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1771  0520            0520            /TST120 ERROR MESSAGE
1772  1754            TST120          /SCOPE LOOP
                      /
                      /DOES CAF CLEAR THAT FLAG ?
                      /
1773  7340  TST121,  CLA CLL CMA
1774  4427            JMS I XIOTG     /IOT 6133, CLAB
1775  3040            DCA REGA
1776  1147            TAD K0600       /GET ENABLES
1777  4425            JMS I XIOTF     /IOT 6132, CLOE
2000  4424            JMS I XIOTE     /IOT 6131, CLSK
2001  5200            JMP .-1
2002  6007            6007            /CAF OR CLEAR THE WORLD
2003  4424            JMS I XIOTE     /IOT 6131, CLSK
2004  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2005  4473  T121A,    JMS I ERROR     /ERROR: CAF OR OVERFLOW FAILED
2006  0121            0121            /TST121 ERROR MESSAGE
2007  1773            TST121          /SCOPE LOOP
                      /
                      /DOES CLSK SKIP ON OVERFLOW ?
                      /SKIP EXPECTED, RATE 2-6, MODE 0
                      /
2010  1131  TST122,  TAD K7773
2011  3041            DCA REGB
2012  1015            TAD K0200
2013  3044            DCA REGE
2014  7340  T122B,    CLA CLL CMA     /AC TO 7777
2015  4427            JMS I XIOTG     /IOT 6133, CLAB
2016  3040            DCA REGA
2017  1044            TAD REGE        /GET ENABLES
2020  4425            JMS I XIOTF     /IOT 6132, CLOE
2021  2043            ISZ REGD
2022  5221            JMP .-1         /WAIT
2023  4424            JMS I XIOTE     /IOT 6131, CLSK
2024  5233            JMP T122A       /NO OVERFLOW FOUND
2025  1013            TAD K0100
2026  3044            DCA REGE        /UPDATE CLOCK RATE
2027  6007            6007            /CAF OR CLEAR THE WORLD
2030  2041            ISZ REGB
2031  5571            JMP I XCRS1
2032  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2033  4473  T122A,    JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
2034  0522            0522            /TST122 ERROR MESSAGE
2035  2010            TST122          /SCOPE LOOP
                      /
                      /DOES CLSK SKIP ON OVERFLOW ?
                      /SKIP EXPECTED, RATE 2-6, MODE 1
                      /
2036  1131  TST123,  TAD K7773
2037  3041            DCA REGB
2040  1144            TAD K1000
2041  1015            TAD K0200
2042  3044            DCA REGE
2043  7340  T123B,    CLA CLL CMA     /AC TO 7777
2044  4427            JMS I XIOTG     /IOT 6133, CLAB
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2045  3040            DCA REGA
2046  1044            TAD REGE        /GET ENABLES
2047  4425            JMS I XIOTF     /IOT 6132, CLOE
2050  2043            ISZ REGD
2051  5250            JMP .-1         /WAIT
2052  4424            JMS I XIOTE     /IOT 6131, CLSK
2053  5262            JMP T123A       /NO OVERFLOW FOUND
2054  1013            TAD K0100
2055  3044            DCA REGE        /UPDATE CLCOK RATE
2056  6007            6007            /CAF OR CLEAR THE WORLD
2057  2041            ISZ REGB
2060  5243            JMP T123B       /DO RATES 2-6
2061  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2062  4473  T123A,    JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
2063  0523            0523            /TST123 ERROR MESSAGE
2064  2036            TST123          /SCOPE LOOP
                      /
                      /DOES CLSK SKIP ON OVERFLOW ?
                      /SKIP EXPECTED, MODE 2, RATE 2-6
                      /
2065  1131  TST124,  TAD K7773
2066  3041            DCA REGB
2067  1143            TAD K2000
2070  1015            TAD K0200       /MAKE ENABLES
2071  3044            DCA REGE
2072  7340  T124B,    CLA CLL CMA
2073  4427            JMS I XIOTG     /IOT 6133, CLAB
2074  3040            DCA REGA
2075  1044            TAD REGE        /GET ENABLES
2076  4425            JMS I XIOTF     /IOT 6132, CLOE
2077  2043            ISZ REGD
2100  5277            JMP .-1         /WAIT ABOUT 15 MS
2101  4424            JMS I XIOTE     /IOT 6131, CLSK
2102  5311            JMP T124A
2103  1013            TAD K0100       /UPDATE RATE
2104  3044            DCA REGE
2105  6007            6007            /CAF OR CLEAR THE WORLD
2106  2041            ISZ REGB
2107  5272            JMP T124B       /DO RATES 2-6
2110  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2111  4473  T124A,    JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
2112  0524            0524            /TST124 ERROR MESSAGE
2113  2065            TST124          /SCOPE LOOP
                      /
                      /DOES CLSK SKIP ON OVERFLOW ?
                      /SKIP EXPECTED, RATE 2-6, MODE 3
                      /
2114  1131  TST125,  TAD K7773
2115  3041            DCA REGB
2116  1120            TAD K3000
2117  1015            TAD K0200       /MAKE ENABLES
2120  3044            DCA REGE        /SAVE ENABLES
2121  7340  T125B,    CLA CLL CMA
2122  4427            JMS I XIOTG     /IOT 6133, CLAB
2123  3040            DCA REGA
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2124  1044          TAD REGE        /GET ENABLES
2125  4425          JMS I XIOTF     /IOT 6132, CLOE
2126  2043          ISZ REGD
2127  5326          JMP .-1         /WAIT ABOUT 15 MS
2130  4424          JMS I XIOTE     /IOT 6131, CLSK
2131  5337          JMP T125A
2132  1013          TAD K0100       /UPDATE RATE
2133  3044          DCA REGE
2134  2041          ISZ REGB
2135  5321          JMP T125B       /DO RATES 2-6
2136  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2137  4473  T125A,  JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
2140  0525          0525            /TST125 ERROR MESSAGE
2141  2114          TST125          /SCOPE LOOP
                    /
                    /DOES CLSK SKIP ON OVERFLOW ?
                    /NO SKIP EXPECTED, RATE 0-7, MODE 0, DISABLE BIT 7
                    /
2142  1122  TST126, TAD K7770
2143  3043          DCA REGD
2144  7340  T126B,  CLA CLL CMA     /AC TO 7777
2145  4427          JMS I XIOTG     /IOT 6133, CLAB
2146  3040          DCA REGA
2147  1140          TAD K0020
2150  1041          TAD REGB        /GET ENABLES
2151  4425          JMS I XIOTF     /IOT 6132, CLOE
2152  2042          ISZ REGC
2153  5352          JMP .-1         /WAIT
2154  4424          JMS I XIOTE     /IOT 6131, CLSK
2155  7410          SKP
2156  5366          JMP T126A       /OVERFLOW FOUND
2157  0150          AND K0700       /MASK BITS 3-5
2160  1013          TAD K0100
2161  3041          DCA REGB        /UPDATE RATE
2162  6007          6007            /CAF OR CLEAR THE WORLD
2163  2043          ISZ REGD
2164  5344          JMP T126B       /DO RATES 0-7
2165  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2166  4473  T126A,  JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
2167  0126          0126            /TST126 ERROR MESSAGE
2170  2142          TST126          /SCOPE LOOP
                    /
                    /DOES CLSK SKIP ON OVERFLOW ?
                    /NO SKIP EXPECTED, RATE 0,1,7 MODE 0
                    /
2171  7340  TST127, CLA CLL CMA
2172  4427          JMS I XIOTG     /IOT 6133, CLAB
2173  3040          DCA REGA
2174  4425          JMS I XIOTF     /IOT 6132, CLOE
2175  2041          ISZ REGB
2176  5375          JMP .-1         /WAIT ABOUT 15 MS
2177  4424          JMS I XIOTE     /IOT 6131, CLSK
2200  7410          SKP
2201  5572          JMP I XCRS2
2202  1013          TAD K0100       /UPDATE ENABLE
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2203  4426          JMS I XIOTF1    /IOT 6132, CLOE
2204  2042          ISZ REGC
2205  5204          JMP .-1         /WAIT ABOUT 15 MS
2206  4424          JMS I XIOTE     /IOT 6131, CLSK
2207  7410          SKP
2210  5572          JMP I XCRS2
2211  1147          TAD K0600       /UPDATE ENABLE
2212  4426          JMS I XIOTF1    /IOT 6132, CLOE
2213  2043          ISZ REGD
2214  5213          JMP .-1         /WAIT ABOUT 15 MS
2215  4424          JMS I XIOTE     /IOT 6131, CLSK
2216  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2217  4473  T127A,  JMS I ERROR     /ERROR: CLSK OR OVERFLOW FAILED
2220  0127          0127            /TST127 ERRROR MESSAGE
2221  2171          TST127          /SCOPE LOOP
                    /
                    /DOES CLSA READ OVERFLOW BIT ?
                    /
2222  7340  TST130, CLA CLL CMA
2223  4427          JMS I XIOTG     /IOT 6132, CLOE
2224  7330          CLA CLL CML RAR /AC TO 4000
2225  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
2226  7313          CLA CLL IAC RTR /AC TO 4000
2227  1147          TAD K0600       /GET ENABLE
2230  4426          JMS I XIOTF1
2231  4424          JMS I XIOTE     /IOT 6131, CLSK
2232  5231          JMP .-1
2233  7350          CLA CLL CMA RAR /AC TO 3777
2234  4431          JMS I XIOTI     /IOT 6135, CLSA
2235  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
2236  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2237  4473  T130A,  JMS I ERROR     /ERROR: CLSI OR OVERFLOW FAILED
2240  5130          5130            /TST130 ERROR MESSAGE
2241  2222          TST130          /SCOPE LOOP
                    /
                    /DOES CLSA CLEAR OVERFLOW FLOP ?
                    /
2242  7340  TST131, CLA CLL CMA     /AC TO 7777
2243  4427          JMS I XIOTG     /IOT 6133, CLAB
2244  7313          CLA CLL IAC RTR /AC TO 4000
2245  1147          TAD K0600       /GET ENABLE
2246  4426          JMS I XIOTF1    /IOT 6132, CLOE
2247  4424          JMS I XIOTE     /IOT 6131, CLSK
2250  5247          JMP .-1
2251  7350          CLA CLL CMA RAR /AC TO 3777
2252  4431          JMS I XIOTI     /IOT 6135, CLSA
2253  7300          CLA CLL         /CLEAR AC AND LINK
2254  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
2255  7340          CLA CLL CMA     /AC TO 7777
2256  4431          JMS I XIOTI     /IOT 6135, CLSA
2257  7650          SNA CLA         /WAS STATUS REGISTER ALL 0'S ?
2260  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2261  4473          JMS I ERROR     /ERROR: CLSA OR OVERFLOW FAILED
2262  5131          5131            /TST131 ERROR MESSAGE
2263  2242          TST131          /SCOPE LOOP
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                        /
                        /DOES CLSA READ OVERFLOW BIT ?
                        /
2264  7340    TST132, CLA CLL CMA
2265  4427            JMS I XIOTG     /IOT 6133, CLAB
2266  7300            CLA CLL
2267  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
2270  1147            TAD K0600       /GET ENABLES
2271  4426            JMS I XIOTF1    /IOT 6132, CLOE
2272  4424            JMS I XIOTE     /IOT 6131, CLSK
2273  5272            JMP .-1
2274  7344            CLA CLL CMA RAL /AC TO 3777
2275  4431            JMS I XIOTI     /IOT 6135, CLSA
2276  7650            SNA CLA         /WAS STATUS 0 ?
2277  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2300  4473            JMS I ERROR     /ERROR: CLSA OR STATUS FAILED
2301  5132            5132            /TST132 ERROR MESSAGE
2302  2264            TST132          /SCOPE LOOP
                        /
                        /DOES BUFFER TO COUNTER ON OVERFLOW ?
                        /MODE 1, RATE 2
                        /
2303  7340    TST133, CLA CLL CMA
2304  4427            JMS I XIOTG     /IOT 6133, CLAB
2305  3040            DCA REGA
2306  7313            CLA CLL IAC RTR /AC TO 4000
2307  1116            TAD K0400
2310  1144            TAD K1000       /GET ENABLES
2311  4426            JMS I XIOTF1    /IOT 6132, CLOE
2312  4424    T133B,  JMS I XIOTE     /IOT 6131, CLSK
2313  5312            JMP .-1         /WAIT FOR FLAG
2314  7300            CLA CLL         /CLEAR THE AC AND LINK
2315  4433            JMS I XIOTK     /IOT 6137, CLCA
2316  7040            CMA             /FOR TESTING
2317  7440            SZA             /WAS COUNTER ALL 1'S ?
2320  5325            JMP T133A
2321  4431            JMS I XIOTI     /IOT 6135, CLSA
2322  2041            ISZ REGB
2323  5312            JMP T133B       /DO TEST 4096 TIMES
2324  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2325  4473    T133A,  JMS I ERROR     /ERROR: COUNTER FAILED
2326  4133            4133            /TST133 ERROR MESSAGE
2327  2303            TST133          /SCOPE LOOP
                        /
                        /DOES BUFFER TO COUNTER ON OVERFLOW ?
                        /MODE 1, RATE 4
                        /
2330  1017    TST134, TAD K5252       /GET AC NUMBER
2331  4427            JMS I XIOTG     /IOT 6133, CLAB
2332  7340            CLA CLL CMA     /AC TO 7777
2333  3040            DCA REGA
2334  1144            TAD K1000
2335  1116            TAD K0400       /GET ENABLES
2336  4426            JMS I XIOTF1    /IOT 6132, CLOE
2337  4424            JMS I XIOTE     /IOT 6131, CLSK
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2340  5337            JMP .-1         /WAIT FOR FLAG
2341  7340            CLA CLL CMA     /AC TO 7777
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  4134            4134            /TST134 ERROR MESSAGE
2347  2330            TST134          /SCOPE LOOP
                        /
                        /DOES BUFFER TO COUNTER ON OVERFLOW ?
                        /MODE 1, RATE 4
                        /
2350  1016    TST135, TAD K2525       /GET AC NUMBER
2351  4427            JMS I XIOTG     /IOT 6133, CLAB
2352  7340            CLA CLL CMA     /AC TO 7777
2353  3040            DCA REGA
2354  1144            TAD K1000
2355  1116            TAD K0400       /GET ENABLES
2356  4426            JMS I XIOTF1    /IOT 6132, CLOE
2357  4424            JMS I XIOTE     /IOT 6131, CLSK
2360  5357            JMP .-1         /WAIT FOR OVERFLOW
2361  4433            JMS I XIOTK     /IOT 6137, CLCA
2362  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
2363  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2364  4473            JMS I ERROR     /ERROR: COUNTER FAILED
2365  4135            4135            /TST135 ERROR MESSAGE
2366  2350            TST135          /SCOPE LOOP
                        /
                        /DOES BUFFER TO COUNTER ON OVERFLOW ?
                        /RATE 4, MODE 2
                        /
2367  7340    TST136, CLA CLL CMA     /AC TO 7777
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  1143            TAD K2000       /GET ENABLES
2375  4426            JMS I XIOTF1    /IOT 6132, CLOE
2376  4424            JMS I XIOTE     /IOT 6131, CLSK
2377  5376            JMP .-1         /WAIT FOR FLAG
2400  4433            JMS I XIOTK     /IOT 6137, CLCA
2401  7650            SNA CLA         /WAS COUNTER ALL 0'S ?
2402  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2403  4473            JMS I ERROR     /ERROR: COUNTER FAILED
2404  4136            4136            /TST136 ERROR MESSAGE
2405  2367            TST136          /SCOPE LOOP
                        /
                        /DOES BUFFER TO COUNTER ON OVERFLOW ?
                        /MODE 3, RATE 4
                        /
2406  7340    TST137, CLA CLL CMA
2407  4427            JMS I XIOTG     /IOT 6133, CLAB
2410  3040            DCA REGA
2411  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
2412  1116            TAD K0400
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2413  1120          TAD K3000       /GET ENABLES
2414  4426          JMS I XIOTF1    /IOT 6132, CLOE
2415  4424          JMS I XIOTE     /IOT 6131, CLSK
2416  5215          JMP .-1         /WAIT FOR OVERFLOW
2417  7340          CLA CLL CMA
2420  4433          JMS I XIOTK     /IOT 6137, CLCA
2421  7650          SNA CLA         /WAS COUNTER ALL 0'S ?
2422  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2423  4473          JMS I ERROR     /ERROR: COUNTER FAILED
2424  4137          4137            /TST137 ERROR MESSAGE
2425  2406          TST137          /SCOPE LOOP
                    /
                    /DOES INT. WITHOUT BIT 8 ?
                    /
2426  7340    TST140, CLA CLL CMA
2427  4427          JMS I XIOTG     /IOT 6133, CLAB
2430  3040          DCA REGA
2431  7313          CLA CLL IAC RTR /AC TO 4000
2432  1007          TAD K0007
2433  1147          TAD K0600       /GET ENABLES
2434  4425          JMS I XIOTF     /IOT 6132, CLOE
2435  4447          JMS I XPIGO1    /GO TO PI, NO PI EXPECTED
2436  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2437  4473          JMS I ERROR     /ERROR: INT. RQST. OR ENA 0 FAILED
2440  1140          1140            /TST140 ERROR MESSAGE
2441  2426          TST140          /SCOPE LOOP
                    /
                    /DOES OVERFLOW CAUSE INT. RQST. ?
                    /RATE 6, MODE 0
                    /
2442  7340    TST141, CLA CLL CMA   /AC TO 7777
2443  4427          JMS I XIOTG     /IOT 6133, CLAB
2444  7300          CLA CLL         /CLEAR THE AC AND LINK
2445  1014          TAD K4000
2446  1142          TAD K0010
2447  1147          TAD K0600       /GET RATE + MODE
2450  4425          JMS I XIOTF     /IOT 6132, CLOE
2451  4452          JMS I XPIGO4    /GO TO PI, PI EXPECTED
2452  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2453  4473          JMS I ERROR     /ERROR: OVERFLOW OR ENA 0 FAILED
2454  1541          1541            /TST141 ERROR MESSAGE
2455  2442          TST141          /SCOPE LOOP
                    /
                    /DOES INT. RQST. WITHOUT ENA 0 ?
                    /RATE 6, MODE 0
                    /
2456  7340    TST142, CLA CLL CMA   /AC TO 7777
2457  4427          JMS I XIOTG     /IOT 6133, CLAB
2460  7300          CLA CLL         /CLEAR THE AC AND LINK
2461  1142          TAD K0010
2462  1147          TAD K0600       /GET RATE + MODE
2463  4425          JMS I XIOTF     /IOT 6132, CLOE
2464  4451          JMS I XPIGO3    /GO TO PI,NO PI EXPECTED
2465  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2466  4473          JMS I ERROR     /ERROR: ENA 0 FAILED
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2467  1142          1142            /TST142 ERROR MESSAGE
2470  2456          TST142          /SCOPE LOOP
                    /
                    /DOES COUNTER COUNT ?
                    /RATE 6, MODE 0
                    /
2471  7340    TST143, CLA CLL CMA   /AC TO 7777
2472  3040          DCA REGA
2473  4427          JMS I XIOTG     /IOT 6133, CLAB
2474  1014          TAD K4000
2475  1142          TAD K0010
2476  1147          TAD K0600       /GET RATE + MODE
2477  4425          JMS I XIOTF     /IOT 6132, CLOE
2500  4450          JMS I XPIGO2    /GO TO PI
2501  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2502  4473          JMS I ERROR     /ERROR: OVERFLOW OR COUNTER FAILED
2503  1543          1543            /TST143 ERROR MESSAGE
2504  2471          TST143          /SCOPE LOOP
                    /
                    /DOES COUNTER COUNT ?
                    /RATE 6, MODE 1
                    /
2505  7340    TST144, CLA CMA CLL
2506  3040          DCA REGA
2507  4427          JMS I XIOTG     /IOT 6133, CLAB
2510  1121          TAD K5000
2511  1142          TAD K0010
2512  1147          TAD K0600       /GET RATE + MODE
2513  4425          JMS I XIOTF     /IOT 6132, CLOE
2514  4450          JMS I XPIGO2    /GO TO PI
2515  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2516  4473          JMS I ERROR     /ERROR: OVERFLOW OR COUNTER FAILED
2517  1544          1544            /TST144 ERROR MESSAGE
2520  2505          TST144          /SCOPE LOOP
                    /
                    /DOES COUNTER COUNT ?
                    /RATE 6, MODE 2
                    /
2521  7340    TST145, CLA CLL CMA   /AC TO 7777
2522  3040          DCA REGA
2523  4427          JMS I XIOTG     /IOT 6133, CLAB
2524  1117          TAD K6000
2525  1142          TAD K0010
2526  1147          TAD K0600       /GET ENABLES
2527  4425          JMS I XIOTF     /IOT 6132, CLOE
2530  4450          JMS I XPIGO2    /GO TO PI, PI EXPECTED
2531  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2532  4473          JMS I ERROR     /ERROR: OVERFLOW OR COUNTER FAILED
2533  1545          1545            /TST145 ERROR MESSAGE
2534  2521          TST145          /SCOPE LOOP
                    /
                    /DOES COUNTER COUNT ?
                    /RATE 6, MODE 3
                    /
2535  7340    TST146, CLA CLL CMA   /AC TO 7777
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2536  3040            DCA REGA
2537  4427            JMS I XIOTG     /IOT 6133, CLAB
2540  1141            TAD K7000
2541  1142            TAD K0010
2542  1147            TAD K0600       /GET ENABLES
2543  4425            JMS I XIOTF     /IOT 6132, CLOE
2544  4450            JMS I XPIGO2    /GO TO PI, PI EXPECTED
2545  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2546  4473            JMS I ERROR     /ERROR: COUNTER OR MODE 3 FAILED
2547  1546            1546            /TST146 ERROR MESSAGE
2550  2535            TST146          /SCOPE LOOP
                /
                /DOES OVERFLOW CAUSE RQST. ?
                /RATE 2-6, MODE 0
                /
2551  1131    TST147, TAD K7773
2552  3041            DCA REGB
2553  1014            TAD K4000
2554  1142            TAD K0010
2555  1015            TAD K0200
2556  3044    T147B,  DCA REGE                /SET UP ENABLES
2557  7340            CLA CLL CMA     /AC TO 7777
2560  4427            JMS I XIOTG     /IOT 6133, CLAB
2561  3040            DCA REGA
2562  1044            TAD REGE        /GET ENABLES
2563  4425            JMS I XIOTF     /IOT 6132, CLOE
2564  4447            JMS I XPIGO1    /GO TO PI, PI EXPECTED
2565  5374            JMP T147A
2566  6007            6007            /CAF OR CLEAR THE WORLD
2567  1013            TAD K0100
2570  1044            TAD REGE
2571  2041            ISZ REGB
2572  5356            JMP T147B               /DO RATES 2-6
2573  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2574  4473    T147A,  JMS I ERROR     /ERROR: OVERFLOW OR MODE FAILED
2575  1547            1547            /TST147 ERRROR MESSAGE
2576  2551            TST147          /SCOPE LOOP
                /
                /DOES OVERFLOW CAUSE RQST. ?
                /RATE 2-6, MODE 1
                /
2577  1131    TST150, TAD K7773
2600  3041            DCA REGB
2601  1121            TAD K5000
2602  1142            TAD K0010
2603  1015            TAD K0200       /MAKE ENABLES
2604  3044    T150B,  DCA REGE
2605  7340            CLA CLL CMA     /AC TO 7777
2606  4427            JMS I XIOTG     /IOT 6133, CLAB
2607  3040            DCA REGA
2610  1044            TAD REGE        /GET ENABLES
2611  4425            JMS I XIOTF     /IOT 6132, CLOE
2612  4447            JMS I XPIGO1    /GO TO PI, PI EXPECTED
2613  5573            JMP I XCRS3
2614  6007            6007            /CAF OR CLEAR THE WORLD
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2615  1013            TAD K0100
2616  1044            TAD REGE
2617  2041            ISZ REGB
2620  5574            JMP I XCRS4
2621  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2622  4473    T150A,  JMS I ERROR     /ERROR: OVERFLOW OR MODE FAILED
2623  1550            1550            /TST150 ERROR MESSAGE
2624  2577            TST150          /SCOPE LOOP
                /
                /DOES OVERFLOW CAUSE RQST. ?
                /RATE 2-6, MODE 2
                /
2625  1131    TST151, TAD K7773
2626  3041            DCA REGB
2627  1117            TAD K6000
2630  1142            TAD K0010
2631  1015            TAD K0200
2632  3044    T151B,  DCA REGE        /MAKE ENABLES
2633  7340            CLA CLL CMA     /AC TO 7777
2634  4427            JMS I XIOTG     /IOT 6133, CLAB
2635  3040            DCA REGA
2636  1044            TAD REGE        /GET ENABLES
2637  4425            JMS I XIOTF     /IOT 6132, CLOE
2640  4447            JMS I XPIGO1            /GO TO PI, PI EXPECTED
2641  5250            JMP T151A
2642  6007            6007            /CAF OR CLEAR THE WORLD
2643  1013            TAD K0100
2644  1044            TAD REGE
2645  2041            ISZ REGB
2646  5232            JMP T151B
2647  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
2650  4473    T151A,  JMS I ERROR     /ERROR: OVERFLOW OR MODE FAILED
2651  1551            1551            /TST151 ERROR MESSAGE
2652  2625            TST151          /SCOPE LOOP
                /
                /DOES OVERFLOW CAUSE RQST. ?
                /RATE 2-6, MODE 3
                /
2653  1131    TST152, TAD K7773
2654  3041            DCA REGB
2655  1141            TAD K7000
2656  1142            TAD K0010
2657  1015            TAD K0200               /MAKE ENABLES
2660  3044    T152B,  DCA REGE
2661  7340            CLA CLL CMA     /AC TO 7777
2662  4427            JMS I XIOTG     /IOT 6133, CLAB
2663  3040            DCA REGA
2664  1044            TAD REGE        /GET ENABLES
2665  4425            JMS I XIOTF     /IOT 6132, CLOE
2666  4447            JMS I XPIGO1    /GO TO PI, PI EXPECTED
2667  5276            JMP T152A
2670  6007            6007            /CAF OR CLEAR THE WORLD
2671  1013            TAD K0100
2672  1044            TAD REGE
2673  2041            ISZ REGB
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2674  5260          JMP T1528       /DO RATES 2-6
2675  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2676  4473  T152A,  JMS I ERROR     /ERROR: OVERFLOW OR MODE FAILED
2677  1552          1552            /TST152 ERROR MESSAGE
2700  2653          TST152          /SCOPE LOOP
                    /
                    /DOES OVERFLOW CAUSE RQST. ?
                    /RATE 0-7, MODE 1, DISABLE BIT 7
                    /
2701  1122  TST153, TAD K7770
2702  3041          DCA REGB
2703  1121          TAD K5000
2704  1142          TAD K0010
2705  1140          TAD K0020
2706  3044  T1538,  DCA REGE              /MAKE ENABLES
2707  7340          CLA CLL CMA     /AC TO 7777
2710  4427          JMS I XIOTG     /IOT 6133, CLAB
2711  3040          DCA REGA
2712  1044          TAD REGE        /GET ENABLES
2713  4425          JMS I XIOTF     /IOT 6132, CLOE
2714  4450          JMS I XPIGO2    /GO TO PI, NO PI EXPECTED
2715  5324          JMP T153A
2716  6007          6007            /CAF OR CLEAR THE WORLD
2717  1013          TAD K0100
2720  1044          TAD REGE
2721  2041          ISZ REGB
2722  5306          JMP T1538       /DO RATE 0-7
2723  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2724  4473  T153A,  JMS I ERROR     /ERROR: OVERFLOW OR CLK ENA FAILED
2725  1153          1153            /TST153 ERROR MESSAGE
2726  2701          TST153          /SCOPE LOOP
                    /
                    /DOES OVERFLOW CAUSE RQST. ?
                    /RATE 0-7, MODE 2, DISABLE INT. RQST. BIT
                    /
2727  1122  TST154, TAD K7770
2730  3041          DCA REGB
2731  1117          TAD K6000
2732  1142          TAD K0010
2733  1140          TAD K0020
2734  3044  T154B,  DCA REGE              /MAKE ENABLES
2735  7340          CLA CLL CMA     /AC TO 7777
2736  4427          JMS I XIOTG     /IOT 6133, CLAB
2737  3040          DCA REGA
2740  1044          TAD REGE        /GET ENABLES
2741  4425          JMS I XIOTF     /IOT 6132, CLOE
2742  4450          JMS I XPIGO2    /GO TO PI, NO PI EXPECTED
2743  5352          JMP T154A
2744  6007          6007            /CAF OR CLEAR THE WORLD
2745  1013          TAD K0100
2746  1044          TAD REGE
2747  2041          ISZ REGB
2750  5334          JMP T154B               /DO RATE 0-7
2751  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2752  4473  T154A,  JMS I ERROR     /ERROR: OVERFLOW OR CLK ENA FAILED
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2753  1154          1154            /TST154 ERROR MESSAGE
2754  2727          TST154          /SCOPE LOOP
                    /
                    /DOES OVERFLOW CAUSE INT. RQST. ?
                    /MODE 0, RATE 6
                    /
2755  7340  TST155, CLA CLL CMA     /AC TO 7777
2756  4427          JMS I XIOTG     /IOT 6133, CLAB
2757  7330          CLA CLL CML RAR /AC TO 4000
2760  1147          TAD K0600
2761  1142          TAD K0010       /GET ENABLES
2762  4425          JMS I XIOTF     /IOT 6132, CLOE
2763  4452          JMS I XPIGO4    /GO TO PI, PI EXPECTED
2764  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
2765  4473          JMS I ERROR     /ERROR: OVERFLOW OR COUNTER FAILED
2766  1555          1555            /TST155 ERROR MESSAGE
2767  2755          TST155          /SCOPE LOOP
                    /
                    /DOES CLSK SKIP THEN INTERRUPT ?
                    /RATE 6, MODE 0
                    /
2770  7340  TST156, CLA CLL CMA     /AC TO 7777
2771  4427          JMS I XIOTG     /IOT 6133, CLAB
2772  7330          CLA CLL CML RAR
2773  1142          TAD K0010
2774  1147          TAD K0600       /MAKE ENABLES
2775  4425          JMS I XIOTF     /IOT 6132, CLOE
2776  4424          JMS I XIOTE     /IOT 6131, CLSK
2777  5376          JMP .-1         /WAIT FOR OVERFLOW
3000  4452          JMS I XPIGO4    /GO TO PI, PI EXPECTED
3001  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3002  4473          JMS I ERROR     /ERROR: CLSK OR PI FAILED
3003  1556          1556            /TST156 ERROR MESSAGE
3004  2770          TST156          /SCOPE LOOP
                    /
                    /CHECK FOR NO INT. RQST.
                    /MODE 0, RATE 6, DISABLE WITH CLSA
                    /
3005  7340  TST157, CLA CLL CMA     /AC TO 7777
3006  4427          JMS I XIOTG     /IOT 6133, CLAB
3007  7330          CLA CLL CML RAR /AC TO 4000
3010  1147          TAD K0600
3011  1142          TAD K0010
3012  4425          JMS I XIOTF     /IOT 6132, CLOE
3013  4424          JMS I XIOTE     /IOT 6131,  CLSK
3014  5213          JMP .-1         /WAIT FOR OVERFLOW
3015  4431          JMS I XIOTI     /IOT 6135, CLSA
3016  4451          JMS I XPIGO3    /GO TO PI, NO PI EXPECTED
3017  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3020  4473          JMS I ERROR     /ERROR: INT. RQST. FAILED
3021  1157          1157            /TST157 ERROR MESSAGE
3022  3005          TST157          /SCOPE LOOP
                    /
3023  1176          TAD     TIMFLG  /GET CYCLE TIME FLAG!
3024  7650          SNA CLA         /SET?
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3025  5230          JMP     .+3     /NO1
3026  5627          JMP I   .+1     /YES, BYPASS TIME TESTS!
3027  3257          TST172
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 2, MODE 0
                    /
3030  7340    TST160, CLA CLL CMA     /AC TO 7777
3031  3040          DCA REGA
3032  1151          TAD KTA
3033  3076          DCA KREGC
3034  4427          JMS I XIOTG     /IOT 6133, CLAB
3035  1014          TAD K4000
3036  1142          TAD K0010
3037  1015          TAD K0200       /MAKE ENABLES
3040  4425          JMS I XIOTF     /IOT 6132, CLOE
3041  4453          JMS I XPIGO5
3042  7610          SKP CLA
3043  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3044  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST
3045  2160          2160            /TST160 ERROR MESSAGE
3046  3030          TST160          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 2, MODE 0
                    /
3047  7340    TST161, CLA CLL CMA     /AC TO 7777
3050  3040          DCA REGA
3051  1152          TAD KTA1
3052  3076          DCA KREGC
3053  4427          JMS I XIOTG     /IOT 6133, CLAB
3054  1014          TAD K4000
3055  1142          TAD K0010
3056  1015          TAD K0200       /MAKE ENABLES
3057  4425          JMS I XIOTF     /IOT 6132, CLOE
3060  4453          JMS I XPIGO5
3061  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3062  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW
3063  2561          2561            /TST161 ERROR MESSAGE
3064  3047          TST161          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 3, MODE 0
                    /
3065  7340    TST162, CLA CLL CMA     /AC TO 7777
3066  3040          DCA REGA
3067  1153          TAD KTB
3070  3076          DCA KREGC
3071  4427          JMS I XIOTG     /IOT 6133, CLAB
3072  1014          TAD K4000
3073  1142          TAD K0010
3074  1145          TAD K0300       /MAKE ENABLES
3075  4425          JMS I XIOTF     /IOT 6132, CLOE
3076  4453          JMS I XPIGO5
3077  7610          SKP CLA
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3100  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3101  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST
3102  2162          2162            /TST162 ERROR MESSAGE
3103  3065          TST162          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 3, MODE 0
                    /
3104  7340    TST163, CLA CLL CMA     /AC TO 7777
3105  3040          DCA REGA
3106  1154          TAD KTB1
3107  3076          DCA KREGC
3110  4427          JMS I XIOTG     /IOT 6133, CLAB
3111  1014          TAD K4000
3112  1142          TAD K0010
3113  1145          TAD K0300       /MAKE ENABLES
3114  4425          JMS I XIOTF     /IOT 6132, CLOE
3115  4453          JMS I XPIGO5
3116  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3117  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW
3120  2563          2563            /TST163 ERROR MESSAGE
3121  3104          TST163          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 4, MODE 0
                    /
3122  7340    TST164, CLA CLL CMA     /AC TO 7777
3123  3040          DCA REGA
3124  1155          TAD KTC
3125  3076          DCA KREGC
3126  1156          TAD KTC1
3127  3043          DCA REGD        /SET TIMER FOR 10000 CPS CLOCK
3130  4427          JMS I XIOTG     /IOT 6133, CLAB
3131  1014          TAD K4000
3132  1142          TAD K0010
3133  1116          TAD K0400       /MAKE ENABLES
3134  4425          JMS I XIOTF     /IOT 6132, CLOE
3135  4453          JMS I XPIGO5
3136  7610          SKP CLA
3137  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3140  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST
3141  2164          2164            /TST164 ERROR MESSAGE
3142  3122          TST164          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 4, MODE 0
                    /
3143  7340    TST165, CLA CLL CMA     /AC TO 7777
3144  3040          DCA REGA
3145  1155          TAD KTC
3146  3076          DCA KREGC
3147  1157          TAD KTC2
3150  3043          DCA REGD        /SET TIMER FOR 10000 CLOCK
3151  4427          JMS I XIOTG     /IOT 6133, CLAB
3152  1014          TAD K4000
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3153  1142          TAD K0010
3154  1116          TAD K0400       /MAKE ENABLES
3155  4425          JMS I XIOTF     /IOT 6132, CLOE
3156  4453          JMS I XPIGO5
3157  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3160  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW
3161  2565          2565            /TST165 ERROR MESSAGE
3162  3143          TST165          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 5, MODE 0
                    /
3163  7340    TST166, CLA CLL CMA   /AC TO 7777
3164  3040          DCA REGA
3165  7350          CLA CLL CMA RAR
3166  4427          JMS I XIOTG     /IOT 6133, CLAB
3167  7300          CLA CLL         /CLEAR THE AC AND LINK
3170  1160          TAD KTD
3171  3043          DCA REGD        /SET TIMER FOR 100000 CPS CLOCK
3172  1014          TAD K4000
3173  1142          TAD K0010
3174  1146          TAD K0500       /MAKE ENABLES
3175  4425          JMS I XIOTF     /IOT 6132, CLOE
3176  4447          JMS I XPIGO1
3177  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3200  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST
3201  2166          2166            /TST166 ERROR MESSAGE
3202  3163          TST166          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 5, MODE 0
                    /
3203  7340    TST167, CLA CLL CMA   /AC TO 7777
3204  3040          DCA REGA
3205  7350          CLA CLL CMA RAR
3206  4427          JMS I XIOTG     /IOT 6133, CLAB
3207  7300          CLA CLL         /CLEAR THE AC AND LINK
3210  1161          TAD KTD1
3211  3043          DCA REGD        /SET TIMER FOR 100000 CPS CLOCK
3212  1014          TAD K4000
3213  1142          TAD K0010
3214  1146          TAD K0500       /MAKE ENABLES
3215  4425          JMS I XIOTF     /IOT 6132, CLOE
3216  4450          JMS I XPIGO2
3217  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3220  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW
3221  2567          2567            /TST167 ERROR MESSAGE
3222  3203          TST167          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 6, MODE 0
                    /
3223  7340    TST170, CLA CLL CMA   /AC TO 7777
3224  3040          DCA REGA
3225  1162          TAD KTE
```



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3226  3043          DCA REGD        /SET TIMER FOR 1000000 CPS CLOCK
3227  4427          JMS I XIOTG     /IOT 6133, CLAB
3230  1014          TAD K4000
3231  1142          TAD K0010
3232  1147          TAD K0600       /MAKE ENABLES
3233  4425          JMS I XIOTF     /IOT 6132, CLOE
3234  4447          JMS I XPIGO1
3235  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3236  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY FAST
3237  2170          2170            /TST170 ERROR MESSAGE
3240  3223          TST170          /SCOPE LOOP
                    /
                    /DOES CLOCK FREQUENCY TIME OUT ?
                    /RATE 6, MODE 0
                    /
3241  7340    TST171, CLA CLL CMA   /AC TO 7777
3242  3040          DCA REGA
3243  1163          TAD KTE1
3244  3043          DCA REGD                /SET TIMER FOR 1000000 CPS CLOCK
3245  4427          JMS I XIOTG     /IOT 6133, CLAB
3246  1014          TAD K4000
3247  1142          TAD K0010
3250  1147          TAD K0600               /MAKE ENABLES
3251  4425          JMS I XIOTF     /IOT 6132, CLOE
3252  4450          JMS I XPIGO2
3253  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3254  4473          JMS I ERROR     /ERROR: CLOCK FREQUENCY SLOW
3255  2571          2571            /TST171 ERROR MESSAGE
3256  3241          TST171          /SCOPE LOOP
                    /
                    /DOES COUNTER REALLY COUNT ?
                    /RATE 2, MODE 0
                    /
3257  7340    TST172, CLA CLL CMA   /AC TO 7777
3260  4427          JMS I XIOTG     /IOT 6133, CLAB
3261  3040          DCA REGA
3262  1015          TAD K0200               /GET RATE + MODE
3263  4426          JMS I XIOTF1    /IOT 6132, CLOE
3264  7300    T172B1, CLA CLL       /CLEAR THE AC AND LINK
3265  3042          DCA REGC
3266  1041          TAD REGB
3267  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3270  4433    T172B,  JMS I XIOTK   /IOT 6137, CLCA
3271  7041          CIA
3272  1041          TAD REGB        /COMPARE TO THIS REGISTER
3273  7650          SNA CLA         /ARE THEY THE SAME YET ?
3274  5300          JMP T172A       /YES, TEST NEXT NUMBER
3275  2042          ISZ REGC
3276  5270          JMP T172B       /WAIT ABOUT 15 MS FOR REGISTER
3277  5303          JMP T172A1      /NUMBER NOT FOUND
3300  2041    T172A,  ISZ REGB      /UPDATE COMPARE REGISTER
3301  5264          JMP T172B1      /TEST FOR NEXT COUNTER PULSE
3302  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3303  4473    T172A1, JMS I ERROR   /ERROR: COUNTER FAILED
3304  4172          4172            /TST172 ERROR MESSAGE
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3305  3257            TST172          /SCOPE LOOP
                      /
                      /DOES COUNTER REALLY COUNT ?
                      /RATE 3, MODE 0
                      /
3306  7340  TST173, CLA CLL CMA       /AC TO 7777
3307  4427            JMS I XIOTG     /IOT 6133, CLAB
3310  3040            DCA REGA
3311  1145            TAD K0300       /GET RATE + MODE
3312  4426            JMS I XIOTF1    /IOT 6132, CLOE
3313  7300  T173B1, CLA CLL           /CLEAR THE AC AND LINK
3314  3042            DCA REGC
3315  1041            TAD REGB
3316  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3317  4433  T173B,  JMS I XIOTK      /IOT 6137, CLCA
3320  7041            CIA
3321  1041            TAD REGB        /COMPARE TO THIS REGISTER
3322  7650            SNA CLA         /ARE THEY THE SAME YET ?
3323  5327            JMP T173A       /YES, TEST NEXT NUMBER
3324  2042            ISZ REGC
3325  5317            JMP T173B       /WAIT ABOUT 15 MS FOR REGISTER
3326  5332            JMP T173A1      /NUMBER NOT FOUND
3327  2041  T173A,  ISZ REGB         /UPDATE COMPARE REGISTER
3330  5313            JMP T173B1      /TEST FOR NEXT COUNTER PULSE
3331  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
3332  4473  T173A1, JMS I ERROR      /ERROR: COUNTER FAILED
3333  4173            4173            /TST173 ERROR MESSAGE
3334  3306            TST173          /SCOPE LOOP
                      /
                      /DOES COUNTER REALLY COUNT ?
                      /RATE 2, MODE 1
                      /
3335  7340  TST174, CLA CLL CMA       /AC TO 7777
3336  4427            JMS I XIOTG     /IOT 6133, CLAB
3337  3040            DCA REGA
3340  1015            TAD K0200
3341  1144            TAD K1000       /GET RATE + MODE
3342  4426            JMS I XIOTF1    /IOT 6132, CLOE
3343  4424            JMS I XIOTE     /IOT 6131, CLSK
3344  5343            JMP .-1
3345  7300            CLA CLL         /CLEAR THE AC AND LINK
3346  4427            JMS I XIOTG     /IOT 6133, CLAB
3347  3042  T174B1, DCA REGC
3350  1041            TAD REGB
3351  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3352  4433  T174B,  JMS I XIOTK      /IOT 6137, CLCA
3353  7041            CIA
3354  1041            TAD REGB        /COMPARE TO THIS REGISTER
3355  7650            SNA CLA         /ARE THEY THE SAME YET ?
3356  5362            JMP T174A       /YES, TEST NEXT NUMBER
3357  2042            ISZ REGC
3360  5352            JMP T174B       /WAIT ABOUT 15 MS FOR REGISTER
3361  5365            JMP T174A1      /NUMBER NOT FOUND
3362  2041  T174A,  ISZ REGB         /UPDATE COMPARE REGISTER
3363  5347            JMP T17481      /TEST FOR NEXT COUNTER PULSE
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3364  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
3365  4473  T174A1, JMS I ERROR      /ERROR: COUNTER FAILED
3366  4174            4174            /TST174 ERROR MESSAGE
3367  3335            TST174          /SCOPE LOOP
                      /
                      /DOES COUNTER REALLY COUNT ?
                      /RATE 4, MODE 1
                      /
3370  7340  TST175, CLA CLL CMA       /AC TO 7777
3371  4427            JMS I XIOTG     /IOT 6133, CLAB
3372  3040            DCA REGA
3373  1116            TAD K0400
3374  1144            TAD K1000       /GET RATE + MODE
3375  4426            JMS I XIOTF1    /IOT 6132, CLOE
3376  4424            JMS I XIOTE     /IOT 6131, CLSK
3377  5376            JMP .-1
3400  7300            CLA CLL         /CLEAR THE AC AND LINK
3401  4427            JMS I XIOTG     /IOT 6133, CLAB
3402  3042  T175B1, DCA REGC
3403  1041            TAD REGB
3404  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3405  4433  T175B,  JMS I XIOTK      /IOT 6137, CLCA
3406  7041            CIA
3407  1041            TAD REGB        /COMPARE TO THIS REGISTER
3410  7650            SNA CLA         /ARE THEY THE SAME YET ?
3411  5215            JMP T175A       /YES, TEST NEXT NUMBER
3412  2042            ISZ REGC
3413  5205            JMP T175B       /WAIT ABOUT 15 MS FOR REGISTER
3414  5220            JMP T175A1      /NUMBER NOT FOUND
3415  2041  T175A,  ISZ REGB         /UPDATE COMPARE REGISTER
3416  5202            JMP T175B1      /TEST FOR NEXT COUNTER PULSE
3417  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
3420  4473  T175A1, JMS I ERROR      /ERROR: COUNTER FAILED
3421  4175            4175            /TST175 ERROR MESSAGE
3422  3370            TST175          /SCOPE LOOP
                      /
                      /DOES COUNTER REALLY COUNT ?
                      /RATE 2, MODE 2
                      /
3423  7340  TST176, CLA CLL CMA       /AC TO 7777
3424  4427            JMS I XIOTG     /IOT 6133, CLAB
3425  3040            DCA REGA
3426  1015            TAD K0200
3427  1143            TAD K2000       /GET RATE + MODE
3430  4426            JMS I XIOTF1    /IOT 6132, CLOE
3431  7300  T176B1, CLA CLL           /CLEAR THE AC AND LINK
3432  3042            DCA REGC
3433  1041            TAD REGB
3434  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3435  4433  T176B,  JMS I XIOTK      /IOT 6137, CLCA
3436  7041            CIA
3437  1041            TAD REGB        /COMPARE TO THIS REGISTER
3440  7650            SNA CLA         /ARE THEY THE SAME YET ?
3441  5245            JMP T176A       /YES, TEST NEXT NUMBER
3442  2042            ISZ REGC
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3443  5235          JMP T176B       /WAIT ABOUT 15 MS FOR REGISTER
3444  5250          JMP T176A1      /NUMBER NOT FOUND
3445  2041  T176A,  ISZ REGB       /UPDATE COMPARE REGISTER
3446  5231          JMP T176B1      /TEST FOR NEXT COUNTER PULSE
3447  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3450  4473  T176A1, JMS I ERROR     /ERROR: COUNTER FAILED
3451  4176          4176            /TST176 ERROR MESSAGE
3452  3423          TST176          /SCOPE LOOP
                    /
                    /DOES COUNTER REALLY COUNT ?
                    /RATE 4, MODE 2
                    /
3453  7340  TST177, CLA CLL CMA     /AC TO 7777
3454  4427          JMS I XIOTG     /IOT 6133, CLAB
3455  3040          DCA REGA
3456  1116          TAD K0400
3457  1143          TAD K2000       /GET RATE + MODE
3460  4426          JMS I XIOTF1    /IOT 6132, CLOE
3461  7300  T177B1, CLA CLL         /CLEAR THE AC AND LINK
3462  3042          DCA REGC
3463  1041          TAD REGB
3464  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3465  4433  T177B,  JMS I XIOTK     /IOT 6137, CLCA
3466  7041          CIA
3467  1041          TAD REGB        /COMPARE TO THIS REGISTER
3470  7650          SNA CLA         /ARE THEY THE SAME YET ?
3471  5275          JMP T177A       /YES, TEST NEXT NUMBER
3472  2042          ISZ REGC
3473  5265          JMP T177B       /WAIT ABOUT 15 MS FOR REGISTER
3474  5300          JMP T177A1      /NUMBER NOT FOUND
3475  2041  T177A,  ISZ REGB       /UPDATE COMPARE REGISTER
3476  5261          JMP T177B1      /TEST FOR NEXT COUNTER PULSE
3477  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3500  4473  T177A1, JMS I ERROR     /ERROR: COUNTER FAILED
3501  4177          4177            /TST177 ERROR MESSAGE
3502  3453          TST177          /SCOPE LOOP
                    /
                    /DOES COUNTER REALLY COUNT ?
                    /RATE 4, MODE 3
                    /
3503  7340  TST200, CLA CLL CMA     /AC TO 7777
3504  4427          JMS I XIOTG     /IOT 6133, CLAB
3505  3040          DCA REGA
3506  1116          TAD K0400
3507  1120          TAD K3000       /GET RATE + MODE
3510  4426          JMS I XIOTF1    /IOT 6132, CLOE
3511  7300  T200B1, CLA CLL         /CLEAR THE AC AND LINK
3512  3042          DCA REGC
3513  1041          TAD REGB
3514  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3515  4433  T200B,  JMS I XIOTK     /IOT 6137, CLCA
3516  7041          CIA
3517  1041          TAD REGB        /COMPARE TO THIS REGISTER
3520  7650          SNA CLA         /ARE THEY THE SAME YET ?
3521  5325          JMP T200A       /YES, TEST NEXT NUMBER
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3522  2042          ISZ REGC
3523  5315          JMP T200B       /WAIT ABOUT 15 MS FOR REGISTER
3524  5330          JMP T200A1      /NUMBER NOT FOUND
3525  2041  T200A,  ISZ REGB       /UPDATE COMPARE REGISTER
3526  5311          JMP T200B1      /TEST FOR NEXT COUNTER PULSE
3527  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3530  4473  T200A1, JMS I ERROR     /ERROR: MODE 3, COUNTER FAILED
3531  4200          4200            /TST200 ERROR MESSAGE
3532  3503          TST200          /SCOPE LOOP
                    /
                    /DO IOT'S AFFECT AC ?
                    /
3533  7340  TST201, CLA CLL CMA     /AC TO 7777
3534  4427          JMS I XIOTG     /IOT 6133, CLAB
3535  3040          DCA REGA        /PASS COUNT 1
3536  6007          6007            /CAF OR CLEAR THE WORLD
3537  1144          TAD K1000
3540  1015          TAD K0200       /GET ENABLES
3541  4426          JMS I XIOTF1    /IOT 6132, CLOE
3542  4424          JMS I XIOTE     /IOT 6131, CLSK
3543  5342          JMP .-1         /WAIT FOR COUNTER TO GET CLEARED
3544  7340          CLA CLL CMA
3545  4423          JMS I XIOTD     /IOT 6130, CLZE
3546  7300  T201B,  CLA CLL         /CLEAR AC AND LINK
3547  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
3550  1041          TAD REGB        /GET AC NUMBER
3551  4432          JMS I XIOTJ     /IOT 6136, CLBA
3552  7640          SZA CLA         /WAS AC ALL 0'S ?
3553  5375          JMP T201A
3554  1041          TAD REGB        /GET AC NUMBER
3555  4433          JMS I XIOTK     /IOT 6137, CLCA
3556  7640          SZA CLA         /WAS AC ALL 0'S ?
3557  5375          JMP T201A
3560  1041          TAD REGB        /GET AC NUMBER
3561  4430          JMS I XIOTH     /IOT 6134, CLEN
3562  7640          SZA CLA         /WAS AC ALL 0'S ?
3563  5375          JMP T201A
3564  1041          TAD REGB        /GET AC NUMBER
3565  4431          JMS I XIOTI     /IOT 6135, CLSA
3566  7640          SZA CLA         /WAS AC ALL 0'S ?
3567  5375          JMP T201A
3570  4424          JMS I XIOTE     /IOT 6131, CLSK
3571  5370          JMP .-1         /WAS FLAG STILL SET ?
3572  2041          ISZ REGB        /UPDATE PASS COUNTER
3573  5346          JMP T201B       /TEST IOT'S AGAIN
3574  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3575  4473  T201A,  JMS I ERROR     /ERROR: IOT FAILED
3576  3201          3201            /TST201 ERROR MESSAGE
3577  3533          TST201          /SCOPE LOOP
                    /
3600  4570          JMS I XPASS     /TYPE PASS COMPLETE
3601  5463          JMP I XDK8EP    /CONTINUE TESTING
                    /
                    /DOES INPUT 4 CAUSE INT. RQST.
                    /
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3602  7300          CLA CLL
3603  1112          TAD K7400
3604  3077          DCA LOOP          /LOAD LOOP COUNTER
3605  7340  TST202, CLA CLL CMA      /AC TO 7777
3606  3040          DCA REGA
3607  7307          CLA CLL IAC RTL   /AC TO 0004
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 4 FAILED
3615  1602          1602              /TST202 ERROR MESSAGE
3616  3605          TST202            /SCOPE LOOP
                    /
                    /DOES INPUT 2 CAUSE INT. RQST.
                    /
3617  7340  TST203, CLA CLL CMA      /AC TO 7777
3620  3040          DCA REGA
3621  7326          CLA CLL CML RTL   /AC TO 0002
3622  1142          TAD K0010         /GET ENABLES
3623  4425          JMS I XIOTF       /IOT 6132, CLOE
3624  4450          JMS I XPIGO2      /GO TO PI, PI EXPECTED
3625  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
3626  4473          JMS I ERROR       /ERROR: INPUT 2 FAILED
3627  1603          1603              /TST203 ERROR MESSAGE
3630  3617          TST203            /SCOPE LOOP
                    /
                    /DOES INPUT 1 CAUSE INT. RQST.
                    /
3631  7340  TST204, CLA CLL CMA      /AC TO 7777
3632  3040          DCA REGA
3633  7324          CLA CLL CML RAL   /AC TO 0001
3634  1142          TAD K0010         /GET ENABLES
3635  4425          JMS I XIOTF       /IOT 6132, CLOE
3636  4450          JMS I XPIGO2      /GO TO PI, PI EXPECTED
3637  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
3640  4473          JMS I ERROR       /ERROR: INPUT 1 FAILED
3641  1604          1604              /TST204 ERROR MESSAGE
3642  3631          TST204            /SCOPE LOOP
                    /
                    /DOES INPUT 4 RQST. LAST ?
                    /
3643  7340  TST205, CLA CLL CMA      /AC TO 7777
3644  3040          DCA REGA
3645  7307          CLA CLL IAC RTL   /AC TO 0004
3646  1142          TAD K0010         /GET ENABLES
3647  4425          JMS I XIOTF       /IOT 6132, CLOE
3650  4447          JMS I XPIGO1      /GO TO PI, PI EXPECTED
3651  5256          JMP T205A         /NO RQST. FOUND
3652  2041          ISZ REGB          /UPDATE COUNTER
3653  5252          JMP .-1           /WAIT 15 MS
3654  4450          JMS I XPIGO2      /GO TO PI, PI EXPECTED
3655  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
3656  4473  T205A,  JMS I ERROR       /ERROR: INPUT 4 FAILED
3657  1605          1605              /TST205 ERROR MESSAGE
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3660  3643          TST205            /SCOPE LOOP
                    /
                    /DOES INPUT 2 RQST. LAST ?
                    /
3661  7340  TST206, CLA CLL CMA      /AC TO 7777
3662  3040          DCA REGA
3663  7305          CLA CLL IAC RAL   /AC TO 0002
3664  1142          TAD K0010         /GET ENABLES
3665  4425          JMS I XIOTF       /IOT 6132, CLOE
3666  4447          JMS I XPIGO1      /GO TO PI, PI EXPECTED
3667  5274          JMP T206A         /NO RQST. FOUND
3670  2041          ISZ REGB          /UPDATE COUNTER
3671  5270          JMP .-1           /WAIT 15 MS
3672  4450          JMS I XPIGO2      /GO TO PI, PI EXPECTED
3673  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
3674  4473  T206A,  JMS I ERROR       /ERROR: INPUT 2 FAILED
3675  1606          1606              /TST206 ERROR MESSAGE
3676  3661          TST206            /SCOPE LOOP
                    /
                    /DOES INPUT 1 RQST. LAST ?
                    /
3677  7340  TST207, CLA CLL CMA      /AC TO 7777
3700  3040          DCA REGA
3701  7324          CLA CLL CML RAL   /AC TO 0001
3702  1142          TAD K0010         /GET ENABLES
3703  4425          JMS I XIOTF       /IOT 6132, CLOE
3704  4447          JMS I XPIGO1      /GO TO PI, PI EXPECTED
3705  5312          JMP T207A         /NO RQST. FOUND
3706  2041          ISZ REGB          /UPDATE COUNTER
3707  5306          JMP .-1           /WAIT 15 MS
3710  4450          JMS I XPIGO2      /GO TO PI, PI EXPECTED
3711  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
3712  4473  T207A,  JMS I ERROR       /ERROR: INPUT 1 FAILED
3713  1607          1607              /TST207 ERROR MESSAGE
3714  3677          TST207            /SCOPE LOOP
                    /
                    /DOES INPUTS 4,2,1 WITHOUT BIT 8 ?
                    /
3715  7340  TST210, CLA CLL CMA      /AC TO 7777
3716  3040          DCA REGA
3717  7313          CLA CLL IAC RTR   /AC TO 4000
3720  1007          TAD K0007
3721  1147          TAD K0600
3722  4425          JMS I XIOTF       /IOT 6132, CLOE
3723  4447          JMS I XPIGO1      /GO TO PI, NO PI EXPECTED
3724  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
3725  4473          JMS I ERROR       /ERROR:ENABLE BIT 8 FAILED
3726  1210          1210              /TST210 ERROR MESSAGE
3727  3715          TST210            /SCOPE LOOP
                    /
                    /DOES INPUT 4 CAUSE SKIP ?
                    /
3730  7340  TST211, CLA CLL CMA      /AC TO 7777
3731  3040          DCA REGA
3732  1113          TAD KT1CPS
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3733  3045          DCA REGF
3734  7307          CLA CLL IAC RTL /AC TO 0004
3735  4425          JMS I XIOTF     /IOT 6132, CLOE
3736  4424          JMS I XIOTE     /IOT 6131, CLSK
3737  4446          JMS I SKPWAT    /LET'S WAIT FOR A FLAG
3740  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3741  4473          JMS I ERROR     /ERROR: INPUT 4 OR SKIP FAILED
3742  0611          0611            /TST211 ERROR MESSAGE
3743  3730          TST211          /SCOPE LOOP
                    /
                    /DOES INPUT 2 CAUSE SKIP ?
                    /
3744  7340    TST212, CLA CLL CMA   /AC TO 7777
3745  3040          DCA REGA
3746  1113          TAD KT1CPS
3747  3045          DCA REGF
3750  7326          CLA CLL CML RTL /AC TO 0002
3751  4425          JMS I XIOTF     /IOT 6132, CLOE
3752  4424          JMS I XIOTE     /IOT 6131, CLSK
3753  4446          JMS I SKPWAT    /LET'S WAIT FOR A FLAG
3754  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3755  4473          JMS I ERROR     /ERROR: INPUT 2 OR SKIP FAILED
3756  0612          0612            /TST212 ERROR MESSAGE
3757  3744          TST212          /SCOPE LOOP
                    /
                    /DOES INPUT 1 CAUSE SKIP ?
                    /
3760  7340    TST213, CLA CLL CMA   /AC TO 7777
3761  3040          DCA REGA
3762  1113          TAD KT1CPS
3763  3045          DCA REGF
3764  7301          CLA CLL IAC     /AC TO 0001
3765  4425          JMS I XIOTF     /IOT 6132, CLOE
3766  4424          JMS I XIOTE     /IOT 6131, CLSK
3767  4446          JMS I SKPWAT    /LET'S WAIT FOR FLAG
3770  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
3771  4473          JMS I ERROR     /ERROR: INPUT 1 OR SKIP FAILED
3772  0613          0613            /TST213 ERROR MESSAGE
3773  3760          TST213          /SCOPE LOOP
                    /
                    /DOES INPUT 4 RQST, THEN SKIP AND VICE-VERSA ?
                    /
3774  7340    TST214, CLA CLL CMA   /AC TO 7777
3775  3040          DCA REGA
3776  7307          CLA CLL IAC RTL /AC TO 0004
3777  1142          TAD K0010       /GET ENABLES
4000  4425          JMS I XIOTF     /IOT 6132, CLOE
4001  4424          JMS I XIOTE     /IOT 6131, CLSK
4002  5201          JMP .-1
4003  4447          JMS I XPIGO1    /GO TO PI, PI EXPECTED
4004  5210          JMP T214A       /NO RQST. FOUND
4005  4424          JMS I XIOTE     /IOT 6131, CLSK
4006  5205          JMP .-1
4007  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4010  4473    T214A,  JMS I ERROR   /ERROR: INPUT 4 SKIP OR INT. RQST. FAILED
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4011  1614          1614            /TST214 ERROR FAILED
4012  3774          TST214          /SCOPE LOOP
                    /
                    /DOES INPUT 2 SKIP THEN INT. RQST. AND VICE-VERSA ?
                    /
4013  7340    TST215, CLA CLL CMA   /AC TO 7777
4014  3040          DCA REGA
4015  7305          CLA CLL IAC RAL /AC TO 0002
4016  1142          TAD K0010       /GET ENABLES
4017  4425          JMS I XIOTF     /IOT 6132, CLOE
4020  4424          JMS I XIOTE     /IOT 6131, CLSK
4021  5220          JMP .-1
4022  4447          JMS I XPIGO1    /GO TO PI, PI EXPECTED
4023  5575          JMP I XCRS5
4024  4424          JMS I XIOTE     /IOT 6131, CLSK
4025  5224          JMP .-1
4026  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4027  4473    T215A,  JMS I ERROR   /ERROR: INPUT 2 SKIP OR RQST. FAILED
4030  1615          1615            /TST215 ERROR MESSAGE
4031  4013          TST215          /SCOPE LOOP
                    /
                    /DOES INPUT 1 SKIP THEN INT. RQST. AND VICE-VERSA ?
                    /
4032  7340    TST216, CLA CLL CMA   /AC TO 7777
4033  3040          DCA REGA
4034  7301          CLA CLL IAC     /AC TO 0001
4035  1142          TAD K0010       /GET ENABLES
4036  4425          JMS I XIOTF     /IOT 6132, CLOE
4037  4424          JMS I XIOTE     /IOT 6131, CLSK
4040  5237          JMP .-1
4041  4447          JMS I XPIGO1    /GO TO PI, PI EXPECTED
4042  5246          JMP T216A
4043  4424          JMS I XIOTE     /IOT 6131, CLSK
4044  5243          JMP .-1
4045  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4046  4473    T216A,  JMS I ERROR   /ERROR: INPUT 1 SKIP OR INT. RQST. FAILED
4047  1616          1616            /TST216 ERROR MESSAGE
4050  4032          TST216          /SCOPE LOOP
                    /
                    /DOES CAF CLEAR INPUT 4 INT. RQST. ?
                    /
4051  7340    TST217, CLA CLL CMA   /AC TO 7777
4052  3040          DCA REGA
4053  7307          CLA CLL IAC RTL /AC TO 0004
4054  4425          JMS I XIOTF     /IOT 6132, CLOE
4055  4424          JMS I XIOTE     /IOT 6131, CLSK
4056  5255          JMP .-1         /WAIT FOR FIRST FLAG
4057  6007          6007            /CAF OR CLEAR THE WORLD
4060  7307          CLA CLL IAC RTL /AC TO 0004
4061  4425          JMS I XIOTF     /IOT 6132,CLOE
4062  4424          JMS I XIOTE     /IOT 6131, CLSK
4063  5262          JMP .-1         /WAIT FOR SECOND FLAG
4064  6007          6007            /CAF OR CLEAR THE WORLD
4065  7307          CLA CLL IAC RTL
4066  4425          JMS I XIOTF     /IOT 6132, CLOE
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4067  4424          JMS I XIOTE     /IOT 6131, CLSK
4070  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4071  4473          JMS I ERROR     /ERROR: INPUT 4 SKIP OR RQST. FAILED
4072  0217          0217            /TST217 ERROR MESSAGE
4073  4051          TST217          /SCOPE LOOP
                    /
                    /DOES CAF CLEAR INPUT 2 RQST. ?
                    /
4074  7340    TST220, CLA CLL CMA   /AC TO 7777
4075  3040          DCA REGA
4076  7305          CLA CLL IAC RAL /AC TO 0002
4077  4425          JMS I XIOTF     /IOT 6132, CLOE
4100  4424          JMS I XIOTE     /IOT 6131, CLSK
4101  5300          JMP .-1         /WAIT FOR FIRST FLAG
4102  6007          6007            /CAF OR CLEAR THE WORLD
4103  7305          CLA CLL IAC RAL /AC TO 0002
4104  4425          JMS I XIOTF     /IOT 6132, CLOE
4105  4424          JMS I XIOTE     /IOT 6131, CLSK
4106  5305          JMP .-1         /WAIT FOR SECOND FLAG
4107  6007          6007            /CAF OR CLEAR THE WORLD
4110  7305          CLA CLL IAC RAL /AC TO 0002
4111  4425          JMS I XIOTF     /IOT 6132, CLOE
4112  4424          JMS I XIOTE     /IOT 6131, CLSK
4113  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4114  4473          JMS I ERROR     /ERROR: INPUT 2 SKIP OR RQST. FAILED
4115  0220          0220            /TST220 ERROR MESSAGE
4116  4074          TST220          /SCOPE LOOP
                    /
                    /DOES CAF CLEAR INTPUT 3 RQST. ?
                    /
4117  7340    TST221, CLA CLL CMA   /AC TO 7777
4120  3040          DCA REGA
4121  7301          CLA CLL IAC     /AC TO 0001
4122  4425          JMS I XIOTF     /IOT 6132, CLOE
4123  4424          JMS I XIOTE     /IOT 6131, CLSK
4124  5323          JMP .-1         /WAIT FOR FIRST FLAG
4125  6007          6007            /CAF OR CLEAR THE WORLD
4126  7301          CLA CLL IAC     /AC TO 0001
4127  4425          JMS I XIOTF     /IOT 6132, CLOE
4130  4424          JMS I XIOTE     /IOT 6131, CLSK
4131  5330          JMP .-1         /WAIT FOR SECONED FLAG
4132  6007          6007            /CAF OR CLEAR THE WORLD
4133  7301          CLA CLL IAC
4134  4425          JMS I XIOTF     /IOT 6132, CLOE
4135  4424          JMS I XIOTE     /IOT 6131, CLSK
4136  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4137  4473          JMS I ERROR     /ERROR: INPUT 1 SKIP OR RQST. FAILED
4140  0221          0221            /TST221 ERROR MESSAGE
4141  4117          TST221          /SCOPE LOOP
                    /
                    /DOES CLSA READ RQST. INPUT 4 ?
                    /
4142  7340    TST222, CLA CLL CMA   /AC TO 7777
4143  3040          DCA REGA
4144  7307          CLA CLL IAC RTL /AC TO 0004
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4145  4425          JMS I XIOTF     /IOT 6132, CLOE
4146  4424          JMS I XIOTE     /IOT 6131, CLSK
4147  5346          JMP .-1         /WAIT FOR FLAG
4150  7040          CMA             /AC TO 7773
4151  4431          JMS I XIOTI     /IOT 6135, CLSA
4152  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4153  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4154  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 4 FAILED
4155  5222          5222            /TST222 ERROR MESSAGE
4156  4142          TST222          /SCOPE LOOP
                    /
                    /DOES CLSA READ RQST. INPUT 2 ?
                    /
4157  7340    TST223, CLA CLL CMA   /AC TO 7777
4160  3040          DCA REGA
4161  7305          CLA CLL IAC RAL /AC TO 0002
4162  4425          JMS I XIOTF     /IOT 6132, CLOE
4163  4424          JMS I XIOTE     /IOT 6131, CLSK
4164  5363          JMP .-1         /WAIT FOR FLAG
4165  7040          CMA             /AC TO 7775
4166  4431          JMS I XIOTI     /IOT 6135, CLSA
4167  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4170  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4171  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 2 FAILED
4172  5223          5223            /TST223 ERROR MESSAGE
4173  4157          TST223          /SCOPE LOOP
                    /
                    /DOES CLSA READ RQST. INPUT 1 ?
                    /
4174  7340    TST224, CLA CLL CMA   /AC TO 7777
4175  3040          DCA REGA
4176  7301          CLA CLL IAC     /AC TO 0001
4177  4425          JMS I XIOTF     /IOT 6132, CLOE
4200  4424          JMS I XIOTE     /IOT 6131, CLSK
4201  5200          JMP .-1         /WAIT FOR FLAG
4202  7040          CMA             /AC TO 7776
4203  4431          JMS I XIOTI     /IOT 6135, CLSA
4204  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4205  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4206  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 1 FAILED
4207  5224          5224            /TST224 ERROR MESSAGE
4210  4174          TST224          /SCOPE LOOP
                    /
                    /DOES CLSA CLEAR INPUT 4 RQST. ?
                    /
4211  7340    TST225, CLA CLL CMA   /AC TO 7777
4212  3040          DCA REGA
4213  7307          CLA CLL IAC RTL /AC TO 0004
4214  4426          JMS I XIOTF1    /IOT 6132, CLOE
4215  4424          JMS I XIOTE     /IOT 6131, CLSK
4216  5215          JMP .-1         /WAIT FOR FIRST FLAG
4217  4431          JMS I XIOTI     /IOT 6135, CLSA
4220  4424          JMS I XIOTE     /IOT 6131, CLSK
4221  5220          JMP .-1         /WAIT FOR SECOND FLAG
4222  4431          JMS I XIOTI     /IOT 6135, CLSA
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4223  4424          JMS I XIOTE     /IOT 6131, CLSK
4224  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4225  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 1 FAILED
4226  0225          0225            /TST225 ERROR MESSAGE
4227  4211          TST225          /SCOPE LOOP
                    /
                    /DOES CLSA CLEAR INPUT 2 RQST. ?
                    /
4230  7340  TST226, CLA CLL CMA     /AC TO 7777
4231  3040          DCA REGA
4232  7305          CLA CLL IAC RAL /AC TO 0002
4233  4425          JMS I XIOTF     /IOT 6132, CLOE
4234  4424          JMS I XIOTE     /IOT 6131, CLSK
4235  5234          JMP .-1         /WAIT FOR FIRST FLAG
4236  4431          JMS I XIOTI     /IOT 6135, CLSA
4237  4424          JMS I XIOTE     /IOT 6131, CLSK
4240  5237          JMP .-1         /WAIT FOR SECOND FLAG
4241  4431          JMS I XIOTI     /IOT 6135, CLSA
4242  4424          JMS I XIOTE     /IOT 6131, CLSK
4243  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4244  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 2 FAILED
4245  0226          0226            /TST226 ERROR MESSAGE
4246  4230          TST226          /SCOPE LOOP
                    /
                    /DOES CLSA CLEAR INPUT 4 RQST. ?
                    /
4247  7340  TST227, CLA CLL CMA     /AC TO 7777
4250  3040          DCA REGA
4251  7301          CLA CLL IAC     /AC TO 0001
4252  4425          JMS I XIOTF     /IOT 6132, CLOE
4253  4424          JMS I XIOTE     /IOT 6131, CLSK
4254  5253          JMP .-1         /WAIT FOR FIRST FLAG
4255  4431          JMS I XIOTI     /IOT 6135, CLSA
4256  4424          JMS I XIOTE     /IOT 6131, CLSK
4257  5256          JMP .-1         /WAIT FOR SECOND FLAG
4260  4431          JMS I XIOTI     /IOT 6135, CLSA
4261  4424          JMS I XIOTE     /IOT 6131, CLSK
4262  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4263  4473          JMS I ERROR     /ERROR: CLSA OR INPUT 1 FAILED
4264  0227          0227            /TST227 ERROR MESSAGE
4265  4247          TST227          /SCOPE LOOP
                    /
                    /DOES CLSA READ INPUT 4,2,1 ?
                    /
4266  7340  TST230, CLA CLL CMA     /AC TO 7777
4267  3040          DCA REGA
4270  1007          TAD K0007       /GET ENABLES
4271  4425          JMS I XIOTF     /IOT 6132, CLOE
4272  7000          NOP
4273  2041          ISZ REGB
4274  5272          JMP .-2         /WAIT FOR ALL
4275  4424          JMS I XIOTE     /IOT 6131, CLOE
4276  5275          JMP .-1         /WAIT FOR FLAGS
4277  7340          CLA CLL CMA     /AC TO 7777
4300  4431          JMS I XIOTI     /IOT 6135, CLSA
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4301  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4302  7610          SKP CLA
4303  5311          JMP T230A       /ERROR, STATUS REGISTER
4304  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
4305  7340          CLA CLL CMA     /AC TO 7777
4306  4431          JMS I XIOTI     /IOT 6135, CLSA
4307  7650          SNA CLA         /WAS STATUS ALL 0'S ?
4310  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4311  4473  T230A,  JMS I ERROR     /ERROR: CLSA OR INPUTS 1,2,3 FAILED
4312  5230          5230            /TST230 ERROR MESSAGE
4313  4266          TST230          /SCOPE LOOP
                    /
                    /DOES INPUT 4 CLEAR BIT 7 ?
                    /
4314  7340  TST231, CLA CLL CMA
4315  3040          DCA REGA
4316  7307          CLA CLL IAC RTL /AC TO 0004
4317  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
4320  1070          TAD SEND
4321  1140          TAD K0020       /GET ENABLES
4322  4426          JMS I XIOTF1    /IOT 6132, CLOE
4323  4424          JMS I XIOTE     /IOT 6131, CLSK
4324  5323          JMP .-1         /WAIT FOR FLAG
4325  7340          CLA CLL CMA     /AC TO 7777
4326  4430          JMS I XIOTH     /IOT 6134, CLEN
4327  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4330  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4331  4473          JMS I ERROR     /ERROR:BIT 7 OR INPUT 4 FAILED
4332  4631          4631            /TST231 ERROR MESSAGE
4333  4314          TST231          /SCOPE LOOP
                    /
                    /DOES INPUT 2 CLEAR BIT 7 ?
                    /
4334  7340  TST232, CLA CLL CMA
4335  3040          DCA REGA
4336  7305          CLA CLL IAC RAL /AC TO 0002
4337  3070          DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
4340  1070          TAD SEND
4341  1140          TAD K0020
4342  4426          JMS I XIOTF1    /IOT 6132, CLOE
4343  4424          JMS I XIOTE     /IOT 6131, CLSK
4344  5343          JMP .-1         /WAIT FOR FLAG
4345  7340          CLA CLL CMA
4346  4430          JMS I XIOTH     /IOT 6134, CLEN
4347  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4350  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4351  4473          JMS I ERROR     /ERROR: BIT 7 OR INPUT 2 FAILED
4352  4632          4632            /TST232 ERROR MESSAGE
4353  4334          TST232          /SCOPE LOOP
                    /
                    /DOES INPUT 1 CLEAR BIT 7 ?
                    /
4354  7340  TST233, CLA CLL CMA     /AC TO 7777
4355  3040          DCA REGA
4356  7301          CLA CLL IAC     /AC TO 0001
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4357  3070          DCA SEND          /SAVE OUTPUT FOR ERROR PRINTER
4360  1070          TAD SEND
4361  1140          TAD K0020
4362  4426          JMS I XIOTF1      /IOT 6132, CLOE
4363  4424          JMS I XIOTE       /IOT 6131, CLSK
4364  5363          JMP .-1           /WAIT FOR FLAG
4365  7340          CLA CLL CMA       /AC TO 7777
4366  4430          JMS I XIOTH       /IOT 6134, CLEN
4367  4456          JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
4370  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
4371  4473          JMS I ERROR       /ERROR: BIT 7 OR INPUT 1 FAILED
4372  4633          4633              /TST233 ERROR MESSAGE
4373  4354          TST233            /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 GENERATE CLR CNT ?
                    /MODE 3, RATE 0
                    /
4374  7340    TST234, CLA CLL CMA     /AC TO 7777
4375  3040          DCA REGA
4376  1016          TAD K2525         /GET AC NUMBER
4377  4427          JMS I XIOTG       /IOT 6133, CLAB
4400  7307          CLA CLL IAC RTL   /AC TO 0004
4401  1120          TAD K3000         /GET ENABLES
4402  4426          JMS I XIOTF1      /IOT 6132, CLOE
4403  4424          JMS I XIOTE       /IOT 6131, CLSK
4404  5203          JMP .-1           /WAIT FOR FLAG
4405  7300          CLA CLL
4406  3070          DCA SEND          /SAVE OUTPUT FOR ERROR PRINTER
4407  7340          CLA CLL CMA       /AC TO 7777
4410  4433          JMS I XIOTK       /IOT 6137, CLCA
4411  7650          SNA CLA           /WAS COUNTER ALL 0'S ?
4412  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
4413  4473          JMS I ERROR       /ERROR: CLR CNT FAILED
4414  4234          4234              /TST234 ERROR MESSAGE
4415  4374          TST234            /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 CAUSE CLR CNT ?
                    /MODE 3, RATE 0
                    /
4416  7340    TST235, CLA CLL CMA     /AC TO 7777
4417  3040          DCA REGA
4420  1017          TAD K5252         /GET AC NUMBER
4421  4427          JMS I XIOTG       /IOT 6133, CLAB
4422  7305          CLA CLL IAC RAL   /AC TO 0002
4423  1120          TAD K3000         /GET ENABLES
4424  4426          JMS I XIOTF1      /IOT 6132, CLOE
4425  4424          JMS I XIOTE       /IOT 6131, CLSK
4426  5225          JMP .-1           /WAIT FOR FLAG
4427  7300          CLA CLL
4430  3070          DCA SEND          /SAVE OUTPUT FOR ERROR PRINTER
4431  7340          CLA CLL CMA       /AC TO 7777
4432  4433          JMS I XIOTK       /IOT 6137, CLCA
4433  7650          SNA CLA           /WAS COUNTER ALL 0'S ?
4434  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
4435  4473          JMS I ERROR       /ERROR: CLR CNT FAILED ?
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4436  4235          4235              /TST235 ERROR MESSAGE
4437  4416          TST235            /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 TRANSFER COUNTER TO BUFFER ?
                    /
4440  7340    TST236, CLA CLL CMA     /AC TO 7777
4441  3040          DCA REGA
4442  1016          TAD K2525         /GET AC NUMBER
4443  4427          JMS I XIOTG       /IOT 6133, CLAB
4444  6007          6007              /CAF OR CLEAR THE WORLD
4445  7301          CLA CLL IAC       /AC TO 0001
4446  1120          TAD K3000         /GET ENABLES
4447  4426          JMS I XIOTF1      /IOT 6132, CLOE
4450  4424          JMS I XIOTE       /IOT 6131, CLSK
4451  5250          JMP .-1           /WAIT FOR FLAG
4452  7340          CLA CLL CMA       /AC TO 7777
4453  4432          JMS I XIOTJ       /IOT 6136, CLBA
4454  4456          JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
4455  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
4456  4473          JMS I ERROR       /ERROR: COUNTER TO BUFFER FAILED
4457  3636          3636              /TST236 ERROR MESSAGE
4460  4440          TST236            /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 TRANSFER COUNTER TO BUFFER ?
                    /
4461  7340    TST237, CLA CLL CMA     /AC TO 7777
4462  3040          DCA REGA
4463  1017          TAD K5252         /GET AC NUMBER
4464  4427          JMS I XIOTG       /IOT 6133, CLAB
4465  6007          6007              /CAF OR CLEAR THE WORLD
4466  7301          CLA CLL IAC       /AC TO 0001
4467  1120          TAD K3000         /GET ENABLES
4470  4426          JMS I XIOTF1      /IOT 6132, CLOE
4471  4424          JMS I XIOTE       /IOT 6131, CLSK
4472  5271          JMP .-1           /WAIT FOR FLAG
4473  7340          CLA CLL CMA       /AC TO 7777
4474  4432          JMS I XIOTJ       /IOT 6136, CLBA
4475  4456          JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
4476  4472          JMS I NERROR      /CHECK NON-ERROR HANDLER
4477  4473          JMS I ERROR       /ERROR: COUNTER TO BUFFER FAILED
4500  3637          3637              /TST237 ERROR MESSAGE
4501  4461          TST237            /SCOPE LOOP
                    /
                    /
                    /DOES INPUT 4,2,1 GENERATE CLR CNT ?
                    /MODE 2, RATE 0
                    /
4502  7340    TST240, CLA CLL CMA     /AC TO 7777
4503  3040          DCA REGA
4504  1016          TAD K2525         /GET AC NUMBER
4505  4427          JMS I XIOTG       /IOT 6133, CLAB
4506  6007          6007              /CAF OR CLEAR THE WORLD
4507  7307          CLA CLL IAC RTL   /AC TO 0004
4510  1143          TAD K2000         /GET ENABLES
4511  4426          JMS I XIOTF1      /IOT 6132, CLOE
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4512  4424          JMS I XIOTE     /IOT 6131, CLSK
4513  5312          JMP .-1         /WAIT FOR FLAG
4514  7340          CLA CLL CMA     /AC TO 7777
4515  4433          JMS I XIOTK     /IOT 6137, CLCA
4516  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4517  4472          JMS I NERROR    /CHECK NON-ERROR MESSAGE
4520  4473          JMS I ERROR     /ERROR:CLR CNT FAILED, MODE 2
4521  4240          4240            /TST240 ERROR MESSAGE
4522  4502          TST240          /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 CAUSE CLR CNT ?
                    /MODE 2, RATE 0
                    /
4523  7340    TST241, CLA CLL CMA
4524  3040          DCA REGA
4525  1017          TAD K5252       /GET AC NUMBER
4526  4427          JMS I XIOTG     /IOT 6133, CLAB
4527  6007          6007            /CAF OR CLEAR THE WORLD
4530  7305          CLA CLL IAC RAL /AC TO 0002
4531  1143          TAD K2000       /GET ENABLES
4532  4426          JMS I XIOTF1    /IOT 6132, CLOE
4533  4424          JMS I XIOTE     /IOT 6131, CLSK
4534  5333          JMP .-1         /WAIT FOR FLAG
4535  7340          CLA CLL CMA     /AC TO 7777
4536  4433          JMS I XIOTK     /IOT 6137, CLCA
4537  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4540  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4541  4473          JMS I ERROR     /ERROR: CLR CNT FAILED, MODE 2
4542  4241          4241            /TST241 ERROR MESSAGE
4543  4523          TST241          /SCOPE LOOP
                    /
                    /DOES COUNTER TRANSFER TO BUFFER ?
                    /MODE 2, RATE 0
                    /
4544  7340    TST242, CLA CLL CMA   /AC TO 7777
4545  3040          DCA REGA
4546  1016          TAD K2525       /GET AC NUMBER
4547  4427          JMS I XIOTG     /IOT 6133, CLAB
4550  6007          6007            /CAF OR CLEAR THE WORLD
4551  7307          CLA CLL IAC RTL
4552  1143          TAD K2000       /GET ENABLES
4553  4426          JMS I XIOTF1    /IOT 6132, CLOE
4554  4424          JMS I XIOTE     /IOT 6131, CLSK
4555  5354          JMP .-1         /WAIT FOR FLAG
4556  7340          CLA CLL CMA     /AC TO 7777
4557  4432          JMS I XIOTJ     /IOT 6136, CLBA
4560  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4561  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4562  4473          JMS I ERROR     /ERROR: COUNTER TO BUFFER FAILED
4563  3642          3642            /TST242 ERROR MESSAGE
4564  4544          TST242          /SCOPE LOOP
                    /
                    /DOES COUNTER TRANSFER TO BUFFER ?
                    /MODE 2, RATE 0
                    /
```



```
4565  7340    TST243, CLA CLL CMA   /AC TO 7777
4566  3040          DCA REGA
4567  1017          TAD K5252       /GET AC NUMBER
4570  4427          JMS I XIOTG     /IOT 6133, CLAB
4571  6007          6007            /CAF OR CLEAR THE WORLD
4572  7305          CLA CLL IAC RAL /AC TO 0002
4573  1143          TAD K2000       /GET ENABLES
4574  4426          JMS I XIOTF1    /IOT 6132, CLOE
4575  4424          JMS I XIOTE     /IOT 6131, CLSK
4576  5375          JMP .-1         /WAIT FOR FLAG
4577  7340          CLA CLL CMA
4600  4432          JMS I XIOTJ     /IOT 6136, CLBA
4601  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4602  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4603  4473          JMS I ERROR     /ERROR: COUNTER TO BUFFER FAILED
4604  3643          3643            /TST243 ERROR MESSAGE
4605  4565          TST243          /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 AFFECT MODE 0 ?
                    /
4606  7340    TST244, CLA CLL CMA
4607  3040          DCA REGA
4610  1016          TAD K2525       /GET AC NUMBER
4611  4427          JMS I XIOTG     /IOT 6133, CLAB
4612  6007          6007            /CAF OR CLEAR THE WORLD
4613  7307          CLA CLL IAC RTL /AC TO 0004
4614  4426          JMS I XIOTF1    /IOT 6132, CLOE
4615  4424          JMS I XIOTE     /IOT 6131, CLSK
4616  5215          JMP .-1         /WAIT FOR FLAG
4617  7340          CLA CLL CMA     /AC TO 7777
4620  4433          JMS I XIOTK     /IOT 6137, CLCA
4621  4456          JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4622  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4623  4473          JMS I ERROR     /ERROR: MODE 0 FAILED
4624  4244          4244            /TST 244 ERROR MESSAGE
4625  4606          TST244          /SCOPE LOOP
                    /
                    /DOES INPUT 4,2,1 AFFECT MODE 0 ?
                    /
4626  7340    TST245, CLA CLL CMA   /AC TO 7777
4627  3040          DCA REGA
4630  1017          TAD K5252       /GET AC NUMBER
4631  4427          JMS I XIOTG     /IOT 6133, CLAB
4632  7301          CLA CLL IAC     /AC TO 0001
4633  4426          JMS I XIOTF1    /IOT 6132, CLOE
4634  4424          JMS I XIOTE     /IOT 6131, CLSK
4635  5234          JMP .-1         /WAIT FOR FLAG
4636  7340          CLA CLL CMA     /AC TO 7777
4637  4432          JMS I XIOTJ     /IOT 6136, CLBA
4640  4456          JMS I XSNDRV    /CHECK SEND RECEV REGISTERS
4641  4472          JMS I NERROR    /CHECK NON-ERROR HANDLER
4642  4473          JMS I ERROR     /ERROR: MODE 0 FAILED
4643  3645          3645            /TST245 ERROR MESSAGE
4644  4626          TST245          /SCOPE LOOP
                    /
```

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                        /DOES INPUT 4,2,1 AFFECT MODE 1 ?
                        /
4645  7340    TST246, CLA CLL CMA     /AC TO 7777
4646  3040            DCA REGA
4647  1016            TAD K2525       /GET AC NUMBER
4650  4427            JMS I XIOTG     /IOT 6133, CLAB
4651  6007            6007            /CAF OR CLEAR THE WORLD
4652  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
4653  7301            CLA CLL IAC     /AC TO 0001
4654  1144            TAD K1000       /GET ENABLES
4655  4426            JMS I XIOTF1    /IOT 6132, CLOE
4656  4424            JMS I XIOTE     /IOT 6131, CLOE
4657  5256            JMP .-1         /WAIT FOR FLAG
4660  7340            CLA CLL CMA     /AC TO 7777
4661  4432            JMS I XIOTJ     /IOT 6136, CLBA
4662  7650            SNA CLA         /WAS BUFFER STILL ALL 0'S ?
4663  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
4664  4473            JMS I ERROR     /ERROR: MODE 1 FAILED
4665  4246            4246            /TST246 ERROR MESSAGE
4666  4645            TST246          /SCOPE LOOP
                        /
                        /DOES INPUT 4,2,1 AFFECT MODE 1 ?
                        /
4667  7340    TST247, CLA CLL CMA     /AC TO 7777
4670  3040            DCA REGA
4671  1017            TAD K5252       /GET AC NUMBER
4672  4427            JMS I XIOTG     /IOT 6133, CLAB
4673  7307            CLA CLL IAC RTL /AC TO 0004
4674  1144            TAD K1000
4675  4426            JMS I XIOTF1    /IOT 6132, CLOE
4676  4424            JMS I XIOTE     /IOT 6131, CLSK
4677  5276            JMP .-1         /WAIT FOR FLAG
4700  7340            CLA CLL CMA     /AC TO 7777
4701  4432            JMS I XIOTJ     /IOT 6136, CLBA
4702  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4703  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
4704  4473            JMS I ERROR     /ERROR: MODE 1 FAILED
4705  3647            3647            /TST247 ERROR MESSAGE
4706  4667            TST247          /SCOPE LOOP
                        /
                        /DOES CLSA READ INPUTS 4,2,1 ?
                        /
4707  7340    TST250, CLA CLL CMA     /AC TO 7777
4710  3040            DCA REGA
4711  1007            TAD K0007       /GET ENABLES
4712  4426            JMS I XIOTF1    /IOT 6132, CLOE
4713  7000            NOP
4714  2041            ISZ REGB
4715  5313            JMP .-2         /WAIT FOR ALL
4716  4424            JMS I XIOTE     /IOT 6131, CLSK
4717  5316            JMP .-1
4720  4423            JMS I XIOTD     /IOT 6130, CLZE
4721  7300            CLA CLL         /CLEAR THE AC AND LINK
4722  3070            DCA SEND        /SAVE OUTPUT FOR ERROR PRINTER
4723  7340            CLA CLL CMA     /AC TO 7777
```



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4724  4431            JMS I XIOTI     /IOT 6135, CLSA
4725  7650            SNA CLA         /WAS STATUS ALL 0'S ?
4726  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
4727  4473            JMS I ERROR     /ERROR:INPUT 4,2,1 OR STATUS FAILED
4730  5250            5250            /TEST250 ERROR MESSAGE
4731  4707            TST250          /SCOPE LOOP
                        /
                        /DOES CLSA READ STATUS REGISTER ?
                        /
4732  7340    TST251, CLA CLL CMA     /AC TO 7777
4733  3040            DCA REGA
4734  1007            TAD K0007       /GET ENABLES
4735  4425            JMS I XIOTF     /IOT 6132, CLOE
4736  7000            NOP
4737  2041            ISZ REGB
4740  5336            JMP .-2         /WAIT FOR FLAGS
4741  4424            JMS I XIOTE     /IOT 6131, CLSK
4742  5341            JMP .-1
4743  7340            CLA CLL CMA     /AC TO 7777
4744  4431            JMS I XIOTI     /IOT 6135, CLSA
4745  4456            JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
4746  4472            JMS I NERROR    /CHECK NON-ERROR HANDLER
4747  4473            JMS I ERROR     /ERROR: CLSA OR STATUS REGISTER
4750  5251            5251            /TST251 ERROR MESSAGE
4751  4732            TST251          /SCOPE LOOP
                        /
4752  7300            CLA CLL
4753  2077            ISZ LOOP
4754  5464            JMP I XMITT     /DO TEST 4096 TIMES
4755  4570            JMS I XPASS     /TYPE PASS COMPLETE
4756  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, CLZE
                    /
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  2234           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  1123          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  4504          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  4501          JMS I XCRLF       /CRLF
5565  4506          JMS I XPRINT      /GO PRINT MESSAGE
5566  6067          GMES
5567  1070          TAD SEND          /GET GOOD AC
5570  4504          JMS I XOCTEL      /PRINT IT
5571  4506          JMS I XPRINT      /PRINT BAD AC
5572  6077          BMES
5573  1071          TAD RECEV         /GET BAD AC
5574  4504          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  4507          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  4507          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  5325          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 KTICPS
5673  7604          LAS
```



```
5674  0114          AND K6007
5675  7640          SZA CLA
5676  5301          JMP .+3
5677  1111          TAD KPRMTI
5700  3113          DCA KTICPS
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
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  0123
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  0231
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  0324
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
6245  0313
6246  4006
6247  2205
6250  2125
6251  0516
6252  0331
6253  4006
6254  0123
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  2125
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  0123
```

```
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  1123
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  1123
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
```

```
0000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
0100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111110

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  11000000

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  11111111  11111111  11111110  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	K0010	0142	KTMX	5527	SAVAC	0011
AUTO10	0010	K0017	0127	LOOP	0077	SEND	0070
BEGIN	0200	K0020	0140	MES1	6107	SETO	5600
BELL	5046	K0040	0137	MES10	6402	SKPWAT	0046
BGNEAC	0217	K0077	0133	MES11	6431	SNDRV	5216
BMES	6077	K0100	0013	MES2	6131	SORT	5471
CLKIN	5725	K0200	0015	MES3	6152	SWLAS	5660
CLKNO	5463	K0207	0006	MES4	6202	SYNC	5302
CLOCK	5413	K0212	0135	MES5	6231	T113A	1674
CLOCKS	0075	K0215	0134	MES6	6256	T113B	1665
CLRREG	5065	K0240	0126	MES7	6303	T114A	1712
CLTAD	5754	K0260	0123	MES8	6324	T114B	1703
CRLF	5441	K0300	0145	MES9	6353	T11A	0356
DKMES	6000	K0377	0136	MESS	5542	T120A	1770
EHLT1	5034	K0400	0116	MOSSTR	0201	T121A	2005
EHLT10	5203	K0500	0146	NERRO	5000	T122A	2033
EHLT11	5212	K0600	0147	NERROR	0072	T122B	2014
EHLT2	5126	K0700	0150	OCTEL	5420	T123A	2062
EHLT3	5141	K1000	0144	OUT	5015	T123B	2043
EHLT4	5145	K2000	0143	OVER2	0061	T124A	2111
EHLT5	5153	K2525	0016	OVER2A	0062	T124B	2072
EHLT6	5157	K3000	0120	PASS	5740	T125A	2137
EHLT7	5166	K3740	0125	PATCH	0166	T125B	2121
ENDIT	0573	K4000	0014	PIGO1	5255	T126A	2166
ERRO	5020	K4100	0124	PIGO2	5270	T126B	2144
ERROR	0073	K5000	0121	PIGO3	5323	T127A	2217
EXIT	5640	K5252	0017	PIGO4	5336	T12A	0370
EXTER	5713	K6000	0117	PIGO5	5234	T130A	2237
FMES	6026	K6007	0114	PIRET1	5264	T133A	2325
GMES	6067	K7000	0141	PIRET2	5277	T133B	2312
GTAD	5746	K7400	0112	PIRET5	5252	T147A	2574
IN	5043	K7700	0012	PMES	6014	T147B	2556
IOTA	5102	K7770	0122	POPR	5450	T150A	2622
IOTB	5107	K7772	0132	PREG	5563	T150B	2604
IOTC	5114	K7773	0131	PRET1	5267	T151A	2650
IOTD	5121	K7774	0130	PRET2	5301	T151B	2632
IOTE	5127	KPRMTI	0111	PRET5	5254	T152A	2676
IOTF	5134	KREGC	0076	PRETC	5335	T152B	2660
IOTF1	5142	KT1CPS	0113	PRETD	5347	T153A	2724
IOTG	5146	KTA	0151	PRINT	5604	T153B	2706
IOTH	5154	KTA1	0152	RANDOM	5224	T154A	2752
IOTI	5163	KTADCK	5462	RANDY	0055	T154B	2734
IOTJ	5200	KTADM	5526	RECEV	0071	T172A	3300
IOTK	5207	KTB	0153	REGA	0040	T172A1	3303
IOTS	5350	KTB1	0154	REGB	0041	T172B	3270
IOTS1	5360	KTC	0155	REGC	0042	T172B1	3264
IOTS2	5370	KTC1	0156	REGD	0043	T173A	3327
IOTS3	5400	KTC2	0157	REGE	0044	T173A1	3332
ISZLOP	5310	KTD	0160	REGF	0045	T173B	3317
JMPI2	0100	KTD1	0161	RETC	5332	T173B1	3313
K0006	0115	KTE	0162	RETD	5345	T174A	3362
K0007	0007	KTE1	0163	RETURN	5656	T174A1	3365

T174B	3352	TST106	1602	TST164	3122	TST241	4523
T174B1	3347	TST107	1613	TST165	3143	TST242	4544
T175A	3415	TST11	0350	TST166	3163	TST243	4565
T175A1	3420	TST110	1624	TST167	3203	TST244	4606
T175B	3405	TST111	1635	TST17	0433	TST245	4626
T175B1	3402	TST112	1650	TST170	3223	TST246	4645
T176A	3445	TST113	1661	TST171	3241	TST247	4667
T176A1	3450	TST114	1677	TST172	3257	TST25	0527
T176B	3435	TST115	1715	TST173	3306	TST250	4707
T176B1	3431	TST116	1726	TST174	3335	TST251	4732
T177A	3475	TST117	1741	TST175	3370	TST26	0543
T177A1	3500	TST12	0361	TST176	3423	TST27	0556
T177B	3465	TST120	1754	TST177	3453	TST3	0267
T177B1	3461	TST121	1773	TST2	0253	TST30	0577
T200A	3525	TST122	2010	TST20	0443	TST31	0610
T200A1	3530	TST123	2036	TST200	3503	TST32	0624
T200B	3515	TST124	2065	TST201	3533	TST33	0635
T200B1	3511	TST125	2114	TST202	3605	TST34	0646
T201A	3575	TST126	2142	TST203	3617	TST35	0656
T201B	3546	TST127	2171	TST204	3631	TST36	0666
T205A	3656	TST13	0373	TST205	3643	TST37	0676
T206A	3674	TST130	2222	TST206	3661	TST4	0275
T207A	3712	TST131	2242	TST207	3677	TST40	0706
T214A	4010	TST132	2264	TST21	0454	TST41	0720
T215A	4027	TST133	2303	TST210	3715	TST42	0731
T216A	4046	TST134	2330	TST211	3730	TST43	0742
T22A	0475	TST135	2350	TST212	3744	TST44	0755
T230A	4311	TST136	2367	TST213	3760	TST45	1000
T45A	1014	TST137	2406	TST214	3774	TST46	1017
T45B	1002	TST14	0402	TST215	4013	TST47	1036
T46A	1033	TST140	2426	TST216	4032	TST5	0307
T46B	1024	TST141	2442	TST217	4051	TST50	1055
T47A	1052	TST142	2456	TST22	0465	TST51	1074
T47B	1043	TST143	2471	TST220	4074	TST52	1107
T50A	1071	TST144	2505	TST221	4117	TST53	1121
T50B	1057	TST145	2521	TST222	4142	TST54	1134
T70A	1351	TST146	2535	TST223	4157	TST55	1147
T70B	1341	TST147	2551	TST224	4174	TST56	1161
T71A	1370	TST15	0411	TST225	4211	TST57	1172
T71B	1360	TST150	2577	TST226	4230	TST6	0324
TIMCLK	5771	TST151	2625	TST227	4247	TST60	1203
TIMFLG	0176	TST152	2653	TST23	0500	TST61	1216
TMES	6046	TST153	2701	TST230	4266	TST62	1231
TST0	0223	TST154	2727	TST231	4314	TST63	1246
TST1	0237	TST155	2755	TST232	4334	TST64	1263
TST10	0341	TST156	2770	TST233	4354	TST65	1274
TST100	1504	TST157	3005	TST234	4374	TST66	1310
TST101	1520	TST16	0424	TST235	4416	TST67	1321
TST102	1533	TST160	3030	TST236	4440	TST7	0332
TST103	1547	TST161	3047	TST237	4461	TST70	1335
TST104	1561	TST162	3065	TST24	0514	TST71	1354
TST105	1571	TST163	3104	TST240	4502	TST72	1373

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TST73   1406            XSYNC   0057
TST74   1423            XTYPE   0107
TST75   1440            XWAIT   5642
TST76   1454
TST77   1470
TYPE    5056
XBELL   0110
XCLOCK  0074
XCLREG  0060
XCRLF   0101
XCRS1   0171
XCRS2   0172
XCRS3   0173
XCRS4   0174
XCRS5   0175
XDK8EP  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
```



```
ERRORS DETECTED: 0

LINKS GENERATED: 0

RUN-TIME:  21 SECONDS

3K CORE USED
```