

IDENTIFICATION

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PRODUCT CODE: MAINDEC-8E-DBAC-D  
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PRODUCT NAME: DK8E CLOCKS DIAGNOSTIC  
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DATE CREATED: OCTOBER 8, 1971  
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MAINTAINER: DIAGNOSTIC PROGRAMMING GROUP  
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AUTHOR: JOHN VROBEL  
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1. ABSTRACT  
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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  
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2.1 EQUIPMENT  
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A PDP-8E WITH THE DK8-EA, DK8-EC, DK8-ES, OR THE DK8-EP OPTION INSTALLED AND AN ASR-33 TELETYPE OR EQUIVALENT.

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

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

2.2 STORAGE  
-----

THE PROGRAM OCCUPIES LOCATIONS 0000-6600.

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

3. LOADING PROCEDURE  
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3.1 METHOD  
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THE PROGRAM IS LOADED INTO BANK 0, USING THE STANDARD BINARY LOADER TECHNIQUE.

4. STARTING PROCEDURE  
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4.1 CONTROL SWITCH SETTINGS  
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|        |  |
|--------|--|
| SWR0=1 | FOR DK8-EP/DK8-ES REGISTER TEST                  |
| SWR1=1 | FOR DK8-ES SCHMITT TRIGGER LOGIC TEST            |
| SWR2=1 | FOR INHIBIT ERROR PRINT OUT                      |
| SWR3=1 | FOR INHIBIT ERROR BELL                           |
| SWR4=1 | FOR INHIBIT ERROR HALT                           |
| SWR5=1 | FOR ENTER SCOPE LOOP ON ERROR                    |
| SWR6=1 | FOR LOOP ON NON-FAILING TEST                     |
| SWR7=1 | FOR DK8-EP/DK8-ES EXTERNAL PULSE SCOPE LOOP TEST |

SWR8#1

FOR DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST

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

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

4.2 STARTING ADDRESS  
-----

THE STARTING ADDRESS IS 0200 OCTAL.

4.3 OPERATOR ACTION  
-----

4.3.1 DK8-EA/DK8-EC TEST  
-----

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

SET THE SWITCH REGISTER TO 0000.

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

PRESS CLEAR AND THEN PRESS CONTINUE.

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

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

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

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

SET SWITCH REGISTER TO 0000.

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

PRESS CLEAR AND THEN PRESS CONTINUE.

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

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

#### 4.3.3 DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST

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

SET SWITCH REGISTER TO 0000.

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

PRESS CLEAR AND THEN CONTINUE.

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

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

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

-----

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

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE EXTERNAL PULSE SCOPE LOOP TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

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

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

#### 4.3.5 DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST

-----

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

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE EXTERNAL CLOCK SCOPE LOOP TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

GROUND CLOCK IN ON DK8-ES CLOCK FRONT PANEL.

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

#### 5. OPERATING PROCEDURE

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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  
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INSTALL DK8-EA OR DK8-EC CLOCK OPTION

RUN DK8-EA/DK8-EC TEST 4.3.1.

5.3.2 DK8-EP CLOCK OPTION  
-----

INSTALL DK8-EP CLOCK OPTION.

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

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

5.3.3. DK8-ES CLOCK OPTION  
-----

INSTALL DK8-ES CLOCK OPTION.

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

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

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

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

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

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

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

6. ERRORS  
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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

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### 6.1.1 ERROR HALTS

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ERROR HALTS IN PROGRAM ARE AS FOLLOWS:

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

EHLT2: SKIP TRAP, CLZE

EHLT3: SKIP TRAP, CLOE

EHLT4: SKIP TRAP, CLOE

EHLT5: SKIP TRAP, CLAB

EHLT6: SKIP TRAP, CLEN

EHLT7: SKIP TRAP, CLSA

EHLT10: SKIP TRAP, CLBA

EHLT11: SKIP TRAP, CLCA

### 6.1.2 ERROR TYPECUTS

-----

ERROR TYPECUTS IN PROGRAM ARE AS FOLLOWS:

TEST XXXX FAILED, STARTING ADDRESS XXXX

THE GOOD AC = XXXX AND BAD AC = XXXX

CLOCK BUFFER REGISTER AND AC TRANSFER FAILED

CLOCK COUNTER REGISTER AND AC TRANSFER FAILED

CLOCK ENABLE REGISTER AND AC TRANSFER FAILED

THE AC WAS CHANGED BY A CLOCK IOT

PROGRAM INTERRUPT FAILED, NO INTERRUPT EXPECTED

PROGRAM INTERRUPT FAILED, INTERRUPT EXPECTED

CLOCK SKIP FAILED, NO SKIP EXPECTED

CLOCK SKIP FAILED, SKIP EXPECTED

CLOCK OUTPUT FAILED, CLOCK FREQUENCY FAST

CLOCK OUTPUT FAILED, CLOCK FREQUENCY SLOW

## 6.2 ERROR RECOVERY

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

## FURTHER INFORMATION.

### 6.2.1 SCOPE LOOPS

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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

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NONE

#### 7.2 OPERATING RESTRICTIONS

-----

THE PROGRAM MUST RESIDE IN BANK 0 .

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

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

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

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

### 8. MISCELLANECUS

#### 8.1 SPECIFICATIONS

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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  
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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 TO 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 SEQUENTIAL  
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 TRANSFERRED 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 TRANSFERRED 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 TRANSFERRED 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 TRANSFERED TO THE AC. THE ENABLE REGISTER IS NOT AFFECTED.

CLOCK STATUS TO AC (CLSA)

OCTAL CODE: 6135

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

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

CLOCK BUFFER REGISTER TO AC (CLBA)

OCTAL CODE: 6136

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

CLOCK COUNTER REGISTER TO AC (CLCA)

OCTAL CODE: 6137

OPERATION:

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

10. LISTING

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/  
 /DK8E CLOCKS DIAGNOSTIC  
 /  
 /COPYRIGHT 1971, DIGITAL EQUIP. CORP., MAYNARD, MASS.  
 /  
 /THE STARTING ADDRESS 0200 OCTAL.  
 /  
 /PLEASE READ DOCUMENT FOR FURTHER INFORMATION.  
 /

|      |      |         |
|------|------|---------|
| 0000 | 0000 |         |
| 0001 | 0000 |         |
| 0002 | 5001 |         |
| 0003 | 0002 |         |
| 0004 | 0003 |         |
| 0005 | 0000 | 0000    |
| 0006 | 0207 | 0000    |
| 0007 | 0007 | 0207    |
| 0010 | 0000 | 0007    |
| 0011 | 0000 | 0000    |
| 0012 | 7700 | AUTO10, |
| 0013 | 0100 | SAVAC,  |
| 0014 | 4000 | K7700,  |
| 0015 | 0200 | K0100,  |
| 0016 | 2525 | K4000,  |
| 0017 | 5252 | 0200,   |
| 0020 | 5102 | K2525,  |
| 0021 | 5107 | K5252,  |
| 0022 | 5114 | XI0TA,  |
| 0023 | 5121 | XI0TB,  |
| 0024 | 5127 | XI0TC,  |
| 0025 | 5134 | XI0TD,  |
| 0026 | 5142 | XI0TE,  |
| 0027 | 5146 | XI0TF,  |
| 0030 | 5154 | XI0TF1, |
| 0031 | 5163 | XI0TG,  |
| 0032 | 5200 | XI0TH,  |
| 0033 | 5207 | XI0TI,  |
| 0034 | 5350 | XI0TJ,  |
| 0035 | 5360 | XI0TK,  |
| 0036 | 5370 | XI0TS,  |
| 0037 | 5400 | XI0TS1, |
| 0040 | 0000 | XI0TS2, |
| 0041 | 0000 | XI0TS3, |
| 0042 | 0000 | REGA,   |
| 0043 | 0000 | REGB,   |
| 0044 | 0000 | REGC,   |
| 0045 | 0000 | REGD,   |
| 0046 | 5642 | REGF,   |
| 0047 | 5255 | SKPWAT, |
| 0050 | 5270 | XPIG01, |
| 0051 | 5323 | XPIG02, |
| 0052 | 5336 | XPIG03, |
| 0053 | 5234 | XPIG04, |
|      |      | XPIG05, |

|      |      |         |           |
|------|------|---------|-----------|
| 0054 | 0054 | XISE,   | ISELOP    |
| 0055 | 5224 | RANDY,  | RANDOM    |
| 0056 | 5216 | XSNDRV, | SNDRV     |
| 0057 | 5302 | XSYNC,  | SYNC      |
| 0060 | 5065 | XCLREG, | CLREG     |
| 0061 | 0215 | OVER2,  | BCNEAC +2 |
| 0062 | 0217 | OVER2A, | BCNEAC    |
| 0063 | 0570 | XDK8EP, | TST30     |
| 0064 | 3561 | XMITT,  | TST202    |
| 0065 | 3556 | XMITT1, | TST202 -3 |
| 0066 | 5660 | XLAS,   | SHLAS     |
| 0067 | 5746 | XGTAD,  | GTAD      |
| 0070 | 0020 | SEND,   | 0000      |
| 0071 | 0020 | RECEV,  | 0000      |
| 0072 | 5000 | NERROR, | NERRO     |
| 0073 | 5020 | ERROR,  | ERRO      |
| 0074 | 5413 | XCLOCK, | CLOCK     |
| 0075 | 0020 | CLOCKS, | 0000      |
| 0076 | 0020 | 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 | 5624 | 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 | 0026 | K0026,  | 0026      |
| 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      |

```

0143 2000 2000
0144 1000 1000
0145 0300 0300
0146 0500 0500
0147 0600 0600
0150 0700 0700
0151 2725 2725
0152 2650 2650
0153 7425 7425
0154 7350 7350
0155 7753 7753
0156 0225 0225
0157 0150 0150
0160 1450 1450
0161 1425 1425
0162 6575 6575
0163 6525 6525
0164 5600 5600
0165 5450 5450
0166 0070 0070
0167 5771 5771
0170 5740 5740
0171 1775 1775
0172 2200 2200
0173 2603 2603
0174 2505 2505
0175 4023 4023

```

```

0200 *0200
0201 7300
0202 6007
0203 4501
0204 6000
0205 4501
0206 4400
0207 4504
0210 4466
0211 5405
0212 5463
0213 4474
0214 4565
0215 4507
0216 3077
0217 4400
0220 3040

```

```

/ CLEAR THE AC AND LINK
/ CAF OR CLEAR THE WORLD
/ CRLF
/ PRINT DK8E CLOCKS DIAGNOSTIC
/ MESSAGE POINTER
/ CRLF
/ CLEAR ALL MY REGISTERS
/ SET UP FOR PI RETURN
/ GET HIS SWITCHES
/ TEST SCHMITT
/ TEST DK8EP CLOCK
/ TEST DK8EA CR DK8EC
/ SORT AND PRINT FREQ. SELECTFD
/ GET TIME LENGTH
/ SET LOOP COUNTER
/ CLEAR ALL REGISTERS

```

```

/ DOES IOT CLEI CHANGE AC ?
/ CHECK ALL COMBINATIONS
/

```

```

0221 1040
0222 3070
0223 1070
0224 4420

```

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TST0, TAD REGA /GET AC NUMBER
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
TAD SEND
JMS I XIOTA /IOT 6131, CLEI

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0225 3071 DCA RECEV /SAVE INPUT FOR ERROR PRINTER  
 0226 1071 TAD RECEV /CHECK SEND AND RECEV REGISTERS  
 0227 4456 JMS I XSNDRV /CHECK NON-ERROR HANDLER.  
 0230 4472 JMS I NERROR /ERROR: CLEI CHANGED AC.  
 0231 4473 JMS I ERROR /TST0 ERROR MESSAGE.  
 0232 3000 /SCOPE LOOP.  
 0233 0221 TST0  
 0234 3040 DCA REGA

/DOES IOT CLED CHANGE AC ?  
 /CHECK ALL COMBINATIONS

0235 1040 TST1, /GET AC NUMBER  
 0236 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER  
 0237 1070 TAD SEND  
 0240 4421 JMS I XIOTB /IOT 6132, CLED  
 0241 3071 DCA RECEV /SAVE INPUT FOR ERROR PRINTER  
 0242 1071 TAD RECEV  
 0243 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
 0244 4472 JMS I NERROR /CHECK NON-ERROR HANDLER.  
 0245 4473 JMS I ERROR /ERROR: CLED CHANGED AC.  
 0246 3001 /TST1 ERROR MESSAGE.  
 0247 0235 TST1  
 0250 3040 DCA REGA /SCOPE LOOP.

/DOES IOT CLSK CHANGE AC ?  
 /CHECK ALL COMBINATIONS

0251 1040 TST2, /GET AC NUMBER  
 0252 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER  
 0253 1070 TAD SEND  
 0254 4422 JMS I XIOTC /IOT 6133, CLSK  
 0255 7000 NOP /WAIT JUST IN CASE I  
 0256 3071 DCA RECEV /SAVE INPUT FOR ERROR PRINTER  
 0257 1071 TAD RECEV  
 0260 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
 0261 4472 JMS I NERROR /CHECK NON-ERROR HANDLER.  
 0262 4473 JMS I ERROR /ERROR: CLSK CHANGED AC.  
 0263 3002 /TST2 ERROR MESSAGE.  
 0264 0251 TST2 /SCOPE LOOP.

/TEST FOR NO INTERRUPT ROST.

0265 6007 TST3, /CAF OR CLEAR THE WORLD  
 0266 4447 JMS I XPIG01 /GO TO PI, NO PI EXPECTED  
 0267 4472 JMS I NERROR /CHECK NON-ERROR HANDLER  
 0270 4473 JMS I ERROR /ERROR:PI OR INT. ROST. FAILED  
 0271 1003 /TST3 ERROR MESSAGE  
 0272 0265 TST3 /SCOPE LOOP

/DOES CLSK SKIP ON A CLOCK FLAG

0273 1113 TST4, /SET UP TIMER  
 0274 3045 DCA REGF /IOT 6133, CLSK  
 0275 4422 JMS I XIOTC



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0276 7020 NOP
0277 4422 JMS I XIOTC /IOT 6133, CLSK
0300 4446 JMS I SKPWAT /GO WAIT FOR FLAG
0301 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
0302 4473 JMS I ERROR /ERROR: CLSK OR FLAG FAILED
0303 0404 0404 /TST4 ERROR MESSAGE
0304 0273 TST4 /SCOPE LOOP

/DOES CLSK CLEAR THE FLAG ?
/DOES CLEI ENABLE CLOCK INTERRUPT ?
TST5. TAD K1ICPS /SET UP TIMER
DCA REGF /IOT 6133, CLSK
JMS I XIOTC
NOP /IOT 6133, CLSK
JMS I XIOTC /GO WAIT FOR FLAG
JMS I SKPWAT /GOT THE FLAG
SKP I .-10 /GO BACK TO TEST 4
JMS I XIOTC /IOT 6133, CLSK
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: CLSK CLEAR THE FLAG FAILED
0005 /TST5 ERROR MESSAGE
TST5 /SCOPE LOOP

/DOES CLEI ENABLE CLOCK INTERRUPT ?
/DOES CLED DISABLE CLOCK INTERRUPT ?
TST6. JMS I XIOTA /IOT 6131, CLEI
JMS I XPIG02 /GO TO PI, PI EXPECTED
JMS I NERRR /CHECK NON-ERROR HANDLER.
JMS I ERROR /ERROR: DID CLEI ENABLE CLOCK INTERRUPT ?
1406 /TST6 ERROR MESSAGE
TST6 /SCOPE LOOP.

/DOES CLED DISABLE CLOCK INTERRUPT ?
/DOES CLEI ENABLE CLOCK INTERRUPT ?
TST7. JMS I XIOTA /IOT 6131, CLEI
JMS I XIOTB /IOT 6132, CLED
JMS I XPIG01 /GO TO PI, NO PI EXPECTED
JMS I NERRR /CHECK NON-ERROR HANDLER,
JMS I ERROR /ERROR: DID CLED DISABLE CLOCK INTERRUPT?
1007 /TST7 ERROR MESSAGE
TST7 /SCOPE LOOP.

/DOES CAF DISABLE CLOCK INTERRUPT ?
/DOES CLEI ENABLE CLOCK INTERRUPT ?
TST10. JMS I XIOTA /IOT 6131, CLEI
6007 /CAF OR CLEAR THE WORLD
JMS I XPIG01 /GO TO PI, NO PI EXPECTED
JMS I NERRR /CHECK NON-ERROR HANDLER,
JMS I ERROR /ERROR: DID CAF DISABLE CLOCK INTERRUPT ?
1010 /TST10 ERROR MESSAGE
TST10 /SCOPE LOOP.

/DOES CLEI ENABLE CLOCK INTERRUPT ?

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0346  4420  JMS I XIOTA          /IOT 6131, CLEI
0347  4447  JMS I XPIG01         /GO TO PI, PI EXPECTED
0350  5354  JMP T11A
0351  4420  JMS I XIOTA          /IOT 6131, CLEI
0352  4450  JMS I XPIG02         /GO TO PI, PI EXPECTED
0353  4472  JMS I NERROR        /CHECK NON-ERROR HANDLER,
0354  4473  JMS I ERROR         /ERROR: CLEI AND CLED FAST TOGGLE
0355  1411  TST11               /TS11 ERROR MESSAGE
0356  0346  TST11               /SCOPE.

/DOES CLED DISABLE CLOCK INTERRUPT ?
/
TST12,  JMS I XIOTA          /IOT 6131, CLEI
        JMS I XIOTB         /IOT 6132, CLED
        JMS I XPIG02         /GO TO PI, NO PI EXPECTED
        JMP T12A
        JMS I XIOTB         /IOT 6132, CLED
        JMS I XPIG01         /GO TO PI, NO PI EXPECTED
        JMS I NERROR        /CHECK NON-ERROR HANDLER,
        JMS I ERROR         /ERROR: CLEI AND CLED FAST TOGGLE
        T012
        TST12         /TS12 ERROR MESSAGE
        TST12         /SCOPE LOOP.

/TEST DECODER FOR 6135, NOT CLEI
/
TST13,  JMS I XIOTB         /IOT 6132, CLED
        JMS I XIOTI         /IOT 6135, NOT AN IOT 6131
        JMS I XPIG01         /GO TO PI, NO PI EXPECTED
        JMS I NERROR        /CHECK NON-ERROR HANDLER,
        JMS I ERROR         /ERROR: DID DECODER WORK
        T013
        TST13         /TS13 ERROR MESSAGE
        TST13         /SCOPE LOOP.

/TEST DECODER FOR A 6136, NOT CLED
/
TST14,  JMS I XIOTA          /IOT 6131, CLEI
        JMS I XIOTJ         /IOT 6136, NOT AN IOT 6132.
        JMS I XPIG02         /GO TO PI, PI EXPECTED
        JMS I NERROR        /CHECK NON-ERROR HANDLER,
        JMS I ERROR         /ERROR: DID DECODER WORK
        T414
        TST14         /TS14 ERROR MESSAGE
        TST14         /SCOPE LOOP.

/TEST DECODER FOR 6137, NOT CLSK
/
TST15,  TAD KT1CPS
        DCA REGF
        JMS I XIOTC
        NOP
        JMS I XIOTK
        JMS I SKPWAT
        SKP
        JMS I NERROR
        JMS I ERROR
        T015
        TST15         /TS15 ERROR MESSAGE

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0421 0407 /
TST15 /SCOPE LOOP.
/DOES CLSK ENABLE CLOCK INTERRUPT ?
/
TST16, JMS I XIOTC /IOT 6133, CLSK
NOP
JMS I XPIG01 /GO TO PI, NO PI EXPECTED
JMS I NERROR /CHECK NON-ERROR HANDLER,
JMS I ERROR /ERROR: DID CLSK CAUSE INTERRUPT
1016 /TST16 ERROR MESSAGE
0430 0422 /SCOPE LOOP.

/DOES CLSK DISABLE CLOCK INTERRUPT ?
/
TST17, JMS I XIOTA /IOT 6131, CLEI
JMS I XIOTC /IOT 6133, CLSK
NOP
JMS I XPIG02 /GO TO PI, PI EXPECTED
JMS I NERROR /CHECK NON-ERROR HANDLER,
JMS I ERROR /ERROR: CLSK DISABLED CLOCK INTERRUPT
1417 /TST17 ERROR MESSAGE
0440 0431 /SCOPE LOOP.

/DOES CLEI CAUSE A SKIP ON FLAG ?
/
TST20, TAD KT1CPS
DCA REGF /SET UP TIMER
JMS I XIOTA /IOT 6131, CLEI
JMS I SKPWAT /GO WAIT FOR FLAG
SKP /ERROR, SKIP OCCURRED
JMS I NERROR /CHECK NON-ERROR HANDLER,
JMS I ERROR /ERROR: DID CLEI CAUSE A SKIP
0020 /TST20 ERROR MESSAGE
0451 0441 /SCOPE LOOP.

/DOES CLED CAUSE A SKIP ON FLAG ?
/
TST21, TAD KT1CPS
DCA REGF /SET UP TIMER
JMS I XIOTB /IOT 6132, CLED
JMS I SKPWAT /GO WAIT FOR FLAG
SKP /ERROR, SKIP OCCURRED
JMS I NERROR /CHECK NON-ERROR HANDLER,
JMS I ERROR /ERROR: DID CLED CAUSE A SKIP ON FLAG
0021 /TST21 ERROR MESSAGE
0462 0452 /SCOPE LOOP.

/DOES INT. RQST STAY DOWN ?
/
TST22, JMS I XSYNC /SYNC WITH CLOCK
JMS I XIOTA /IOT 6131, CLEI
JMS I XPIG01 /GO TO PI, PI EXPECTED
JMP T22A /ERROR, PI FAILED
ISZ REGB /WAIT 15.5 MS
0470 0463 JMP .-1
0464 4420
0465 4447
0466 5273
0467 2041
0470 5267

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0471 4452 JMS I XPIG04 /GO TO PI, PI EXPECTED  
 0472 4472 JMS I NERROR /CHECK NON-ERROR HANDLER  
 0473 4473 JMS I ERROR /ERROR: DID ROST. LAST ?  
 0474 1422 TST21 /TST21 ERROR MESSAGE  
 0475 0463 TST22 /SCOPE LOOP

/DOES CLSK CLEAR ROST. LINE ?

TST23, JMS I XIOTA /IOT 6131, CLEI  
 JMS I XSYNC /SYNC WITH CLOCK FLAG  
 JMS I XPIG03 /GO TO PI, NO PI EXPECTED  
 JMS I NERROR /CHECK NON-ERROR HANDLER  
 JMS I ERROR /ERROR: DID CLSK CLEAR ROST. FLAG  
 1023 /TST23 ERROR MESSAGE  
 TST23 /SCOPE LOOP

/SYNC WITH CLOCK AND  
 /CHECK FOR FAST OUTPUT

TST24, JMS I XGTAD /GET TIME CONSTANTS  
 0000 /MODIFIED BY TEST  
 TAD I .-1  
 DCA REGD  
 JMS I XIOTA /IOT 6131, CLEI  
 JMS I XSYNC /SYNC WITH CLOCK  
 JMS I XPIG01 /GO TO PI, NO PI EXPECTED  
 JMS I NERROR /CHECK NON-ERROR HANDLER.  
 JMS I ERROR /ERROR: CLOCK FREQUENCY FAST.  
 2024 /TST24 ERROR MESSAGE  
 TST24 /SCOPE LOOP.

/SYNC WITH CLOCK AND  
 /CHECK FOR SLOW OUTPUT

TST25, TAD K0006 /SETUP FOR SLOW CLOCK  
 JMS I XGTAD /GET TIME CONSTANTS  
 0000 /MODIFIED BY TEST  
 TAD I .-1  
 DCA REGD  
 JMS I XIOTA /IOT 6131, CLEI  
 JMS I XSYNC /SYNC WITH CLOCK  
 JMS I XPIG02 /GO TO PI, PI EXPECTED  
 JMS I NERROR /CHECK NON-ERROR HANDLER.  
 JMS I ERROR /ERROR: CLOCK FREQUENCY SLOW.  
 2425 /TST25 ERROR MESSAGE  
 TST25 /SCOPE LOOP.

/CHECK FOR FAST CLOCK AND  
 /BAD CLOCK FLAG WITH CLSK.

TST26, JMS I XGTAD /GET TIME CONSTANTS  
 0000 /MODIFIED BY TEST  
 TAD I .-1  
 DCA REGD  
 JMS I XSYNC /SYNC WITH CLOCK  
 0534 4467  
 0535 0000  
 0536 1735  
 0537 3043  
 0540 4457

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0541 4454 JMS I XISZ /WAIT
0542 4422 JMS I XIOTC /IOT 6133, CLSK
0543 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
0544 4473 JMS I NERRR /ERROR: CLOCK FAILED
0545 2026 2026 /TST26 ERROR MESSAGE
0546 0534 TST26 /SCOPE LOOP

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/ CHECK FOR SLOW CLOCK AND
/ BAD CLOCK FLAG WITH CLSK
/

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0547 1115 TAD K0006 /SET UP FOR SLOW CLOCK
0550 4467 JMS I XGTAD /GET TIME CONSTANTS
0551 0000 0000 /MODIFIED BY TEST
0552 1751 TAD I .-1
0553 3043 DCA REGD
0554 4457 JMS I XSYNC /SYNC WITH CLOCK
0555 4454 JMS I XISZ /WAIT
0556 4422 JMS I XIOTC /IOT 6133, CLSK
0557 7410 SKP I NERRR /ERROR, SKIP OCCURRED
0560 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
0561 4473 JMS I NERRR /ERROR: CLSK OR CLOCK FLAG FAILED
0562 2427 2427 /TST27 ERROR MESSAGE
0563 0547 TST27 /SCOPE LOOP
0564 2077 ISZ LOOP
0565 5462 JMP I OVER2A /LOOP ON TEST
0566 4570 JMS I XPASS /TYPE PASS COMPLETE
0567 5461 JMP I OVER2 /RESET COUNTER AND CONTINUE TESTING

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/ DOES IOT CLZE CHANGE AC?
/ CHECK ALL COMBINATIONS.
/

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0570 1040 TAD REGA /GET AC NUMBER
0571 4423 JMS I XIOTD /IOT 6130, CLZE
0572 3071 DCA RECEV /SAVE INPUT FOR ERROR PRINTER
0573 1071 TAD RECEV
0574 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
0575 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
0576 4473 JMS I NERRR /ERROR: CLZE CHANGED AC
0577 3030 3030 /TST30 ERROR MESSAGE
0600 0570 TST30 /SCOPE LOOP

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/ DOES IOT CLSK CHANGE AC?
/ CHECK ALL COMBINATIONS
/

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0601 1040 TAD REGA /GET AC NUMBER
0602 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
0603 1070 TAD SEND
0604 4424 JMS I XIOTE /IOT 6131, CLSK
0605 7000 NOP
0606 3071 DCA RECEV /SAVE INPUT FOR ERROR PRINTER
0607 1071 TAD RECEV
0610 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
0611 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
0612 4473 JMS I NERRR /ERROR: CLSK CHANGED AC.

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0613 3031 /TST31 ERROR MESSAGE
0614 0601 /SCOPE LOOP

/DOES IOT CLOE CHANGE AC?
/CHECK ALL COMBINATIONS
TST32, TAD REGA /GET AC NUMBER
JMS I XIOTF /IOT 6132, CLOE
DCA RECEV /SAVE INPUT FOR ERROR PRINTER
TAD RECEV
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR:CLDE CHANGED AC
3032 /TST32 ERROR MESSAGE
TST32 /SCOPE LOOP

/DOES IOT CLAB CHANGE AC?
/CHECK ALL COMBINATIONS
TST33, TAD REGA /GET AC NUMBER
JMS I XIOTG /IOT 6133, CLAB
DCA RECEV /SAVE INPUT FOR ERROR PRINTER
TAD RECEV
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR:CLAB CHANGED AC
3033 /TST33 ERROR MESSAGE
TST33 /SCOPE LOOP

/DOES CAF CLEAR BUFFER REGISTER?
/CHECK FOR JAM TO AC, CLBA.
TST34, 6007 /CAF OR CLEAR THE WORLD
CLA CLL CMA /AC TO 7777
JMS I XIOTJ /IOT 6136, CLJA
SNA CLA /WAS BUFFER ALL 0'S?
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR:CAF OR CLBA FAILED.
3434 /TST34 ERROR MESSAGE
TST34 /SCOPE LOOP

/DOES CAF CLEAR ENABLE REGISTER?
/CHECK FOR JAM TO AC, CLEN.
TST35, 6007 /CAF OR CLEAR THE WORLD
CLA CLL CMA /AC TO 7777
JMS I XIOTH /IOT 6134, CLEN
SNA CLA /WAS ENABLE REGISTER ALL 0'S?
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR:CAL OR CLEN FAILED.
4435 /TST35 ERROR MESSAGE
TST35 /SCOPE LOOP

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0657 6027 /TST36, 6027 /CAF OR THE CLEAR THE WORLD
0660 7340 /AC TO 7777
0661 4431 /IOT 6135, CLSA
0662 7650 /WAS STATUS REGISTER ALL 0'S ?
0663 4472 /CHECK NON-ERROR HANDLER
0664 4473 /CAF OR CLSA FAILED
0665 5036 /TST36 ERROR MESSAGE
0666 0657 /SCOPE LOOP

/DOES AC LOAD BUFFER REGISTER?
/CHECK ALL 0'S TRANSFER
/CHECK JAM TO AC, CLBA
/

TST37, JMS I XIOTG /IOT 6133, CLAB
0670 4427 CLA CLL CMA /AC TO 7777
0671 7340 JMS I XIOTJ /IOT 6136, CLBA
0672 7650 SNA CLA /WAS BUFFER ALL 0'S?
0673 4722 JMS I NERROR /CHECK NON-ERROR HANDLER
0674 473 JMS I ERROR /ERROR:CLAB OR CLBA FAILED
0675 3437 3437 /TST37 ERROR MESSAGE
0676 0667 TST37 /SCOPE LOOP

/DOES AC LOAD BUFFER REGISTER ?
/CHECK ALL 1'S TRANSFER
/CHECK JAM TO AC, CLBA
/

TST40, CLA CLL CMA /AC TO 7777
0677 7340 JMS I XIOTG /IOT 6133, CLAB
0680 4427 CLA CLL /CLEAR THE AC AND LINK
0681 7300 JMS I XIOTJ /IOT 6136, CLBA
0682 4432 CMA CLA /COMPLEMENT THE AC
0683 7040 SNA CLA /WAS BUFFER ALL 1'S?
0684 7650 JMS I NERROR /CHECK NON-ERROR HANDLER
0685 4472 JMS I ERROR /ERROR:CLAB OR CLBA FAILED
0686 4473 3440 /TST40 ERROR MESSAGE
0687 3440 TST40 /SCOPE LOOP
0670 0677

/DOES BUFFER SURVIVE PATTERN 2525 ?
/

TST41, TAD K2525 /GET AC NUMBER
0711 1016 JMS I XIOTG /IOT 6133, CLAB
0712 4427 CMA /COMPLEMENT AC
0713 7040 JMS I XIOTJ /IOT 6136, CLBA
0714 4432 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
0715 4456 JMS I NERROR /CHECK NON-ERROR HANDLER
0716 4472 JMS I ERROR /ERROR: BUFFER OR AC FAILED
0717 4473 3441 /TST41 ERROR MESSAGE
0720 3441 TST41 /SCOPE LOOP
0721 0711

/DOES BUFFER SURVIVE PATTERN 5252 ?

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0722 1017 /TST42, TAD K5252 /GET AC NUMBER
0723 4427 JMS I XIOTG /IOT 6133, CLXB
0724 7040 CMA /COMPLEMENT AC
0725 4432 JMS I XIOTJ /IOT 6136, CLBA
0726 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
0727 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
0730 4473 JMS I ERROR /ERROR: BUFFER OR AC FAILED
0731 3442 3442 /TST42 ERROR MESSAGE
0732 0722 TST42 /SCOPE LOOP

/DOES CAF REALLY CLEAR BUFFER ?
/TST43, CLA CLA CMA /AC TO ALL 7777
0733 7240 JMS I XIOTG /IOT 6133, CLAB
0734 4427 6007 /CAF OR CLEAR THE WORLD
0735 6007 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
0736 3070 CLA CLL CMA
0737 7340 JMS I XIOTJ /IOT 6136, CLBA
0740 4432 SNA CLA /WAS BUFFER ALL 0'S ?
0741 7650 JMS I NERRR /CHECK NON-ERROR HANDLER
0742 4472 JMS I ERROR /ERROR: CAF OR BUFFER FAILED
0743 4473 3443 /TST43 ERROR MESSAGE
0744 3443 TST43 /SCOPE LOOP
0745 0733

/DOES CAF REALLY CLEAR BUFFER ?
/DO ALL COMBINATIONS
/TST44, TAD REGA /GET AC NUMBER
0746 1040 JMS I XIOTG /IOT 6133, CLAB
0747 4427 6007 /CAF OR CLEAR THE WORLD
0750 6007 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
0751 3070 CLA CLL CMA
0752 7340 JMS I XIOTJ /IOT 6136, CLBA
0753 4432 SNA CLA /WAS BUFFER ALL 0'S ?
0754 7650 JMS I NERRR /CHECK NON-ERROR HANDLER
0755 4472 JMS I ERROR /ERROR: CAF OR RUFFER FAILED
0756 4473 3444 /TST44 ERROR MESSAGE
0757 3444 TST44 /SCOPE LOOP
0760 0746

/CHECK AC TO BUFFER REGISTER AND
/BUFFER REGISTER TO AC TRANSFERS.
/CHECK ALL COMBINATIONS.
/CHECK LOAD ON BUFFER REGISTER.
/TST45, CLA CLL CMA
0761 7340 DCA REGA
0762 3040 TAD REGB
0763 1041 JMS I XIOTG /GET AC NUMBER
0764 4427 CMA /COMPLEMENT THE AC
0765 7040 JMS I XIOTJ /IOT 6133, CLAB
0766 4432 JMS I XSNDRV /CHECK SEND RECEV REGISTERS
0767 4456 SKP CLA
0770 7610 JMP T45A
0771 5375 152 REGB /UPDATE AC NUMBER
0772 2041

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0773 5363 JMP T45B /CHECK NON-ERROR HANDLER  
 0774 4472 JMS I NERROR /ERROR: AC OR BUFFER FAILED.  
 0775 4473 JMS I ERROR /TST45 ERROR MESSAGE  
 0776 3445 3445 /SCOPE LOOP  
 0777 0761 TST45

/DOES READING BUFFER CHANGE ITS CONTENTS ?  
 /DOES READING BUFFER CHANGE ITS CONTENTS ?

TST46, CLA CLL CMA /AC TO 7777  
 DCA REGA /GET AC NUMBER  
 TAD K2525 /IOT 6133, CLAB  
 JMS I XIOTG /COMPLEMENT AC  
 CMA /IOT 6136, CLBA  
 JMS I XIOTJ /CHECK SEND AND RECEV REGISTERS  
 JMS I XSNDRV  
 SKP CLA  
 JMP T46A /UPDATE COUNTER  
 ISZ REGB /DO 4096 TIMES  
 JMP T46B /CHECK NON-ERROR HANDLER  
 JMS I NERROR /ERROR: BUFFER FAILED  
 JMS I ERROR /TST46 ERROR MESSAGE  
 3446 /SCOPE LOOP  
 TST46

/DOES READING BUFFER CHANGE ITS CONTENTS ?  
 /DOES READING BUFFER CHANGE ITS CONTENTS ?

TST47, CLA CLL CMA /AC TO 7777  
 DCA REGA /GET AC NUMBER  
 TAD K5252 /IOT 6133, CLAB  
 JMS I XIOTG /COMPLEMENT AC  
 CMA /IOT 6136, CLBA  
 JMS I XIOTJ /CHECK SEND AND RECEV REGISTERS  
 JMS I XSNDRV  
 SKP CLA  
 JMP T47A /UPDATE COUNTER  
 ISZ REGB /DO 4096 TIMES  
 JMP T47B /CHECK NON-ERROR HANDLER  
 JMS I NERROR /ERROR: BUFFER FAILED  
 JMS I ERROR /TST47 ERROR MESSAGE  
 3447 /SCOPELOOP  
 TST47

/DOES BUFFER SURVIVE RANDOM PATTERNS ?  
 /DOES BUFFER SURVIVE RANDOM PATTERNS ?

TST50, CLA CLL CMA /AC TO 7777  
 DCA REGA /GET RANDOM NUMBER  
 JMS I RANDY /IOT 6133, CLAB  
 JMS I XIOTG /COMPLEMENT AC  
 CMA /IOT 6136, CLBA  
 JMS I XIOTJ /CHECK SEND AND RECEV REGISTERS  
 JMS I XSNDRV  
 SKP CLA  
 JMP T50A /UPDATE COUNTER  
 ISZ REGB /DO 4096 TIMES  
 JMP T50B

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1051 4472 /CHECK NON-ERROR HANDLER
1052 4473 /ERROR: BUFFER FAILED
1053 3450 /TST50 ERROR MESSAGE
1054 1036 /SCOPE LOOP

/DOES BUFFER SURVIVE FAST TOGGLE ?
/
TST51, TAD REGA /GET AC NUMBER
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
TAD REGA
JMS I XIOTS1 /IOT'S 6133 AND 6136
DCA RECEV /SAVE INPUT FOR ERROR PRINTER
TAD RECEV
JMS I XSNDRV /CHECK SEND RECEV REGISTERS
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: BUFFER FAILED
3451 /TST51 ERROR MESSAGE
TST51 /SCOPE LOOP

/DOES AC SET ENABLE REGISTER?
/CHECK ALL 1'S TRANSFER.
/CHECK JAM TO AC, CLEN
/
TST52, CLA CLL CMA /AC TO 7777
JMS I XIOTF /IOT 6132, CLOE
CMA /COMPLEMENT AC
JMS I XIOTH /IOT 6134, CLEN
CMA /COMPLEMENT AC
SNA CLA /WAS ENABLE REGISTER ALL 1'S ?
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: CLOE OR CLEN FAILED.
4452 /TST52 ERROR MESSAGE
TST52 /SCOPE LOOP

/DOES AC SET ENABLE REGISTER?
/CHECK ALL 0'S TRANSFER.
/
TST53, CLA CLL CMA /AC TO 7777
JMS I XIOTF /IOT 6132, CLOE
CLA CLL /CLEAR THE AC AND LINK
JMS I XIOTF1 /IOT 6132, CLOE
JMS I XIOTH /IOT 6134, CLEN
CMA /COMPLEMENT THE AC
SNA CLA /WAS ENABLE REGISTER ALL 1'S?
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: CLOE OR CLEN FAILED
4453 /TST53 ERROR MESSAGE
TST53 /SCOPE LOOP

/DOES CAF REALLY CLEAR ENABLE REGISTER?
/
TST54, CLA CLL CMA /AC TO 7777
JMS I XIOTF /IOT 6132, CLOE

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PAL10 1117 6007      /CAF OR CLEAR THE WORLD
1120 3070      /SAVE OUTPUT FOR ERROR PRINTER
1121 7340      /AC TO 7777
1122 4430      /IOT 6134, CLEN
1123 7650      /WAS REGISTER ALL 0'S
1124 4472      /CHECK NON-ERROR HANDLER
1125 4473      /ERROR:CAF,CLOE,OR CLEN FAILED
1126 4454      /TST54 ERROR MESSAGE
1127 1115      /SCOPE LOOP

/DOES CAF REALLY CLEAR ENABLE REGISTER ?
/DO ALL COMBINATIONS
/
TST55,  TAD REGA      /GET AC NUMBER
        JMS I XIOTF1  /IOT 6132, CLOE
        6007          /CAF OR CLEAR THE WORLD
        CLA CLL CMA   /AC TO 7777
        JMS I XIOTH  /IOT 6134, CLEN
        SNA CLA      /WAS ENABLE REGISTER ALL 0'S ?
        JMS I NERROR /CHECK NON-ERROR HANDLER
        JMS I ERROR  /ERROR: ENABLE REGISTER FAILED
        4455          /TST55 ERROR MESSAGE
        TST55        /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?
/
TST56,  TAD K2525     /GET AC NUMBER
        JMS I XIOTF   /IOT 6132, CLOE
        CMA           /COMPLEMENT AC
        JMS I XIOTH   /IOT 6134, CLEN
        JMS I XSNDRV  /CHECK SEND AND RECEV REGISTERS
        JMS I NERROR  /CHECK NON-ERROR HANDLER
        JMS I ERROR   /ERROR: EBABLE REGISTER FAILED
        4456          /TST56 ERROR MESSAGE
        TST56        /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE PATTERN 2522 ?
/
TST57,  TAD K5252     /GET AC NUMBER
        JMS I XIOTF   /IOT 6132, CLOE
        CMA           /COMPLEMENT AC
        JMS I XIOTH   /IOT 6134, CLEN
        JMS I XSNDRV  /CHECK SEND AND RECEV REGISTERS
        JMS I NERROR  /CHECK NON-ERROR HANDLER
        JMS I ERROR   /ERROR: ENABLE REGISTER FAILED
        4457          /TST57 ERROR MESSAGE
        TST57        /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?
/
TST60,  TAD K2525     /GET AC NUMBER
        JMS I XIOTF   /IOT 6132, CLOE
        CLA CLL       /CLEAR THE AC AND LINK
        JMS I XIOTF1  /IOT 6132, CLOE
        CLA CLL CMA   /AC TO 7777
1141 1130
1142 1016
1143 4425
1144 7040
1145 4430
1146 4436
1147 4472
1150 4473
1151 4456
1152 1142

1153 1017
1154 4425
1155 7040
1156 4430
1157 4456
1160 4472
1161 4473
1162 4457
1163 1153

1164 1016
1165 4425
1166 7300
1167 4426
1170 7340

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1171 4430 JMS I XIOTH /IOT 6134, CLEN  
 1172 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
 1173 4472 JMS I NERRR /CHECK NON-ERROR HANDLER  
 1174 4473 JMS I ERROR /ERROR: ENABLE REGISTER FAILED  
 1175 4460 4460 /TST60 ERROR MESSAGE  
 1176 1164 TST60 /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE PATTERN 5252 ?

1177 1017 TAD K5252 /GET AC NUMBER  
 1200 4425 JMS I XIOTF /IOT 6132, CLOE  
 1201 7300 CLA CLL /CLEAR THE AC AND LINK  
 1202 4426 JMS I XIOTF1 /IOT 6132, CLOE  
 1203 7340 CLA CLL CMA /AC TO 7777  
 1204 4430 JMS I XIOTH /IOT 6134, CLEN  
 1205 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
 1206 4472 JMS I NERRR /CHECK NON-ERROR HANDLER  
 1207 4473 JMS I ERROR /ERROR: ENABLE REGISTER FAILED  
 1210 4461 4461 /TST61 ERROR MESSAGE  
 1211 1177 TST61 /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?

1212 7340 CLA CLL CMA /AC TO 7777  
 1213 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER  
 1214 1016 TAD K2525 /GET AC NUMBER  
 1215 4426 JMS I XIOTF1 /IOT 6132, CLOE  
 1216 7040 CMA /COMPLEMENT AC  
 1217 4426 JMS I XIOTF1 /IOT 6132, CLOE  
 1220 7300 CLA CLL /CLAER THE AC AND LINK  
 1221 4430 JMS I XIOTH /IOT 6134, CLEN  
 1222 4456 JMS I XSNDRV /CHECK SEND RECEV REGISTERS  
 1223 4472 JMS I NERRR /CHECK NON-ERROR HANTLER  
 1224 4473 JMS I ERROR /ERROR: ENABLE REGISTER FAILED  
 1225 4462 4462 /TST62 ERROR MESSAGE  
 1226 1212 TST62 /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?

1227 7340 CLA CLL CMA /AC TO 7777  
 1230 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER  
 1231 1017 TAD K5252 /GET AC NUMBER  
 1232 4426 JMS I XIOTF1 /IOT 6132, CLOE  
 1233 7040 CMA /COMPLEMENT AC  
 1234 4426 JMS I XIOTF1 /IOT 6132, CLOE  
 1235 7300 CLA CLL /IOT 6134, CLEN  
 1236 4430 JMS I XIOTH /CHECK SEND AND RECEV REGISTERS  
 1237 4456 JMS I XSNDRV /CHECK NON-ERROR HANDLER  
 1240 4472 JMS I NERRR /ERROR: ENABLE REGIS  
 1241 4473 JMS I ERROR /ERROR: ENABLE REGISTER  
 1242 4463 4463 /TST63 ERROR MESSAGE  
 1243 1227 TST63 /SCOPE LOOP

/DO AC TO ENABLE REGISTER AND  
 /ENABLE REGISTER TO AC TRANSFERS

/CHECK ALL COMBINATIONS

1244 1040 /GET AC NUMBER  
 1245 4425 /IOT 6132, CLOE  
 1246 7340 /AC TO 7777  
 1247 4430 /IOT 6134, CLEN  
 1250 4456 /CHECK SEND AND RECEV REGISTERS  
 1251 4472 /CHECK NON-ERROR HANDLER  
 1252 4473 /ERROR: AC OR ENABLE REGISTER FAILED.  
 1253 4464 /TST64 ERROR MESSAGE  
 1254 1244 /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN.  
 /DO ALL COMBINATIONS.

1255 7340 /AC TO 7777  
 1256 3070 /SAVE OUTPUT FOR ERROR PRINTER  
 1257 1040 /GET AC NUMBER  
 1260 4426 /IOT 6132, CLOE  
 1261 7040 /COMPLEMENT THE AC  
 1262 4426 /IOT 6132, CLOE  
 1263 4430 /IOT 6134, CLEN  
 1264 4456 /CHECK SEND AND RECEV REGISTERS  
 1265 4472 /CHECK NON-ERROR HANDLER  
 1266 4473 /ERROR: AC OR ENABLE REGISTER FAILED.  
 1267 4465 /TST65 ERROR MESSAGE  
 1270 1255 /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE RANDOM PATTERN ?

1271 4455 /GET RANDOM NUMBER  
 1272 4425 /IOT 6132, CLOE  
 1273 7300 /CLEAR THE AC AND LINK  
 1274 4430 /IOT 6134, CLEN  
 1275 4456 /CHECK SEND AND RECEV REGISTERS  
 1276 4472 /CHECK NON-ERROR HANDLER  
 1277 4473 /ERROR: ENABLE REGISTER FAILED  
 1300 4466 /TST66 ERROR MESSAGE  
 1301 1271 /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE RANDOM COMPLEMENT PATTERN ?

1302 7340 /AC TO 7777  
 1303 3070 /SAVE OUTPUT FOR ERROR PRINTER  
 1304 4455 /GET RANDOM NUMBER  
 1305 4426 /COMPLEMENT AC  
 1306 7040 /IOT 6132, CLOE  
 1307 4426 /IOT 6134, CLEN  
 1310 4430 /CHECK SEND AND RECEV REGISTERS  
 1311 4456 /CHECK NON-ERROR HANDLER  
 1312 4472 /ERROR: ENABLE REGISTER FAILED  
 1313 4473 /TST67 ERROR MESSAGE  
 1314 4467 /SCOPE LOOP  
 1315 1302

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1316 7340
1317 3040
1320 1016
1321 4425
1322 7340
1323 4430
1324 4426
1325 7610
1326 5332
1327 2041
1330 5322
1331 4472
1332 4473
1333 4470
1334 1316

1335 7340
1336 3040
1337 1017
1340 4425
1341 7300
1342 4430
1343 4426
1344 7610
1345 5351
1346 2041
1347 5341
1350 4472
1351 4473
1352 4471
1353 1335

1354 1040
1355 3070
1356 1040
1357 4434
1360 3071
1361 1071
1362 4426
1363 4472
1364 4473
1365 4472
1366 1354

1367 7340
1370 4426
1371 7340

/DOES READING ENABLE REGISTER CHANGE ITS CONTENTS ?
/
TST70.  CLA CLL CMA      /AC TO 7777
        DCA REGA
        TAD K2525      /GET AC NUMBER
        JMS I XIOTF   /IOT 6132, CLOE
T70B.   CLA CLL CMA      /AC TO 7777
        JMS I XIOTH   /IOT 6134, CLEN
        JMS I XSNDRV  /CHECK SEND AND RECEV REGISTERS
        SKP CLA
        JMP T70A
        ISZ REGB
        JMP T70B
        JMS I NERROR  /UPDATE COUNTER
        JMS I ERROR   /DO 4096 TIMES
        JMS I ERROR   /CHECK NON-ERROR HANDLER
        JMS I ERROR   /ERROR: ENABLE REGISTER FAILED
        4470          /TST70 ERROR MESSAGE
        TST70        /SCOPE LOOP

/DOES READING ENABLE REGISTER CHANGE TIS CONTENTS ?
/
TST71.  CLA CLL CMA      /AC TO 7777
        DCA REGA
        TAD K2525      /GET AC NUMBER
        JMS I XIOTF   /IOT 6132, CLOE
T71B.   CLA CLL CMA      /CLEAR THE AC AND LINK
        JMS I XIOTH   /IOT 6134, CLEN
        JMS I XSNDRV  /CHECK SEND RECEV REGISTERS
        SKP CLA
        JMP T71A
        ISZ REGB
        JMP T71B
        JMS I NERROR  /UPDATE COUNTER
        JMS I ERROR   /DO 4096 TIMES
        JMS I ERROR   /CHECK NON-ERROR HANDLER
        JMS I ERROR   /ERROR: ENABLE REGISTER FAILED
        4471          /TST71 ERROR MESSAGE
        TST71        /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE FAST TOGGLE ?
/
TST72.  TAD REGA
        DCA SEND
        TAD REGA
        JMS I XIOTS   /IOT'S 6132 AND 6134
        DCA RECEV    /SAVE OUTPUT FOR ERROR PRINTER
        TAD RECEV
        JMS I XSNDRV  /CHECK SEND RECEV REGISTERS
        JMS I NERROR  /CHECK NON-ERROR HANDLER
        JMS I ERROR   /ERROR: ENABLE REGISTER FAILED
        4472          /TST72 ERROR MESSAGE
        TST72        /SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?
/
TST73.  CLA CLL CMA      /AC TO 7777
        JMS I XIOTF1  /IOT 6132, CLOE
        CLA CLL CMA

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1372      4423      JMS I XIOTD      /IOT 6130, CLZE
1373      7300      CLA CLL      /CLEAR THE AC AND LINK
1374      3070      DCA SEND      /SAVE OUTPUT FOR ERROR PRINTER
1375      7340      CLA CLL CMA      /AC TO 7777
1376      4430      JMS I XIOTH      /IOT 6134, CLEN
1377      7650      SNA CLA      /WAS REGISTER ALL 0'S
1400      4472      JMS I NERROR      /CHECK NON-ERROR HANDLER
1401      4473      JMS I ERROR      /ERROR:CLZE OR CLEN FAILED.
1402      4473      /TS73 ERROR MESSAGE
1403      1367      TS73          /SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?
/
TS74,      CLA CLL CMA      /AC TO 7777
1404      7340      JMS I XIOTF      /IOT 6132, CLOE
1405      4425      CLA CLL
1406      7300      JMS I XIOTD      /IOT 6130, CLZE
1407      4423      CLA CLL CMA      /AC TO 7777
1410      7340      DCA SEND      /SAVE OUTPUT ERROR PRINTER
1411      3070      JMS I XIOTH      /IOT 6134, CLEN
1412      4430      CMA CLA      /COMPLEMENT AC
1413      7040      SNA CLA      /WAS REGISTER ALL 0'S?
1414      7650      JMS I NERROR      /CHECK NON-ERROR HANDLER
1415      4472      JMS I ERROR      /ERROR:CLZE OR CLEN FAILED.
1416      4473      /4474
1417      4474      TS74          /TS74 ERROR MESSAGE
1420      1424      /SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?
/
TS75,      TAD K2525      /IOT 6132,CLOE
1421      1016      JMS I XIOTF      /COMPLEMENT THE AC
1422      4425      CMA      /IOT 6130, CLZE
1423      7040      JMS I XIOTD      /COMPLEMENT AC
1424      4423      CMA SEND      /SAVE OUTPUT FOR ERROR PRINTER
1425      7040      DCA SEND      /IOT 6134, CLEN
1426      3070      JMS I XIOTH      /CHECK SEND AND RECEV REGISTERS
1427      4430      JMS I XSNDRV      /CHECK NON-ERROR HANDLER
1430      4456      JMS I NERROR      /ERROR:CLZE,CLOE, OR CLEN FAILED
1431      4472      JMS I ERROR      /TS75 ERROR MESSAGE
1432      4473      /4475
1433      4475      TS75          /SCOPE LOOP
1434      1421

/DOES CLZE CLEAR ENABLE REGISTER ?
/
TS76,      TAD K5252      /GET AC NUMBER
1435      1017      JMS I XIOTF      /IOT 6132, CLOE
1436      4425      CMA      /COMPLEMENT AC
1437      7040      JMS I XIOTD      /IOT 6130, CLZE
1440      4423      CMA SEND      /COMPLEMENT AC
1441      3070      DCA SEND      /SAVE OUTPUT FOR ERROR PRINTER
1442      7040      JMS I XIOTH      /IOT 6134, CLEN
1443      4430      JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1444      4456      JMS I NERROR      /CHECKL NON-ERROR HANDLER
1445      4472      JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
1446      4473      /4476
1447      1447      /TS76 ERROR MESSAGE

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1450 1435 TST76 /SCOPE LOOP
/DOES CLZE CLEAR ENABLE REGISTER?
/CHECK ALL COMBINATIONS
TST77, TAD REGA /GET AC NUMBER
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTD /IOT 6130, CLZE
CLA CLL /CLEAR THE AC AND LINK
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
CLA CLL CMA /AC TO ALL 1'S
JMS I XIOTH /IOT 6134, CLEN
SNA CLA /WAS REGISTER ALL 0'S?
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR:CLZE,CLOE, OR CLEN FAILED
4477 /TST77 ERROR MESSAGE
TST77 /SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?
/DO ALL COMBINATIONS
TST100, TAD REGA /GET AC NUMBER
JMS I XIOTF /IOT 6132, CLOE
CMA /COMPLEMENT THE AC
JMS I XIOTD /IOT 6130, CLZE
CMA SEND /COMPLEMENT THE AC
JMS I XIOTH /SAVE OUTPUT FOR ERROR PRINTER
JMS I XSNDRV /IOT 6134, CLEN
JMS I NERRR /CHECK SEND AND RECEV REGISTERS
JMS I ERROR /CHECK NON-ERROR HANDLER
4500 /ERROR:CLZE, CLOE, OR CLEN FAILED
TST100 /TST100 ERROR MESSAGE
/SCOPE LOOP

/DOES CLZE SURVIVE RANDOM PATTERN ?
TST101, JMS I RANDY /GET RANDOM NUMSER
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTD /IOT 6130, CLZE
CLA CLL /CLEAR THE AC AND LINK
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
JMS I XIOTH /IOT 6134, CLEN
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: ENABLE REGISTER FAILED
4501 /TST101 ERROR MESSAGE
TST101 /SCOPE LOOP

/DOES CLZE SURVIVE RANDOM COMPLEMENT PATTERN ?
TST102, JMS I RANDY /GET RANDOM NUMBER
JMS I XIOTF /IOT 6132, CLOE
CMA /COMPLEMENT AC
1465 1040
1466 4425
1467 7040
1470 4423
1471 7040
1472 3070
1473 4430
1474 4496
1475 4472
1476 4473
1477 4500
1500 1465

1501 4425
1502 4425
1503 4423
1504 7300
1505 3070
1506 4430
1507 4496
1510 4472
1511 4473
1512 4501
1513 1501

1514 4425
1515 4425
1516 7040

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1517 4423      JMS I XIOTD      /IOT 6130, CLZE
1520 7040      CMA                      /COMPLEMENT AC
1521 3070      DCA SEND                /SAVE OUTPUT FOR ERROR PRINTER
1522 4430      JMS I XIOTH            /IOT 6134, CLEN
1523 4456      JMS I XSNDRV          /CHECK SEND AND RECEV REGISTERS
1524 4472      JMS I NERROR          /CHECK NON-ERROR HANDLER
1525 4473      JMS I ERROR           /ERROR: ENABLE REGISTER FAILFO
1526 4502      4502                  /TST102 ERROR MESSAGE
1527 1514      TST102                /SCOPE LOOP

/DOES CLZE SURVIVE FAST TOGGLE ?
/
TST103, TAD REGA      /GET AC NUMBER
1530 1040      JMS I XIOTF          /IOT 6132, CLOE
1531 4425      JMS I XIOTS3         /IOT'S 6130 AND 6134
1532 4437      DCA RECEV            /SAVE INPUT FOR ERROR PRINTER
1533 3071      TAD RECEV            /CHECK SEND RECEV REGISTERS
1534 1071      JMS I XSNDRV          /CHECK NON-ERROR HANDLER
1535 4456      JMS I NERROR          /ERROR: ENABLE REGISTER FAILFO
1536 4472      JMS I ERROR           /TST103 ERROR MESSAGE
1537 4473      4503                  /SCOPE LOOP
1540 4503      TST103                /SCOPE LOOP

/DOES AC TRANSFER TO BUFFER THEN TO COUNTER ?
/
TST104, JMS I XIOTG   /IOT 6133, CLAH
1542 4427      CLA CLL CMA          /AC TO ALL I'S
1543 7340      JMS I XIOTK          /IOT 6137, CLCA
1544 4433      SNA CLA              /WAS COUNTER ALL 0'S?
1545 7650      JMS I NERROR          /CHECK NON-ERROR HANDLER
1546 4472      JMS I ERROR           /ERROR: CLAB OR CLCA FAILED
1547 4473      4104                  /TST104 ERROR MESSAGE
1550 4104      TST104                /SCOPE LOOP
1551 1542

/DOES AC TRANSFER TO BUFFER THEN TO COUNTER?
/
TST105, CLA CLL CMA  /IOT 6133, CLAB
1552 7340      JMS I XIOTG          /IOT 6137, CLCA
1553 4427      JMS I XIOTK          /COMPLEMENT THE AC
1554 4433      CMA                  /WAS COUNTER ALL I'S?
1555 7040      SNA CLA              /CHECK NON-ERROR HANDLER
1556 7650      JMS I NERROR          /ERROR: CLAB OR CLCA FAILED
1557 4472      JMS I ERROR           /TST105 ERROR MESSAGE
1560 4473      4105                  /SCOPE LOOP
1561 4105      TST105                /SCOPE LOOP
1562 1552

/DOES COUNTER SURVIVE PATTERN 2525 ?
/
TST106, TAD K2525    /GET AC NUMBER
1563 1016      JMS I XIOTG          /IOT 6133, CLAR
1564 4427      CLA CLL              /CLEAR THE AC AND LINK
1565 7300      JMS I XIOTK          /IOT 6137, CLCA
1566 4433      JMS I XSNDRV          /CHECK SEND AND RECEV REGISTERS
1567 4456      JMS I NERROR          /CHECK NON-ERROR HANDLER
1570 4472

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1571  4473          JMS I ERROR          /ERROR: COUNTER FAILED
1572  4106          4106                /TST106 ERROR MESSAGE
1573  1503          TST106                /SCOPE LOOP

/DOES COUNTER SURVIVE PATTERN 5252 ?
/
TST107,  TAD K5252          /GET AC NUMBER
1574  1017          JMS I XIOTG          /IOT 6133, CLAB
1575  4427          CLA CLL CMA          /AC TO ALL 7777
1576  7340          JMS I XIOTK          /IOT 6137, CLCA
1577  4433          JMS I XSNDRV        /CHECK SEND AND RECEV REGISTERS
1600  4456          JMS I NERROR        /CHECK NON-ERROR HANDLER
1601  4472          JMS I ERROR         /ERROR: COUNTER FAILED
1602  4473          4107                /TST107 ERROR MESSAGE
1603  4107          TST107                /SCOPE LOOP
1604  1574

/DOES AC TRANSFER TO BUFFER THEN TO COUNTER?
/CHECK ALL COMBINATIONS
/
TST110,  TAD REGA          /IOT 6133, CLAB
1605  1040          JMS I XIOTG          /COMPLEMENT THE AC
1606  4427          CMA                  /IOT 6137, CLCA
1607  7040          JMS I XIOTK          /CHECK SEND AND RECEV REGISTERS
1610  4433          JMS I XSNDRV        /CHECK NON-ERROR HANDLER
1611  4456          JMS I NERROR        /ERROR: CLAB OR CLCA FAILED
1612  4472          JMS I ERROR         /TST110 ERROR MESSAGE
1613  4473          4110                /SCOPE LOOP
1614  4110          TST110
1615  1605

/DOES COUNTER SURVIVE FAST TOGGLE?
/
TST111,  TAD REGA          /GET AC NUMBER
1616  1040          DCA SEND            /SAVE OUTPUT FOR ERROR PRINTFH
1617  3070          TAD SEND            /IOT 6133 AND 6137
1620  1070          JMS I XIOTS2        /SAVE INPUT FOR ERROR PRINTFH
1621  4436          DCA RECEV           /CHECK SEND AND RECEV REGISTERS
1622  3071          TAD RECEV           /CHECK NON-ERROR HANDLER
1623  1071          JMS I XSNDRV        /ERROR:CLAB OR CLCA FAILED
1624  4456          JMS I NERROR        /TST111 ERROR MESSAGE
1625  4472          JMS I ERROR         /SCOPE LOOP
1626  4473          4111
1627  4111          TST111
1630  1616

/DOES CAF AFFECT COUNTER ?
/
TST112,  TAD REGA          /GET AC NUMBER
1631  1040          JMS I XIOTG          /IOT 6133, CLAB
1632  4427          6007                /CAF OR CLEAR THF WORLD
1633  0007          JMS I XIOTK          /IOT 6137, CLCA
1634  4433          JMS I XSNDRV        /CHECK SEND AND RECEV REGISTERS
1635  4456          JMS I NERROR        /CHECK NON-ERROR HANDLER
1636  4472          JMS I ERROR         /ERROR: CLAB OR CLCA FAILED.
1637  4473          4112                /TST112 ERROR MESSAGE
1640  4112

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1642 7340 /DOES READING COUNTER CHANGE ITS CONTENTS?  
1643 3040 /PATTERN 2525.  
1644 1016 /  
1645 4427 TST113, CLA CLL CMA /AC TO 7777  
1646 4433 TAD K2525  
1647 4456 JMS I XIOTG /IOT 6133, CLAB  
1650 7410 JMS I XIOTK /IOT 6137, CLCA  
1651 5255 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
1652 2041 SKP T113A  
1653 5246 ISZ REGB  
1654 4472 JMP T113B  
1655 4473 JMS I NERRR /CHECK NON-ERROR  
1656 4113 JMS I ERROR /ERROR: CLAR OR CLCA FAILED  
1657 1642 JMS I ERROR /TST113 ERROR MESSAGE  
TST113 /SCOPE LOOP
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1660 7340 /DOES READING COUNTER CHANGE ITS CONTENTS?  
1661 3040 /PATTERN 5252  
1662 1017 /  
1663 4427 TST114, CLA CLL CMA /AC TO 7777  
1664 4433 TAD K2525  
1665 4456 JMS I XIOTG /IOT 6133, CLAB  
1666 7410 JMS I XIOTK /IOT 6137, CLCA  
1667 5273 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
1670 2041 SKP T114A  
1671 5264 ISZ REGB  
1672 4472 JMP T114B  
1673 4473 JMS I NERRR /CHECK NON-ERROR HANDLER  
1674 4114 JMS I ERROR /ERROR: COUNTER FAILED  
1675 1660 JMS I ERROR /TST114 ERROR MESSAGE  
TST114 /SCOPE LOOP
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1676 4455 /DOES COUNTER SURVIVE RANDOM PATTERN ?  
1677 4427 /  
1700 7340 TST115, JMS I RANDY /GET RANDOM NUMBER  
1701 4433 JMS I XIOTG /IOT 6133, CLAB  
1702 4456 CLA CLL CMA  
1703 4472 JMS I XIOTK /IOT 6137, CLCA  
1704 4473 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
1705 4115 JMS I NERRR /CHECK NON-ERROR HANDLER  
1706 1676 JMS I ERROR /ERROR: COUNTER FAILED  
TST115 /TST115 ERROR MESSAGE  
/SCOPE LOOP
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1707 7340 /TEST FOR NO INT. RGST.  
/TST116, CLA CLL CMA /AC TO 7777
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PAL10 V141 1710 4427  
1711 3040  
1712 1142  
1713 1147  
1714 4425  
1715 4447  
1716 4472  
1717 4473  
1720 1116  
1721 1707

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JMS I XIOTG  
DCA REGA  
TAD K0010  
JMS I XIOTF  
JMS I XPIC01  
JMS I NERROR  
JMS I ERROR  
1116  
TST116

/IOT 6133, CLAB  
/GET ENABLES  
/IOT 6132, CLOE  
/GO TO PI, NO PI EXPECTED  
/CHECK NON-ERROR HANDLER  
/ERROR: INT. ROST. FAILED  
/TST116. ERROR MESSAGE  
/SCOPE LOOP

/DOES CLSK SKIP ON CLOCK OVERFLOW?  
/SKIP EXPECTED, MODE 0, RATE 6

1722 7340  
1723 4427  
1724 7300  
1725 1147  
1726 4425  
1727 4424  
1730 7410  
1731 4472  
1732 4473  
1733 0517  
1734 1722

TST117, CLA CLL CMA  
JMS I XIOTG  
CLA CLL  
TAD K0600  
JMS I XIOTF  
JMS I XIOTE  
SKP  
JMS I NERROR  
JMS I ERROR  
0517  
TST117

/AC TO 7777  
/IOT 6133, CLAB  
/CLEAR THE AC AND LINK  
/GET RATE 6  
/IOT 6132, CLOE  
/IOT 6131, CLSK  
/CHECK NON-ERROR HANDLER  
/ERROR: CLSK OR OVERFLOW FAILED  
/TST117 ERROR MESSAGE  
/SCOPE LOOP

/DOES OVERFLOW REMAIN SET ?

1735 7340  
1736 4427  
1737 3040  
1740 1147  
1741 4425  
1742 4424  
1743 5351  
1744 2041  
1745 5344  
1746 4424  
1747 7410  
1750 4472  
1751 4473  
1752 0520  
1753 1735

TST120, CLA CLL CMA  
JMS I XIOTG  
DCA REGA  
TAD K0600  
JMS I XIOTF  
JMS I XIOTE  
JMP T120A  
ISZ REGB  
JMP .-1  
JMS I XIOTE  
SKP  
JMS I NERROR  
JMS I ERROR  
0520  
TST120

/IOT 6133, CLAB  
/GET ENABLES  
/IOT 6132, CLOE  
/IOT 6131, CLSK  
/WAIT ABOUT 15 MS  
/IOT 6131, CLSK  
/CHECK NON-ERROR HANDLER  
/ERROR: CLSK OR OVERFLOW FAILED  
/TST120 ERROR MESSAGE  
/SCOPE LOOP

/DOES CAF CLEAR THAT FLAG ?

1754 7340  
1755 4427  
1756 3040  
1757 1147  
1760 4425  
1761 4424  
1762 5361  
1763 6007  
1764 4424

TST121, CLA CLL CMA  
JMS I XIOTG  
DCA REGA  
TAD K0600  
JMS I XIOTF  
JMS I XIOTE  
JMP .-1  
6007  
JMS I XIOTE

/IOT 6133, CLAB  
/GET ENABLES  
/IOT 6132, CLOE  
/IOT 6131, CLSK  
/CAF OR CLEAR THE WORLD  
/IOT 6131, CLSK

1765 4472 JMS I NERROR /CHECK NON-ERROR HANDLER  
 1766 4473 JMS I ERROR /ERROR: CAF OR OVERFLOW FAILED  
 1767 0121 0121 /TST121 ERROR MESSAGE  
 1770 1754 TST121 /SCOPE LOOP

/DOES CLSK SKIP ON OVERFLOW ?  
 /SKIP EXPECTED, RATE 2-6, MODE 0

1771 1131 TAD K7773  
 1772 3041 DCA REGB  
 1773 1015 TAD K0200  
 1774 3044 DCA REGE  
 1775 7340 CLA CLL CMA  
 1776 4427 JMS I XIOTG  
 1777 3040 DCA REGA  
 2000 1044 TAD REGE  
 2001 4425 JMS I XIOTF  
 2002 2043 ISZ REGD  
 2003 5202 JMP '-'1  
 2004 4424 JMS I XIOTE  
 2005 5214 JMP T122A  
 2006 1013 TAD K0100  
 2007 3044 DCA REGE  
 2010 0007 6007  
 2011 2041 ISZ REGB  
 2012 5571 JMP I XCRS1  
 2013 4472 JMS I NERROR  
 2014 4473 JMS I ERROR  
 2015 0522 0522  
 2016 1771 TST122

T122B, /AC TO 7777  
 /IOT 6133, CLAB  
 /GET ENABLES  
 /IOT 6132, CLOE

/WAIT  
 /IOT 6131, CLSK  
 /NO OVERFLOW FOUND  
 /UPDATE CLOCK RATE  
 /CAF OR CLEAR THE WORLD

T122A, /CHECK NON-ERROR HANDLER  
 /ERROR: CLSK OR OVERFLOW FAILED  
 /TST122 ERROR MESSAGE  
 /SCOPE LOOP

/DOES CLSK SKIP ON OVERFLOW ?  
 /SKIP EXPECTED, RATE 2-6, MODE 1

2017 1131 TAD K7773  
 2020 3041 DCA REGB  
 2021 1144 TAD K1000  
 2022 1015 TAD K0200  
 2023 3044 DCA REGE  
 2024 7340 CLA CLL CMA  
 2025 4427 JMS I XIOTG  
 2026 3040 DCA REGA  
 2027 1044 TAD REGE  
 2030 4425 JMS I XIOTF  
 2031 2043 ISZ REGD  
 2032 5231 JMP '-'1  
 2033 4424 JMS I XIOTE  
 2034 5243 JMP T123A  
 2035 1013 TAD K0100  
 2036 3044 DCA REGE  
 2037 0007 6007  
 2040 2041 ISZ REGB  
 2041 5224 JMP T123B  
 2042 4472 JMS I NERROR  
 2043 4473 JMS I ERROR

T123B, /AC TO 7777  
 /IOT 6133, CLAB  
 /GET ENABLES  
 /IOT 6132, CLOE

/WAIT  
 /IOT 6131, CLSK  
 /NO OVERFLOW FOUND  
 /UPDATE CLCOK RATE  
 /CAF OR CLEAR THE WORLD

T123A, /DOO RATES 2-6  
 /CHECK NON-ERROR HANDLER  
 /ERROR: CLSK OR OVERFLOW FAILED

2044 0523  
2045 2017

/TST123 ERROR MESSAGE  
/SCOPE LOOP

0523  
TST123

/DOES CLSK SKIP ON OVERFLOW ?  
/SKIP EXPECTED, MODE 2, RATE 2-6

2046 1131  
2047 3041  
2050 1143  
2051 1015  
2052 3044  
2053 7340  
2054 4427  
2055 3040  
2056 1044  
2057 4425  
2060 2043  
2061 9260  
2062 4424  
2063 9272  
2064 1013  
2065 3044  
2066 6007  
2067 2041  
2070 5253  
2071 4472  
2072 4473  
2073 0524  
2074 2046

TST124, TAD K7773  
DCA REGB  
TAD K2000  
TAD K0200  
DCA REGE  
CLA CLL CMA  
JMS I XIOTG  
DCA REGA  
TAD REGE  
JMS I XIOTF  
ISE REGD  
JMP I-1  
JMS I XIOTE  
JMP T124A  
TAD K0100  
DCA REGE  
6007  
ISE REGB  
JMP T124B  
JMS I NERRR  
JMS I ERROR  
0524  
TST124

/MAKE ENABLES

/IOT 6133, CLAB

/GET ENABLES

/IOT 6132, CLOE

/WAIT ABOUT 15 MS

/IOT 6131, CLSK

/UPDATE RATE

/CAF OR CLEAR THE WORLD

/DO RATES 2-6

/CHECK NON-ERROR HANDLER

/ERROR! CLSK OR OVERFLOW FAILED

/TST124 ERROR MESSAGE

/SCOPE LOOP

T124A,

/DOES CLSK SKIP ON OVERFLOW ?  
/SKIP EXPECTED, RATE 2-6, MODE 3

2075 1131  
2076 3041  
2077 1120  
2100 1015  
2101 3044  
2102 7340  
2103 4427  
2104 3040  
2105 1044  
2106 4425  
2107 2043  
2110 9307  
2111 4424  
2112 9320  
2113 1013  
2114 3044  
2115 2041  
2116 5322  
2117 4472  
2120 4473  
2121 0525  
2122 2075

TST125, TAD K7773  
DCA REGB  
TAD K3000  
TAD K0200  
DCA REGE  
CLA CLL CMA  
JMS I XIOTG  
DCA REGA  
TAD REGE  
JMS I XIOTF  
ISE REGD  
JMP I-1  
JMS I XIOTE  
JMP T125A  
TAD K0100  
DCA REGE  
ISE REGB  
JMP T125B  
JMS I NERRR  
JMS I ERROR  
0525  
TST125

/MAKE ENABLES  
/SAVE ENABLES

/IOT 6133, CLAB

/GET ENABLES

/IOT 6132, CLOE

/WAIT ABOUT 15 MS

/IOT 6131, CLSK

/UPDATE RATE

/DO RATES 2-6

/CHECK NON-ERROR HANDLER

/ERROR! CLSK OR OVERFLOW FAILED

/TST125 ERROR MESSAGE

/SCOPE LOOP

T125A,

/DOES CLSK SKIP ON OVERFLOW ?  
/NO SKIP EXPECTED, RATE 0-7, MODE 0, DISABLE BIT 7

2123 1122  
2124 3043  
2125 7340  
2126 4427  
2127 3040  
2128 1140  
2131 1041  
2132 4425  
2133 2042  
2134 5333  
2135 4424  
2136 7410  
2137 9347  
2140 0150  
2141 1013  
2142 3041  
2143 6007  
2144 2043  
2145 9325  
2146 4472  
2147 4473  
2150 0126  
2151 2123

TST126, TAD K7770  
DCA REGO  
CLA CLL CMA  
JMS I XIOTG /AC TO 7777  
DCA REGA /IOT 6133, CLAB  
TAD REGB  
JMS I XIOTF /GET ENABLES  
ISE REGC /IOT 6132, CLOE  
JMP '-1 /WAIT  
JMS I XIOTE /IOT 6131, CLSK  
SKP /OVERFLOW FOUND  
JMP T126A /MASK BITS 3-5  
AND K0700  
TAD K0100  
DCA REGB /UPDATE RATE  
6007 /CAF OR CLEAR THE WORLD  
ISE REGO /DO RATES 0-7  
JMP T126B /CHECK NON-ERROR HANDLER  
JMS I NERRR /ERROR: CLSK OR OVERFLOW FAILED  
JMS I ERROR /TST126 ERROR MESSAGE  
0126 /SCOPE LOOP  
TST126

/DOES CLSK SKIP ON OVERFLOW ?  
/NO SKIP EXPECTED, RATE 0.1,7 MODE 0

2152 7340  
2153 4427  
2154 3040  
2155 4425  
2156 2041  
2157 9396  
2160 4424  
2161 7410  
2162 9972  
2163 1013  
2164 4426  
2165 2042  
2166 9365  
2167 4424  
2170 7410  
2171 9972  
2172 1147  
2173 4426  
2174 2043  
2175 9374  
2176 4424  
2177 4472  
2200 4473  
2201 0127

TST127, CLA CLL CMA  
JMS I XIOTG /IOT 6133, CLAB  
DCA REGA /IOT 6132, CLOE  
ISE REGB /WAIT ABOUT 15 MS  
JMP '-1 /IOT 6131, CLSK  
JMS I XIOTE  
SKP  
JMP I XCRS2  
TAD K0100  
JMS I XIOTF1  
ISE REGC /UPDATE ENABLE  
JMS I XIOTE /IOT 6132, CLOE  
JMP '-1 /WAIT ABOUT 15 MS  
JMS I XIOTE /IOT 6131, CLSK  
SKP  
JMP I XCRS2 /UPDATE ENABLE  
TAD K0600 /IOT 6132, CLOE  
JMS I XIOTF1 /WAIT ABOUT 15 MS  
ISE REGD /CHECK NON-ERROR HANDLER  
JMP '-1 /ERROR: CLSK OR OVERFLOW FAILED  
JMS I XIOTE /TST127 ERROR MESSAGE  
JMS I NERRR  
JMS I ERROR  
0127

TST127 /SCOPE LOOP

/DOES CLSA READ OVERFLOW BIT ?

```

TST130, CLA CLL CMA /IOT 6132, CLOE
JMS I XIOTG /AC TO 4000
CLA CLL CML RAR /SAVE OUTPUT FOR ERROR PRINTER
DCA SEND /AC TO 4000
CLA CLL IAC RTR /GET ENABLE
TAD K0600
JMS I XIOTF1
JMS I XIOTE /IOT 6131, CLSK
JMP -1
CLA CLL CMA RAR /AC TO 3777
JMS I XIOTI /IOT 6135, CLSA
JMS I XSNDV /CHECK SEND AND RECEV REGISTERS
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR! CLSI OR OVERFLOW FAILED
5130 /TST130 ERROR MESSAGE
TST130 /SCOPE LOOP

```

T130A, 5130

/DOES CLSA CLEAR OVERFLOW FLOP ?

```

TST131, CLA CLL CMA /AC TO 7777
JMS I XIOTG /IOT 6133, CLAB
CLA CLL IAC RTR /AC TO 4000
TAD K0600 /GET ENABLE
JMS I XIOTF1 /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP -1
CLA CLL CMA RAR /AC TO 3777
JMS I XIOTI /IOT 6135, CLSA
CLA CLL /CLEAR AC AND LINK
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
CLA CLL CMA /AC TO 7777
JMS I XIOTI /IOT 6135, CLSA
SNA CLA /WAS STATUS REGISTER ALL 0'S ?
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR! CLSA OR OVERFLOW FAILED
5131 /TST131 ERROR MESSAGE
TST131 /SCOPE LOOP

```

/DOES CLSA READ OVERFLOW BIT ?

```

TST132, CLA CLL CMA /IOT 6133, CLAB
JMS I XIOTG /SAVE OUTPUT FOR ERROR PRINTER
CLA CLL /GET ENABLES
DCA SEND /IOT 6132, CLOE
TAD K0600 /IOT 6131, CLSK
JMS I XIOTF1
JMS I XIOTE
JMP -1
CLA CLL CMA RAR /AC TO 3777
JMS I XIOTI /IOT 6135, CLSA
SNA CLA /WAS STATUS 0 ?

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2202 2152

2203 7340  
2204 4427  
2205 7330  
2206 3070  
2207 7313  
2210 1147  
2211 4426  
2212 4424  
2213 5212  
2214 7350  
2215 4431  
2216 4456  
2217 4472  
2220 4473  
2221 5130  
2222 2203

2223 7340  
2224 4427  
2225 7313  
2226 1147  
2227 4426  
2230 4424  
2231 5230  
2232 7350  
2233 4431  
2234 7300  
2235 3070  
2236 7340  
2237 4431  
2240 7650  
2241 4472  
2242 4473  
2243 5131  
2244 2223

2245 7340  
2246 4427  
2247 7300  
2250 3070  
2251 1147  
2252 4426  
2253 4424  
2254 5253  
2255 7344  
2256 4431  
2257 7650



2260 4472 JMS I NERROR /CHECK NON-ERROR HANDLER  
 2261 4473 JMS I ERROR /ERROR: CLSA OR STATUS FAILED  
 2262 5132 5132 /TST132 ERROR MESSAGE  
 2263 2245 TST132 /SCOPE LOOP

/DOES BUFFER TO COUNTER ON OVERFLOW ?  
 /MODE 1, RATE 2

2264 7340 TST133, CLA CLL CMA /IOT 6133, CLAB  
 2265 4427 JMS I XIOTG /AC TO 4000

2266 3040 DCA REGA  
 2267 7313 CLA CLL IAC RTR

2270 1116 TAD K0400  
 2271 1144 TAD K1000

2272 4426 JMS I XIOTF1  
 2273 4424 JMS I XIOTE

2274 5273 JMP .-1  
 2275 7300 CLA CLL

2276 4433 JMS I XIOTK  
 2277 7040 CMA

2300 7440 SZA T133A  
 2301 5306 JMP I XIOTI

2302 4431 ISZ REGB  
 2303 2041 JMP T133B

2304 5273 JMS I NERROR  
 2305 4472 JMS I ERROR

2306 4473 4133  
 2307 4133 TST133

/DOES BUFFER TO COUNTER ON OVERFLOW ?  
 /MODE 1, RATE 4

2311 1017 TST134, TAD K5252 /GET AC NUMBER  
 2312 4427 JMS I XIOTG /IOT 6133, CLAB  
 2313 7340 CLA CLL CMA /AC TO 7777  
 2314 3040 DCA REGA

2315 1144 TAD K1000  
 2316 1116 TAD K0400

2317 4426 JMS I XIOTF1  
 2320 4424 JMS I XIOTE

2321 5320 JMP .-1  
 2322 7340 CLA CLL CMA /AC TO 7777  
 2323 4433 JMS I XIOTK /IOT 6137, CLCA

2324 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
 2325 4472 JMS I NERROR /CHECK NON-ERROR HANDLER  
 2326 4473 JMS I ERROR /ERROR: COUNTER FAILED  
 2327 4134 4134 /TST134 ERROR MESSAGE  
 2330 2311 TST134 /SCOPE LOOP

/DOES BUFFER TO COUNTER ON OVERFLOW ?  
 /MODE 1, RATE 4

2331 1016 TST135, TAD K2525 /GET AC NUMBER  
 2332 4427 JMS I XIOTG /IOT 6133, CLAB

```

2333 7340 CLA CLL CMA
2334 3040 DCA REGA /AC TO 7777
2335 1144 TAD K1000
2336 1116 TAD K0400
2337 4426 JMS I XIOTF1
2340 4424 JMS I XIOTE
2341 5340 JMP --1
2342 4453 JMS I XIOTK
2343 4456 JMS I XSNDRV
2344 4472 JMS I NERROR
2345 4473 JMS I ERROR
2346 4135
2347 2331 TST135

```

```

/DOES BUFFER TO COUNTER ON OVERFLOW ?
/RATE 4, MODE 2

```

```

2350 7340 TST136, CLA CLL CMA
2351 4427 JMS I XIOTG
2352 3040 DCA REGA
2353 3070 DCA SEND
2354 1116 TAD K0400
2355 1143 TAD K2000
2356 4426 JMS I XIOTF1
2357 4424 JMS I XIOTE
2360 5357 JMP --1
2361 4433 JMS I XIOTK
2362 7650 SNA CLA
2363 4472 JMS I NERROR
2364 4473 JMS I ERROR
2365 4136
2366 2350 TST136

```

```

/DOES BUFFER TO COUNTER ON OVERFLOW ?
/AC TO 7777
/IOT 6133, CLAB
/SAVE OUTPUT FOR ERROR PRINTER
/GET ENABLES
/IOT 6132, CLOE
/IOT 6131, CLSK
/WAIT FOR FLAG
/IOT 6137, CLCA
/WAS COUNTER ALL 0'S ?
/CHECK NON-ERROR HANDLER
/ERROR: COUNTER FAILED
/TST136 ERROR MESSAGE
/SCOPE LOOP

```

```

2367 7340 TST137, CLA CLL CMA
2370 4427 JMS I XIOTG
2371 3040 DCA REGA
2372 3070 DCA SEND
2373 1116 TAD K0400
2374 1120 TAD K3000
2375 4426 JMS I XIOTF1
2376 4424 JMS I XIOTE
2377 5376 JMP --1
2400 7340 CLA CLL CMA
2401 4433 JMS I XIOTK
2402 7650 SNA CLA
2403 4472 JMS I NERROR
2404 4473 JMS I ERROR
2405 4137
2406 2367 TST137

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```

/DOES INT. WITHOUT BIT 0 ?
/IOT 6137, CLCA
/WAS COUNTER ALL 0'S ?
/CHECK NON-ERROR HANDLER
/ERROR: COUNTER FAILED
/TST137 ERROR MESSAGE
/SCOPE LOOP

```

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PAL10  V141
2407  7340  TST140, CLA CLL CMA
2410  4427  JMS I XIOTG
2411  3040  DCA REGA
2412  7313  CLA CLL IAC RTR /AC TO 4000
2413  1007  TAD K0007
2414  1147  TAD K0600
2415  4425  JMS I XIOTF
2416  4447  JMS I XPIG01
2417  4472  JMS I NERRR
2420  4473  JMS I ERROR
2421  1140  1140
2422  2407  TST140

/DOES OVERFLOW CAUSE INT, RQST. ?
/RATE 6, MODE 0
/
TST141, CLA CLL CMA
2423  7340  /AC TO 7777
2424  4427  JMS I XIOTG
2425  7300  CLA CLL
2426  1014  TAD K4000
2427  1142  TAD K0010
2430  1147  TAD K0600
2431  4425  JMS I XIOTF
2432  4452  JMS I XPIG04
2433  4472  JMS I NERRR
2434  4473  JMS I ERROR
2435  1541  1541
2436  2423  TST141

/DOES INT, RQST, WITHOUT ENA 0 ?
/RATE 6, MODE 0
/
TST142, CLA CLL CMA
2437  7340  /AC TO 7777
2440  4427  JMS I XIOTG
2441  7300  CLA CLL
2442  1142  TAD K0010
2443  1147  TAD K0600
2444  4425  JMS I XIOTF
2445  4451  JMS I XPIG03
2446  4472  JMS I NERRR
2447  4473  JMS I ERROR
2450  1142  1142
2451  2437  TST142

/DOES COUNTER COUNT ?
/RATE 6, MODE 0
/
TST143, CLA CLL CMA
2452  7340  /AC TO 7777
2453  3040  DCA REGA
2454  4427  JMS I XIOTG
2455  1014  TAD K4000
2456  1142  TAD K0010
2457  1147  TAD K0600
2460  4425  JMS I XIOTF
2461  4450  JMS I XPIG02

TST140, CLA CLL CMA
2407  7340  /IOT 6133, CLAB
2410  4427  /IOT 6133, CLAB
2411  3040  DCA REGA
2412  7313  CLA CLL IAC RTR /AC TO 4000
2413  1007  TAD K0007
2414  1147  TAD K0600
2415  4425  /GET ENABLES
2416  4447  /IOT 6132, CLOE
2417  4472  /GO TO PI, NO PI EXPECTED
2420  4473  /CHECK NON-ERROR HANDLER
2421  1140  /ERROR: INT, RQST, OR ENA 0 FAILED
2422  2407  /TST140 ERROR MESSAGE
2423  2407  /SCOPE LOOP

TST141, CLA CLL CMA
2423  7340  /AC TO 7777
2424  4427  JMS I XIOTG
2425  7300  CLA CLL
2426  1014  TAD K4000
2427  1142  TAD K0010
2430  1147  TAD K0600
2431  4425  /GET RATE * MODE
2432  4452  /IOT 6132, CLOE
2433  4472  /GO TO PI, PI EXPECTED
2434  4473  /CHECK NON-ERROR HANDLER
2435  1541  /ERROR: OVERFLOW OR ENA 0 FAILED
2436  2423  /TST141 ERROR MESSAGE
2437  2423  /SCOPE LOOP

TST142, CLA CLL CMA
2437  7340  /AC TO 7777
2440  4427  JMS I XIOTG
2441  7300  CLA CLL
2442  1142  TAD K0010
2443  1147  TAD K0600
2444  4425  /GET RATE * MODE
2445  4451  /IOT 6132, CLOE
2446  4472  /GO TO PI, NO PI EXPECTED
2447  4473  /CHECK NON-ERROR HANDLER
2450  1142  /ERROR: ENA 0 FAILED
2451  2437  /TST142 ERROR MESSAGE
2452  2437  /SCOPE LOOP

TST143, CLA CLL CMA
2452  7340  /AC TO 7777
2453  3040  DCA REGA
2454  4427  JMS I XIOTG
2455  1014  TAD K4000
2456  1142  TAD K0010
2457  1147  TAD K0600
2460  4425  /GET RATE * MODE
2461  4450  /IOT 6132, CLOE
2462  4450  /GO TO PI

```

2462 4472 JMS I NERROR /CHECK NON-ERROR HANDLER  
2463 4473 JMS I ERROR /ERROR: OVERFLOW OR COUNTER FAILED  
2464 1543 1543 /TST143 ERROR MESSAGE  
2465 2452 TST143 /SCOPE LOOP

/DOES COUNTER COUNT ?  
/RATE 6, MODE 1  
/

TST144, CLA CMA CLL /IOT 6133, CLAB  
DCA REGA /GET RATE \* MODE  
JMS I XIOTG /IOT 6132, CLOE  
TAD K5000 /GO TO PI  
TAD K0010 /CHECK NON-ERROR HANDLER  
TAD K0600 /ERROR: OVERFLOW OR COUNTER FAILED  
JMS I XIOTF /TST144 ERROR MESSAGE  
JMS I XPIG02 /SCOPE LOOP  
JMS I NERROR  
JMS I ERROR  
1544  
TST144

/DOES COUNTER COUNT ?  
/RATE 6, MODE 2  
/

TST145, CLA CLL CMA /AC TO 7777  
DCA REGA /IOT 6133, CLAB  
JMS I XIOTG /GET ENABLES  
TAD K6000 /IOT 6132, CLOE  
TAD K0010 /GO TO PI, PI EXPECTED  
TAD K0600 /CHECK NON-ERROR HANDLER  
JMS I XIOTF /ERROR: OVERFLOW OR COUNTER FAILED  
JMS I XPIG02 /TST145 ERROR MESSAGE  
JMS I NERROR /SCOPE LOOP  
JMS I ERROR  
1545  
TST145

/DOES COUNTER COUNT ?  
/RATE 6, MODE 3  
/

TST146, CLA CLL CMA /AC TO 7777  
DCA REGA /IOT 6133, CLAB  
JMS I XIOTG /GET ENABLES  
TAD K7000 /IOT 6132, CLOE  
TAD K0010 /GO TO PI, PI EXPECTED  
TAD K0600 /CHECK NON-ERROR HANDLER  
JMS I XIOTF /ERROR: COUNTER OR MODE 3 FAILED  
JMS I XPIG02 /TST146 ERROR MESSAGE  
JMS I NERROR /SCOPE LOOP  
JMS I ERROR  
1546  
TST146

/DOES OVERFLOW CAUSE ROST. ?  
/RATE 2-6, MODE 0

```

2532 1131 TAD K7773
2533 3041 DCA REGB
2534 1014 TAD K4000
2535 1142 TAD K0010
2536 1015 TAD K0200
2537 3044 DCA REGE
2540 7340 CLA CLL CMA
2541 4427 JMS I XIOTG
2542 3040 DCA REGA
2543 1044 TAD REGE
2544 4425 JMS I XIOTF
2545 4447 JMS I XPIG01
2546 5355 JMP T147A
2547 6007
2550 1013 TAD K0100
2551 1044 TAD REGE
2552 2041 ISZ REGH
2553 5337 JMP T147B
2554 4472 JMS I NERRR
2555 4473 JMS I ERROR
2556 1547
2557 2532 TST147
/
/DOES OVERFLOW CAUSE ROST. ?
/RATE 2-6, MODE 1
TST150, TAD K7773
DCA REGB
TAD K5020
TAD K0010
TAD K0200
DCA REGE
CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD REGE
JMS I XIOTF
JMS I XPIG01
JMP I XCRS3
6007
TAD K0100
TAD REGE
ISZ REGB
JMP I XCRS4
JMS I NERRR
JMS I ERROR
1550
TST150
/DOES OVERFLOW CAUSE ROST. ?
/RATE 2-6, MODE 2
TST151, TAD K7773
DCA REGB

```

/SET UP ENABLES

/AC TO 7777  
/IOT 6133, CLAB

/GET ENABLES  
/IOT 6132, CLOE  
/GO TO PI, PI EXPECTED

/CAF OR CLEAR THE WORLD

/DO RATES 2-6  
/CHECK NON-ERROR HANDLER  
/ERROR: OVERFLOW OR MODE FAILED  
/TST147 ERROR MESSAGE  
/SCOPE LOOP

/MAKE ENABLES

/AC TO 7777  
/IOT 6133, CLAB

/GET ENABLES  
/IOT 6132, CLOE  
/GO TO PI, PI EXPECTED

/CAF OR CLEAR THE WORLD

/CHECK NON-ERROR HANDLER  
/ERROR: OVERFLOW OR MODE FAILED  
/TST150 ERROR MESSAGE  
/SCOPE LOOP

2560 1131  
2561 3041  
2562 1121  
2563 1142  
2564 1015  
2565 3044  
2566 7340  
2567 4427  
2570 3040  
2571 1044  
2572 4425  
2573 4447  
2574 5573  
2575 6007  
2576 1013  
2577 1044  
2600 2041  
2601 5574  
2602 4472  
2603 4473  
2604 1550  
2605 2560

2606 1131  
2607 3041

2610 1117 TAD K0000  
 2611 1142 TAD K0010  
 2612 1015 TAD K0200  
 2613 3044 DCA REGE  
 2614 7390 CLA CLL CMA  
 2615 4427 JMS I XIOTG  
 2616 3040 DCA REGA  
 2617 1044 TAD REGE  
 2620 4425 JMS I XIOTF  
 2621 4447 JMS I XPI001  
 2622 5231 JMP T151A  
 2623 6007  
 2624 1013 TAD K0100  
 2625 1044 TAD REGE  
 2626 2041 ISZ REGB  
 2627 5213 JMP T151B  
 2630 4472 JMS I NERROR  
 2631 4473 JMS I ERROR  
 2632 1551  
 2633 2606 TST151

/MAKE ENABLES  
 /AC TO 7777  
 /IOT 6133, CLAB

/GET ENABLES  
 /IOT 6132, CLDE

/GO TO PI, PI EXPECTED  
 /CAF OR CLEAR THE WORLD

/CHECK NON-ERROR HANDLER  
 /ERROR: OVERFLOW OR MODE FAILED  
 /TST151 ERROR MESSAGE  
 /SCOPE LOOP

/DOES OVERFLOW CAUSE ROST. ?  
 /RATE 2-6, MODE 3

2634 1131 TST152, TAD K7773  
 2635 3041 DCA REGB  
 2636 1141 TAD K7000  
 2637 1142 TAD K0010  
 2640 1015 TAD K0200  
 2641 3044 DCA REGE  
 2642 7390 CLA CLL CMA  
 2643 4427 JMS I XIOTG  
 2644 3040 DCA REGA  
 2645 1044 TAD REGE  
 2646 4425 JMS I XIOTF  
 2647 4447 JMS I XPI001  
 2650 5257 JMP T152A  
 2651 6007  
 2652 1013 TAD K0100  
 2653 1044 TAD REGE  
 2654 2041 ISZ REGB  
 2655 5241 JMP T152B  
 2656 4472 JMS I NERROR  
 2657 4473 JMS I ERROR  
 2660 1552  
 2661 2634 TST152

/MAKE ENABLES

/AC TO 7777  
 /IOT 6133, CLAB

/GET ENABLES  
 /IOT 6132, CLDE  
 /GO TO PI, PI EXPECTED

/CAF OR CLEAR THE WORLD

/DO RATES 2-6  
 /CHECK NON-ERROR HANDLER  
 /ERROR: OVERFLOW OR MODE FAILED  
 /TST152 ERROR MESSAGE  
 /SCOPE LOOP

/DOES OVERFLOW CAUSE ROST. ?  
 /RATE 0-7, MODE 1, DISABLE BIT 7

2662 1142 TST153, TAD K7770  
 2663 3041 DCA REGB  
 2664 1141 TAD K5000  
 2665 1142 TAD K0010  
 2666 1140 TAD K0020

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2667 3044 DCA REGE /MAKE ENABLES
2670 7340 CLA CLL CMA /AC TO 7777
2671 4427 JMS I XIOTG /IOT 6133, CLAB
2672 3040 DCA REGA
2673 1044 TAD REGE /GET ENABLES
2674 4425 JMS I XIOTF /IOT 6132, CLOE
2675 4450 JMS I XPIG02 /GO TO PI, NO PI EXPECTED
2676 5305 JMP T153A /CAF OR CLEAR THE WORLD
2677 6007
2700 1013 TAD K0100
2701 1044 TAD REGE
2702 2041 ISZ REGB
2703 5267 JMP T153B
2704 4472 JMS I NERROR /DO RATE 0-7
2705 4473 JMS I ERROR /CHECK NON-ERROR HANDLER
2706 1153 JMS I ERROR /ERROR: OVERFLOW OR CLK ENA FAILED
2707 2662 TST153 /TST153 ERROR MESSAGE
/SCOPE LOOP

/DOES OVERFLOW CAUSE RQST. ?
/RATE 0-7, MODE 2, DISABLE INT. RQST. BIT

TST154, TAD K7770
DCA REGB
TAD K0000
TAD K0010
TAD K0020
DCA REGE /MAKE ENABLES
CLA CLL CMA /AC TO 7777
JMS I XIOTG /IOT 6133, CLAH
DCA REGA
TAD REGE /GET ENABLES
JMS I XIOTF /IOT 6132, CLOE
JMS I XPIG02 /GO TO PI, NO PI EXPECTED
JMP T154A /CAF OR CLEAR THE WORLD
6007
TAD K0100
TAD REGE
ISZ REGB
JMP T154B /DO RATE 0-7
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: OVERFLOW OR CLK ENA FAILED
1154 JMS I ERROR /TST154 ERROR MESSAGE
TST154 /SCOPE LOOP

/DOES OVERFLOW CAUSE INT. RQST. ?
/MODE 0, RATE 6

TST155, CLA CLL CMA /AC TO 7777
JMS I XIOTG /IOT 6133, CLAB
CLA CLL CML RAR /AC TO 4000
TAD K0600
TAD K0010 /GET ENABLES
JMS I XIOTF /IOT 6132, CLOE
JMS I XPIG04 /GO TO PI, PI EXPECTED
JMS I NERROR /CHECK NON-ERROR HANDLER

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2746  4473  JMS I ERROR /ERROR: OVERFLOW OR COUNTER FAILED
2747  1555  /TST155 ERROR MESSAGE
2750  2736  /SCOPE LOOP
/DOES CLSK SKIP THEN INTERRUPT ?
/RATE 6, MODE 0
TST156, CLA CLL CMA /AC TO 7777
JMS I XIOTG /IOT 6133, CLAB
CLA CLL CML RAR
TAD K0010 /MAKE ENABLES
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP -1 /WAIT FOR OVERFLOW
JMS I XPIG04 /GO TO PI, PI EXPECTED
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: CLSK OR PI FAILED
1556 /TST156 ERROR MESSAGE
TST156 /SCOPE LOOP
/CHECK FOR NO INT, ROST.
/MODE 0, RATE 6, DISABLE WITH CLSA
TST157, CLA CLL CMA /AC TO 7777
JMS I XIOTG /IOT 6133, CLAB
CLA CLL CML RAR /AC TO 4000
TAD K0600
TAD K0010
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP -1 /WAIT FOR OVERFLOW
JMS I XIOTI /IOT 6135, CLSA
JMS I XPIG03 /GO TO PI, NO PI EXPECTED
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INT, ROST. FAILED
1157 /TST157 ERROR MESSAGE
TST157 /SCOPE LOOP
/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 2, MODE 0
TST160, CLA CLL CMA /AC TO 7777
DCA REGA
TAD KTA
DCA KREGC
JMS I XIOTG /IOT 6133, CLAB
TAD K4000
TAD K0010
TAD K0200
JMS I XIOTF /MAKE ENABLES
JMS I XPIG05 /IOT 6132, CLOE
SKP CLA
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: CLOCK FREQUENCY FAST
3004  7340
3005  3040
3006  1151
3007  3076
3010  4427
3011  1014
3012  1142
3013  1015
3014  4425
3015  4453
3016  7610
3017  4472
3020  4473
2766  7340
2767  4427
2770  7330
2771  1147
2772  1142
2773  4425
2774  4424
2775  5374
2776  4431
2777  4451
3000  4472
3001  4473
3002  1157
3003  2766
/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 2, MODE 0
TST160, CLA CLL CMA /AC TO 7777
DCA REGA
TAD KTA
DCA KREGC
JMS I XIOTG /IOT 6133, CLAB
TAD K4000
TAD K0010
TAD K0200
JMS I XIOTF /MAKE ENABLES
JMS I XPIG05 /IOT 6132, CLOE
SKP CLA
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: CLOCK FREQUENCY FAST
3004  7340
3005  3040
3006  1151
3007  3076
3010  4427
3011  1014
3012  1142
3013  1015
3014  4425
3015  4453
3016  7610
3017  4472
3020  4473

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3021 2160  
3022 3024

2160 /TST160 ERROR MESSAGE  
TST160 /SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?  
/RATE 2, MODE 0

3023 7340  
3024 3040  
3025 1152  
3026 3076  
3027 4427  
3030 1014  
3031 1142  
3032 1015  
3033 4425  
3034 4453  
3035 4472  
3036 4473  
3037 2561  
3040 3023

/TST161, CLA CLL CMA /AC TO 7777  
DCA REGA  
TAD KTA1  
DCA KREGC  
JMS I XIOTG /IOT 6133, CLAB  
TAD K4000  
TAD K0010  
TAD K2200 /MAKE ENABLES  
JMS I XIOTF /IOT 6132, CLOE  
JMS I XPIG05 /CHECK NON-ERROR HANDLER  
JMS I NERROR /ERROR: CLOCK FREQUENCY SLOW  
JMS I ERROR /TST161 ERROR MESSAGE  
2561 /SCOPE LOOP  
TST161

/DOES CLOCK FREQUENCY TIME OUT ?  
/RATE 3, MODE 0

3041 7340  
3042 3040  
3043 1153  
3044 3076  
3045 4427  
3046 1014  
3047 1142  
3050 1145  
3051 4425  
3052 4453  
3053 7610  
3054 4472  
3055 4473  
3056 2162  
3057 3041

/TST162, CLA CLL CMA /AC TO 7777  
DCA REGA  
TAD KTB  
DCA KREGC  
JMS I XIOTG /IOT 6133, CLAB  
TAD K4000  
TAD K0010  
TAD K0320 /MAKE ENABLES  
JMS I XIOTF /IOT 6132, CLOE  
JMS I XPIG05 /CHECK NON-ERROR HANDLER  
SKP CLA /ERROR: CLOCK FREQUENCY FAST  
JMS I NERROR /TST162 ERROR MESSAGE  
JMS I ERROR  
2162 /SCOPE LOOP  
TST162

/DOES CLOCK FREQUENCY TIME OUT ?  
/RATE 3, MODE 0

3060 7340  
3061 3040  
3062 1154  
3063 3076  
3064 4427  
3065 1014  
3066 1142  
3067 1145  
3070 4425  
3071 4453  
3072 4472  
3073 4473

/TST163, CLA CLL CMA /AC TO 7777  
DCA REGA  
TAD KTB1  
DCA KREGC  
JMS I XIOTG /IOT 6133, CLAB  
TAD K4000  
TAD K0010  
TAD K0300 /MAKE ENABLES  
JMS I XIOTF /IOT 6132, CLOE  
JMS I XPIG05 /CHECK NON-ERROR HANDLER  
JMS I NERROR /ERROR: CLOCK FREQUENCY SLOW  
JMS I ERROR

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3074  2563  /TST163 ERROR MESSAGE
3075  3060  /SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 4, MODE 0
/
TST164,  CLA CLL CMA      /AC TO 7777
3076  7340  DCA REGA
3077  3040  TAD KTC
3100  1155  DCA KREGC
3101  3076  TAD KTC1
3102  1156  DCA REGD
3103  3043  JMS I XIOTG
3104  4427  TAD K4000
3105  1014  TAD K0010
3106  1142  TAD K0400
3107  1116  JMS I XIOTF
3110  4425  JMS I XPIG05
3111  4453  SKP CLA
3112  7610  JMS I NERRR
3113  4472  JMS I ERROR
3114  4473  2164
3115  2164  TST164
3116  3076

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 4, MODE 0
/
TST165,  CLA CLL CMA      /AC TO 7777
3117  7340  DCA REGA
3120  3040  TAD KTC
3121  1155  DCA KREGC
3122  3076  TAD KTC2
3123  1157  DCA REGD
3124  3043  JMS I XIOTG
3125  4427  TAD K4000
3126  1014  TAD K0010
3127  1142  TAD K0400
3130  1116  JMS I XIOTF
3131  4425  JMS I XPIG05
3132  4453  JMS I NERRR
3133  4472  JMS I ERROR
3134  4473  2565
3135  2565  TST165
3136  3117

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 5, MODE 0
/
TST166,  CLA CLL CMA      /AC TO 7777
3137  7340  DCA REGA
3140  3040  CLA CLL CMA RAR
3141  7350  JMS I XIOTG
3142  4427  CLA CLL
3143  7360  TAD KTD
3144  1160  DCA REGD
3145  3043  TAD K4000
3146  1014

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3147 1142 TAD K0010  
 3150 1146 TAD K0500 /MAKE ENABLES  
 3151 4425 JMS I XIOTF /IOT 6132, CLOE  
 3152 4447 JMS I XPIG01  
 3153 4472 JMS I NERROR /CHECK NON-ERROR HANDLER  
 3154 4473 JMS I ERROR /ERROR: CLOCK FREQUENCY FAST  
 3155 2166 2166 /TST166 ERROR MESSAGE  
 3156 3137 TST166 /SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?  
 /RATE 5, MODE 0

3157 7340 TST167, CLA CLL CMA /AC TO 7777  
 3160 3040 DCA REGA  
 3161 7350 CLA CLL CMA RAR  
 3162 4427 JMS I XIOTG /IOT 6133, CLAB  
 3163 7300 CLA CLL /CLEAR THE AC AND LINK  
 3164 1161 TAD KTD1 /SET TIMER FOR 100000 CPS CLOCK  
 3165 3043 DCA REGD  
 3166 1014 TAD K4000  
 3167 1142 TAD K0010 /MAKE ENABLES  
 3170 1146 TAD K0500 /IOT 6132, CLOE  
 3171 4425 JMS I XIOTF /CHECK NON-ERROR HANDLER  
 3172 4450 JMS I XPIG02 /ERROR: CLOCK FREQUENCY SLOW  
 3173 4472 JMS I NERROR /ERROR: CLOCK FREQUENCY SLOW  
 3174 4473 JMS I ERROR /TST167 ERROR MESSAGE  
 3175 2567 2567 /SCOPE LOOP  
 3176 3157 TST167

/DOES CLOCK FREQUENCY TIME OUT ?  
 /RATE 6, MODE 0

3177 7340 TST170, CLA CLL CMA /AC TO 7777  
 3200 3040 DCA REGA  
 3201 1162 TAD KTE /SET TIMER FOR 1000000 CPS CLOCK  
 3202 3043 DCA REGD /IOT 6133, CLAB  
 3203 4427 JMS I XIOTG  
 3204 1014 TAD K4000  
 3205 1142 TAD K0010 /MAKE ENABLES  
 3206 1147 TAD K0600 /IOT 6132, CLOE  
 3207 4425 JMS I XIOTF /CHECK NON-ERROR HANDLER  
 3210 4447 JMS I XPIG01 /ERROR: CLOCK FREQUENCY FAST  
 3211 4472 JMS I NERROR /ERROR: CLOCK FREQUENCY FAST  
 3212 4473 JMS I ERROR /TST170 ERROR MESSAGE  
 3213 2170 2170 /SCOPE LOOP  
 3214 3177 TST170

/DOES CLOCK FREQUENCY TIME OUT ?  
 /RATE 6, MODE 0

3215 7340 TST171, CLA CLL CMA /AC TO 7777  
 3216 3040 DCA REGA  
 3217 1163 TAD KTE1 /SET TIMER FOR 1000000 CPS CLOCK  
 3220 3043 DCA REGD /IOT 6133, CLAB  
 3221 4427 JMS I XIOTG

3222 1014  
 3223 1142  
 3224 1147  
 3225 4425  
 3226 4450  
 3227 4472  
 3230 4473  
 3231 2571  
 3232 3215

TAD K4000  
 TAD K0010  
 TAD K0600  
 JMS I XIOTF  
 JMS I XPIG02  
 JMS I NERROR  
 JMS I ERROR  
 2571  
 TST171  
 /MAKE ENABLES  
 /IOT 6132, CLOE  
 /CHECK NON-ERROR HANDLER  
 /ERROR: CLOCK FREQUENCY SLOW  
 /TST171 ERROR MESSAGE  
 /SCOPE LOOP

/DOES COUNTER REALLY COUNT ?  
 /RATE 2, MODE 0

3233 7340  
 3234 4427  
 3235 3040  
 3236 1015  
 3237 4426  
 3240 7300  
 3241 3042  
 3242 1041  
 3243 3070  
 3244 4433  
 3245 7041  
 3246 1041  
 3247 7650  
 3250 5254  
 3251 2042  
 3252 5244  
 3253 5257  
 3254 2041  
 3255 5240  
 3256 4472  
 3257 4473  
 3260 4172  
 3261 3233

TST172, CLA CLL CMA  
 JMS I XIOTG  
 DCA REGA  
 TAD K0200  
 JMS I XIOTF1  
 T172B1, CLA CLL  
 DCA REGC  
 TAD REGB  
 DCA SEND  
 T172B, JMS I XIOTK  
 CIA  
 TAD REGB  
 SNA CLA  
 JMP T172A  
 ISZ REGC  
 JMP T172B  
 JMP T172A1  
 ISZ REGB  
 JMP T172B1  
 JMS I NERROR  
 JMS I ERROR  
 4172  
 TST172  
 /AC TO 7777  
 /IOT 6133, CLAB  
 /GET RATE + MODE  
 /IOT 6132, CLOE  
 /CLEAR THE AC AND LINK  
 /SAVE OUTPUT FOR ERROR PRINTER  
 /IOT 6137, CLCA  
 /COMPARE TO THIS REGISTER  
 /ARE THEY THE SAME YET ?  
 /YES, TEST NEXT NUMBER  
 /WAIT ABOUT 15 MS FOR REGISTER  
 /NUMBER NOT FOUND  
 /UPDATE COMPARE REGISTER  
 /TEST FOR NEXT COUNTER PULSE  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST172 ERROR MESSAGE  
 /SCOPE LOOP

/DOES COUNTER REALLY COUNT ?  
 /RATE 3, MODE 0

3262 7340  
 3263 4427  
 3264 3040  
 3265 1145  
 3266 4426  
 3267 7300  
 3270 3042  
 3271 1041  
 3272 3070  
 3273 4433  
 3274 7041  
 3275 1041  
 3276 7650  
 3277 5303  
 3300 2042

TST173, CLA CLL CMA  
 JMS I XIOTG  
 DCA REGA  
 TAD K0300  
 JMS I XIOTF1  
 T173B1, CLA CLL  
 DCA REGC  
 TAD REGB  
 DCA SEND  
 T173B, JMS I XIOTK  
 CIA  
 TAD REGB  
 SNA CLA  
 JMP T173A  
 ISZ REGC  
 /AC TO 7777  
 /IOT 6133, CLAB  
 /GET RATE + MODE  
 /IOT 6132, CLOE  
 /CLEAR THE AC AND LINK  
 /SAVE OUTPUT FOR ERROR PRINTER  
 /IOT 6137, CLCA  
 /COMPARE TO THIS REGISTER  
 /ARE THEY THE SAME YET ?  
 /YES, TEST NEXT NUMBER

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3301 5273 JMP T173B /WAIT ABOUT 15 MS FOR REGISTER
3302 5306 JMP T173A1 /NUMBER NOT FOUND
3303 2041 IS2 REGB /UPDATE COMPARE REGISTER
3304 5267 JMP T173B1 /TEST FOR NEXT COUNTER PULSE
3305 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
3306 4473 JMS I ERROR /ERROR: COUNTER FAILFD
3307 4173 4173 /TST173 ERROR MESSAGE
3310 3262 TST173 /SCOPE LOOP

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/DOES COUNTER REALLY COUNT ?
/RATE 2, MODE 1
/

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3311 7390 TST174, CLA CLL CMA /AC TO 7777
3312 4427 JMS I XIOTG /IOT 6133, CLAB
3313 3040 DCA REGA
3314 1015 TAD K0200
3315 1144 TAD K1020
3316 4426 JMS I XIOTF1 /GET RATE + MODE
3317 4424 JMS I XIOTE /IOT 6132, CLOE
3320 5317 JMP -1 /IOT 6131, CLSK
3321 7320 CLA CLL /CLEAR THE AC AND LINK
3322 4427 JMS I XIOTG /IOT 6133, CLAB
3323 3042 DCA REGC
3324 1041 TAD REGB
3325 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
3326 4433 JMS I XIOTK /IOT 6137, CLCA
3327 7041 CIA
3330 1041 TAD REGB
3331 7650 SNA CLA /COMPARE TO THIS REGISTER
3332 5336 JMP T174A /ARE THEY THE SAME YET ?
3333 2042 IS2 REGC /YES, TEST NEXT NUMBER
3334 5326 JMP T174B /WAIT ABOUT 15 MS FOR REGISTER
3335 5341 JMP T174A1 /NUMBER NOT FOUND
3336 2041 IS2 REGB /UPDATE COMPARE REGISTER
3337 5323 JMP T174B1 /TEST FOR NEXT COUNTER PULSE
3340 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
3341 4473 JMS I ERROR /ERROR: COUNTER FAILED
3342 4174 4174 /TST174 ERROR MESSAGE
3343 3311 TST174 /SCOPE LOOP

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/DOES COUNTER REALLY COUNT ?
/RATE 4, MODE 1
/

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3344 7340 TST175, CLA CLL CMA /AC TO 7777
3345 4427 JMS I XIOTG /IOT 6133, CLAB
3346 3040 DCA REGA
3347 1116 TAD K0400
3350 1144 TAD K1000 /GET RATE + MODE
3351 4426 JMS I XIOTF1 /IOT 6132, CLOE
3352 4424 JMS I XIOTE /IOT 6131, CLSK
3353 5352 JMP -1
3354 7300 CLA CLL /CLEAR THE AC AND LINK
3355 4427 JMS I XIOTG /IOT 6133, CLAB
3356 3042 DCA REGC
3357 1041 TAD REGB

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3360      3070      DCA SEND      /SAVE OUTPUT FOR ERROR PRINTER
3361      4433      JMS I XIOTK      /IOT 6137, CLCA
3362      7041      CIA              /COMPARE TO THIS REGISTER
3363      1041      TAD REGB        /ARE THEY THE SAME YET ?
3364      7650      SNA CLA        /YES, TEST NEXT NUMBER
3365      5371      JMP T175A      /WAIT ABOUT 15 MS FOR REGISTER
3366      2042      ISZ REGC        /NUMBER NOT FOUND
3367      5361      JMP T175B      /UPDATE COMPARE REGISTER
3370      5374      JMP T175A1     /TEST FOR NEXT COUNTER PULSE
3371      2041      ISZ REGB        /CHECK NON-ERROR HANDLER
3372      5396      JMP T175R1     /ERROR: COUNTER FAILED
3373      4472      JMS I NERROR   /TST175 ERROR MESSAGE
3374      4473      JMS I ERROR    /SCOPE LOOP
3375      4175      TST175
3376      3344

/DOES COUNTER REALLY COUNT ?
/RATE 2, MODE 2
/
TST176,   CLA CLL CMA      /AC TO 7777
          JMS I XIOTG      /IOT 6133, CLAB
          DCA REGA
          TAD K0200
          TAD K2000
          JMS I XIOTF1
          CLA CLL
          DCA REGC
          TAD REGB
          DCA SEND
          JMS I XIOTK
          CIA
          TAD REGB
          SNA CLA
          JMP T176A
          ISZ REGC
          JMP T176B
          JMP T176A1
          ISZ REGB
          JMP T176R1
          JMS I NERROR
          JMS I ERROR
          TST176
          TST176

/DOES COUNTER REALLY COUNT ?
/RATE 4, MODE 2
/
TST177,   CLA CLL CMA      /AC TO 7777
          JMS I XIOTG      /IOT 6133, CLAB
          DCA REGA
          TAD K0400
          TAD K2000
          JMS I XIOTF1
          CLA CLL
          DCA REGC
          TAD REGB
          SNA CLA
          JMP T177A
          ISZ REGC
          JMP T177B
          JMP T177A1
          ISZ REGB
          JMP T177R1
          JMS I NERROR
          JMS I ERROR
          TST177
          TST177

/DOES COUNTER REALLY COUNT ?
/RATE 2, MODE 2
/
TST178,   CLA CLL CMA      /AC TO 7777
          JMS I XIOTG      /IOT 6133, CLAB
          DCA REGA
          TAD K0400
          TAD K2000
          JMS I XIOTF1
          CLA CLL
          DCA REGC
          TAD REGB
          SNA CLA
          JMP T178A
          ISZ REGC
          JMP T178B
          JMP T178A1
          ISZ REGB
          JMP T178R1
          JMS I NERROR
          JMS I ERROR
          TST178
          TST178

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3437 1041 TAD REGB
3440 3070 DCA SEND
3441 4433 JMS I XIOTK
3442 7041 CIA
3443 1041 TAD REGB
3444 7650 SNA CLA
3445 5251 JMP T177A
3446 2042 ISZ REGC
3447 5241 JMP T177B
3450 5254 JMP T177A1
3451 2041 ISZ REGB
3452 5255 JMP T177B1
3453 4472 JMS I NERROR
3454 4473 JMS I ERROR
3455 4177 TST177
3456 3427 TST177
    
```

```

/DOES COUNTER REALLY COUNT ?
/RATE 4, MODE 3
    
```

```

3457 7340 TST200, CLA CLL CMA
3460 4427 JMS I XIOTG
3461 3040 DCA REGA
3462 1116 TAD K0420
3463 1120 TAD K3000
3464 4426 JMS I XIOTF1
3465 7300 CLA CLL
3466 3042 DCA REGC
3467 1041 TAD REGB
3470 3070 DCA SEND
3471 4433 JMS I XIOTK
3472 7041 CIA
3473 1041 TAD REGB
3474 7650 SNA CLA
3475 5321 JMP T200A
3476 2042 ISZ REGC
3477 5271 JMP T200B
3500 5324 JMP T200A1
3501 2041 ISZ REGB
3502 5265 JMP T200B1
3503 4472 JMS I NERROR
3504 4473 JMS I ERROR
3505 4200 TST200
3506 3457 TST200
    
```

```

/DO IOT'S AFFECT AC ?
/
    
```

```

3507 7340 TST201, CLA CLL CMA
3510 4427 JMS I XIOTG
3511 3040 DCA REGA
3512 6007 6007
3513 1144 TAD K1000
3514 1015 TAD K0200
3515 4426 JMS I XIOTF1
3516 4424 JMS I XIOTE
    
```

```

/SAVE OUTPUT FOR ERROR PRINTER
/IOT 6137, CLCA
    
```

```

/COMPARE TO THIS REGISTER
/ARE THEY THE SAME YET ?
/YES, TEST NEXT NUMBER
    
```

```

/WAIT ABOUT 15 MS FOR REGISTR
/NUMRER NOT FOUND
/UPDATE COMPARE REGISTER
/TEST FOR NEXT COUNTER PULSE
/CHECK NON-ERROR HANDLER
/ERROR: COUNTER FAILED
/TST177 ERROR MESSAGE
/SCOPE LOOP
    
```

```

/AC TO 7777
/IOT 6133, CLAH
/GET RATE + MODE
/IOT 6132, CLJE
/CLEAR THE AC AND LINK
    
```

```

/SAVE OUTPUT FOR ERROR PRINTER
/IOT 6137, CLCA
    
```

```

/COMPARE TO THIS REGISTER
/ARE THEY THE SAME YET ?
/YES, TEST NEXT NUMBER
    
```

```

/WAIT ABOUT 15 MS FOR REGISTR
/NUMBER NOT FOUND
/UPDATE COMPARE REGISTER
/TEST FOR NEXT COUNTER PULSE
/CHECK NON-ERROR HANDLER
/ERROR: MODE 3, COUNTER FAILED
/TST200 ERROR MESSAGE
/SCOPE LOOP
    
```

```

/AC TO 7777
/IOT 6133, CLAB
/PASS COUNT 1
/CAF OR CLEAR THE WORLD
    
```

```

/GET ENABLES
/IOT 6132, CLOE
/IOT 6131, CLSK
    
```

```

3517 5316 JMP --1
3520 7340 CLA CLL CMA
3521 4423 JMS I XIOTD
3522 7300 CLA CLL
3523 3070 DCA SEND
3524 1041 TAD REG8
3525 4432 JMS I XIOTJ
3526 7640 SZA CLA
3527 5351 JMP T201A
3530 1041 TAD REG8
3531 4433 JMS I XIOTK
3532 7640 SZA CLA
3533 5351 JMP T201A
3534 1041 TAD REG8
3535 4430 JMS I XIOTH
3536 7640 SZA CLA
3537 5351 JMP T201A
3540 1041 TAD REG8
3541 4431 JMS I XIOTI
3542 7640 SZA CLA
3543 5351 JMP T201A
3544 4424 JMS I XIOTE
3545 5344 JMP --1
3546 2041 I52 REG8
3547 5322 JMP T201R
3550 4472 JMS I NERRR
3551 4473 JMS I ERROR
3552 3201 3201
3553 3507 TST201

3554 4570 JMS I XPASS
3555 5463 JMP I XDK8EP

/DOES INPUT 4 CAUSE INT. ROST.
/
/DOES INPUT 2 CAUSE INT. ROST.
/
TST202, CLA CLL
TST202, DCA LOOP
TST202, CLA CLL CMA
TST202, DCA REGA
TST202, CLA CLL IAC RTL
TST202, TAD K0010
TST202, JMS I XIOTF
TST202, JMS I XPIG02
TST202, JMS I NERRR
TST202, JMS I ERROR
TST202, 1602
TST202, TST202

/DOES INPUT 2 CAUSE INT. ROST.
/
TST203, CLA CLL CMA
TST203, DCA REGA
TST203, CLA CLL CML RTL
TST203, TAD K0010

```

```

/WAIT FOR COUNTER TO GET CLEARED
/IOT 6130, CLZE
/CLEAR AC AND LINK
/SAVE OUTPUT FOR ERROR PRINTER
/GET AC NUMBER
/IOT 6136, CLBA
/WAS AC ALL 0'S ?

/GET AC NUMBER
/IOT 6137, CLCA
/WAS AC ALL 0'S ?

/GET AC NUMBER
/IOT 6134, CLEN
/WAS AC ALL 0'S ?

/GET AC NUMBER
/IOT 6135, CLSA
/WAS AC ALL 0'S ?

/IOT 6131, CLSK
/WAS FLAG STILL SET ?
/UPDATE PASS COUNTER
/TEST IOT'S AGAIN
/CHECK NON-ERROR HANDLER
/ERROR: IOT FAILED
/TST201 ERROR MESSAGE
/SCOPE LOOP

/TYPE PASS COMPLETE
/CONTINUE TESTING

/LOAD LOOP COUNTER
/AC TO 7777

/AC TO 0004
/GET ENABLES
/IOT 6132, CLOE
/GO TO PI, PI EXPECTED
/CHECK NON-ERROR HANDLER
/ERROR: INPUT 4 FAILED
/TST202 ERROR MESSAGE
/SCOPE LOOP

/AC TO 7777
/GET ENABLES

```



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PAL10  V141
3577  4425      JMS I XIOTF      /IOT 6132, CLOE
3600  4450      JMS I XPIG02     /GO TO PI, PI EXPECTED
3601  4472      JMS I NERROR     /CHECK NON-ERROR HANDLER
3602  4473      JMS I ERROR      /ERROR: INPUT 2 FAILED
3603  1603      1603            /TST203 ERROR MESSAGE
3604  3573      TST20J         /SCOPE LOOP

/DOES INPUT 1 CAUSE INT. ROST.
/
TST204,  CLA CLL CMA      /AC TO 7777
DCA REGA
CLA CLL CML RAL      /AC TO 0001
TAD K0010           /GET ENARLES
JMS I XIOTF        /IOT 6132, CLOE
JMS I XPIG02     /GO TO PI, PI EXPECTED
JMS I NERROR     /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: INPUT 1 FAILED
1604
TST204           /SCOPE LOOP

/DOES INPUT 4 RQST. LAST ?
/
TST205,  CLA CLL CMA      /AC TO 7777
DCA REGA
CLA CLL IAC RTL     /AC TO 0004
TAD K0010           /GET ENARLES
JMS I XIOTF        /IOT 6132, CLOE
JMS I XPIG01     /GO TO PI, PI EXPECTED
JMP T205A        /NO RQST. FOUND
ISZ REG8         /UPDATE COUNTER
JMP , -1         /WAIT 15 MS
JMS I XPIG02     /GO TO PI, PI EXPECTED
JMS I NERROR     /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: INPUT 4 FAILED
1605
T205A,      1605            /TST205 ERROR MESSAGE
3633  1605      TST205         /SCOPE LOOP

/DOES INPUT 2 RQST. LAST ?
/
TST206,  CLA CLL CMA      /AC TO 7777
DCA REGA
CLA CLL IAC RAL     /AC TO 0002
TAD K0010           /GET ENARLES
JMS I XIOTF        /IOT 6132, CLOE
JMS I XPIG01     /GO TO PI, PI EXPECTED
JMP T206A        /NO RQST. FOUND
ISZ REG8         /UPDATE COUNTER
JMP , -1         /WAIT 15 MS
JMS I XPIG02     /GO TO PI, PI EXPECTED
JMS I NERROR     /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: INPUT 2 FAILED
1606
T206A,      1606            /TST206 ERROR MESSAGE
3651  1606      TST206         /SCOPE LOOP

/DOES INPUT 1 RQST. LAST ?

```

```

3653 7340 /TST207, CLA CLL CMA /AC TO 7777
3654 3040 DCA REGA
3655 7324 CLA CLL CML RAL /AC TO 0001
3656 1142 TAD K0010 /GET ENABLES
3657 4425 JMS I XIOTF /IOT 6132, CLOE
3660 4447 JMS I XPIG01 /GO TO PI, PI EXPECTED
3661 5266 JMP T207A /NO RQST. FOUND
3662 2041 IS2 REGB /UPDATE COUNTER
3663 5262 JMP *-1 /WAIT 15 MS
3664 4450 JMS I XPIG02 /GO TO PI, PI EXPECTED
3665 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
3666 4473 JMS I ERROR /ERROR: INPUT 1 FAILED
3667 1627 1607 /TST207 ERROR MESSAGE
3670 3653 TST207 /SCOPE LOOP

```

```

/DOES INPUTS 4,2,1 WITHOUT BIT 8 ?

```

```

3671 7340 /TST210, CLA CLL CMA /AC TO 7777
3672 3040 DCA REGA
3673 7313 CLA CLL IAC RTR /AC TO 4000
3674 1027 TAD K0007
3675 1147 TAD K0600
3676 4425 JMS I XIOTF /IOT 6132, CLOE
3677 4447 JMS I XPIG01 /GO TO PI, NO PI EXPECTED
3701 4473 JMS I NERRR /CHECK NON-ERROR HANDLER
3702 1210 JMS I ERROR /ERROR:ENABLE BIT 8 FAILED
3703 3671 1212 /TST210 ERROR MESSAGE
TST210 /SCOPE LOOP

```

```

/DOES INPUT 4 CAUSE SKIP ?

```

```

3704 7340 /TST211, CLA CLL CMA /AC TO 7777
3705 3040 DCA REGA
3706 1113 TAD KTICPS
3707 3045 DCA REGF
3710 7307 CLA CLL IAC RTL /AC TO 0004
3711 4425 JMS I XIOTF /IOT 6132, CLOE
3712 4424 JMS I XIOTE /IOT 6131, CLSK
3713 4446 JMS I SKPWAT /LET'S WAIT FOR A FLAG
3714 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
3715 4473 JMS I ERROR /ERROR: INPUT 4 OR SKIP FAILED
3716 0611 0611 /TST211 ERROR MESSAGE
3717 3704 TST211 /SCOPE LOOP

```

```

/DOES INPUT 2 CAUSE SKIP ?

```

```

3720 7340 /TST212, CLA CLL CMA /AC TO 7777
3721 3040 DCA REGA
3722 1113 TAD KTICPS
3723 3045 DCA REGF
3724 7526 CLA CLL CML RTL /AC TO 0002
3725 4425 JMS I XIOTF /IOT 6132, CLOE
3726 4424 JMS I XIOTE /IOT 6131, CLSK
3727 4446 JMS I SKPWAT /LET'S WAIT FOR A FLAG

```

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3730  4472      JMS I NERROR      /CHECK NON-ERROR HANDLER
3731  4473      JMS I ERROR      /ERROR: INPUT 2 OR SKIP FAILED
3732  0612      0612          /TST212 ERROR MESSAGE
3733  3720      TST212        /SCOPE LOOP

/DOES INPUT 1 CAUSE SKIP ?
/
TST213, CLA CLL CMA      /AC TO 7777
DCA REGA
TAD KI1CPS
DCA REGF
CLA CLL IAC      /AC TO 0001
JMS I XIOTF      /IOT 6132, CLOE
JMS I XIOTE      /IOT 6131, CLSK
JMS I SKPWAT      /LET'S WAIT FOR FLAG
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: INPUT 1 OR SKIP FAILED
0613
TST213        /SCOPE LOOP

/DOES INPUT 4 ROST. THEN SKIP AND VICE-VERSA ?
/
TST214, CLA CLL CMA      /AC TO 7777
DCA REGA
CLA CLL IAC RTL /AC TO 0004
TAD K0010        /GET ENABLES
JMS I XIOTF      /IOT 6132, CLOE
JMS I XIOTE      /IOT 6131, CLSK
JMP :-1
JMS I XPIG01     /GO TO PI, PI EXPECTED
JMP T214A        /NO ROST. FOUND
JMS I XIOTE      /IOT 6131, CLSK
JMP :-1
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: INPUT 4 SKIP OR INT, ROST. FAILED
1614
T214A,        TST214        /SCOPE LOOP

/DOES INPUT 2 SKIP THEN INT, ROST. AND VICE-VERSA ?
/
TST215, CLA CLL CMA      /AC TO 7777
DCA REGA
CLA CLL IAC RAL /AC TO 0002
TAD K0010        /GET ENABLES
JMS I XIOTF      /IOT 6132, CLOE
JMS I XIOTE      /IOT 6131, CLSK
JMP :-1
JMS I XPIG01     /GO TO PI, PI EXPECTED
JMP I XCRS5
JMS I XIOTE      /IOT 6131, CLSK
JMP :-1
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: INPUT 2 SKIP OR ROST, FAILED
1615
T215A,        TST215        /SCOPE LOOP
1615
4005  3767
3767  7340
3770  3040
3771  7305
3772  1142
3773  4425
3774  4424
3775  5374
3776  4447
3777  5575
4000  4424
4001  5200
4002  4472
4003  4473
4004  1615
4005  3767

```

```

4006 7340
4007 3040
4010 7301
4011 1142
4012 4425
4013 4424
4014 5213
4015 4447
4016 5222
4017 4424
4020 5217
4021 4472
4022 4473
4023 1616
4024 4006

/DOES INPUT 1 SKIP THEN INT, ROST, AND VICE-VERSA ?
/
TST216, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC /AC TO 0001
TAD K0010 /GET ENABLES
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP .-1
JMS I XPIG01 /GO TO PI, PI EXPECTED
JMP T216A
JMS I XIOTE /IOT 6131, CLSK
JMP .-1
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INPUT 1 SKIP OR INT, ROST, FAILED
1616 /TST216 ERROR MESSAGE
TST216 /SCOPE LOOP

```

```

4025 7340
4026 3040
4027 7307
4030 4425
4031 4424
4032 5251
4033 6007
4034 7307
4035 4425
4036 4424
4037 5256
4040 6007
4041 7307
4042 4425
4043 4424
4044 4472
4045 4473
4046 0217
4047 4025

/DOES CAF CLEAR INPUT 4 INT, ROST, ?
/
TST217, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC RTL /AC TO 0004
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP .-1 /WAIT FOR FIRST FLAG
6007 /CAF OR CLEAR THE WORLD
CLA CLL IAC RTL /AC TO 0004
JMS I XIOTE /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP .-1 /WAIT FOR SECOND FLAG
6007 /CAF OR CLEAR THE WORLD
CLA CLL IAC RTL
JMS I XIOTE /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INPUT 4 SKIP OR ROST, FAILED
0217 /TST217 ERROR MESSAGE
TST217 /SCOPE LOOP

```

```

4050 7340
4051 3040
4052 7305
4053 4425
4054 4424
4055 5254
4056 6007
4057 7305
4060 4425
4061 4424
4062 5261
4063 6007

/DOES CAF CLEAR INPUT 2 ROST, ?
/
TST220, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC RAL /AC TO 0002
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP .-1 /WAIT FOR FIRST FLAG
6007 /CAF OR CLEAR THE WORLD
CLA CLL IAC RAL /AC TO 0002
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP .-1 /WAIT FOR SECOND FLAG
6007 /CAF OR CLEAR THE WORLD

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```

4064 7305  CLA CLL IAC RAL /AC TO 0002
4065 4425  JMS I XIOTF /IOT 6132, CLOE
4066 4424  JMS I XIOTE /IOT 6131, CLSK
4067 4472  JMS I NERROR /CHECK NON-ERROR HANDLER
4070 4473  JMS I ERROR /ERROR: INPUT 2 SKIP OR ROST, FAILED
4071 0220  0220 /TST220 ERROR MESSAGE
4072 4050  TST220 /SCOPE LOOP

/DOES CAF CLEAR INTPUT 3 ROST. ?
/
TST221, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC /AC TO 0001
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP .-1 /WAIT FOR FIRST FLAG
6007 /CAF OR CLEAR THE WORLD
CLA CLL IAC /AC TO 0001
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP .-1 /WAIT FOR SECONED FLAG
6007 /CAF OR CLEAR THE WORLD
CLA CLL IAC /IOT 6132, CLOE
JMS I XIOTF /IOT 6131, CLSK
JMS I XIOTE /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: INPUT 1 SKIP OR ROST, FAILED
JMS I ERROR /TST221 ERROR MESSAGE
0221
TST221 /SCOPE LOOP

/DOES CLSA READ ROST. INPUT 4 ?
/
TST222, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC RTL /AC TO 0004
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP .-1 /WAIT FOR FLAG
6007 /AC TO 7773
CLA CLL IAC /IOT 6135, CLSA
JMS I XIOTI /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: CLSA OR INPUT 4 FAILED
JMS I ERROR /TST222 ERROR MESSAGE
5222 /SCOPE LOOP
TST222

/DOES CLSA READ ROST. INPUT 2 ?
/
TST223, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC RAL /AC TO 0002
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP .-1 /WAIT FOR FLAG
6007 /AC TO 7775
CLA CLL IAC

```

4142 4931 JMS I XIOTI /IOT 6135, CLSA  
 4143 4496 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
 4144 4472 JMS I NERROR /CHECK NON-ERROR HANDLER  
 4145 4473 JMS I ERROR /ERROR: CLSA OR INPUT 2 FAILED  
 4146 5223 5223 /TST223 ERROR MESSAGE  
 4147 4133 TST223 /SCOPE LOOP

/DOES CLSA READ ROST. INPUT 1 ?

4150 7340 TST224, CLA CLL CMA /AC TO 7777  
 4151 3040 DCA REGA /AC TO 0001  
 4152 7301 CLA CLL IAC /IOT 6132, CLOE  
 4153 4425 JMS I XIOTF /IOT 6131, CLSK  
 4154 4424 JMS I XIOTE /WAIT FOR FLAG  
 4155 5354 JMP :-1 /AC TO 7776  
 4156 7040 CMA /IOT 6135, CLSA  
 4157 4431 JMS I XIOTI /CHECK SEND AND RECEV REGISTERS  
 4160 4456 JMS I XSNDRV /CHECK NON-ERROR HANDLER  
 4161 4472 JMS I NERROR /ERROR: CLSA OR INPUT 1 FAILED  
 4162 4473 JMS I ERROR /TST224 ERROR MESSAGE  
 4163 5224 5224 /SCOPE LOOP  
 4164 4150 TST224

/DOES CLSA CLEAR INPUT 4 ROST. ?

4165 7340 TST225, CLA CLL CMA /AC TO 7777  
 4166 3040 DCA REGA /AC TO 0004  
 4167 7307 CLA CLL IAC RTL /IOT 6132, CLOE  
 4170 4426 JMS I XIOTF1 /IOT 6131, CLSK  
 4171 4424 JMS I XIOTE /WAIT FOR FIRST FLAG  
 4172 5371 JMP :-1 /IOT 6135, CLSA  
 4173 4431 JMS I XIOTI /IOT 6131, CLSK  
 4174 4424 JMS I XIOTE /WAIT FOR SECOND FLAG  
 4175 5374 JMP :-1 /IOT 6135, CLSA  
 4176 4431 JMS I XIOTI /IOT 6131, CLSK  
 4177 4424 JMS I XIOTE /CHECK NON-ERROR HANDLER  
 4200 4472 JMS I NERROR /ERROR: CLSA OR INPUT 1 FAILED  
 4201 4473 JMS I ERROR /TST225 ERROR MESSAGE  
 4202 0225 0225 /SCOPE LOOP  
 4203 4165 TST225

/DOES CLSA CLEAR INPUT 2 ROST. ?

4204 7340 TST226, CLA CLL CMA /AC TO 7777  
 4205 3040 DCA REGA /AC TO 0002  
 4206 7305 CLA CLL IAC RAL /IOT 6132, CLOE  
 4207 4425 JMS I XIOTF /IOT 6131, CLSK  
 4210 4424 JMS I XIOTE /WAIT FOR FIRST FLAG  
 4211 5210 JMP :-1 /IOT 6135, CLSA  
 4212 4431 JMS I XIOTI /IOT 6131, CLSK  
 4213 4424 JMS I XIOTE /WAIT FOR SECOND FLAG  
 4214 5213 JMP :-1 /IOT 6135, CLSA  
 4215 4431 JMS I XIOTI /IOT 6131, CLSK  
 4216 4424 JMS I XIOTE /CHECK NON-ERROR HANDLER  
 4217 4472 JMS I NERROR

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4220  4473      JMS I ERROR      /ERROR: CLSA OR INPUT 2 FAILED
4221  0226      0226          /TST226 ERROR MESSAGE
4222  4204      TST226          /SCOPE LOOP
/
/DOES CLSA CLEAR INPUT 4 ROST. ?
/
TST227,  CLA CLL CMA      /AC TO 7777
DCA REGA
CLA CLL IAC      /AC TO 0001
JMS I XIOTF      /IOT 6132, CLOE
JMS I XIOTE      /IOT 6131, CLSK
JMP -1          /WAIT FOR FIRST FLAG
JMS I XIOTI      /IOT 6135, CLSA
JMS I XIOTE      /IOT 6131, CLSK
JMP -1          /WAIT FOR SECOND FLAG
JMS I XIOTI      /IOT 6135, CLSA
JMS I XIOTE      /IOT 6131, CLSK
JMS I NERROR    /CHECK NON-ERROR HANDLER
JMS I ERROR     /ERROR: CLSA OR INPUT 1 FAILED
0227
TST227          /TST227 ERROR MESSAGE
/SCOPE LOOP
/
/DOES CLSA READ INPUT 4,2,1 ?
/
TST230,  CLA CLL CMA      /AC TO 7777
DCA REGA
TAD K0007
JMS I XIOTF      /GET ENABLES
NOP
ISE REGB
JMP -2          /WAIT FOR ALL
JMS I XIOTE      /IOT 6131, CLOE
JMP -1          /WAIT FOR FLAGS
CLA CLL CMA      /AC TO 7777
JMS I XIOTI      /IOT 6135, CLSA
JMS I XSNDRV    /CHECK SEND AND RECEV REGISTERS
SKP CLA
JMP T230A
DCA SEND
CLA CLL CMA      /ERROR, STATUS REGISTER
/SAVE OUTPUT FOR ERROR PRINTER
JMS I XIOTI      /AC TO 7777
SNA CLA
JMS I NERROR    /IOT 6135, CLSA
/STATUS ALL 0'S ?
/CHECK NON-ERROR HANDLER
JMS I ERROR     /ERROR: CLSA OR INPUTS 1,2,3 FAILED
5230
TST230          /TST230 ERROR MESSAGE
/SCOPE LOOP
/
/DOES INPUT 4 CLEAR BIT 7 ?
/
TST231,  CLA CLL CMA
DCA REGA
CLA CLL IAC RTL /AC TO 0004
DCA SEND
TAD SEND
TAD K0020
/GET ENABLES

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```

4276 4426 JMS I XIOTF1 /IOT 6132, CLOE
4277 4424 JMS I XIOTE /IOT 6131, CLSK
4300 5277 JMP .-1 /WAIT FOR FLAG
4301 7340 CLA CLL CMA /AC TO 7777
4302 4430 JMS I XIOTH /IOT 6134, CLEN
4303 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4304 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
4305 4473 JMS I ERROR /ERROR:BIT 7 OR INPUT 4 FAILED
4306 4631 4631 /TST231 ERROR MESSAGE
4307 4270 TST231 /SCOPE LOOP

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/DOES INPUT 2 CLEAR BIT 7 ?
/

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```

4310 7340 TST232, CLA CLL CMA
4311 3040 DCA REGA
4312 7305 CLA CLL IAC RAL /AC TO 0002
4313 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
4314 1070 TAD SEND
4315 1140 TAD K0020
4316 4426 JMS I XIOTF1 /IOT 6132, CLOE
4317 4424 JMS I XIOTE /IOT 6131, CLSK
4320 5317 JMP .-1 /WAIT FOR FLAG
4321 7340 CLA CLL CMA /IOT 6134, CLEN
4322 4430 JMS I XIOTH /CHECK SEND AND RECEV REGISTERS
4323 4456 JMS I XSNDRV /CHECK NON-ERROR HANDLER
4324 4472 JMS I NERRR /ERROR: BIT 7 OR INPUT 2 FAILED
4325 4473 JMS I ERROR /TST232 ERROR MESSAGE
4326 4632 4632 /SCOPE LOOP
4327 4310 TST232

```

```

/DOES INPUT 1 CLEAR BIT 7 ?
/

```

```

4330 7340 TST233, CLA CLL CMA /AC TO 7777
4331 3040 DCA REGA /AC TO 0001
4332 7301 CLA CLL IAC /SAVE OUTPUT FOR ERROR PRINTER
4333 3070 DCA SEND
4334 1070 TAD SEND
4335 1140 TAD K0020
4336 4426 JMS I XIOTF1 /IOT 6132, CLOE
4337 4424 JMS I XIOTE /IOT 6131, CLSK
4340 5337 JMP .-1 /WAIT FOR FLAG
4341 7340 CLA CLL CMA /AC TO 7777
4342 4430 JMS I XIOTH /IOT 6134, CLEN
4343 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4344 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
4345 4473 JMS I ERROR /ERROR: BIT 7 OR INPUT 1 FAILED
4346 4633 4633 /TST233 ERROR MESSAGE
4347 4330 TST233 /SCOPE LOOP

```

```

/DOES INPUT 4,2,1 GENERATE CLR CNT ?
/MODE 3, RATE 0
/

```

```

4350 7340 TST234, CLA CLL CMA /AC TO 7777
4351 3040 DCA REGA /GET AC NUMBER
4352 1016 TAD K2525

```



```

4353 4427 JMS I XIOTG /IOT 6133, CLAB
4354 7307 CLA CLL IAC RTL /AC TO 0004
4355 1120 TAD K3000 /GET ENABLES
4356 4426 JMS I XIOTF1 /IOT 6132, CLOE
4357 4424 JMS I XIOTE /IOT 6131, CLSK
4360 5357 JMP .-1 /WAIT FOR FLAG
4361 7300 CLA CLL /SAVE OUTPUT FOR ERROR PRINTER
4362 3070 DCA SEND /AC TO 7777
4363 7340 CLA CLL CMA /IOT 6137, CLCA
4364 4433 JMS I XIOTK /WAS COUNTER ALL 0'S ?
4365 7650 SNA CLA /CHECK NON-ERROR HANDLER
4366 4472 JMS I NERROR /ERROR: CLR CNT FAILED
4367 4473 JMS I ERROR /TST234 ERROR MESSAGE
4370 42J4 4234 /SCOPE LOOP
4371 4350 TST234

```

```

/
/DOES INPUT 4,2,1 CAUSE CLR CNT ?
/MODE 3, RATE 0
/

```

```

4372 7340 TST235, CLA CLL CMA /AC TO 7777
4373 3040 DCA REGA /GET AC NUMBER
4374 1017 TAD K252 /IOT 6133, CLAB
4375 4427 JMS I XIOTG /AC TO 0002
4376 7305 CLA CLL IAC RAL /GET ENABLES
4377 1120 TAD K3000 /IOT 6132, CLOE
4400 4426 JMS I XIOTF1 /IOT 6131, CLSK
4401 4424 JMS I XIOTE /WAIT FOR FLAG
4402 5201 JMP .-1 /SAVE OUTPUT FOR ERROR PRINTER
4403 7300 CLA CLL /AC TO 7777
4404 3070 DCA SEND /IOT 6137, CLCA
4405 7340 CLA CLL CMA /WAS COUNTER ALL 0'S ?
4406 4433 JMS I XIOTK /CHECK NON-ERROR HANDLER
4407 7650 SNA CLA /ERROR: CLR CNT FAILED ?
4410 4472 JMS I NERROR /TST235 ERROR MESSAGE
4411 4473 JMS I ERROR /SCOPE LOOP
4412 42J5 4235
4413 4372 TST235

```

```

/DOES INPUT 4,2,1 TRANSFER COUNTER TO BUFFER ?
/

```

```

4414 7340 TST236, CLA CLL CMA /AC TO 7777
4415 3040 DCA REGA /GET AC NUMBER
4416 1016 TAD K2525 /IOT 6133, CLAB
4417 4427 JMS I XIOTG /CAF OR CLEAR THE WORLD
4420 6007 6007 /AC TO 0001
4421 7301 CLA CLL IAC /GET ENABLES
4422 1120 TAD K3000 /IOT 6132, CLOE
4423 4426 JMS I XIOTF1 /IOT 6131, CLSK
4424 4424 JMS I XIOTE /WAIT FOR FLAG
4425 5224 JMP .-1 /AC TO 7777
4426 7340 CLA CLL CMA /IOT 6136, CLBA
4427 4432 JMS I XIOTJ /CHECK SEND AND RECEV REGISTERS
4430 4456 JMS I XSNDRV /CHECK NON-ERROR HANDLER
4431 4472 JMS I NERROR /ERROR: COUNTER TO BUFFER FAILED
4432 4473 JMS I ERROR

```

```

4433 3636 /TST236 ERROR MESSAGE
4434 4414 /SCOPE LOOP

3636
TST236

/DOES INPUT 4,2,1 TRANSFER COUNTER TO BUFFER ?
/

TST237, CLA CLL CMA /AC TO 7777
DCA REGA /GET AC NUMBER
TAD K252 /IOT 6133, CLAB
JMS I XIOTG /CAF OR CLEAR THE WORLD
6007 /AC TO 0001
CLA CLL IAC /GET ENABLES
TAD K300 /IOT 6132, CLOE
JMS I XIOTF1 /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR FLAG
JMP -1 /AC TO 7777
CLA CLL CMA /IOT 6136, CLBA
JMS I XIOTJ /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV /CHECK NON-ERROR HANDLER
JMS I NERRR /ERROR: COUNTER TO BUFFER FAILED
JMS I ERROR /TST237 ERROR MESSAGE
3637 /SCOPE LOOP
TST237

```

4455 4435

```

/DOES INPUT 4,2,1 GENERATE CLR CNT ?
/
/MODE 2, RATE 0
/

TST240, CLA CLL CMA /AC TO 7777
DCA REGA /GET AC NUMBER
TAD K2525 /IOT 6133, CLAB
JMS I XIOTG /CAF OR CLEAR THE WORLD
6007 /AC TO 0004
CLA CLL IAC RTL /GET ENABLES
TAD K2000 /IOT 6132, CLOE
JMS I XIOTF1 /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR FLAG
JMP -1 /AC TO 7777
CLA CLL CMA /IOT 6137, CLCA
JMS I XIOTK /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV /CHECK NON-ERROR MESSAGE
JMS I NERRR /ERROR: CLR CNT FAILED, MODE 2
JMS I ERROR /TST240 ERROR MESSAGE
4240 /SCOPE LOOP
TST240

```

4476 4456

```

/DOES INPUT 4,2,1 CAUSE CLR CNT ?
/
/MODE 2, RATE 0
/

TST241, CLA CLL CMA
DCA REGA
TAD K252
JMS I XIOTG /GET AC NUMBER
6007 /IOT 6133, CLAB
CLA CLL IAC RAL /CAF OR CLEAR THE WORLD
TAD K2000 /AC TO 0002
JMS I XIOTF1 /GET ENABLES
JMS I XIOTE /IOT 6132, CLOE
JMS I XIOTK /IOT 6131, CLSK
JMS I XSNDRV /WAIT FOR FLAG
JMS I NERRR /AC TO 7777
JMS I ERROR /IOT 6137, CLCA
/ERROR: CLR CNT FAILED, MODE 2
TAD K2000 /CHECK SEND AND RECEV REGISTERS
/SCOPE LOOP

```

4505 4476

```

4477 7340
4500 3040
4501 1017
4502 4427
4503 6007
4504 7305
4505 1143

```

```

4506 4426 JMS I XIOTF1 /IOT 6132, CLOE
4507 4424 JMS I XIOTE /IOT 6131, CLSK
4510 5307 JMP .-1 /WAIT FOR FLAG
4511 7340 CLA CLL CMA /AC TO 7777
4512 4433 JMS I XIOTK /IOT 6137, CLCA
4513 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4514 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
4515 4473 JMS I ERROR /ERROR: CLR CNT FAILED, MODE 2
4516 4241 4241 /TST241 ERROR MESSAGE
4517 4477 TST241 /SCOPE LOOP

```

```

/DOES COUNTER TRANSFER TO BUFFER ?
/MODE 2, RATE 0
/

```

```

4520 7340 TST242, CLA CLL CMA /AC TO 7777
4521 3040 DCA REGA
4522 1016 TAD K2525 /GET AC NUMBER
4523 4427 JMS I XIOTG /IOT 6133, CLAH
4524 6007 6007 /CAF OR CLEAR THE WORLD
4525 7307 CLA CLL IAC RTL
4526 1143 TAD K200C /GET ENABLES
4527 4426 JMS I XIOTF1 /IOT 6132, CLOE
4530 4424 JMS I XIOTE /IOT 6131, CLSK
4531 5330 JMP .-1 /WAIT FOR FLAG
4532 7340 CLA CLL CMA /AC TO 7777
4533 4432 JMS I XIOTJ /IOT 6136, CLBA
4534 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4535 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
4536 4473 JMS I ERROR /ERROR: COUNTER TO BUFFER FAILED
4537 3642 3642 /TST242 ERROR MESSAGE
4540 4520 TST242 /SCOPE LOOP

```

```

/DOES COUNTER TRANSFER TO BUFFER ?
/MODE 2, RATE 0
/

```

```

4541 7340 TST243, CLA CLL CMA /AC TO 7777
4542 3040 DCA REGA
4543 1017 TAD K2525 /GET AC NUMBER
4544 4427 JMS I XIOTG /IOT 6133, CLAB
4545 6007 6007 /CAF OR CLEAR THE WORLD
4546 7305 CLA CLL IAC RAL /AC TO 0002
4547 1143 TAD K2000 /GET ENABLES
4550 4426 JMS I XIOTF1 /IOT 6132, CLOE
4551 4424 JMS I XIOTE /IOT 6131, CLSK
4552 5351 JMP .-1 /WAIT FOR FLAG
4553 7340 CLA CLL CMA
4554 4432 JMS I XIOTJ /IOT 6136, CLBA
4555 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4556 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
4557 4473 JMS I ERROR /ERROR: COUNTER TO BUFFER FAILED
4560 3643 3643 /TST243 ERROR MESSAGE
4561 4541 TST243 /SCOPE LOOP

```

```

/DOES INPUT 4,2,1 AFFECT MODE 0 ?
/

```

```

4562 7340  PAL10  V141
4563 3040  TST244,  CLA CLL CMA
4564 1016  DCA REGA
4565 4427  TAD K2525
4566 6027  JMS I XIOTG
4567 7327  6007
4570 4426  CLA CLL IAC RTL
4571 4424  JMS I XIOTF1
4572 5371  JMS I XIOTE
4573 7340  JMP .-1
4574 4433  CLA CLL CMA
4575 4436  JMS I XIOTK
4576 4472  JMS I XSNDRV
4577 4473  JMS I NERRR
4600 4244  JMS I ERROR
4601 4562  4244
      TST244

```

```

/DOES INPUT 4,2,1 AFFECT MODE 0 ?
/
TST245,  CLA CLL CMA
DCA REGA
TAD K2525
JMS I XIOTG
CLA CLL IAC
JMS I XIOTF1
JMS I XIOTE
JMP .-1
CLA CLL CMA
JMS I XIOTJ
JMS I XSNDRV
JMS I NERRR
JMS I ERROR
3645
TST245

```

```

/DOES INPUT 4,2,1 AFFECT MODE 1 ?
/
TST246,  CLA CLL CMA
DCA REGA
TAD K2525
JMS I XIOTG
6007
DCA SEND
CLA CLL IAC
TAD K1000
JMS I XIOTF1
JMS I XIOTE
JMP .-1
CLA CLL CMA
JMS I XIOTJ
SNA CLA
JMS I NERRR
JMS I ERROR
4246
TST246

```

```

/GET AC NUMBER
/IOT 6133, CLAB
/CAF OR CLEAR THE WORLD
/AC TO 0004
/IOT 6132, CLOE
/IOT 6131, CLSK
/WAIT FOR FLAG
/AC TO 7777
/IOT 6137, CLCA
/CHECK SEND AND RECEV REGISTERS
/CHECK NON-ERROR HANDLER
/ERROR: MODE 0 FAILED
/TST 244 ERROR MESSAGE
/SCOPE LOOP

```

```

/AC TO 7777
/GET AC NUMBER
/IOT 6133, CLAB
/AC TO 0001
/IOT 6132, CLOE
/IOT 6131, CLSK
/WAIT FOR FLAG
/AC TO 7777
/IOT 6136, CLBA
/CHECK SEND RECEV REGISTERS
/CHECK NON-ERROR HANDLER
/ERROR: MODE 0 FAILED
/TST245 ERROR MESSAGE
/SCOPE LOOP

```

```

/AC TO 7777
/GET AC NUMBER
/IOT 6133, CLAB
/CAF OR CLEAR THE WORLD
/SAVE OUTPUT FOR ERROR PRINTER
/AC TO 0001
/GET ENABLES
/IOT 6132, CLOE
/IOT 6131, CLOE
/WAIT FOR FLAG
/AC TO 7777
/IOT 6136, CLBA
/WAS BUFFER STILL ALL 0'S ?
/CHECK NON-ERROR HANDLER
/ERROR: MODE 1 FAILED
/TST246 ERROR MESSAGE
/SCOPE LOOP

```

```

4602 7340
4603 3040
4604 1017
4605 4427
4606 7321
4607 4426
4610 4424
4611 5210
4612 7340
4613 4432
4614 4426
4615 4472
4616 4473
4617 3645
4620 4622

```

```

4621 7340
4622 3040
4623 1016
4624 4427
4625 6027
4626 3070
4627 7321
4630 1144
4631 4426
4632 4424
4633 5252
4634 7340
4635 4432
4636 7650
4637 4472
4640 4473
4641 4246
4642 4621

```

```

4643 7340
4644 3040
4645 1017
4646 4427
4647 7307
4650 1144
4651 4426
4652 4424
4653 5252
4654 7340
4655 4432
4656 4456
4657 4472
4660 4473
4661 3647
4662 4643

/DOES INPUT 4,2,1 AFFECT MODE 1 ?
/
TST247, CLA CLL CMA /AC TO 7777
DCA REGA /GET AC NUMBER
TAD K0252 /IOT 6133, CLAB
JMS I XIOTG /AC TO 0004
CLA CLL IAC RTL /IOT 6132, CLOE
TAD K1000 /IOT 6131, CLSK
JMS I XIOTF1 /WAIT FOR FLAG
JMS I XIOTE /AC TO 7777
JMP .-1 /IOT 6136, CL9A
CLA CLL CMA /CHECK SEND AND RECEV REGISTERS
JMS I XIOTJ /CHECK NON-ERROR HANDLER
JMS I XSNDRV /ERROR: MODE 1 FAILED
JMS I NERRR /TST247 ERROR MESSAGE
JMS I ERROR /SCOPE LOOP
3647
TST247

```

```

/DOES CLSA READ INPUTS 4,2,1 ?
/
TST250, CLA CLL CMA /AC TO 7777
DCA REGA /GET ENABLES
TAD K0007 /IOT 6132, CLOE
JMS I XIOTF1
NOP
ISZ REGB
JMP .-2
JMS I XIOTE
JMP .-1
JMS I XIOTD
CLA CLL
DCA SEND
CLA CLL CMA
JMS I XIOTI
SNA CLA
JMS I NERRR
JMS I ERROR
5250
TST250

/DOES CLSA READ STATUS REGISTER ?
/
TST251, CLA CLL CMA /AC TO 7777
DCA REGA /GET ENABLES
TAD K0007 /IOT 6132, CLOE
JMS I XIOTF
NOP
ISZ REGB
JMP .-2
JMS I XIOTE
JMP .-1
CLA CLL CMA
JMS I XIOTI

```

```

4663 7340
4664 3040
4665 1027
4666 4426
4667 7020
4670 2041
4671 5267
4672 4424
4673 5272
4674 4423
4675 7300
4676 3070
4677 7340
4700 4431
4701 7650
4702 4472
4703 4473
4704 5250
4705 4663

4706 7340
4707 3040
4710 1027
4711 4425
4712 7020
4713 2041
4714 5312
4715 4424
4716 5315
4717 7340
4720 4431

```

```

4721 4426 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4722 4427 JMS I NERR0 /CHECK NON-ERROR HANDLER
4723 4473 JMS I ERROR /ERROR: CLSA OK STATUS REGISTER
4724 5251 TST251 /TST251 ERROR MESSAGE
4725 4726 TST251 /SCOPE LOOP

```

```

4726 7320 CLA CLL
4727 2077 ISZ LOOP
4730 5464 JMP I XMITT /DO TEST 4096 TIMES
4731 4570 JMS I XPASS /TYPE PASS COMPLETE
4732 5465 JMP I XMITT1 /CONTINUE TESTING

```

```

/ NON-ERROR HANDLER FOR PROGRAM

```

```

5000 5000 *5000
5001 0000 NERR0, /NERR0, /CAF OR CLEAR THE WORLD
5002 6027 6007 ISZ NERR0
5003 2200 ISZ NERR0
5004 2040 ISZ REGA
5005 5215 JMP OUT
5006 4460 JMS I XCLREG /CLEAR ALL REGISTERS
5007 7624 LAS AND K0040
5010 0137 SZA CLA /IS IT LOOP ON NON-
5011 7640 JMP OUT /FAILING TEST.
5012 5215 ISZ NERR0
5013 2200 JMP I NERR0 /TO NEXT TEST
5014 5620

```

```

5015 1620 OUT, TAD I NERR0
5016 3220 DCA ERRO
5017 5620 JMP I ERRO

```

```

/ ERROR HANDLER FOR PROGRAM

```

```

5020 0020 ERRO, 0000 /CAF OR CLEAR THE WORLD
5021 6027 6007 /CHECK SWR2 FOR INH. PRINT
5022 7624 LAS /GET ERROR MESSAGE
5023 7026 RTL /RING BELL
5024 7720 SMA CLA
5025 4523 JMS I XSORT
5026 4510 JMS I XBELL
5027 4460 JMS I XCLREG
5030 2220 ISZ ERRO
5031 7624 LAS AND K0220
5032 0015 SNA CLA
5033 7650 EHLT1, HLT
5034 7422

```

```

/ CHECK SWR4 FOR INH. HLT
/ MONITOR ERROR HALT, READ TYPEOUT
/ AND REFERENCE LISTING.

```

```

5035 7624 LAS AND K0100
5036 0013 SZA CLA /CHECK SWR5 FOR SCOPE LOOP
5037 7640 JMP IN
5040 5243 ISZ ERRO
5041 2220

```

/ENTER SCOPE LOOP

JMP I ERRO

/

5042 5620

TAD I ERRO  
DCA NERRO  
JMP I NERRO

/

5043 1620  
5044 3200  
5045 5600BELL, 0000  
LAS  
AND K0400  
SZA CLA  
JMP I BELL  
TAD K0207  
JMS I XTYPE  
JMP I BELL

/

5046 0000  
5047 7604  
5050 0116  
5051 7640  
5052 5646  
5053 1026  
5054 4527  
5055 5646TYPE, 0000  
TLS  
TSF  
JMP .-1  
CLA  
TCF  
JMP I TYPE

/

5056 0000  
5057 6046  
5060 6041  
5061 5260  
5062 7200  
5063 6042  
5064 5656CLRREG, 0000  
CLA CLL  
DCA REGB  
DCA REGC  
DCA REGD  
DCA SEND  
DCA RECEV  
LAS  
AND K6000  
SNA CLA  
CLA CLL CMA  
DCA REGA  
JMP I CLRREG

/

5065 0000  
5066 7300  
5067 3041  
5070 3042  
5071 3043  
5072 3070  
5073 3071  
5074 7604  
5075 0117  
5076 7650  
5077 7350  
5100 3040  
5101 5665

/CLEAR THE AC AND LINK

IOTA, 0000  
6131  
JMP I IOTA  
ISE IOTA  
JMP I IOTA

/

5102 0000  
5103 6131  
5104 5702  
5105 2302  
5106 5702

/FIELD SERVICE CHANGE

IOTB, 0000  
6132  
JMP I IOTB  
ISE IOTB  
JMP I IOTB

/

5107 0000  
5110 6132  
5111 5707  
5112 2307  
5113 5707

/FIELD SERVICE CHANGE

IOTC, 0000  
6133  
JMP I IOTC  
ISE IOTC  
JMP I IOTC

/

5114 0000  
5115 6133  
5116 5714  
5117 2314  
5120 5714

/FIELD SERVICE CHANGE

|      |      |         |             |                                |  |
|------|------|---------|-------------|--------------------------------|--|
| 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 | 7422 | EHLT2,  | HLT         | /SKIP TRAP, CLDE               |  |
| 5127 | 0000 | IOTE,   | 0000        |                                |  |
| 5130 | 6131 |         | 6131        | /FIELD SERVICE CHANGE          |  |
| 5131 | 5727 |         | JMP I IOTE  |                                |  |
| 5132 | 2627 |         | 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 | 7422 | EHLT3,  | HLT         | /SKIP TRAP, CLOE               |  |
| 5142 | 0000 | IOTF1,  | 0000        |                                |  |
| 5143 | 6132 |         | 6132        | /FIELD SERVICE CHANGE          |  |
| 5144 | 5742 |         | JMP I IOTF1 |                                |  |
| 5145 | 7422 | 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 | 7422 | EHLT5,  | HLT         | /SKIP TRAP, CLAB               |  |
| 5154 | 0000 | IOTH,   | 0000        |                                |  |
| 5155 | 6134 |         | 6134        | /FIELD SERVICE CHANGE          |  |
| 5156 | 7410 |         | SKP         |                                |  |
| 5157 | 7422 | 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 | 7422 | EHLT7,  | HLT         | /SKIP TRAP, CLSA               |  |
| 5167 | 3071 |         | DCA RECEV   | /SAVE OUTPUT FOR ERROR PRINTER |  |
| 5170 | 1071 |         | TAD RECEV   |                                |  |
| 5171 | 5763 |         | JMP I IOTI  |                                |  |
| 5200 | 0000 | *5200   |             |                                |  |
| 5201 | 6136 | IOTJ,   | 0000        | /FIELD SERVICE CHANGE          |  |
| 5202 | 7410 |         | 6136        |                                |  |
| 5203 | 7422 | 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 /FIELD SERVICE CHANGE
5210 6137 /SKIP TRAP, CLCA
5211 7410 /SAVE OUTPUT FOR ERROR PRINTER
5212 7402
5213 3071
5214 1071
5215 5607

/
5216 0000
5217 7041 CIA
5220 1070 TAD SEND
5221 7640 SEA CLA
5222 2216 ISZ SNDRV
5223 5616 JMP I SNDRV

/
5224 0000
5225 1044 TAD REGE
5226 7024 RAL
5227 7430 SEL
5230 1410 TAD I 10
5231 3044 DCA REGE
5232 1044 TAD REGE
5233 5624 JMP I RANDOM
5234 0000
5235 7300 CLA CLL
5236 1254 TAD PRETS
5237 3002 DCA 2
5240 6021 ION
5241 7300 CLA CLL
5242 1076 TAD KREGC
5243 3042 DCA REGC
5244 4433 JMS I XIOTK
5245 2042 ISZ REGC
5246 5245 JMP .-1
5247 2043 ISZ REGO
5250 5241 JMP .-7
5251 2234 ISZ PIG05
5252 6022 PIRETS, IOF
5253 5634 JMP I PIG05

/
5254 5252 PIRETS, PIRETS

/
5255 0000 PIG01, 0000
5256 7300 CLA CLL
5257 1267 TAD PRET1
5260 3022 DCA 2
5261 6021 ION
5262 4454 JMS I XISZ
5263 7410 SKP
5264 2255 PIRET1, ISZ PIG01
5265 6022 IOF
5266 5655 JMP I PIG01

```

/WAS SEND AND RECEV THE SAME ?

/CLEAR THE AC AND LINK

/SET FOR PI RETURN

/CLEAR THE AC AND LINK

/READ THE COUNTER

/DISABLE PROGRAM INTERRUPT

/CLEAR THE AC AND LINK

/SET FOR PI RETURN

/ENABLE PROGRAM INTERRUPT

/DISABLE PROGRAM INTERRUPT

```

5267 5264 / PRET1, PIRET1
5270 0000 / PIG02, 0000 /CLEAR THE AC AND LINK
5271 7300 CLA CLL /SET FOR PI RETURN
5272 1301 TAD PRET2 /WAIT
5273 3002 DCA 2
5274 6001 ION
5275 4454 JMS I XISE
5276 2270 ISZ PIG02
5277 6002 PIRET2, IOF JMP I PIG02
5300 5670 /

5301 5277 / PRET2, PIRET2
/ SYNC, 0000
5302 0000 JMS I XIOTC
5303 4422 JMP -1
5304 5303 JMS I XIOTC
5305 4422 JMP -1
5306 5305 JMP I SYNC
5307 5702 /

5310 0000 / ISZLOP, 0000
5311 7300 CLA CLL
5312 1113 TAD KI1CPS
5313 3049 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 / PIG03, 0000 /CLEAR THE AC AND LINK
5324 7300 CLA CLL
5325 1339 TAD PRETC
5326 3002 DCA 2
5327 6001 ION
5330 7000 NOP
5331 7410 SKP ISZ PIG03
5332 2523 IOF
5333 6002 JMP I PIG03
5334 5723 /

5335 5332 / PRETC, RETC
/ PIG04, 0000 /CLEAR THE AC AND LINK
5336 0000 CLA CLL
5337 7300 TAD PRETD
5340 1347 DCA 2
5341 3002 ION
5342 6001 NOP
5343 7000 ISZ PIG04
5344 2336 RETD, IOF
5345 6002

```

JMP I P1004

PRETD, RETD

IOTS,

5346 5736

0000

6132

5347 5345

6134

6132

5350 0000

6134

6132

5351 6132

6134

6132

5352 6134

6134

6132

5353 6132

6134

6132

5354 6134

6134

6132

5355 6132

6134

6134

5356 6134

JMP I IOTS

IOTS1,

5357 5750

0000

6133

5360 0000

6136

6133

5361 6133

6133

6136

5362 6136

6133

6133

5363 6133

6136

6136

5364 6136

6133

6133

5365 6133

6136

6136

5366 6136

JMP I IOTS1

IOTS2,

5367 5760

0000

6133

5370 0000

6137

6137

5371 6133

6133

6137

5372 6137

6137

6133

5373 6133

6137

6137

5374 6137

6133

6133

5375 6133

6137

6137

5376 6137

JMP I IOTS2

\*5400

5400 5400

IOTS3,

0000

5400 0000

6134

6134

5401 6134

CMA

CMA

5402 7040

6130

6130

5403 6130

CMA

CMA

5404 7040

6134

6134

5405 6134

CMA

CMA

5406 7040

6130

6130

5407 6130

CMA

CMA

5410 7040

6134

6134

5411 6134

JMP I IOTS3

CLOCK,

5412 5600

0000

0000

5413 0000

LAS

LAS

5414 7624

AND K0007

AND K0007

5415 0007

DCA CLOCKS

DCA CLOCKS

5416 3075

JMP I CLOCK

JMP I CLOCK

5417 5613

/ROUTINE TO TYPE OCTAL NUMBERS

/ROUTINE TO TYPE OCTAL NUMBERS

5420 0000

/ENTER WITH NUMBER IN AC AND LINK 0

/ENTER WITH NUMBER IN AC AND LINK 0

5420 0000

/OCTEL, 0000

/OCTEL, 0000

5420 0000

/COMPLEMENT THE AC  
/COMPLEMENT THE AC  
/COMPLEMENT THE AC  
/COMPLEMENT THE AC

/ROUTINE TO TYPE OCTAL NUMBERS  
/ENTER WITH NUMBER IN AC AND LINK 0

```

5421 7006 RTL
5422 7006 RTL
5423 3041 DCA REGB
5424 1130 TAD K7774
5425 3042 DCA REGC
5426 1041 TAD REGB
5427 0007 AND K0007
5430 1123 TAD K0260
5431 4507 JMS I XTYPE
5432 1041 TAD REGB
5433 7006 RTL
5434 7004 RAL
5435 3041 DCA REGB
5436 2042 ISZ RECC
5437 5226 JMP I-11
5440 5620 JMP I OCTEL

```

```

/SAVE NUMBER
/SET UP COUNTER
/GET NUMBER
/GET NUMBER
/SAVE THE REST

```

```

/ROUTINE FOR CRLF
CRLF, 0000
CLA CLL
TAD K0215
JMS I XTYPE
TAD K0212
JMS I XTYPE
JMP I CRLF
/ROUTINE TO TYPE CLOCK

```

```

/CLEAR THE AC AND LINK

```

```

5450 0000 POPR, 0000
5451 7300 CLA CLL
5452 1262 TAD KTADCK
5453 1075 TAD CLOCKS
5454 3255 DCA I+1
5455 1262 TAD KTADCK
5456 4504 JMS I XOCTEL
5457 4526 JMS I XPRINT
5460 6026 FMES
5461 5650 JMP I POPR

```

```

/CLEAR THE AC AND LINK
/GET CLOCK TAD
/MAKE IT
/MODIFIED BY TEST
/PRINT NUMBER
/PRINT CLOCKS

```

```

/ 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
5473 4521 JMS I XCRLF
5474 1473 TAD I ERROR
5475 3044 DCA REGE

```

```

/CLEAR THE AC AND LINK
/CRLF
/GET MESSAGE POINT

```

```

PAL10      V141      9-OCT-71      15144      PAGE 1-64
5476      4525      JMS I XMESS
5477      1444      TAD I REGE
5500      7012      RTR
5501      7012      RTR
5502      7012      RTR
5503      7012      RTR
5504      0127      AND K0017
5505      3044      DCA REGE
5506      7000      CLA CLL
5507      1044      TAD REGE
5510      1326      TAD KTADM
5511      3312      DCA .+1
5512      1326      TAD KTADM
5513      3316      DCA .+3
5514      4521      JMS I XCRLF
5515      4526      JMS I XPRINT
5516      0000
5517      7300      CLA CLL
5520      1044      TAD REGE
5521      1132      TAD K7772
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      6132      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
MESS, 0000
CLA CLL
JMS I XCRLF
JMS I XPRINT
THES
TAD I ERROR
DCA REGD
TAD I REGD
AND K0377
JMS I XOCTEL
ISE REGD
JMS I XPRINT
AMES
TAD I REGD

5542      0020
5543      7300
5544      4521
5545      4526
5546      6046
5547      1473
5550      3043
5551      1443
5552      0136
5553      4524
5554      2043
5555      4526
5556      6051
5557      1443

```

```

/
PAL10 V141 9-OCT-71 15144 PAGE 1-65
5560 4524 JMS I XOCTEL /GO PRINT NUMBER
5561 7300 CLA CLL /CLEAR THE AC AND LINK
5562 5742 JMP I MESS
/ROUTINE TO PRINT AC
/
PREG, 0000 /CRLF
JMS I XCRLF /GO PRINT MESSAGE
5565 4526 JMS I XPRINT
5566 6067 GMS
TAD SEND /GET GOOD AC
5567 1070 JMS I XOCTEL /PRINT IT
5570 4524 JMS I XPRINT /PRINT BAD AC
5571 4526 BMS
TAD RECEV /GET BAD AC
5572 6077 JMS I XOCTEL /PRINT IT
5573 1071 CLA CLL /CLEAR THE AC AND LINK
5574 4524 JMP I PREG
5575 7300
5576 5763
/
*5600
/
SETO, 0000 /GET JMP I 2
TAD JMP12 /SET FOR PI RETURN
5601 1100 DCA I
5602 3021 JMP I SETO
5603 5600
/ROUTINE TO TYPE LISTING
/ENTER WITH JMS +1 EQUAL TO START OF LIST
/
PRINT, 0000 /CLEAR THE AC AND LINK
CLA CLL /SET FOR RETURN +1
TAD I PRINT /SAVE THE POINTER
ISE PRINT /GET THE CHARACTER
DCA REGH /MASK BITS 0-5
TAD I REGB /END OF MESSAGE
AND K7700 /YES, EXIT
SNA JMP EXIT /IS AC MINUS
JMP EXIT /NO, SET THE LINK
SMA
CML
IAC
RTR
RTR
RTR
RTR
JMS I XTYPE /PRINT THE CHARACTER
TAD I REGB /GET THE WORD
AND K0077 /MASK BITS 6-11
SNA /END OF MESSAGE
JMP EXIT /YES EXIT
TAD K3740 /NO, ADD A CONSTANT
SMA
TAD K4100
TAD K0240
JMS I XTYPE /TYPE THE CHARACTER
ISE REGH /UPDATE WORD LIST
5604 0020
5605 7300
5606 1624
5607 2204
5610 3041
5611 1441
5612 0012
5613 7450
5614 5240
5615 7520
5616 7020
5617 7021
5620 7012
5621 7012
5622 7012
5623 4507
5624 1441
5625 0133
5626 7450
5627 9240
5630 1125
5631 7520
5632 1124
5633 1126
5634 4527
5635 2041

```

```

/
PAL10 V141 9-OCT-71 15144 PAGE 1-66
5636 7320 CLA CLL /CLEAR THE AC AND LINK
5637 5211 JMP PRINT*5
5640 7320 /EXIT, CLA CLL /CLEAR THE AC AND LINK
5641 5624 JMP I PRINT /YES EXIT
/ROUTINE TO WAIT FOR OVERFLOWS
/
XWAIT, 0000
DCA SAVAC /SAVE THE AC
CLA CLL CMA RAL
TAD XWAIT
DCA XWAIT /SET FOR RETURN ADDRESS
ISZ REGB
JMP RETURN
ISZ REGF
JMP RETURN
CLA CLL CML IAC RAL
TAD XWAIT
DCA XWAIT /UPDATE FOR ERHOR RETURN
RETURN, TAD SAVAC
JMP I XWAIT
/
SWLAS, 0000
LAS 0020
5661 7624 AND K0010
5662 0142 SZA CLA /CHECK FOR EXTERNAL CLOCK SCOPE LOOP
5663 7640 JMP CLKIN /ENTER SCOPE LOOP
5664 5325 LAS /CHECK FOR EXTERNAL PULSE SCOPE LOOP
5665 7624 AND K0020
5666 0140 SZA CLA
5667 7640 JMP EXTER /ENTER SCOPE LOOP
5670 5313 CLA CLL CMA /AC TO 7777
5671 7340 DCA K1ICPS
5672 3113 LAS
5673 7624 AND K6007
5674 0114 SZA CLA
5675 7640 JMP *+3
5676 5321 TAD KPRMTI
5677 1111 DCA K1ICPS
5700 3113 LAS
5701 7624 RAL
5702 7024 SPA CLA
5703 7710 JMP I SWLAS /TEST SCHMITT
5704 5660 ISZ SWLAS
5705 2260 LAS
5706 7624 SPA CLA /GET HIS SWITCHES
5707 7710 JMP I SWLAS /TEST OK8-EP
5710 5660 ISZ SWLAS /TEST OK8-EA OR DK8-EC
5711 2260 JMP I SWLAS
5712 5660 /EXTER, CLA CLL CMA /IOT 6133, CLAB
5713 7340 JMS I XIOTG
5714 4427 CLA CLL
5715 7320 TAD K0040
5716 1137

```

```

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 /CAF OR CLEAR THE WORLD
5724 5313 JMP EXTER /CONTINUE WITH SCOPE LOOP

/
5725 7340 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 /CAF OR CLEAR THE WORLD

TAD K0207 /TTY SIGNAL
JMS I XTYPE /LOOP
JMP CLKIN

/
5740 0000 /PASS,
5741 4501 JMS I XCRLF /CRLF
5742 4506 JMS I XPRINT /PRINT MESSAGE
5743 6014 PHES
5744 6007 /CAF OR CLEAR THE WORLD
5745 5740 JMP I PASS

/
5746 0000 /GTAD,
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,
5755 6000 CLTAD +1
5756 1612 6000
5757 4776 1612
5760 5367 4776
5761 7306 5367
5762 7747 7306
5763 4000 7747
5764 1527 4000
5765 4552 1527
5766 5217 4552
5767 7276 5217
5770 7741 7276

/
5771 0000 /TIMCLK,
5772 7604 LAS
5773 0114 AND K6007
5774 7650 SNA CLA
5775 1166 TAD PATCH
5776 1012 TAD K7700
5777 5771 JMP I TIMCLK

```



DKMES, TEXT ?DK8E CLOCKS DIAGNOSTIC?

6000 0413  
6001 7005  
6002 4003  
6003 1417  
6004 0313  
6005 2340  
6006 0411  
6007 0107  
6010 1617  
6011 2524  
6012 1103  
6013 0000  
6014 0413  
6015 7005  
6016 4020  
6017 0143  
6020 2340  
6021 0317  
6022 1520  
6023 1405  
6024 2405  
6025 0000  
6026 4003  
6027 2023  
6030 4003  
6031 1417  
6032 0313  
6033 4023  
6034 0514  
6035 0503  
6036 2405  
6037 0440  
6040 0291  
6041 4017  
6042 2005  
6043 2201  
6044 2417  
6045 2200  
6046 2405  
6047 2324  
6050 4000  
6051 4006  
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

PMES, TEXT ?DK8E PASS COMPLETE?

FMES, TEXT ? CPS CLOCK SELECTED BY OPERATOR?

TMES, TEXT ?TEST ?

AMES, TEXT ? FAILED, STARTING ADDRESS ?

GMES, TEXT ?THE GOOD AC = ?

6067 2410  
6070 0540  
6071 0717  
6072 1704  
6073 4001  
6074 0340  
6075 7540  
6076 0000  
6077 4001  
6100 1604  
6101 4002  
6102 0104  
6103 4001  
6104 0340  
6105 7540  
6106 0000  
6107 0314  
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  
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  
6153 1707  
6154 2201  
6155 1540

BMES, TEXT ? AND BAD AC = ?

MES1, TEXT ?CLOCK SKIP FAILED, NO SKIP EXPECTED?

MES2, TEXT ?CLOCK SKIP FAILED, SKIP EXPECTED?

MES3, TEXT ?PROGRAM INTERRUPT FAILED, NO INTERRUPT EXPECTED?

|      |      |
|------|------|
| 6156 | 1116 |
| 6157 | 2425 |
| 6160 | 2222 |
| 6161 | 2520 |
| 6162 | 2440 |
| 6163 | 0621 |
| 6164 | 1114 |
| 6165 | 0524 |
| 6166 | 5440 |
| 6167 | 1617 |
| 6170 | 4011 |
| 6171 | 1624 |
| 6172 | 0522 |
| 6173 | 2225 |
| 6174 | 2024 |
| 6175 | 4025 |
| 6176 | 3020 |
| 6177 | 0523 |
| 6200 | 2425 |
| 6201 | 0420 |
| 6202 | 2022 |
| 6203 | 1727 |
| 6204 | 2221 |
| 6205 | 1540 |
| 6206 | 1116 |
| 6207 | 2425 |
| 6210 | 2222 |
| 6211 | 2520 |
| 6212 | 2440 |
| 6213 | 0621 |
| 6214 | 1114 |
| 6215 | 0524 |
| 6216 | 5440 |
| 6217 | 1116 |
| 6220 | 2425 |
| 6221 | 2222 |
| 6222 | 2520 |
| 6223 | 2440 |
| 6224 | 0530 |
| 6225 | 2025 |
| 6226 | 0524 |
| 6227 | 0524 |
| 6230 | 0020 |
| 6231 | 0314 |
| 6232 | 1723 |
| 6233 | 1340 |
| 6234 | 1725 |
| 6235 | 2420 |
| 6236 | 2524 |
| 6237 | 4026 |
| 6240 | 0111 |
| 6241 | 1425 |
| 6242 | 0424 |
| 6243 | 4023 |
| 6244 | 1417 |

MES4, TEXT ?PROGRAM INTERRUPT FAILED, INTERRUPT EXPECTED?

MES5, TEXT ?CLOCK OUTPUT FAILED, CLOCK FREQUENCY FAST?

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6245 0313  
6246 4026  
6247 2225  
6250 2125  
6251 0516  
6252 0331  
6253 4026  
6254 0123  
6255 2420  
6256 0314  
6257 1703  
6260 1340  
6261 1725  
6262 2420  
6263 2524  
6264 4026  
6265 0111  
6266 1425  
6267 0454  
6270 4023  
6271 1417  
6272 0313  
6273 4026  
6274 2225  
6275 2125  
6276 0516  
6277 0331  
6300 4023  
6301 1417  
6302 2700  
6303 2410  
6304 0540  
6305 0123  
6306 4027  
6307 0123  
6310 4023  
6311 1021  
6312 1627  
6313 0524  
6314 4022  
6315 3140  
6316 0140  
6317 0314  
6320 1703  
6321 1340  
6322 1117  
6323 2420  
6324 0314  
6325 1703  
6326 1340  
6327 0225  
6330 0626  
6331 0522  
6332 4022  
6333 0527

MES6, TEXT ?CLOCK OUTPUT FAILED, CLOCK FREQUENCY SLOW?

MES7, TEXT ?THE AC WAS CHANGED BY A CLOCK IOT?

MES8, TEXT ?CLOCK BUFFER REGISTER AND AC TRANSFER FAILED?

6334 1143  
 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  
 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  
 6403 1703  
 6404 1350  
 6405 0516  
 6406 0102  
 6407 1405  
 6410 4022  
 6411 0507  
 6412 1103  
 6413 2405  
 6414 2240  
 6415 0116  
 6416 0440  
 6417 0103  
 6420 4024  
 6421 2201  
 6422 1623

MES9, TEXT ?CLOCK COUNTER REGISTER AND AC TRANSFER FAILED?

MES10, TEXT ?CLOCK ENABLE REGISTER AND AC TRANSFER FAILED?

|      |      |
|------|------|
| 6423 | 0605 |
| 6424 | 2240 |
| 6425 | 0601 |
| 6426 | 1114 |
| 6427 | 0504 |
| 6430 | 0000 |
| 6431 | 0314 |
| 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 |

MES11, TEXT ?CLOCK STATUS REGISTER AND AC TRANSFER FAILED?







| PAL10  | V141 | 9-OCT-71 | 15144 | PAGE 1-76 | SETO | 0077 | 5600 |
|--------|------|----------|-------|-----------|------|------|------|
| AMES   | 6051 | K0017    | 0127  | LOOP      | 0077 | 5600 |      |
| AUTO10 | 0010 | K0020    | 0140  | MES1      | 6107 | 0046 |      |
| BEGIN  | 0200 | K0040    | 0137  | MES10     | 6402 | 5216 |      |
| BELL   | 5046 | K0077    | 0133  | MES11     | 6431 | 5471 |      |
| BGNEAC | 0215 | K0100    | 0013  | MES2      | 6131 | 5660 |      |
| BMES   | 0077 | K0200    | 0015  | MES3      | 6152 | 5302 |      |
| CLKIN  | 5725 | K0207    | 0006  | MES4      | 6202 | 1655 |      |
| CLKNO  | 5463 | K0212    | 0135  | MES5      | 6231 | 1646 |      |
| CLOCK  | 5413 | K0215    | 0134  | MES6      | 6256 | 1673 |      |
| CLOCKS | 0075 | K0240    | 0126  | MES7      | 6303 | 1664 |      |
| CLRREG | 5065 | K0260    | 0123  | MES8      | 6324 | 0354 |      |
| CLTAD  | 5754 | K0300    | 0145  | MES9      | 6353 | 1751 |      |
| CRLF   | 5441 | K0377    | 0136  | MES10     | 5542 | 1766 |      |
| DKMES  | 6000 | K0400    | 0116  | NERRO     | 5000 | 2014 |      |
| EHLT1  | 5034 | K0500    | 0146  | NERRO     | 0072 | 1775 |      |
| EHLT10 | 5203 | K0600    | 0147  | CTEL      | 5420 | 2043 |      |
| EHLT11 | 5212 | K0700    | 0150  | OUT       | 5015 | 2024 |      |
| EHLT2  | 5146 | K1000    | 0144  | OVER2     | 0061 | 2072 |      |
| EHLT3  | 5141 | K2000    | 0143  | OVER2A    | 0062 | 2053 |      |
| EHLT4  | 5145 | K2525    | 0016  | PASS      | 5740 | 2120 |      |
| EHLT5  | 5153 | K3000    | 0120  | PATCH     | 0166 | 2102 |      |
| EHLT6  | 5157 | K3740    | 0125  | PIG01     | 5255 | 2147 |      |
| EHLT7  | 5166 | K4000    | 0014  | PIG02     | 5270 | 2125 |      |
| ERROR  | 5020 | K4100    | 0124  | PIG03     | 5323 | 2200 |      |
| EXIT   | 0073 | K5000    | 0121  | PIG04     | 5336 | 0366 |      |
| EXTER  | 5640 | K5252    | 0017  | PIG05     | 5234 | 2220 |      |
| FMS    | 5713 | K6000    | 0117  | PIRET1    | 5264 | 2306 |      |
| GMES   | 6026 | K6007    | 0114  | PIRET2    | 5277 | 2273 |      |
| GTAD   | 6067 | K7000    | 0141  | PIRET5    | 5252 | 2555 |      |
| IN     | 5746 | K7400    | 0112  | PMES      | 6014 | 2537 |      |
| IOTA   | 5043 | K7700    | 0012  | POPR      | 5450 | 2603 |      |
| IOTB   | 5102 | K7770    | 0122  | PREG      | 5563 | 2565 |      |
| IOTC   | 5127 | K7772    | 0132  | PRET1     | 5267 | 2631 |      |
| IOTD   | 5114 | K7773    | 0131  | PRET2     | 5301 | 2613 |      |
| IOTE   | 5141 | K7774    | 0130  | PRET5     | 5254 | 2657 |      |
| IOTF   | 5147 | KPRMT1   | 0111  | PRETC     | 5335 | 2641 |      |
| IOTG   | 5142 | KREGC    | 0076  | PRETD     | 5347 | 2705 |      |
| IOTH   | 5146 | KT1CPS   | 0113  | PRINT     | 5604 | 2667 |      |
| IOTI   | 5154 | KTA      | 0151  | RANDOM    | 5224 | 2733 |      |
| IOTJ   | 5163 | KTA1     | 0152  | RANDY     | 0055 | 2715 |      |
| IOTK   | 5200 | KTADCK   | 5462  | RECEV     | 0071 | 3254 |      |
| IOTS   | 5207 | KTADM    | 5526  | REGA      | 0040 | 3257 |      |
| IOTS1  | 5360 | KT8      | 0153  | REGB      | 0041 | 3244 |      |
| IOTS2  | 5370 | KTC      | 0155  | REGC      | 0042 | 3240 |      |
| IOTS3  | 5400 | KTC1     | 0156  | REGD      | 0043 | 3303 |      |
| ISZLOP | 5400 | KTC2     | 0157  | REGE      | 0044 | 3306 |      |
| JMPI2  | 5310 | KTD      | 0160  | REGF      | 0045 | 3273 |      |
| K0006  | 0115 | KTD1     | 0161  | RETO      | 5345 | 3336 |      |
| K0007  | 0007 | KTE      | 0162  | RETURN    | 5656 | 3341 |      |
| K0010  | 0142 | KTE1     | 0163  | SAVAC     | 0011 | 3326 |      |
|        |      | KTMX     | 5527  | SEND      | 0070 | 3323 |      |

|        |      |        |      |        |      |        |      |
|--------|------|--------|------|--------|------|--------|------|
| T175A  | 3371 | TST110 | 1605 | TST167 | 3157 | TST244 | 4562 |
| T175A1 | 3374 | TST111 | 1616 | TST17  | 0431 | TST245 | 4602 |
| T175B  | 3361 | TST112 | 1631 | TST170 | 3177 | TST246 | 4621 |
| T175B1 | 3356 | TST113 | 1642 | TST171 | 3215 | TST247 | 4643 |
| T176A  | 3421 | TST114 | 1660 | TST172 | 3233 | TST25  | 0520 |
| T176A1 | 3424 | TST115 | 1676 | TST173 | 3262 | TST250 | 4663 |
| T176B  | 3411 | TST116 | 1707 | TST174 | 3311 | TST251 | 4706 |
| T176B1 | 3405 | TST117 | 1722 | TST175 | 3344 | TST26  | 0534 |
| T177A  | 3451 | TST12  | 0357 | TST176 | 3377 | TST27  | 0547 |
| T177A1 | 3454 | TST120 | 1735 | TST177 | 3427 | TST3   | 0265 |
| T177B  | 3441 | TST121 | 1754 | TST2   | 0251 | TST30  | 0570 |
| T177B1 | 3435 | TST122 | 1771 | TST20  | 0441 | TST31  | 0601 |
| T200A  | 3521 | TST123 | 2017 | TST200 | 3457 | TST32  | 0615 |
| T200A1 | 3504 | TST124 | 2046 | TST201 | 3507 | TST33  | 0626 |
| T200B  | 3471 | TST125 | 2075 | TST202 | 3561 | TST34  | 0637 |
| T200B1 | 3465 | TST126 | 2123 | TST203 | 3573 | TST35  | 0647 |
| T201A  | 3551 | TST127 | 2152 | TST204 | 3605 | TST36  | 0657 |
| T201B  | 3522 | TST13  | 0371 | TST205 | 3617 | TST37  | 0667 |
| T205A  | 3632 | TST130 | 2203 | TST206 | 3635 | TST4   | 0273 |
| T206A  | 3650 | TST131 | 2223 | TST207 | 3653 | TST40  | 0677 |
| T207A  | 3666 | TST132 | 2245 | TST21  | 0452 | TST41  | 0711 |
| T214A  | 3764 | TST133 | 2264 | TST210 | 0471 | TST42  | 0722 |
| T215A  | 4003 | TST134 | 2311 | TST211 | 3704 | TST43  | 0733 |
| T216A  | 4022 | TST135 | 2331 | TST212 | 3720 | TST44  | 0746 |
| T22A   | 4073 | TST136 | 2350 | TST213 | 3734 | TST45  | 2761 |
| T230A  | 4265 | TST137 | 2367 | TST214 | 3750 | TST46  | 1000 |
| T45A   | 0775 | TST14  | 0400 | TST215 | 3767 | TST47  | 1017 |
| T45B   | 0763 | TST140 | 2407 | TST216 | 4006 | TST5   | 0305 |
| T46A   | 1014 | TST141 | 2423 | TST217 | 4025 | TST50  | 1036 |
| T46B   | 1025 | TST142 | 2437 | TST22  | 0463 | TST51  | 1055 |
| T47A   | 1033 | TST143 | 2452 | TST220 | 4073 | TST52  | 1070 |
| T47B   | 1024 | TST144 | 2466 | TST221 | 4073 | TST53  | 1102 |
| T50A   | 1052 | TST145 | 2502 | TST222 | 4116 | TST54  | 1115 |
| T50B   | 1040 | TST146 | 2516 | TST223 | 4133 | TST55  | 1130 |
| T70A   | 1332 | TST147 | 2532 | TST224 | 4150 | TST56  | 1142 |
| T70B   | 1322 | TST15  | 0407 | TST225 | 4165 | TST57  | 1153 |
| T71A   | 1351 | TST150 | 2560 | TST226 | 4204 | TST6   | 0322 |
| T71B   | 1341 | TST151 | 2606 | TST227 | 4223 | TST60  | 1164 |
| TIMCLK | 5771 | TST152 | 2634 | TST23  | 0476 | TST61  | 1177 |
| TIMES  | 6046 | TST153 | 2662 | TST230 | 4242 | TST62  | 1212 |
| TST0   | 0221 | TST154 | 2710 | TST231 | 4270 | TST63  | 1227 |
| TST1   | 0235 | TST155 | 2736 | TST232 | 4310 | TST64  | 1244 |
| TST10  | 0357 | TST156 | 2751 | TST233 | 4330 | TST65  | 1255 |
| TST100 | 1465 | TST157 | 2766 | TST234 | 4350 | TST66  | 1271 |
| TST101 | 1521 | TST16  | 0422 | TST235 | 4372 | TST67  | 1302 |
| TST102 | 1514 | TST160 | 3004 | TST236 | 4414 | TST7   | 0330 |
| TST103 | 1550 | TST161 | 3023 | TST237 | 4435 | TST70  | 1316 |
| TST104 | 1542 | TST162 | 3041 | TST24  | 0505 | TST71  | 1335 |
| TST105 | 1592 | TST163 | 3060 | TST240 | 4456 | TST72  | 1354 |
| TST106 | 1563 | TST164 | 3076 | TST241 | 4477 | TST73  | 1367 |
| TST107 | 1574 | TST165 | 3117 | TST242 | 4520 | TST74  | 1404 |
| TST11  | 0346 | TST166 | 3137 | TST243 | 4541 | TST75  | 1421 |

TST76 1435  
TST77 1451  
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  
XPIC01 0047  
XPIC02 0050  
XPIC03 0051  
XPIC04 0052  
XPIC05 0053  
XPRINT 0106  
XREG 0102  
XSET0 0164  
XSNDRV 0056  
XSORT 0103  
XSYNC 0057  
XTYPE 0107  
XWAIT 5642

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ERRORS DETECTED: 0

LINKS GENERATED: 0

RUN-TIME: 39 SECONDS

3K CORE USED