

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  
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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  
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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

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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

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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  
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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  
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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

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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

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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



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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 DISCRPTION  
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9.1 DK8-EA OR DK8-EC CLOCK  
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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	0000	0000
0007	0207	0207
0010	0007	0007
0011	0000	0000
0012	7700	0000
0013	0100	7700
0014	4000	0100
0015	0200	4000
0016	2525	0200
0017	5252	2525
0020	5102	5252
0021	5107	XI0TA, I0TA
0022	5114	XI0TB, I0TB
0023	5121	XI0TC, I0TC
0024	5127	XI0TD, I0TD
0025	5134	XI0TE, I0TE
0026	5142	XI0TF, I0TF
0027	5146	XI0TF1, I0TF1
0030	5154	XI0TG, I0TG
0031	5163	XI0TH, I0TH
0032	5200	XI0TI, I0TI
0033	5207	XI0TJ, I0TJ
0034	5350	XI0TK, I0TK
0035	5360	XI0TS, I0TS
0036	5370	XI0TS1, I0TS1
0037	5400	XI0TS2, I0TS2
0040	0000	XI0TS3, I0TS3
0041	0000	REGA, 0000
0042	0000	REGB, 0000
0043	0000	REGC, 0000
0044	0000	REGD, 0000
0045	0000	REGF, 0000
0046	5642	SKPWAT, XWAIT
0047	5255	XPIG01, PIG01
0050	5270	XPIG02, PIG02
0051	5323	XPIG03, PIG03
0052	5336	XPIG04, PIG04
0053	5234	XPIG05, PIG05

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 K2000, 2000 /CLEAR THE AC AND LINK
0144 1000 1000 K1000, 1000 /CAF OR CLEAR THE WORLD
0145 0300 0300 K0300, 0300 /CRLF
0146 0500 0500 K0500, 0500 /PRINT DK8E CLOCKS DIAGNOSTIC
0147 0600 0600 K0600, 0600 /MESSAGE POINTER
0150 0700 0700 K0700, 0700 /CRLF
0151 2725 2725 KTA, 2725 /CLEAR ALL MY REGISTERS
0152 2650 2650 KTA1, 2650 /SET UP FOR PI RETURN
0153 7425 7425 KTB, 7425 /GET HIS SWITCHES
0154 7350 7350 KTB1, 7350 /TEST SCHMITT
0155 7753 7753 KTC, 7753 /TEST DK8EP CLOCK
0156 0225 0225 KTC1, 0225 /TEST DK8EA CR DK8EC
0157 0150 0150 KTC2, 0150 /SORT AND PRINT FREQ. SELECTFD
0160 1450 1450 KTD, 1450 /GET TIME LENGTH
0161 1425 1425 KTD1, 1425 /SET LOOP COUNTER
0162 6575 6575 KTE, 6575 /CLEAR ALL REGISTERS
0163 6525 6525 KTE1, 6525
0164 5600 5600 XSETO, SETO
0165 5450 5450 XOPR, POPR
0166 0070 0070 PATCH, 0070
0167 5771 5771 XGETM, TIMCLK
0170 5740 5740 XPASS, PASS
0171 1775 1775 XCRS1, T122B
0172 2200 2200 XCRS2, T127A
0173 2603 2603 XCRS3, T150A
0174 2505 2505 XCRS4, T150B
0175 4023 4023 XCRS5, T215A
/
0200 *0200
/
0200 7300 CLA CLL /CLEAR THE AC AND LINK
0201 6007 6007 BEGIN, /CAF OR CLEAR THE WORLD
0202 4501 JMS I XCRLF /CRLF
0203 4506 JMS I XPRINT /PRINT DK8E CLOCKS DIAGNOSTIC
0204 6000 DKMES /MESSAGE POINTER
0205 4501 JMS I XCRLF /CRLF
0206 4400 JMS I XCLREG /CLEAR ALL MY REGISTERS
0207 4504 JMS I XSETO /SET UP FOR PI RETURN
0210 4466 JMS I XLAS /GET HIS SWITCHES
0211 5405 JMP I XMITT1 /TEST SCHMITT
0212 5463 JMP I XDK8EP /TEST DK8EP CLOCK
0213 4474 JMS I XCLOCKS /TEST DK8EA CR DK8EC
0214 4505 JMS I XOPR /SORT AND PRINT FREQ. SELECTFD
0215 4507 JMS I XGETM /GET TIME LENGTH
0216 3077 DCA LOOP /SET LOOP COUNTER
0217 4400 JMS I XCLREG /CLEAR ALL REGISTERS
0220 3040 DCA REGA /

/DOES IOT CLEI CHANGE AC ?
/CHECK ALL COMBINATIONS
/
TST0, TAD REGA /GET AC NUMBER
0221 1040 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
0222 3070 TAD SEND
0223 1070 JMS I XIOTA /IOT 6131, CLEI
0224 4420
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0225 3071 DCA RECEV /SAVE INPUT FOR ERROR PRINTER
0226 1071 TAD RECEV
0227 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
0230 4472 JMS I NERROR /CHECK NON-ERROR HANDLER.
0231 4473 JMS I ERROR /ERROR: CLEI CHANGED AC.
0232 3000 /TST0 ERROR MESSAGE.
0233 0221 TST0 /SCOPE LOOP.
0234 3040 DCA REGA

/DOES IOT CLED CHANGE AC ?
/CHECK ALL COMBINATIONS
/
TST1, TAD REGA /GET AC NUMBER
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
TAD SEND
JMS I XIOTB /IOT 6132, CLED
DCA RECEV /SAVE INPUT FOR ERROR PRINTER
TAD RECEV
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERROR /CHECK NON-ERROR HANDLER.
JMS I ERROR /ERROR: CLED CHANGED AC.
3001 /TST1 ERROR MESSAGE.
TST1 /SCOPE LOOP.
DCA REGA

/DOES IOT CLSK CHANGE AC ?
/CHECK ALL COMBINATIONS
/
TST2, TAD REGA /GET AC NUMBER
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
TAD SEND
JMS I XIOTC /IOT 6133, CLSK
NOP /WAIT JUST IN CASE I
DCA RECEV /SAVE INPUT FOR ERROR PRINTER
TAD RECEV
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERROR /CHECK NON-ERROR HANDLER.
JMS I ERROR /ERROR: CLSK CHANGED AC.
3002 /TST2 ERROR MESSAGE.
TST2 /SCOPE LOOP.

/TEST FOR NO INTERRUPT ROST.
/
TST3, 6007 /CAF OR CLEAR THE WORLD
JMS I XPIG01 /GO TO PI, NO PI EXPECTED
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR:PI OR INT. ROST. FAILED
1003 /TST3 ERROR MESSAGE
TST3 /SCOPE LOOP

/DOES CLSK SKIP ON A CLOCK FLAG
/
TST4, TAD KT1CPS /SET UP TIMER
DCA REGF /IOT 6133, CLSK
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  TST11,  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  1411        /TS11 ERROR MESSAGE
0356  0346  TST11        /SCOPE.

/DOES CLED DISABLE CLOCK INTERRUPT ?
/
TST12,  JMS I XIOTA  /IOT 6131, CLEI
0357  4420  JMS I XIOTB  /IOT 6132, CLED
0360  4421  JMS I XPIG02 /GO TO PI, NO PI EXPECTED
0361  4450  JMP T12A
0362  5366  JMS I XIOTB  /IOT 6132, CLED
0363  4421  JMS I XPIG01 /GO TO PI, NO PI EXPECTED
0364  4447  JMS I NERROR /CHECK NON-ERROR HANDLER,
0365  4472  JMS I ERROR  /ERROR: CLEI AND CLED FAST TOGGLE
0366  4473  JMS I ERROR  /TS12 ERROR MESSAGE
0367  1012  1012        /SCOPE LOOP.
0370  0357  TST12

/TEST DECODER FOR 6135, NOT CLEI
/
TST13,  JMS I XIOTB  /IOT 6132, CLED
0371  4421  JMS I XIOTI  /IOT 6135, NOT AN IOT 6131
0372  4431  JMS I XPIG01 /GO TO PI, NO PI EXPECTED
0373  4447  JMS I NERROR /CHECK NON-ERROR HANDLER,
0374  4472  JMS I ERROR  /ERROR: DID DECODER WORK
0375  4473  JMS I ERROR  /TS13 ERROR MESSAGE
0376  1013  1013        /SCOPE LOOP.
0377  0371  TST13

/TEST DECODER FOR A 6136, NOT CLED
/
TST14,  JMS I XIOTA  /IOT 6131, CLEI
0400  4420  JMS I XIOTJ  /IOT 6136, NOT AN IOT 6132.
0401  4432  JMS I XPIG02 /GO TO PI, PI EXPECTED
0402  4450  JMS I NERROR /CHECK NON-ERROR HANDLER,
0403  4472  JMS I ERROR  /ERROR: DID DECODER WORK
0404  4473  JMS I ERROR  /TS14 ERROR MESSAGE
0405  1414  1414        /SCOPE LOOP.
0406  0400  TST14

/TEST DECODER FOR 6137, NOT CLSK
/
TST15,  TAD KT1CPS
0407  1113  DCA REGF    /SET UP TIMER
0410  3045  JMS I XIOTC  /IOT 6132, CLED
0411  4422  NOP
0412  7000  JMS I XIOTK  /IOT 6137, NOT AN IOT 6133
0413  4433  JMS I SKPWAT /GO WAIT FOR FLAG
0414  4446  SKP         /ERROR, SKIP OCCURRED
0415  7410  JMS I NERROR /CHECK NON-ERROR HANDLER,
0416  4472  JMS I ERROR  /ERROR: DID DECODER WORK
0417  4473  JMS I ERROR  /TS15 ERROR MESSAGE
0420  0015  0015

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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
0422 4422 /TST16 ERROR MESSAGE
0423 7000 /SCOPE LOOP.
0424 4447
0425 4472
0426 4473
0427 1016
0430 0422 /TST16

/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
0431 4420 /TST17
0432 4422 /SCOPE LOOP.
0433 7000
0434 4450
0435 4472
0436 4473
0437 1417
0440 0431 /TST17

/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
0441 1113 /TST20
0442 3045 /SCOPE LOOP.
0443 4420
0444 4446
0445 7410
0446 4472
0447 4473
0450 0020
0451 0441 /TST20

/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 /TST21
0453 3045 /SCOPE LOOP.
0454 4421
0455 4446
0456 7410
0457 4472
0460 4473
0461 0021
0462 0452 /TST21

/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
JMP .-1 /WAIT 15.5 MS
0463 4457
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  
0614 0601

/TST31 ERROR MESSAGE  
/SCOPE LOOP

0615 1040  
0616 4425  
0617 3071  
0620 1071  
0621 4456  
0622 4472  
0623 4473  
0624 3032  
0625 0615

/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

0626 1040  
0627 4427  
0630 3071  
0631 1071  
0632 4456  
0633 4472  
0634 4473  
0635 3033  
0636 0626

/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

0637 6027  
0640 7340  
0641 4432  
0642 7650  
0643 4472  
0644 4473  
0645 3434  
0646 0637

/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 'S?  
JMS I NERRR /CHECK NON-ERROR HANDLER  
JMS I ERROR /ERROR:CAF OR CLBA FAILED.  
3434 /TST34 ERROR MESSAGE  
TST34 /SCOPE LOOP

0647 6027  
0650 7340  
0651 4430  
0652 7650  
0653 4472  
0654 4473  
0655 4435  
0656 0647

/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 0027 /TST36, 6007 /CAF OR THE CLEAR THE WORLD
0660 7340 /AC TO 7777
0661 4431 JMS I XIOTI /IOT 6135, CLSA
0662 7650 SNA CLA /WAS STATUS REGISTER ALL 0'S ?
0663 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
0664 4473 JMS I ERROR /CAF OR CLSA FAILED
0665 5036 5036 /TST36 ERROR MESSAGE
0666 0657 TST36 /SCOPE LOOP

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

TST37, JMS I XIOTG /IOT 6133, CLAB
0667 4427 CLA CLL CMA /AC TO 7777
0670 7340 JMS I XIOTJ /IOT 6136, CLBA
0671 4432 SNA CLA /WAS BUFFER ALL 0'S?
0672 7650 JMS I NERROR /CHECK NON-ERROR HANDLER
0673 4722 JMS I ERROR /ERROR:CLAB OR CLBA FAILED
0674 473 3437 /TST37 ERROR MESSAGE
0675 3437 TST37 /SCOPE LOOP
0676 0667

/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
0700 4427 CLA CLL /CLEAR THE AC AND LINK
0701 7300 JMS I XIOTJ /IOT 6136, CLBA
0702 4432 SNA CLA /COMPLEMENT THE AC
0703 7040 JMS I NERROR /WAS BUFFER ALL 1'S?
0704 7650 JMS I ERROR /CHECK NON-ERROR HANDLER
0705 4472 JMS I ERROR /ERROR:CLAB OR CLBA FAILED
0706 4473 3440 /TST40 ERROR MESSAGE
0707 3440 TST40 /SCOPE LOOP
0710 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 /UPDATE AC NUMBER
0772 2041 152 REGB

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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 ?

1000 7340 TST46, CLA CLL CMA /AC TO 7777  
 1001 3040 DCA REGA  
 1002 1016 TAD K2525 /GET AC NUMBER  
 1003 4427 JMS I XIOTG /IOT 6133, CLAB  
 1004 7040 CMA /COMPLEMENT AC  
 1005 4432 JMS I XIOTJ /IOT 6136, CLBA  
 1006 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
 1007 7610 SKP CLA  
 1010 5214 JMP T46A /UPDATE COUNTER  
 1011 2041 ISZ REGB /DO 4096 TIMES  
 1012 5205 JMP T46B /CHECK NON-ERROR HANDLER  
 1013 4472 JMS I NERROR /ERROR: BUFFER FAILED  
 1014 4473 JMS I ERROR /TST46 ERROR MESSAGE  
 1015 3446 3446 /SCOPE LOOP  
 1016 1000 TST46

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

1017 7340 TST47, CLA CLL CMA /AC TO 7777  
 1020 3040 DCA REGA  
 1021 1017 TAD K5252 /GET AC NUMBER  
 1022 4427 JMS I XIOTG /IOT 6133, CLAB  
 1023 7040 CMA /COMPLEMENT AC  
 1024 4432 JMS I XIOTJ /IOT 6136, CLBA  
 1025 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
 1026 7610 SKP CLA  
 1027 5233 JMP T47A /UPDATE COUNTER  
 1030 2041 ISZ REGB /DO 4096 TIMES  
 1031 5224 JMP T47B /CHECK NON-ERROR HANDLER  
 1032 4472 JMS I NERROR /ERROR: BUFFER FAILED  
 1033 4473 JMS I ERROR /TST47 ERROR MESSAGE  
 1034 3447 3447 /SCOPELOOP  
 1035 1017 TST47

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

1036 7340 TST50, CLA CLL CMA /AC TO 7777  
 1037 3040 DCA REGA  
 1040 4455 JMS I RANDY /GET RANDOM NUMBER  
 1041 4427 JMS I XIOTG /IOT 6133, CLAB  
 1042 7040 CMA /COMPLEMENT AC  
 1043 4432 JMS I XIOTJ /IOT 6136, CLBA  
 1044 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
 1045 7610 SKP CLA  
 1046 5252 JMP T50A /UPDATE COUNTER  
 1047 2041 ISZ REGB /DO 4096 TIMES  
 1050 5240 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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          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
          1130      1040      /IOT 6132, CLOE
          1131      4426      /CAF OR CLEAR THE WORLD
          1132      6007      /AC TO 7777
          1133      7340      /IOT 6134, CLEN
          1134      4430      /WAS ENABLE REGISTER ALL 0'S ?
          1135      7650      /CHECK NON-ERROR HANDLER
          1136      4472      /ERROR: ENABLE REGISTER FAILED
          1137      4473      /TST55 ERROR MESSAGE
          1140      4455      /SCOPE LOOP
          1141      1130

/DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?
/
TST56,      TAD K2525      /GET AC NUMBER
          1142      1016      /IOT 6132, CLOE
          1143      4425      /COMPLEMENT AC
          1144      7040      /IOT 6134, CLEN
          1145      4430      /CHECK SEND AND RECEV REGISTERS
          1146      4436      /CHECK NON-ERROR HANDLER
          1147      4472      /ERROR: EBABLE REGISTER FAILED
          1150      4473      /TST56 ERROR MESSAGE
          1151      4456      /SCOPE LOOP
          1152      1142

/DOES ENABLE REGISTER SURVIVE PATTERN 2522 ?
/
TST57,      TAD K5252      /GET AC NUMBER
          1153      1017      /IOT 6132, CLOE
          1154      4425      /COMPLEMENT AC
          1155      7040      /IOT 6134, CLEN
          1156      4430      /CHECK SEND AND RECEV REGISTERS
          1157      4436      /CHECK NON-ERROR HANDLER
          1160      4472      /ERROR: ENABLE REGISTER FAILED
          1161      4473      /TST57 ERROR MESSAGE
          1162      4457      /SCOPE LOOP
          1163      1153

/DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?
/
TST60,      TAD K2525      /GET AC NUMBER
          1164      1016      /IOT 6132, CLOE
          1165      4425      /CLEAR THE AC AND LINK
          1166      7300      /IOT 6132, CLOE
          1167      4426      /AC TO 7777
          1170      7340

```

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  
 1236 4430 JMS I XIOTH /IOT 6134, CLEN  
 1237 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
 1240 4472 JMS I NERRR /CHECK NON-ERROR HANDLER  
 1241 4473 JMS I ERROR /ERROR: ENABLE REGISTERS  
 1242 4463 4463 /TST63 ERROR MESSAGE  
 1243 1227 TST63 /SCOPE LOOP

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

/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 /
    
```

```

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
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 /UPDATE COUNTER
JMP T70B /DO 4096 TIMES
JMS I NERROR /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
CLA CLL /CLEAR THE AC AND LINK
JMS I XIOTH /IOT 6134, CLEN
JMS I XSNDRV /CHECK SEND RECEV REGISTERS
SKP CLA
JMP T71A
ISZ REGB /UPDATE COUNTER
JMP T71B /DO 4096 TIMES
JMS I NERROR /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 /GET AC NUMBER
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
TAD REGA /IOT'S 6132 AND 6134
JMS I XIOTS /SAVE INPUT FOR ERROR PRINTER
DCA RECEV
TAD RECEV /CHECK SEND RECEV REGISTERS
JMS I XSNDRV /CHECK NON-ERROR HANDLER
JMS I NERROR /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      TST73      /TST73 ERROR MESSAGE
1403      1367      TST73      /SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?
/
TST74,      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      TST74      /TST74 ERROR MESSAGE
1417      4474      TST74      /SCOPE LOOP
1420      1424

/DOES CLZE CLEAR ENABLE REGISTER?
/
TST75,      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      JMS I XIOTH      /IOT 6134, CLEN
1426      3070      DCA SEND      /CHECK SEND AND RECEV REGISTERS
1427      4430      JMS I XSNDRV      /CHECK NON-ERROR HANDLER
1430      4496      JMS I NERROR      /ERROR:CLZE,CLOE, OR CLEN FAILED
1431      4472      JMS I ERROR      /TST75 ERROR MESSAGE
1432      4473      TST75      /SCOPE LOOP
1433      4475      TST75
1434      1421

/DOES CLZE CLEAR ENABLE REGISTER ?
/
TST76,      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      TST76      /TST76 ERROR MESSAGE
1447      1447

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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

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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 REGISTER
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 REGISTER
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, CLAB
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 REGISTER
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
JMS I XIOTG          /IOT 6133, CLAB
CLA CLL CMA          /AC TO ALL 7777
JMS I XIOTK          /IOT 6137, CLCA
JMS I XSNDRV          /CHECK SEND AND RECEV REGISTERS
JMS I NERROR          /CHECK NON-ERROR HANDLER
JMS I ERROR          /ERROR: COUNTER FAILED
4107          /TST107 ERROR MESSAGE
TST107          /SCOPE LOOP

/DOES AC TRANSFER TO BUFFER THEN TO COUNTER?
/CHECK ALL COMBINATIONS
/
TST110, TAD REGA          /IOT 6133, CLAB
JMS I XIOTG          /COMPLEMENT THE AC
CMA          /IOT 6137, CLCA
JMS I XIOTK          /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV          /CHECK NON-ERROR HANDLER
JMS I NERROR          /ERROR: CLAB OR CLCA FAILED
JMS I ERROR          /TST110 ERROR MESSAGE
4110          /SCOPE LOOP
TST110          /SCOPE LOOP

/DOES COUNTER SURVIVE FAST TOGGLE?
/
TST111, TAD REGA          /GET AC NUMBER
DCA SEND          /SAVE OUTPUT FOR ERROR PRINTFH
TAD SEND          /IOT 6133 AND 6137
JMS I XIOTS2          /SAVE INPUT FOR ERROR PRINTFH
DCA RECEV          /CHECK SEND AND RECEV REGISTERS
TAD RECEV          /CHECK NON-ERROR HANDLER
JMS I XSNDRV          /ERROR:CLAB OR CLCA FAILED
JMS I NERROR          /TST111 ERROR MESSAGE
JMS I ERROR          /SCOPE LOOP
4111          /SCOPE LOOP
TST111          /SCOPE LOOP

/DOES CAF AFFECT COUNTER ?
/
TST112, TAD REGA          /GET AC NUMBER
JMS I XIOTG          /IOT 6133, CLAB
6007          /CAF OR CLEAR THF WORLD
JMS I XIOTK          /IOT 6137, CLCA
JMS I XSNDRV          /CHECK SEND AND RECEV REGISTERS
JMS I NERROR          /CHECK NON-ERROR HANDLER
JMS I ERROR          /ERROR: CLAB OR CLCA FAILED
4112          /TST112 ERROR MESSAGE
TST112          /TST112 ERROR MESSAGE
1631  1040
1632  4427
1633  0007
1634  4433
1635  4436
1636  4472
1637  4473
1640  4112

1605  1040
1606  4427
1607  7040
1610  4433
1611  4436
1612  4472
1613  4473
1614  4110
1615  1605

1616  1040
1617  3070
1620  1070
1621  4436
1622  3071
1623  1071
1624  4436
1625  4472
1626  4473
1627  4111
1630  1616

1631  1040
1632  4427
1633  0007
1634  4433
1635  4436
1636  4472
1637  4473
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 4426 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
```

```
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 4426 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
```

```
1676 4425 /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 4426 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
```

```
1707 7340 /TEST FOR NO INT. RGST.  
/TST116, CLA CLL CMA /AC TO 7777
```

```

1710 4427 JMS I XIOTG /IOT 6133, CLAB
1711 3040 DCA REGA
1712 1142 TAD K0010
1713 1147 JMS I XIOTF /GET ENABLES
1714 4425 JMS I XPIG01 /IOT 6132, CLOE
1715 4447 JMS I NERROR /GO TO PI, NO PI EXPECTED
1716 4472 JMS I ERROR /CHECK NON-ERROR HANDLER
1717 4473 1116 /ERROR: INT. ROST. FAILED
1720 1116 TST116 /TST116. ERROR MESSAGE
1721 1707 /SCOPE LOOP

```

```

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

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```

1722 7340 TST117, CLA CLL CMA /AC TO 7777
1723 4427 JMS I XIOTG /IOT 6133, CLAB
1724 7300 CLA CLL /CLEAR THE AC AND LINK
1725 1147 TAD K0600 /GET RATE 6
1726 4425 JMS I XIOTF /IOT 6132, CLOE
1727 4424 JMS I XIOTE /IOT 6131, CLSK
1730 7410 SKP
1731 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
1732 4473 JMS I ERROR /ERROR: CLSK OR OVERFLOW FAILED
1733 0517 0517 /TST117 ERROR MESSAGE
1734 1722 TST117 /SCOPE LOOP

```

```

/DOES OVERFLOW REMAIN SET ?
/

```

```

1735 7340 TST120, CLA CLL CMA /IOT 6133, CLAB
1736 4427 JMS I XIOTG /GET ENABLES
1737 3040 DCA REGA /IOT 6132, CLOE
1740 1147 TAD K0600 /IOT 6131, CLSK
1741 4425 JMS I XIOTF
1742 4424 JMS I XIOTE
1743 5351 JMP T120A
1744 2041 ISZ REGB
1745 5344 JMP .-1 /WAIT ABOUT 15 MS
1746 4424 JMS I XIOTE /IOT 6131, CLSK
1747 7410 SKP
1750 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
1751 4473 JMS I ERROR /ERROR: CLSK OR OVERFLOW FAILED
1752 0520 0520 /TST120 ERROR MESSAGE
1753 1735 TST120 /SCOPE LOOP

```

```

/DOES CAF CLEAR THAT FLAG ?
/

```

```

1754 7340 TST121, CLA CLL CMA /IOT 6133, CLAB
1755 4427 JMS I XIOTG /GET ENABLES
1756 3040 DCA REGA /IOT 6132, CLOE
1757 1147 TAD K0600 /IOT 6131, CLSK
1760 4425 JMS I XIOTF
1761 4424 JMS I XIOTE
1762 5361 JMP .-1
1763 6007 /CAF OR CLEAR THE WORLD
1764 4424 JMS I XIOTE /IOT 6131, CLSK

```

1765 4472 JMS I NERROR /CHECK NON-ERROR HANDLER  
 1766 4473 /ERROR: CAF OR OVERFLOW FAILED  
 1767 0121 /TST121 ERROR MESSAGE  
 1770 1754 /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 /ERROR: CLSK OR OVERFLOW FAILED  
 2015 0522 /TST122 ERROR MESSAGE  
 2016 1771 /SCOPE LOOP

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

1771 1131 TAD K7773  
 1772 3041 DCA REGB  
 1773 1015 TAD K1000  
 1774 3044 TAD K0200  
 1775 7340 DCA REGE  
 1776 4427 CLA CLL CMA  
 1777 3040 JMS I XIOTG  
 2000 1044 DCA REGA  
 2001 4425 TAD REGE  
 2002 2043 JMS I XIOTF  
 2003 5202 ISZ REGD  
 2004 4424 JMP '-'1  
 2005 5214 JMS I XIOTE  
 2006 1013 JMP T123A  
 2007 3044 TAD K0100  
 2010 0007 DCA REGE  
 2011 2041 6007  
 2012 5571 ISZ REGB  
 2013 4472 JMP I XCRS1  
 2014 4473 JMS I NERROR  
 2015 0522 /ERROR: CLSK OR OVERFLOW FAILED  
 2016 1771 /TST123 ERROR MESSAGE  
 /SCOPE LOOP

T123B, /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

T123A, /CHECK NON-ERROR HANDLER  
 /ERROR: CLSK OR OVERFLOW FAILED  
 /TST123 ERROR MESSAGE  
 /SCOPE LOOP

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

1771 1131 TAD K7773  
 1772 3041 DCA REGB  
 1773 1015 TAD K1000  
 1774 3044 TAD K0200  
 1775 7340 DCA REGE  
 1776 4427 CLA CLL CMA  
 1777 3040 JMS I XIOTG  
 2000 1044 DCA REGA  
 2001 4425 TAD REGE  
 2002 2043 JMS I XIOTF  
 2003 5202 ISZ REGD  
 2004 4424 JMP '-'1  
 2005 5214 JMS I XIOTE  
 2006 1013 JMP T123A  
 2007 3044 TAD K0100  
 2010 0007 DCA REGE  
 2011 2041 6007  
 2012 5571 ISZ REGB  
 2013 4472 JMP T123B  
 2014 4473 JMS I NERROR  
 2015 0522 /ERROR: CLSK OR OVERFLOW FAILED  
 2016 1771 /TST123 ERROR MESSAGE  
 /SCOPE LOOP

2044 0523  
2045 2017

0523 /TST123 ERROR MESSAGE  
TST123 /SCOPE LOOP

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

2046 1131  
2047 3041  
2048 1143  
2049 1015  
2050 3044  
2051 7340  
2052 4427  
2053 3040  
2054 1044  
2055 4425  
2056 2043  
2057 9260  
2058 4424  
2059 5272  
2060 1013  
2061 3044  
2062 6007  
2063 2041  
2064 5253  
2065 4472  
2066 4473  
2067 0524  
2068 2074

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 5320  
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 TST126, TAD K7770
2124 3043 DCA REGO
2125 7340 CLA CLL CMA
2126 4427 JMS I XIOTG
2127 3040 DCA REGA
2128 1140 TAD K0020
2131 1041 TAD REGB
2132 4425 JMS I XIOTF
2133 2042 ISZ REGC
2134 5333 JMP :-1
2135 4424 JMS I XIOTE
2136 7410 SKP
2137 9347 JMP T126A
2140 0150 AND K0700
2141 1013 TAD K0100
2142 3041 DCA REGB
2143 6007 6007
2144 2043 ISZ REGO
2145 9325 JMP T126B
2146 4472 JMS I NERRR
2147 4473 JMS I ERROR
2150 0126 TST126
2151 2123

```

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

```

2152 7340 TST127, CLA CLL CMA
2153 4427 JMS I XIOTG
2154 3040 DCA REGA
2155 4425 JMS I XIOTF
2156 2041 ISZ REGB
2157 9396 JMP :-1
2160 4424 JMS I XIOTE
2161 7410 SKP
2162 9972 JMP I XCRS2
2163 1013 TAD K0100
2164 4426 JMS I XIOTF1
2165 2042 ISZ REGC
2166 9365 JMP :-1
2167 4424 JMS I XIOTE
2170 7410 SKP
2171 9972 JMP I XCRS2
2172 1147 TAD K0600
2173 4426 JMS I XIOTF1
2174 2043 ISZ REGD
2175 9374 JMP :-1
2176 4424 JMS I XIOTE
2177 4472 JMS I NERRR
2200 4473 JMS I ERROR
2201 0127

```

T126A, 0126  
T127A, 0127

TST127 /SCOPE LOOP

/DOES CLSA READ OVERFLOW BIT ?

```

2203 7340  TST130,  CLA CLL CMA
2204 4427  JMS I XIOTG /IOT 6132, CLOE
2205 7330  CLA CLL CML RAR /AC TO 4000
2206 3070  DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
2207 7313  CLA CLL IAC RTR /AC TO 4000
2210 1147  TAD K0600 /GET ENABLE
2211 4424  JMS I XIOTF1
2212 4424  JMS I XIOTE /IOT 6131, CLSK
2213 5212  JMP -1
2214 7350  CLA CLL CMA RAR /AC TO 3777
2215 4431  JMS I XIOTI /IOT 6135, CLSA
2216 4456  JMS I XSNDV /CHECK SEND AND RECEV REGISTERS
2217 4472  JMS I NERRR /CHECK NON-ERROR HANDLER
2220 4473  JMS I ERROR /ERROR! CLSI OR OVERFLOW FAILED
2221 5130  5130 /TST130 ERROR MESSAGE
2222 2203  TST130 /SCOPE LOOP

```

/DOES CLSA CLEAR OVERFLOW FLOP ?

```

2223 7340  TST131,  CLA CLL CMA /AC TO 7777
2224 4427  JMS I XIOTG /IOT 6133, CLAB
2225 7313  CLA CLL IAC RTR /AC TO 4000
2226 1147  TAD K0600 /GET ENABLE
2227 4426  JMS I XIOTF1 /IOT 6132, CLOE
2230 4424  JMS I XIOTE /IOT 6131, CLSK
2231 5230  JMP -1
2232 7350  CLA CLL CMA RAR /AC TO 3777
2233 4431  JMS I XIOTI /IOT 6135, CLSA
2234 7300  CLA CLL /CLEAR AC AND LINK
2235 3070  DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
2236 7340  CLA CLL CMA /AC TO 7777
2237 4431  JMS I XIOTI /IOT 6135, CLSA
2240 7650  SNA CLA /WAS STATUS REGISTER ALL 0'S ?
2241 4472  JMS I NERRR /CHECK NON-ERROR HANDLER
2242 4473  JMS I ERROR /ERROR! CLSA OR OVERFLOW FAILED
2243 5131  5131 /TST131 ERROR MESSAGE
2244 2223  TST131 /SCOPE LOOP

```

/DOES CLSA READ OVERFLOW BIT ?

```

2245 7340  TST132,  CLA CLL CMA /IOT 6133, CLAB
2246 4427  JMS I XIOTG /IOT 6133, CLAB
2247 7300  CLA CLL
2250 3070  DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
2251 1147  TAD K0600 /GET ENABLES
2252 4426  JMS I XIOTF1 /IOT 6132, CLOE
2253 4424  JMS I XIOTE /IOT 6131, CLSK
2254 5253  JMP -1
2255 7344  CLA CLL CMA RAL /AC TO 3777
2256 4431  JMS I XIOTI /IOT 6135, CLSA
2257 7650  SNA CLA /WAS STATUS 0 ?

```



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

2323 4433 JMS I XIOTK  
 2324 4426 JMS I XSNDRV

2325 4472 JMS I NERROR  
 2326 4473 JMS I ERROR

2327 4134 4134  
 2330 2311 TST134

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

TST135, TAD K2525 /GET AC NUMBER  
 JMS I XIOTG /IOT 6133, CLAB

2331 1016  
 2332 4427

/CHECK NON-ERROR HANDLER  
 /ERROR: CLSA OR STATUS FAILED  
 /TST132 ERROR MESSAGE  
 /SCOPE LOOP

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

/IOT 6133, CLAB  
 /AC TO 4000

/GET ENABLES  
 /IOT 6132, CLOE  
 /IOT 6131, CLSK  
 /WAIT FOR FLAG  
 /CLEAR THE AC AND LINK  
 /IOT 6137, CLCA  
 /FOR TESTING  
 /WAS COUNTER ALL 1'S ?

/IOT 6135, CLSA  
 /DO TEST 4096 TIMES  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST133 ERROR MESSAGE  
 /SCOPE LOOP

/GET ENABLES  
 /IOT 6132, CLOE  
 /IOT 6131, CLSK  
 /WAIT FOR FLAG  
 /CLEAR THE AC AND LINK  
 /IOT 6137, CLCA  
 /FOR TESTING  
 /WAS COUNTER ALL 1'S ?

/IOT 6135, CLSA  
 /DO TEST 4096 TIMES  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST133 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

/CHECK SEND AND RECEV REGISTERS  
 /CHECK NON-ERROR HANDLER  
 /ERROR: COUNTER FAILED  
 /TST134 ERROR MESSAGE  
 /SCOPE LOOP

```

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

```

```

/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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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  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

/GET ENABLES
/IOT 6132, CLOE
/GO TO PI, NO PI EXPECTED
/CHECK NON-ERROR HANDLER
/ERROR: INT, RQST, OR ENA 0 FAILED
/TST140 ERROR MESSAGE
/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  JMS I XIOTF
2432  4452  JMS I XPIG04
2433  4472  JMS I NERRR
2434  4473  JMS I ERROR
2435  1541  1541
2436  2423  TST141

/GET RATE * MODE
/IOT 6132, CLOE
/GO TO PI, PI EXPECTED
/CHECK NON-ERROR HANDLER
/ERROR: OVERFLOW OR ENA 0 FAILED
/TST141 ERROR MESSAGE
/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  JMS I XIOTF
2445  4451  JMS I XPIG03
2446  4472  JMS I NERRR
2447  4473  JMS I ERROR
2450  1142  1142
2451  2437  TST142

/GET RATE * MODE
/IOT 6132, CLOE
/GO TO PI, NO PI EXPECTED
/CHECK NON-ERROR HANDLER
/ERROR: ENA 0 FAILED
/TST142 ERROR MESSAGE
/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  JMS I XIOTF
2461  4450  JMS I XPIG02

/GET RATE * MODE
/IOT 6132, CLOE
/GO TO PI

```

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

/DOES COUNTER COUNT ?
/RATE 6, MODE 1
/
TST144, CLA CLL
DCA REGA /IOT 6133, CLAB
JMS I XIOTG
TAD K5000
TAD K0010
TAD K0600
JMS I XIOTF /GET RATE * MODE
JMS I XPIG02 /IOT 6132, CLOE
JMS I NERROR /GO TO PI
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: OVERFLOW OR COUNTER FAILED
1544 /TST144 ERROR MESSAGE
TST144 /SCOPE LOOP

/DOES COUNTER COUNT ?
/RATE 6, MODE 2
/
TST145, CLA CLL CMA /AC TO 7777
DCA REGA
JMS I XIOTG /IOT 6133, CLAB
TAD K6000
TAD K0010
TAD K0600
JMS I XIOTF /GET ENABLES
JMS I XPIG02 /IOT 6132, CLOE
JMS I NERROR /GO TO PI, PI EXPECTED
JMS I ERROR /CHECK NON-ERROR HANDLER
1545 /TST145 ERROR MESSAGE
TST145 /SCOPE LOOP

/DOES COUNTER COUNT ?
/RATE 6, MODE 3
/
TST146, CLA CLL CMA /AC TO 7777
DCA REGA
JMS I XIOTG /IOT 6133, CLAB
TAD K7000
TAD K0010
TAD K0600
JMS I XIOTF /GET ENABLES
JMS I XPIG02 /IOT 6132, CLOE
JMS I NERROR /GO TO PI, PI EXPECTED
JMS I ERROR /CHECK NON-ERROR HANDLER
1546 /TST146 ERROR MESSAGE
TST146 /SCOPE LOOP

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

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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 NERROR
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 NERROR
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

2606 1131  
2607 3041

2610 1117 TAD K0000  
 2611 1142 TAD K0010  
 2612 1015 TAD K0200  
 2613 3044 DCA REGE /MAKE ENABLES  
 2614 7390 CLA CLL CMA /AC TO 7777  
 2615 4427 JMS I X10YG /IOT 6133, CLAB  
 2616 3040 DCA REGA /GET ENABLES  
 2617 1044 TAD REGE /IOT 6132, CLDE  
 2620 4425 JMS I X1OTF /GO TO PI, PI EXPECTED  
 2621 4447 JMS I XPI001  
 2622 5231 JMP T151A  
 2623 6027 6007 /CAF OR CLEAR THE WORLD  
 2624 1013 TAD K0100  
 2625 1044 TAD REGE  
 2626 2041 ISZ REGB  
 2627 5213 JMP T151B  
 2630 4472 JMS I NERRR /CHECK NON-ERROR HANDLER  
 2631 4473 JMS I ERROR /ERROR: OVERFLOW OR MODE FAILED  
 2632 1531 1551 /TST151 ERROR MESSAGE  
 2633 2696 TST151 /SCOPE LOOP

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

2634 1131 TST152, TAD K7773  
 2635 3041 DCA REGB /MAKE ENABLES  
 2636 1141 TAD K7000  
 2637 1142 TAD K0010  
 2640 1015 TAD K0200  
 2641 3044 DCA REGE  
 2642 7390 CLA CLL CMA /AC TO 7777  
 2643 4427 JMS I X1OTG /IOT 6133, CLAB  
 2644 3040 DCA REGA /GET ENABLES  
 2645 1044 TAD REGE /IOT 6132, CLDE  
 2646 4425 JMS I X1OTF /GO TO PI, PI EXPECTED  
 2647 4447 JMS I XPI001  
 2650 5257 JMP T152A /CAF OR CLEAR THE WORLD  
 2651 6027 6007  
 2652 1013 TAD K0100  
 2653 1044 TAD REGE  
 2654 2041 ISZ REGB  
 2655 5241 JMP T152B /DO RATES 2-6  
 2656 4472 JMS I NERRR /CHECK NON-ERROR HANDLER  
 2657 4473 JMS I ERROR /ERROR: OVERFLOW OR MODE FAILED  
 2660 1532 1552 /TST152 ERROR MESSAGE  
 2661 2634 TST152 /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 1153 /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, CLAB
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 1154 /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      1555            /TST155 ERROR MESSAGE
2750 2736      TST155         /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
JMS I XIOTF             /MAKE ENABLES
JMS I XIOTE             /IOT 6132, CLOE
JMP -1                  /IOT 6131, CLSK
JMS I XPIG04           /WAIT FOR OVERFLOW
JMS I NERRR            /GO TO PI, PI EXPECTED
JMS I ERROR            /CHECK NON-ERROR HANDLER
1556                    /ERROR: CLSK OR PI FAILED
TST156                 /TST156 ERROR MESSAGE
2751 7340                 /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

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3021  2160      /TST160 ERROR MESSAGE
3022  3024      /SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 2, MODE 0
/
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
JMS I XIOTF      /MAKE ENABLES
JMS I XPIG05      /IOT 6132, CLOE
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: CLOCK FREQUENCY SLOW
2561      /TST161 ERROR MESSAGE
TST161      /SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 3, MODE 0
/
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
JMS I XIOTF      /MAKE ENABLES
JMS I XPIG05      /IOT 6132, CLOE
SKP CLA      /CHECK NON-ERROR HANDLER
JMS I NERROR      /ERROR: CLOCK FREQUENCY FAST
JMS I ERROR      /TST162 ERROR MESSAGE
2162      /SCOPE LOOP
TST162

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 3, MODE 0
/
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
JMS I XIOTF      /MAKE ENABLES
JMS I XPIG05      /IOT 6132, CLOE
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: CLOCK FREQUENCY SLOW

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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 NERROR
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 NERROR
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  
 CLA CLL  
 DCA REGC  
 TAD REGB  
 DCA SEND  
 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  
 CLA CLL  
 DCA REGC  
 TAD REGB  
 DCA SEND  
 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 FAILD
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
3335 5341 JMP T174A1 /WAIT ABOUT 15 MS FOR REGISTER
3336 2041 IS2 REGB /NUMBER NOT FOUND
3337 5323 JMP T174B1 /UPDATE COMPARE REGISTER
3340 4472 JMS I NERRR /TEST FOR NEXT COUNTER PULSE
3341 4473 JMS I ERROR /CHECK NON-ERROR HANDLER
3342 4174 4174 /ERROR: COUNTER FAILED
3343 3311 TST174 /TST174 ERROR MESSAGE

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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
3363      1041      TAD REGB      /COMPARE TO THIS REGISTER
3364      7650      SNA CLA      /ARE THEY THE SAME YET ?
3365      5371      JMP T175A      /YES, TEST NEXT NUMBER
3366      2042      ISZ REGC      /WAIT ABOUT 15 MS FOR REGISTER
3367      5361      JMP T175B      /NUMBER NOT FOUND
3370      9374      JMP T175A1     /UPDATE COMPARE REGISTER
3371      2041      ISZ REGB      /TEST FOR NEXT COUNTER PULSE
3372      5396      JMP T175R1     /CHECK NON-ERROR HANDLER
3373      4472      JMS I NERROR  /ERROR: COUNTER FAILED
3374      4473      JMS I ERROR   /TST175 ERROR MESSAGE
3375      4175      TST175        /SCOPE LOOP
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     /GET RATE + MODE
          CLA CLL          /IOT 6132, CLOE
          DCA REGC        /CLEAR THE AC AND LINK
          TAD REGB
          DCA SEND
          JMS I XIOTK      /SAVE OUTPUT FOR ERROR PRINTER
          CIA            /IOT 6137, CLCA
          TAD REGB      /COMPARE TO THIS REGISTER
          SNA CLA      /ARE THEY THE SAME YET ?
          JMP T176A     /YES, TEST NEXT NUMBER
          ISZ REGC
          JMP T176B     /WAIT ABOUT 15 MS FOR REGISTER
          JMP T176A1    /NUMBER NOT FOUND
          ISZ REGB     /UPDATE COMPARE REGISTER
          JMS T176R1    /TEST FOR NEXT COUNTER PULSE
          JMS I NERROR  /CHECK NON-ERROR HANDLER
          JMS I ERROR   /ERROR: COUNTER FAILED
          TST176A,     /TST176 ERROR MESSAGE
          4176        /SCOPE LOOP
          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     /GET RATE + MODE
          CLA CLL          /IOT 6132, CLOE
          DCA REGC        /CLEAR THE AC AND LINK
          TAD REGB
          DCA SEND
          JMS I XIOTK      /SAVE OUTPUT FOR ERROR PRINTER
          CIA            /IOT 6137, CLCA
          TAD REGB      /COMPARE TO THIS REGISTER
          SNA CLA      /ARE THEY THE SAME YET ?
          JMP T176A     /YES, TEST NEXT NUMBER
          ISZ REGC
          JMP T176B     /WAIT ABOUT 15 MS FOR REGISTER
          JMP T176A1    /NUMBER NOT FOUND
          ISZ REGB     /UPDATE COMPARE REGISTER
          JMS T176R1    /TEST FOR NEXT COUNTER PULSE
          JMS I NERROR  /CHECK NON-ERROR HANDLER
          JMS I ERROR   /ERROR: COUNTER FAILED
          TST176A,     /TST176 ERROR MESSAGE
          4176        /SCOPE LOOP
          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     /GET RATE + MODE
          CLA CLL          /IOT 6132, CLOE
          DCA REGC        /CLEAR THE AC AND LINK
          TAD REGB
          DCA SEND
          JMS I XIOTK      /SAVE OUTPUT FOR ERROR PRINTER
          CIA            /IOT 6137, CLCA
          TAD REGB      /COMPARE TO THIS REGISTER
          SNA CLA      /ARE THEY THE SAME YET ?
          JMP T176A     /YES, TEST NEXT NUMBER
          ISZ REGC
          JMP T176B     /WAIT ABOUT 15 MS FOR REGISTER
          JMP T176A1    /NUMBER NOT FOUND
          ISZ REGB     /UPDATE COMPARE REGISTER
          JMS T176R1    /TEST FOR NEXT COUNTER PULSE
          JMS I NERROR  /CHECK NON-ERROR HANDLER
          JMS I ERROR   /ERROR: COUNTER FAILED
          TST176A,     /TST176 ERROR MESSAGE
          4176        /SCOPE LOOP
          TST176

```

```

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 /WAIT FOR COUNTER TO GET CLEARED
3520 7340 CLA CLL CMA /IOT 6130, CLZE
3521 4423 JMS I XIOTD /CLEAR AC AND LINK
3522 7300 CLA CLL /SAVE OUTPUT FOR ERROR PRINTER
3523 3070 DCA SEND /GET AC NUMBER
3524 1041 TAD REG8 /IOT 6136, CLBA
3525 4432 JMS I XIOTJ /WAS AC ALL 0'S ?
3526 7640 SZA CLA
3527 5351 JMP T201A /GET AC NUMBER
3530 1041 TAD REG8 /IOT 6137, CLCA
3531 4433 JMS I XIOTK /WAS AC ALL 0'S ?
3532 7640 SZA CLA
3533 5351 JMP T201A /GET AC NUMBER
3534 1041 TAD REG8 /IOT 6134, CLEN
3535 4430 JMS I XIOTH /WAS AC ALL 0'S ?
3536 7640 SZA CLA
3537 5351 JMP T201A /GET AC NUMBER
3540 1041 TAD REG8 /IOT 6135, CLSA
3541 4431 JMS I XIOTT /WAS AC ALL 0'S ?
3542 7640 SZA CLA
3543 5351 JMP T201A /IOT 6131, CLSK
3544 4424 JMS I XIOTE /WAS FLAG STILL SET ?
3545 5344 JMP --1 /UPDATE PASS COUNTER
3546 2041 ISZ REG8 /TEST IOT'S AGAIN
3547 5322 JMP T201R /CHECK NON-ERROR HANDLER
3550 4472 JMS I NERRR /ERROR: IOT FAILED
3551 4473 JMS I ERROR /TST201 ERROR MESSAGE
3552 3201 TST201 /SCOPE LOOP
3553 3507

3554 4570 JMS I XPASS /TYPE PASS COMPLETE
3555 5463 JMP I XDK8EP /CONTINUE TESTING

/DOES INPUT 4 CAUSE INT. ROST.
/
/DOES INPUT 2 CAUSE INT. ROST.
/

T201B, 3556 7300 CLA CLL /LOAD LOOP COUNTER
3557 1112 TAD K7400 /AC TO 7777
3560 3077 DCA LOOP
3561 7340 CLA CLL CMA
3562 3040 DCA REGA
3563 7307 CLA CLL IAC RTL /AC TO 0004
3564 1142 TAD K0010 /GET ENABLES
3565 4425 JMS I XIOTF /IOT 6132, CLOE
3566 4420 JMS I XPIG02 /GO TO PI, PI EXPECTED
3567 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
3570 4473 JMS I ERROR /ERROR: INPUT 4 FAILED
3571 1602 TST202 /TST202 ERROR MESSAGE
3572 3507 /SCOPE LOOP

T202, 3573 7340 CLA CLL CMA /AC TO 7777
3574 3040 DCA REGA
3575 7326 CLA CLL CML RTL /AC TO 0002
3576 1142 TAD K0010 /GET ENABLES

```



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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 ?
/
3617  7340      3617           /SCOPE LOOP
3620  3040      3620           /SCOPE LOOP
3621  7307      3621           /SCOPE LOOP
3622  1142      3622           /SCOPE LOOP
3623  4425      3623           /SCOPE LOOP
3624  4447      3624           /SCOPE LOOP
3625  5252      3625           /SCOPE LOOP
3626  2041      3626           /SCOPE LOOP
3627  5226      3627           /SCOPE LOOP
3630  4450      3630           /SCOPE LOOP
3631  4472      3631           /SCOPE LOOP
3632  4473      3632           /SCOPE LOOP
3633  1605      3633           /SCOPE LOOP
3634  3617      3634           /SCOPE LOOP

3635  7340      3635           /SCOPE LOOP
3636  3040      3636           /SCOPE LOOP
3637  7305      3637           /SCOPE LOOP
3640  1142      3640           /SCOPE LOOP
3641  4425      3641           /SCOPE LOOP
3642  4447      3642           /SCOPE LOOP
3643  5250      3643           /SCOPE LOOP
3644  2041      3644           /SCOPE LOOP
3645  5244      3645           /SCOPE LOOP
3646  4450      3646           /SCOPE LOOP
3647  4472      3647           /SCOPE LOOP
3650  4473      3650           /SCOPE LOOP
3651  1606      3651           /SCOPE LOOP
3652  3635      3652           /SCOPE LOOP

```

```

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

```

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

/DOES INPUT 1 CAUSE SKIP ?

3734 7340 TST213, CLA CLL CMA /AC TO 7777  
 3735 3040 DCA REGA  
 3736 1113 TAD KI1CPS  
 3737 3045 DCA REGF  
 3740 7301 CLA CLL IAC /AC TO 0001  
 3741 4425 JMS I XIOTF /IOT 6132, CLOE  
 3742 4424 JMS I XIOTE /IOT 6131, CLSK  
 3743 4446 JMS I SKPWAT /LET'S WAIT FOR FLAG  
 3744 4472 JMS I NERROR /CHECK NON-ERROR HANDLER  
 3745 4473 JMS I ERROR /ERROR: INPUT 1 OR SKIP FAILED  
 3746 0613 /TST213 ERROR MESSAGE  
 3747 3734 /SCOPE LOOP

/DOES INPUT 4 ROST. THEN SKIP AND VICE-VERSA ?

3750 7340 TST214, CLA CLL CMA /AC TO 7777  
 3751 3040 DCA REGA  
 3752 7307 CLA CLL IAC RTL /AC TO 0004  
 3753 1142 TAD K0010 /GET ENABLES  
 3754 4425 JMS I XIOTF /IOT 6132, CLOE  
 3755 4424 JMS I XIOTE /IOT 6131, CLSK  
 3756 5355 JMP :-1  
 3757 4447 JMS I XPIG01 /GO TO PI, PI EXPECTED  
 3760 5364 JMP T214A /NO ROST. FOUND  
 3761 4424 JMS I XIOTE /IOT 6131, CLSK  
 3762 5361 JMP :-1  
 3763 4472 JMS I NERROR /CHECK NON-ERROR HANDLER  
 3764 4473 JMS I ERROR /ERROR: INPUT 4 SKIP OR INT, ROST. FAILED  
 3765 1614 1614 /TST214 ERROR FAILED  
 3766 3750 /SCOPE LOOP

/DOES INPUT 2 SKIP THEN INT, ROST. AND VICE-VERSA ?

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

```

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 NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INPUT 1 SKIP OR INT, ROST, FAILED
1616 /TST216 ERROR MESSAGE
TST216 /SCOPE LOOP

```

```

/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 NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INPUT 4 SKIP OR ROST, FAILED
0217 /TST217 ERROR MESSAGE
TST217 /SCOPE LOOP

```

```

/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 PAL10 V141  
 7305  
 4425  
 4424  
 4472  
 4473  
 0220  
 4071  
 4050  
 4072

CLA CLL IAC RAL /AC TO 0002  
 JMS I XIOTF /IOT 6132, CLOE  
 JMS I XIOTE /IOT 6131, CLSK  
 JMS I NERROR /CHECK NON-ERROR HANDLER  
 JMS I ERROR /ERROR: INPUT 2 SKIP OR ROST, FAILED  
 0220 /TST220 ERROR MESSAGE  
 TST220 /SCOPE LOOP

/  
 /DOES CAF CLEAR INTPUT 3 ROST, ?  
 /

4073  
 4074  
 4075  
 4076  
 4077  
 4100  
 4101  
 4102  
 4103  
 4104  
 4105  
 4106  
 4107  
 4110  
 4111  
 4112  
 4113  
 4114  
 4115

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 NERROR /CHECK NON-ERROR HANDLER  
 JMS I ERROR /ERROR: INPUT 1 SKIP OR ROST, FAILED  
 0221 /TST221 ERROR MESSAGE  
 TST221 /SCOPE LOOP

/  
 /DOES CLSA READ ROST, INPUT 4 ?  
 /

4116  
 4117  
 4120  
 4121  
 4122  
 4123  
 4124  
 4125  
 4126  
 4127  
 4130  
 4131  
 4132

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  
 CMA /AC TO 7773  
 JMS I XIOTI /IOT 6135, CLSA  
 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS  
 JMS I NERROR /CHECK NON-ERROR HANDLER  
 JMS I ERROR /ERROR: CLSA OR INPUT 4 FAILED  
 5222 /TST222 ERROR MESSAGE  
 TST222 /SCOPE LOOP

/  
 /DOES CLSA READ ROST, INPUT 2 ?  
 /

4133  
 4134  
 4135  
 4136  
 4137  
 4140  
 4141

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  
 CMA /AC TO 7775

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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PAL10  V141
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 ERROR MESSAGE
TST227          /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            /IOT 6132, CLOE
ISE REGB
JMP -2
JMS I XIOTE      /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
JMS I XIOTI      /SAVE OUTPUT FOR ERROR PRINTER
SNA CLA          /AC TO 7777
JMS I NERROR    /IOT 6135, CLSA
JMS I NERROR    /WAS STATUS ALL 0'S ?
JMS I ERROR     /CHECK NON-ERROR HANDLER
JMS I ERROR     /ERROR: CLSA OR INPUTS 1,2,3 FAILED
5230          /TST230 ERROR MESSAGE
TST230          /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

```

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

/DOES INPUT 2 CLEAR BIT 7 ?  
 /

4310 7340 TST232, CLA CLL CMA  
 4311 3040 DCA REGA  
 4312 7305 CLA CLL IAC RAL /AC TO 0002  
 4313 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER  
 4314 1070 TAD SEND  
 4315 1140 TAD K0020  
 4316 4426 JMS I XIOTF1 /IOT 6132, CLOE  
 4317 4424 JMS I XIOTE /IOT 6131, CLSK  
 4320 5317 JMP .-1 /WAIT FOR FLAG  
 4321 7340 CLA CLL CMA /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 7305 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

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```

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

```

```

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

```

```

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

```

```

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

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PAL10  V141      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
TAD K9252
JMS I XIOTG
6007
CLA CLL IAC
TAD K3000
JMS I XIOTF1
JMS I XIOTE
JMP .-1
CLA CLL CMA
JMS I XIOTJ
JMS I XSNDRV
JMS I NERRR
JMS I ERROR
3637
TST237
/SCOPE LOOP

/DOES INPUT 4,2,1 GENERATE CLR CNT ?
/
/MODE 2, RATE 0
TST240, CLA CLL CMA      /AC TO 7777
DCA REGA
TAD K2525
JMS I XIOTG
6007
CLA CLL IAC RTL
TAD K2000
JMS I XIOTF1
JMS I XIOTE
JMP .-1
CLA CLL CMA
JMS I XIOTK
JMS I XSNDRV
JMS I NERRR
JMS I ERROR
4240
TST240
/SCOPE LOOP

/DOES INPUT 4,2,1 CAUSE CLR CNT ?
/
/MODE 2, RATE 0
TST241, CLA CLL CMA
DCA REGA
TAD K9252
JMS I XIOTG
6007
CLA CLL IAC RAL
TAD K2000
/GET AC NUMBER
/10T 6133, CLAB
/CAF OR CLEAR THE WORLD
/AC TO 0002
/GET ENABLES
/10T 6132, CLOE
/10T 6131, CLSK
/WAIT FOR FLAG
/AC TO 7777
/10T 6136, CLBA
/CHECK SEND AND RECEV REGISTERS
/CHECK NON-ERROR HANDLER
/ERROR: COUNTER TO BUFFER FAILED
/TST237 ERROR MESSAGE
/SCOPE LOOP

/GET AC NUMBER
/10T 6133, CLAB
/CAF OR CLEAR THE WORLD
/AC TO 0004
/GET ENABLES
/10T 6132, CLOE
/10T 6131, CLSK
/WAIT FOR FLAG
/AC TO 7777
/10T 6137, CLCA
/CHECK SEND AND RECEV REGISTERS
/CHECK NON-ERROR MESSAGE
/ERROR: CLR CNT FAILED, MODE 2
/TST240 ERROR MESSAGE
/SCOPE LOOP

/GET AC NUMBER
/10T 6133, CLAB
/CAF OR CLEAR THE WORLD
/AC TO 0002
/GET ENABLES
/10T 6132, CLOE
/10T 6131, CLSK
/WAIT FOR FLAG
/AC TO 7777
/10T 6137, CLCA
/CHECK SEND AND RECEV REGISTERS
/CHECK NON-ERROR MESSAGE
/ERROR: CLR CNT FAILED, MODE 2
/TST240 ERROR MESSAGE
/SCOPE LOOP

```

```

4435 7340
4436 3040
4437 1017
4440 4427
4441 6027
4442 7301
4443 1120
4444 4426
4445 4424
4446 5245
4447 7340
4450 4432
4451 4456
4452 4472
4453 4473
4454 3637
4455 4435

4456 7340
4457 3040
4460 1016
4461 4427
4462 6027
4463 7307
4464 1143
4465 4426
4466 4424
4467 5266
4470 7340
4471 4433
4472 4456
4473 4472
4474 4473
4475 4240
4476 4456

4477 7340
4500 3040
4501 1017
4502 4427
4503 6027
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  TST244,  CLA CLL CMA
4563 3040  DCA REGA
4564 1016  TAD K2525
4565 4427  JMS I XIOTG
4566 6027  6007
4567 7327  CLA CLL IAC RTL
4570 4426  JMS I XIOTF1
4571 4424  JMS I XIOTE
4572 5371  JMP .-1
4573 7340  CLA CLL CMA
4574 4433  JMS I XIOTK
4575 4436  JMS I XSNDRV
4576 4472  JMS I NERRR
4577 4473  JMS I ERROR
4600 4244  4244
4601 4562  TST244

```

```

/DOES INPUT 4,2,1 AFFECT MODE 0 ?
/AC TO 7777

```

```

4602 7340  TST245,  CLA CLL CMA
4603 3040  DCA REGA
4604 1017  TAD K2525
4605 4427  JMS I XIOTG
4606 7321  CLA CLL IAC
4607 4426  JMS I XIOTF1
4610 4424  JMS I XIOTE
4611 5210  JMP .-1
4612 7340  CLA CLL CMA
4613 4432  JMS I XIOTJ
4614 4436  JMS I XSNDRV
4615 4472  JMS I NERRR
4616 4473  JMS I ERROR
4617 3645  3645
4620 4622  TST245

```

```

/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

```

```

/DOES INPUT 4,2,1 AFFECT MODE 1 ?
/AC TO 7777

```

```

4621 7340  TST246,  CLA CLL CMA
4622 3040  DCA REGA
4623 1016  TAD K2525
4624 4427  JMS I XIOTG
4625 6027  6007
4626 3070  DCA SEND
4627 7321  CLA CLL IAC
4630 1144  TAD K1000
4631 4426  JMS I XIOTF1
4632 4424  JMS I XIOTE
4633 5252  JMP .-1
4634 7340  CLA CLL CMA
4635 4432  JMS I XIOTJ
4636 7650  SNA CLA
4637 4472  JMS I NERRR
4640 4473  JMS I ERROR
4641 4246  4246
4642 4622  TST246

```

```

/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

```

```

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

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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

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PAL10  V141      JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
4721  4426      JMS I NERR0      /CHECK NON-ERROR HANDLER
4722  4472      JMS I ERROR      /ERROR: CLSA OK STATUS REGISTER
4723  4473      5251      /TST251 ERROR MESSAGE
4724  5251      TST251      /SCOPE LOOP
4725  4726
/
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
NERRO, 0000      /CAF OR CLEAR THE WORLD
6007      /CAF OR CLEAR THE WORLD
ISZ NERR0
ISZ NERR0
ISZ REGA
JMP OUT
JMS I XCLREG      /CLEAR ALL REGISTERS
LAS
AND K0040
SZA CLA
JMP OUT
ISZ NERR0
JMP I NERR0      /TO NEXT TEST
/
OUT,
TAD I NERR0
DCA ERRO
JMP I ERRO
/
/ERROR HANDLER FOR PROGRAM
/
ERRO, 0000      /CAF OR CLEAR THE WORLD
6007
LAS
RTL
SMA CLA
JMS I XSORT
JMS I XBELL
JMS I XCLREG
ISZ ERRO
LAS
AND K0220
SNA CLA
HLT
EHLT1,
LAS
AND K0100
SZA CLA
JMP IN
ISZ ERRO
5020  0020
5021  6027
5022  7624
5023  7026
5024  7200
5025  4523
5026  4510
5027  4460
5030  2220
5031  7624
5032  0015
5033  7650
5034  7422
5035  7624
5036  0013
5037  7640
5040  5243
5041  2220
/CHECK SWR2 FOR INH. PRINT
/GET ERROR MESSAGE
/RING BELL
/CHECK SWR4 FOR INH. HLT
/MONITOR ERROR HALT, READ TYPEOUT
/AND REFERENCE LISTING.
/CHECK SWR5 FOR SCOPE LOOP

```

/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	/	0000		
5130	6131	IOTE,	6131	/FIELD SERVICE CHANGE	
5131	5727		JMP I IOTE		
5132	2627		ISZ IOTE		
5133	5727		JMP I IOTE		
5134	0000	/	0000		
5135	3070	IOTF,	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	/	0000		
5143	6132	IOTF1,	6132	/FIELD SERVICE CHANGE	
5144	5742		JMP I IOTF1		
5145	7422	EHLT4,	HLT	/SKIP TRAP, CLOE	
5146	0000	/	0000		
5147	3070	IOTG,	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	/	0000		
5155	6134	IOTH,	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	/	0000		
5164	6135	IOTI,	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	



PAL10	V141	9-OCT-71	15144	PAGE 1-60
5205	1071	TAD RECEV		
5206	5600	JMP I IOTJ		
5207	0000			/FIELD SERVICE CHANGE
5210	6137			/SKIP TRAP, CLCA
5211	7410	SKP		/SAVE OUTPUT FOR ERROR PRINTER
5212	7402	EHLT11, HLT		
5213	3071	DCA RECEV		
5214	1071	TAD RECEV		
5215	5607	JMP I IOTK		
5216	0000			
5217	7041	SNDRV, 0000		
5220	1070	CIA		
5221	7640	TAD SEND		
5222	2216	SEA CLA		/WAS SEND AND RECEV THE SAME ?
5223	5616	ISZ SNDRV		
		JMP I SNDRV		
5224	0000			
5225	1044	RANDOM, 0000		
5226	7024	TAD REGE		
5227	7430	RAL		
5230	1410	SZL		
5231	3044	TAD I 10		
5232	1044	DCA REGE		
5233	5624	TAD REGE		
5234	0000	JMP I RANDOM		
5235	7300			
5236	1254	CLA CLL		/CLEAR THE AC AND LINK
5237	3002	TAD PRET5		
5240	6021	DCA 2		/SET FOR PI RETURN
5241	7300	ION		
5242	1076	CLA CLL		/CLEAR THE AC AND LINK
5243	3042	TAD KREGC		
5244	4433	DCA REGC		
5245	2042	JMS I XIOTK		
5246	5245	ISZ REGC		/READ THE COUNTER
5247	2043	JMP -71		
5250	5241	ISZ REGO		
5251	2234	JMP -7		
5252	6022	ISZ PIG05		
5253	5634	PIRET5, IOF		/DISABLE PROGRAM INTERRUPT
		JMP I PIG05		
5254	5252			
5255	0000	PIRET5, PIRET5		
5256	7300			
5257	1267	PIG01, 0000		/CLEAR THE AC AND LINK
5260	3022	CLA CLL		
5261	6021	TAD PRET1		/SET FOR PI RETURN
5262	4454	DCA 2		/ENABLE PROGRAM INTERRUPT
5263	7410	ION		
5264	2255	JMS I XISZ		
5265	6022	SKP		
5266	5655	PIRET1, ISZ PIG01		/DISABLE PROGRAM INTERRUPT
		IOF		
		JMP I PIG01		

```

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,

IOTS1,

IOTS2,

\*5400

IOTS3,

CLOCK,

LAS

AND K0007

DCA CLOCKS

JMP I CLOCK

/ROUTINE TO TYPE OCTAL NUMBERS

/ENTER WITH NUMBER IN AC AND LINK 0

/OCTEL, 0000

5346 5736

5347 5345

5350 0000

5351 6132

5352 6134

5353 6132

5354 6134

5355 6132

5356 6134

5357 5750

5360 0000

5361 6133

5362 6136

5363 6133

5364 6136

5365 6133

5366 6136

5367 5760

5370 0000

5371 6133

5372 6137

5373 6133

5374 6137

5375 6133

5376 6137

5377 5770

5400 5400

5400 0000

5401 6134

5402 7040

5403 6130

5404 7040

5405 6134

5406 7040

5407 6130

5410 7040

5411 6134

5412 5600

5413 0000

5414 7624

5415 0007

5416 3075

5417 5613

5420 0000

/COMPLEMENT THE AC

/COMPLEMENT THE AC

/COMPLEMENT THE AC

/COMPLEMENT THE AC

```

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 REGC
5437 5226 JMP I-11
5440 5620 JMP I OCTEL

/Routine for CRLF
CRLF, 0000
CLA CLL
TAD K0215
JMS I XTYPE
TAD K0212
JMS I XTYPE
JMP I CRLF
/Routine to type clock
POPR, 0000
CLA CLL
TAD KTADCK
TAD CLOCKS
DCA I+1
TAD KTADCK
JMS I XOCTEL
JMS I XPRINT
FMES
JMP I POPR

KTADCK, TAD CLKNO
CLKNO, 0001
0050
0100
0120
0500
5000

/Routine to sort error messages
SORT, 0000
CLA CLL
JMS I XCRLF
TAD I ERROR
DCA REGE

```

/SAVE NUMBER  
 /SET UP COUNTER  
 /GET NUMBER  
 /GET NUMBER  
 /SAVE THE REST  
 /CLEAR THE AC AND LINK  
 /CLEAR THE AC AND LINK  
 /GET CLOCK TAD  
 /MAKE IT  
 /MODIFIED BY TEST  
 /PRINT NUMBER  
 /PRINT CLOCKS  
 /ROUTINE TO SORT ERROR MESSAGES  
 /CLEAR THE AC AND LINK  
 /CRLF  
 /GET MESSAGE POINT

```

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5476      4525      JMS I XMESS      /GO PRINT TEST + ADDRESS
5477      1444      TAD I REGE
5500      7012      RTR
5501      7012      RTR
5502      7012      RTR
5503      7012      RTR
5504      0127      AND K0017      /MOVE IT TO BITS 8-11
5505      3044      DCA REGE      /MASK 8-11
5506      7000      CLA CLL      /SAVE POINTER
5507      1044      TAD REGE      /CLEAR THE AC AND LINK
5510      1326      TAD KTADM      /GET POINTER
5511      3312      DCA +1
5512      1326      TAD KTADM      /MODIFIED BY TEST
5513      3316      DCA +3      /STORE MESSAGE POINTER
5514      4521      JMS I XCRLF      /CRLF
5515      4526      JMS I XPRINT      /PRINT MESSAGE
5516      0000      0000      /MODIFIED MESSAGE POINTER
5517      7300      CLA CLL
5520      1044      TAD REGE      /GET MESSAGE POINTER
5521      1132      TAD K7772      /IS IT GREATER THAN
5522      7620      SNL CLA
5523      5671      JMP I SORT
5524      4502      JMS I XREG
5525      5671      JMP I SORT

5526      1327      /KTADM, TAD KTMX
5527      6107      /KTMX, MES1
5530      6131      MES2
5531      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      /CLEAR THE AC AND LINK
JMS I XCRLF      /CRLF
JMS I XPRINT      /GO PRINT TEST
THES
TAD I ERROR      /GET ERROR MESSAGE
DCA REGD      /STORE MESSAGE POINTER
TAD I REGD
AND K0377      /MASK 4-11
JMS I XOCTEL      /GO PRINT NUMBER
ISE REGD      /UPDATE POINTER
JMS I XPRINT      /GO PRINT STARTING ADDRESS
AMES
TAD I REGD

```

```

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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
5564 4521          JMS I XCRLF          /GO PRINT MESSAGE
5565 4526          JMS I XPRINT          /GET GOOD AC
5566 6067          GMS          /PRINT IT
5567 1070          TAD SEND          /PRINT BAD AC
5570 4524          JMS I XOCTEL
5571 4526          JMS I XPRINT
5572 6077          BMS
5573 1071          TAD RECEV          /GET BAD AC
5574 4524          JMS I XOCTEL          /PRINT IT
5575 7300          CLA CLL          /CLEAR THE AC AND LINK
5576 5763          JMP I PREG

/
*5600
/
SETO, 0000          /GET JMP I 2
5601 0020          TAD JMP12          /SET FOR PI RETURN
5602 3021          DCA I
5603 5600          JMP I SETO

/ROUTINE TO TYPE LISTING
/ENTER WITH JMS +1 EQUAL TO START OF LIST
/
PRINT, 0000          /CLEAR THE AC AND LINK
5605 7300          CLA CLL          /SET FOR RETURN +1
5606 1624          TAD I PRINT          /SAVE THE POINTER
5607 2204          ISE PRINT          /GET THE CHARACTER
5610 3041          DCA REGH          /MASK BITS 0-5
5611 1441          TAD I REGB          /END OF MESSAGE
5612 0012          AND K7700          /YES, EXIT
5613 7450          SNA          /IS AC MINUS
5614 5240          JMP EXIT          /NO, SET THE LINK
5615 7520          SMA
5616 7020          CML
5617 7021          IAC
5620 7012          RTR
5621 7012          RTR
5622 7012          RTR
5623 4507          JMS I XTYPE          /PRINT THE CHARACTER
5624 1441          TAD I REGB          /GET THE WORD
5625 0133          AND K0077          /MASK BITS 6-11
5626 7450          SNA          /END OF MESSAGE
5627 9240          JMP EXIT          /YES EXIT
5630 1125          TAD K3740          /NO, ADD A CONSTANT
5631 7520          SMA
5632 1124          TAD K4100
5633 1126          TAD K0240
5634 4527          JMS I XTYPE          /TYPE THE CHARACTER
5635 2041          ISE REGB          /UPDATE WORD LIST

```

```

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5636  7320      CLA CLL      /CLEAR THE AC AND LINK
5637  5211      JMP PRINT*5

5640  7320      CLA CLL      /CLEAR THE AC AND LINK
5641  5624      JMP I PRINT  /YES EXIT
/ROUTINE TO WAIT FOR OVERFLOWS
/
XWAIT, 0000      /SAVE THE AC
DCA SAVAC
CLA CLL CMA RAL
TAD XWAIT
DCA XWAIT      /SET FOR RETURN ADDRESS
ISE REGB
JMP RETURN
ISE REGF
JMP RETURN
CLA CLL CML IAC RAL
TAD XWAIT
DCA XWAIT
DCA SAVAC
JMP I XWAIT

RETURN, TAD SAVAC
/UPDATE FOR ERHOR RETURN
/
SWLAS, 0000
LAS
AND K0010
SEA CLA
JMP CLKIN
LAS
AND K0020
SEA CLA
JMP EXTER
CLA CLL CMA
DCA K11CPS
LAS
AND K6007
SEA CLA
JMP *+3
TAD KPRMTI
DCA K11CPS
LAS
7024
RAL
SPA CLA
JMP I SWLAS
ISE SWLAS
LAS
SPA CLA
JMP I SWLAS
ISE SWLAS
JMP I SWLAS
/TEST DK8-EA OR DK8-EC

5642  0000
5643  3011
5644  7314
5645  1242
5646  3242
5647  2041
5650  5256
5651  2045
5652  5256
5653  7325
5654  1242
5655  3242
5656  1011
5657  5642

5660  0020
5661  7624
5662  0142
5663  7640
5664  5325
5665  7624
5666  0140
5667  7640
5670  5313
5671  7340
5672  3113
5673  7624
5674  0114
5675  7640
5676  5321
5677  1111
5700  3113
5701  7624
5702  7024
5703  7710
5704  5660
5705  2260
5706  7624
5707  7710
5710  5660
5711  2260
5712  5660

5713  7340
5714  4427
5715  7320
5716  1137

EXTER, CLA CLL CMA
JMS I XIOTG
CLA CLL
TAD K0040
/IOT 6133, CLAB

```

```

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?

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	
FMES	5713	K6000	0117	PIRET1	5264	2306	
GTAD	6067	K6007	0114	PIRET2	5277	2273	
IN	5746	K7000	0141	PIRET5	5252	2555	
IOTA	5043	K7400	0112	PMES	6014	2537	
IOTB	5102	K7700	0012	POPR	5450	2603	
IOTC	5127	K7770	0122	PREG	5563	2565	
IOTD	5114	K7772	0132	PRET1	5267	2631	
IOTE	5141	K7773	0131	PRET2	5301	2613	
IOTF	5147	K7774	0130	PRET5	5254	2657	
IOTG	5142	KPRMT1	0111	PRETC	5335	2641	
IOTH	5154	KREGC	0076	PRETD	5347	2705	
IOTI	5163	KTA	0113	PRINT	5604	2667	
IOTJ	5200	KTA1	0151	RANDOM	5224	2733	
IOTK	5207	KTA1	0152	RANDY	0055	2715	
IOTS	5350	KTADCK	5462	RECEV	0071	3254	
IOTS1	5360	KTADM	5526	REGA	0040	3257	
IOTS2	5370	KTAD	0153	REGB	0041	3244	
IOTS3	5400	KTAD	0154	REGC	0042	3240	
ISZLOP	5310	KTB	0155	REGD	0043	3303	
JMPI2	0100	KTC	0156	REGF	0045	3306	
K0006	0115	KTC1	0157	REGG	0044	3273	
K0007	0007	KTC2	0160	REGE	0045	3267	
K0010	0142	KTD	0161	RETO	5345	3336	
		KTD1	0162	RETURN	5656	3341	
		KTE	0163	SAVAC	0011	3326	
		KTE1	5527	SEND	0070	3323	
		KTMX					

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  
 XMITI1 0065  
 XOCTEL 0104  
 XOPR 0165  
 XPASS 0170  
 XPIG01 0047  
 XPIG02 0050  
 XPIG03 0051  
 XPIG04 0052  
 XPIG05 0053  
 XPRINT 0106  
 XREG 0102  
 XSET0 0164  
 XSNDRV 0056  
 XSORT 0103  
 XSYNC 0057  
 XTYPE 0107  
 XWAIT 5642

ERRORS DETECTED: 0

LINKS GENERATED: 0

RUN-TIME: 39 SECONDS

3K CORE USED