

IDENTIFICATION

PRODUCT CODE: MAINDEC-8E-D8AC-D

PRODUCT NAME: DK8E CLOCKS DIAGNOSTIC

DATE CREATED: OCTOBER 8, 1971

MAINTAINER: DIAGNOSTIC PROGRAMMING GROUP

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1. ABSTRACT -----

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

2. REQUIREMENTS -----

2.1 EQUIPMENT -----

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

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

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

2.2 STORAGE -----

THE PROGRAM OCCUPIES LOCATIONS 0000-6600.

2.3 PRELIMINARY PROGRAMS -----

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

3. LOADING PROCEDURE -----

3.1 METHOD -----

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

4. STARTING PROCEDURE -----

4.1 CONTROL SWITCH SETTINGS -----

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

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

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

4.2 STARTING ADDRESS

THE STARTING ADDRESS IS 0200 OCTAL.

4.3 OPERATOR ACTION

4.3.1 DK8-EA/DK8-EC TEST

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

PRESS ADDRESS LOAD.

SET THE SWITCH REGISTER TO 0000.

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

PRESS CLEAR AND THEN PRESS CONTINUE.

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

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

4.3.2 DK8-EP/DK8-ES REGISTER TEST

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

PRESS ADDRESS LOAD.

SET SWITCH REGISTER TO 0000.

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

PRESS CLEAR AND THEN PRESS CONTINUE.

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

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

4.3.3 DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST

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

SET SWITCH REGISTER TO 0000.

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

PRESS CLEAR AND THEN CONTINUE.

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

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

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

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

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE EXTERNAL PULSE SCOPE LOOP TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

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

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

4.3.5 DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST

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

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE EXTERNAL CLOCK SCOPE LOOP TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

GROUND CLOCK IN ON DK8-ES CLOCK FRONT PANEL.

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

5. OPERATING PROCEDURE

5.1 OPERATIONAL SWITCH SETTINGS

NONE

5.2 SUBROUTINE ABSTRACTS

NONE

5.3 OPERATOR TEST SELECTION

5.3.1 DK8-EA OR DK8-EC CLOCK OPTION

INSTALL DK8-EA OR DK8-EC CLOCK OPTION

RUN DK8-EA/DK8-EC TEST 4.3.1.

5.3.2 DK8-EP CLOCK OPTION

INSTALL DK8-EP CLOCK OPTION.

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

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

5.3.3. DK8-ES CLOCK OPTION

INSTALL DK8-ES CLOCK OPTION.

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

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

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

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

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

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

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

6. ERRORS

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

6.1 ERRORS AND DISCRPTION -----

6.1.1 ERROR HALTS -----

ERROR HALTS IN PROGRAM ARE AS FOLLOWS:

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

EHLT2: SKIP TRAP, CLZE

EHLT3: SKIP TRAP, CLOE

EHLT4: SKIP TRAP, CLOE

EHLT5: SKIP TRAP, CLAB

EHLT6: SKIP TRAP, CLEN

EHLT7: SKIP TRAP, CLSA

EHLT10: SKIP TRAP, CLBA

EHLT11: SKIP TRAP, CLCA

6.1.2 ERROR TYPECUTS -----

ERROR TYPECUTS IN PROGRAM ARE AS FOLLOWS:

TEST XXXX FAILED, STARTING ADDRESS XXXX

THE GOOD AC = XXXX AND BAD AC = XXXX

CLOCK BUFFER REGISTER AND AC TRANSFER FAILED

CLOCK COUNTER REGISTER AND AC TRANSFER FAILED

CLOCK ENABLE REGISTER AND AC TRANSFER FAILED

THE AC WAS CHANGED BY A CLOCK IOT

PROGRAM INTERRUPT FAILED, NO INTERRUPT EXPECTED

PROGRAM INTERRUPT FAILED, INTERRUPT EXPECTED

CLOCK SKIP FAILED, NO SKIP EXPECTED

CLOCK SKIP FAILED, SKIP EXPECTED

CLOCK OUTPUT FAILED, CLOCK FREQUENCY FAST

CLOCK OUTPUT FAILED, CLOCK FREQUENCY SLOW

6.2 ERROR RECOVERY -----

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

FURTHER INFORMATION.

6.2.1 SCOPE LOOPS

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

SET SWR4=1 TO INDICATE INHIBIT ERROR HALT.

SET SWR5=1 TO INDICATE ENTER SCOPE LOOP.

SET SWR6=1 TO INDICATE LOOP ON THIS TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

SET SWR2=1 TO INHIBIT ERROR TYPEOUT.

SET SWR3=1 TO INHIBIT ERROR BELL.

7. RESTRICTIONS

7.1 STARTING RESTRICTIONS

NONE

7.2 OPERATING RESTRICTIONS

THE PROGRAM MUST RESIDE IN BANK 0 .

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

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

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

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

8. MISCELLANECUS

8.1 SPECIFICATIONS

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

8.2 EXECUTION TIME

DK8-EA/DK8-EC TEST, APPROXIMATIVELY 2.5 MINUTES PER PASS.
DK8-EP/DK8-ES REGISTER TEST, APPROXIMATIVELY 3.5 MINUTES
PER PASS.
DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST, APPROXIMATIVELY
2 MINUTES PER PASS.

9. PROGRAM DISCRIPTION

9.1 DK8-EA OR DK8-EC CLOCK

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

SKIP ON A CLOCK FLAG AND CLEAR THE FLAG (CLSK)

OCTAL CODE: 6133

OPERATION: SENSES THE CLOCK FLAG, WHICH IS SET WITH
EACH CLOCK PULSE. IF IT IS SET, THE NEXT
SEQUENTIAL INSTRUCTION IS SKIPPED AND THE
FLAG IS THEN CLEARED.

ENABLE CLOCK INTERRUPT (CLEI)

OCTAL CODE: 6131

OPERATION: ENABLES THE CLOCK FLAG, WHICH IS SET WITH
EACH CLOCK PULSE, TO CAUSE A PROGRAM
INTERRUPT REQUEST. THE FLAG WILL REMAIN
SET UNTIL CLEARED WITH CLSK.

DISABLE CLOCK INTERRUPT (CLED)

OCTAL CODE: 6132

OPERATION: DISABLES THE CLOCK FLAG FROM CAUSING
AN INTERRUPT REQUEST. THE FLAG IS NOT AFFECTED.

9.2 DK8-EP/DK8-ES CLOCK

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

CLEAR THE CLOCK ENABLE REGISTER PER AC (CLZE)

OCTAL CODE: 6130

OPERATION: CLEARS THE BITS IN THE CLOCK ENABLE
REGISTER CORRESPONDING 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 TRANSFERED TO THE CLOCK COUNTER REGISTER WHICH WILL CONTINUE TO RUN AFTER TRANSFER. OVERFLOW WILL REMAIN SET UNTIL CLEARED BY (CLSA) IOT 6135.

10 COUNTER RUNS AT SELECTED RATE. AN EXTERNAL SCHMITT TRIGGER SIGNAL, IF ENABLED, CAUSES THE CLOCK COUNTER REGISTER TO BE TRANSFERED TO THE CLOCK BUFFER REGISTER AND THE CLOCK COUNTER CONTINUES TO RUN.

11 COUNTER RUNS AT SELECTED RATE. AN EXTERNAL SCHMITT TRIGGER SIGNAL, IF ENABLED, CAUSES THE CLOCK COUNTER REGISTER TO BE TRANSFERED TO THE CLOCK BUFFER REGISTER AND THE CLOCK COUNTER WILL CONTINUE TO RUN FROM 0.

3, 4 & 5

COUNT RATE

000 STOP
001 EXTERNAL CLOCK SOURCE
010 100 CPS
011 1000 CPS
100 10000 CPS
101 100000 CPS
110 1000000 CPS
111 STOP

6

WHEN SET TO A 1, OVERFLOW CAUSES AN EXTERNAL PULSE.

- 7 WHEN SET TO A 1, THE CLOCK COUNTER IS INHIBITED FROM COUNTING.
- 8 WHEN SET TO A 1, ENABLES EXTERNAL SCHMITT TRIGGER SIGNALS AND THE OVERFLOW FLOP TO CAUSE AN INTERRUPT REQUEST IF THEY ARE ENABLED.

9,10 & 11 ENABLE SCHMITT TRIGGER EVENTS

100 INPUT 4
010 INPUT 2
001 INPUT 1

AC TO CLOCK BUFFER REGISTER (CLAB)

OCTAL CODE: 6133

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

CLOCK ENABLE REGISTER TO AC (CLEN)

OCTAL CODE: 6134

OPERATION: CAUSES THE CONTENTS OF THE CLOCK ENABLE REGISTER TO BE TRANSFERRED TO THE AC. THE ENABLE REGISTER IS NOT AFFECTED.

CLOCK STATUS TO AC (CLSA)

OCTAL CODE: 6135

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

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

CLOCK BUFFER REGISTER TO AC (CLBA)

OCTAL CODE: 6136

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

CLOCK COUNTER REGISTER TO AC (CLCA)

OCTAL CODE: 6137

OPERATION:

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

10.

LISTING

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/DK8E CLOCKS DIAGNOSTIC

/

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/

/THE STARTING ADDRESS 0200 OCTAL.

/

/PLEASE READ DOCUMENT FOR FURTHER INFORMATION.

/

0000	0000	
0001	0001	
0002	5001	
0003	0002	
0004	0003	
0005	0000	0000
0006	0000	0000
0007	0207	K0207,
0008	0007	K0007,
0009	0000	AUTO10,
0010	0000	SAVAC,
0011	0000	K7700,
0012	7700	0100,
0013	0100	K4000,
0014	4000	0200,
0015	0200	K2525,
0016	2525	K5252,
0017	5252	X10TA,
0020	5102	X10TB,
0021	5107	X10TC,
0022	5114	X10TD,
0023	5121	X10TE,
0024	5127	X10TF,
0025	5134	X10TF1,
0026	5142	X10TG,
0027	5146	X10TH,
0030	5154	X10TI,
0031	5163	X10TJ,
0032	5200	X10TK,
0033	5207	X10TS,
0034	5350	X10TS1,
0035	5360	X10TS2,
0036	5370	X10TS3,
0037	5400	REGA,
0040	0000	REGB,
0041	0000	REGC,
0042	0000	REGD,
0043	0000	REGF,
0044	0000	REGF,
0045	0000	SKPWAT,
0046	5642	XPIG01,
0047	5255	XPIG02,
0050	5270	XPIG03,
0051	5323	XPIG04,
0052	5336	XPIG05,
0053	5234	P1G05

0034	0310	XISE,	ISELOP
0035	5224	RANDY,	RANDOM
0036	5216	XSNDRV,	SNDRV
0037	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,	SWLAS
0067	5746	XGTAD,	GTAD
0070	0020	SEND,	0000
0071	0020	RECEV,	0000
0072	5000	NERROR,	NERROR
0073	5020	ERROR,	ERRO
0074	5413	XCLOCK,	CLOCK
0075	0020	CLOCKS,	0000
0076	0020	KRECC,	0000
0077	0020	LOOP,	0000
0100	5402	JMP12,	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	KPRMT1,	7730
0112	7400	K7400,	7400
0113	0000	KT1CPS,	0000
0114	6007	K6007,	6007
0115	0026	K0006,	0006
0116	0400	K0400,	0400
0117	6000	K6000,	6000
0120	3000	K3000,	3000
0121	5000	K5000,	5000
0122	7770	K7770,	7770
0123	0260	K0260,	0260
0124	4100	K4100,	4100
0125	3740	K3740,	3740
0126	0240	K0240,	0240
0127	0017	K0017,	0017
0130	7774	K7774,	7774
0131	7773	K7773,	7773
0132	7772	K7772,	7772
0133	0077	K0077,	0077
0134	0215	K0215,	0215
0135	0212	K0212,	0212
0136	0377	K0377,	0377
0137	0040	K0040,	0040
0140	0020	K0020,	0020
0141	7000	K7000,	7000
0142	0010	K0010,	0010

0143 2000 K2000, 2000
0144 1000 K1000, 1000
0145 0300 K0300, 0300
0146 0500 K0500, 0500
0147 0600 K0600, 0600
0150 0700 K0700, 0700
0151 2725 KTA, 2725
0152 2650 KTA1, 2650
0153 7425 KTB, 7425
0154 7350 KTB1, 7350
0155 7753 KTC, 7753
0156 0225 KTC1, 0225
0157 0150 KTC2, 0150
0160 1450 KTD, 1450
0161 1425 KTD1, 1425
0162 6575 KTE, 6575
0163 6525 KTE1, 6525
0164 5600 XSETO, SETO
0165 5450 XOPR, OPOR
0166 0070 PATCH, 0070
0167 5771 XGETM, TIMCLK
0170 5740 XPASS, PASS
0171 1775 XCRS1, T1228
0172 2200 XCRS2, T127A
0173 2603 XCRS3, T150A
0174 2505 XCRS4, T150B
0175 4023 XCRS5, T215A

0200 *0200

0200 7300 CLA CLL
0201 6007 BEGIN,
0202 4501 JMS I XCRLF
0203 4506 JMS I XPRINT
0204 6000 DKMES
0205 4501 JMS I XCRLF
0206 4460 JMS I XCLREG
0207 4504 JMS I XSETO
0210 4466 JMS I XLAS
0211 5405 JMP I XMITT1
0212 5463 JMP I XDK8EP
0213 4474 JMS I XCLOCKS
0214 4505 JMS I XOPR
0215 4507 BGNEAC, JMS I XGETM
0216 3077 DCA LOOP
0217 4460 JMS I XCLREG
0220 3040 DCA REGA

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

/DOES IOT CLEI CHANGE AC ?
/CHECK ALL COMBINATIONS

0221 1040 TST0,
0222 3070 DCA REGA
0223 1070 DCA SEND
0224 4420 TAD SEND
JMS I XIOTA
/GET AC NUMBER
/SAVE OUTPUT FOR ERROR PRINTER
/IOT 6131, CLEI

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

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

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

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

/DOES CLSK SKIP ON A CLOCK FLAG
/
TST4,
0273 1113      TAD KT1CPS
0274 3045      DCA REGF      /SET UP TIMER
0275 4422      JMS I XIOTC    /IOT 6133, CLSK

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[illegible]

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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	T11A,	JMS I ERROR	/ERROR: CLEI AND CLED FAST TOGGLE
0355		1411		1411	/TS11 ERROR MESSAGE
0356		0346		TST11	/SCOPE.
			/	/DOES CLED DISABLE CLOCK INTERRUPT ?	
			/		
0357		4420	TST12,	JMS I XIOTA	/IOT 6131, CLEI
0360		4421		JMS I XIOTB	/IOT 6132, CLED
0361		4450		JMS I XPIG02	/GO TO PI, NO PI EXPECTED
0362		5366		JMP T12A	
0363		4421		JMS I XIOTB	/IOT 6132, CLED
0364		4447		JMS I XPIG01	/GO TO PI, NO PI EXPECTED
0365		4472		JMS I NERROR	/CHECK NON-ERROR HANDLER.
0366		4473	T12A,	JMS I ERROR	/ERROR: CLEI AND CLED FAST TOGGLE
0367		1012		1012	/TS12 ERROR MESSAGE
0370		0357		TST12	/SCOPE LOOP.
			/	/TEST DECODER FOR 6135, NOT CLEI	
			/		
0371		4421	TST13,	JMS I XIOTB	/IOT 6132, CLED
0372		4431		JMS I XIOTI	/IOT 6135, NOT AN IOT 6131
0373		4447		JMS I XPIG01	/GO TO PI, NO PI EXPECTED
0374		4472		JMS I NERROR	/CHECK NON-ERROR HANDLER.
0375		4473		JMS I ERROR	/ERROR: DID DECODER WORK
0376		1013		1013	/TS13 ERROR MESSAGE
0377		0371		TST13	/SCOPE LOOP.
			/	/TEST DECODER FOR A 6136, NOT CLED	
			/		
0400		4420	TST14,	JMS I XIOTA	/IOT 6131, CLEI
0401		4432		JMS I XIOTJ	/IOT 6136, NOT AN IOT 6132.
0402		4450		JMS I XPIG02	/GO TO PI, PI EXPECTED
0403		4472		JMS I NERROR	/CHECK NON-ERROR HANDLER.
0404		4473		JMS I ERROR	/ERROR: DID DECODER WORK
0405		1414		1414	/TS14 ERROR MESSAGE
0406		0400		TST14	/SCOPE LOOP.
			/	/TEST DECODER FOR 6137, NOT CLSK	
			/		
0407		1113	TST15,	TAD KT1CPS	
0410		3045		DCA REGF	/SET UP TIMER
0411		4422		JMS I XIOTC	/IOT 6132, CLED
0412		7000		NOP	
0413		4433		JMS I XIOTK	/IOT 6137, NOT AN IOT 6133
0414		4446		JMS I SKPWAT	/GO WAIT FOR FLAG
0415		7410		SKP	/ERROR, SKIP OCCURRED
0416		4472		JMS I NERROR	/CHECK NON-ERROR HANDLER.
0417		4473		JMS I ERROR	/ERROR: DID DECODER WORK
0420		0015		0015	/TS15 ERROR MESSAGE

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/
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0421 0407 TST15 /SCOPE LOOP.
/DOES CLSK ENABLE CLOCK INTERRUPT ?
/
TST16, JMS I XIOTC /IOT 6133, CLSK
NOP
JMS I XPIG01 /GO TO PI, NO PI EXPECTED
JMS I NERROR /CHECK NON-ERROR HANDLER,
JMS I ERROR /ERROR: DID CLSK CAUSE INTERRUPT
1016 /TST16 ERROR MESSAGE
TST16 /SCOPE LOOP.
/DOES CLSK DISABLE CLOCK INTERRUPT ?
/
TST17, JMS I XIOTA /IOT 6131, CLEI
JMS I XIOTC /IOT 6133, CLSK
NOP
JMS I XPIG02 /GO TO PI, PI EXPECTED
JMS I NERROR /CHECK NON-ERROR HANDLER,
JMS I ERROR /ERROR: CLSK DISABLED CLOCK INTERRUPT
1417 /TST17 ERROR MESSAGE
TST17 /SCOPE LOOP.
/DOES CLEI CAUSE A SKIP ON FLAG ?
/
TST20, TAD KT1CPS
DCA REGF /SET UP TIMER
JMS I XIOTA /IOT 6131, CLEI
JMS I SKPWAT /GO WAIT FOR FLAG
SKP /ERROR, SKIP OCCURRED
JMS I NERROR /CHECK NON-ERROR HANDLER,
JMS I ERROR /ERROR: DID CLEI CAUSE A SKIP
0020 /TST20 ERROR MESSAGE
TST20 /SCOPE LOOP.
/DOES CLED CAUSE A SKIP ON FLAG ?
/
TST21, TAD KT1CPS
DCA REGF /SET UP TIMER
JMS I XIOTB /IOT 6132, CLED
JMS I SKPWAT /GO WAIT FOR FLAG
SKP /ERROR, SKIP OCCURRED
JMS I NERROR /CHECK NON-ERROR HANDLER,
JMS I ERROR /ERROR: DID CLED CAUSE A SKIP ON FLAG
0021 /TST21 ERROR MESSAGE
TST21 /SCOPE LOOP.
/DOES INT. RQST STAY DOWN ?
/
TST22, JMS I XSYNC /SYNC WITH CLOCK
JMS I XIOTA /IOT 6131, CLEI
JMS I XPIG01 /GO TO PI, PI EXPECTED
JMP T22A /ERROR, PI FAILED
ISZ REG8 /WAIT 15.5 MS
JMP .-1
0463 4457
0464 4420
0465 4447
0466 5273
0467 2041
0470 5267
0422 4422
0423 7000
0424 4447
0425 4472
0426 4473
0427 1016
0430 0422
0431 4420
0432 4422
0433 7000
0434 4450
0435 4472
0436 4473
0437 1417
0440 0431
0441 1113
0442 3045
0443 4420
0444 4446
0445 7410
0446 4472
0447 4473
0450 0020
0451 0441
0452 1113
0453 3045
0454 4421
0455 4446
0456 7410
0457 4472
0460 4473
0461 0021
0462 0452

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0471	4452	JMS I XPIG04	/GO TO PI, PI EXPECTED	
0472	4472	JMS I NERRR	/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 ?		
0476	4420	TST23,	JMS I XIOTA	/IOT 6131, CLEI
0477	4457	JMS I XSYNC	/SYNC WITH CLOCK FLAG	
0500	4451	JMS I XPIG03	/GO TO PI, NO PI EXPECTED	
0501	4472	JMS I NERRR	/CHECK NON-ERROR HANDLER	
0502	4473	JMS I ERROR	/ERROR: DID CLSK CLEAR ROST. FLAG	
0503	1023	TST23	/TST23 ERROR MESSAGE	
0504	0476	TST23	/SCOPE LOOP	
		/SYNC WITH CLOCK AND		
		/CHECK FOR FAST OUTPUT		
0505	4467	TST24,	JMS I XGTAD	/GET TIME CONSTANTS
0506	0000	TAD I .-1	/MODIFIED BY TEST	
0507	1706	DCA REGD		
0510	3043	JMS I XIOTA	/IOT 6131, CLEI	
0511	4420	JMS I XSYNC	/SYNC WITH CLOCK	
0512	4457	JMS I XPIG01	/GO TO PI, NO PI EXPECTED	
0513	4447	JMS I NERRR	/CHECK NON-ERROR HANDLER.	
0514	4472	JMS I ERROR	/ERROR: CLOCK FREQUENCY FAST.	
0515	4473	TST24	/TST24 ERROR MESSAGE.	
0516	2024	TST24	/SCOPE LOOP.	
0517	0505			
		/SYNC WITH CLOCK AND		
		/CHECK FOR SLOW OUTPUT		
0520	1115	TST25,	TAD K0006	/SETUP FOR SLOW CLOCK
0521	4467	JMS I XGTAD	/GET TIME CONSTANTS	
0522	0000	TAD I .-1	/MODIFIED BY TEST	
0523	1722	DCA REGD		
0524	3043	JMS I XIOTA	/IOT 6131, CLEI	
0525	4420	JMS I XSYNC	/SYNC WITH CLOCK	
0526	4457	JMS I XPIG02	/GO TO PI, PI EXPECTED	
0527	4450	JMS I NERRR	/CHECK NON-ERROR HANDLER.	
0530	4472	JMS I ERROR	/ERROR: CLOCK FREQUENCY SLOW.	
0531	4473	TST25	/TST25 ERROR MESSAGE.	
0532	2425	TST25	/SCOPE LOOP.	
0533	0520			
		/CHECK FOR FAST CLOCK AND		
		/BAD CLOCK FLAG WITH CLSK.		
0534	4467	TST26,	JMS I XGTAD	/GET TIME CONSTANTS
0535	0000	TAD I .-1	/MODIFIED BY TEST	
0536	1735	DCA REGD		
0537	3043	JMS I XSYNC	/SYNC WITH CLOCK	
0540	4457			

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0541      JMS I XISZ
0542      JMS I XIOTC
0543      JMS I NERRR
0544      JMS I ERROR
0545      2026
0546      TST26

/
/CHECK FOR SLOW CLOCK AND
/BAD CLOCK FLAG WITH CLSK
/
TST27,    TAD K0006
           JMS I XGTAD
           0000
           TAD I.-1
           DCA REGD
           JMS I XSYNC
           JMS I XISZ
           JMS I XIOTC
           SKP
           JMS I NERRR
           JMS I ERROR
           2427
           TST27
           ISZ LOOP
           JMP I OVER2A
           JMS I XPASS
           JMP I OVER2

/DOES IOT CLZE CHANGE AC?
/CHECK ALL COMBINATIONS.
/
TST30,    TAD REGA
           JMS I XIOTD
           DCA RECEV
           TAD RECEV
           JMS I XSNDRV
           JMS I NERRR
           JMS I ERROR
           3030
           TST30

/DOES IOT CLSK CHANGE AC?
/CHECK ALL COMBINATIONS
/
TST31,    TAD REGA
           DCA SEND
           TAD SEND
           JMS I XIOTE
           NOP
           DCA RECEV
           TAD RECEV
           JMS I XSNDRV
           JMS I NERRR
           JMS I ERROR
           4473
0601      1040
0602      3070
0603      1070
0604      4424
0605      7000
0606      3071
0607      1071
0610      4456
0611      4472
0612      4473

0570      1040
0571      4423
0572      3071
0573      1071
0574      4456
0575      4472
0576      4473
0577      3030
0600      0570

0547      1115
0550      4467
0551      0000
0552      1751
0553      3043
0554      4457
0555      4454
0556      4422
0557      7410
0560      4472
0561      4473
0562      2427
0563      0547
0564      2077
0565      5462
0566      4560
0567      5461

JMS I XISZ
JMS I XIOTC
JMS I NERRR
JMS I ERROR
2026
TST26

/SCOPE LOOP

/SET UP FOR SLOW CLOCK
/GET TIME CONSTANTS
/MODIFIED BY TEST

/SYNC WITH CLOCK
/WAIT
/IOT 6133, CLSK
/ERROR, SKIP OCCURRED
/CHECK NON-ERROR HANDLER
/ERROR: CLSK OR CLOCK FLAG FAILED
/TST27 ERROR MESSAGE
/SCOPE LOOP

/LOOP ON TEST
/TYPE PASS COMPLETE
/RESET COUNTER AND CONTINUE TESTING

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0613	3031	3031		/TST31 ERROR MESSAGE
0614	0601	TST31		/SCOPE LOOP
/				
0615	1040	/DOES IOT CLOE CHANGE AC?		
0616	4425	/CHECK ALL COMBINATIONS		
0617	3071	TST32,	TAD REGA	/GET AC NUMBER
0620	1071	JMS I XIOTF	JMS I XIOTF	/IOT 6132, CLOE
0621	4456	DCA RECEV	DCA RECEV	/SAVE INPUT FOR ERROR PRINTER
0622	4472	TAD RECEV	TAD RECEV	
0623	4473	JMS I XSNDRV	JMS I XSNDRV	/CHECK SEND AND RECEV REGISTERS
0624	3032	JMS I NERRR	JMS I NERRR	/CHECK NON-ERROR HANDLER
0625	0615	JMS I ERROR	JMS I ERROR	/ERROR:CLDE CHANGED AC
		3032	3032	/TST32 ERROR MESSAGE
		TST32	TST32	/SCOPE LOOP
/				
0626	1040	/DOES IOT CLAB CHANGE AC?		
0627	4427	/CHECK ALL COMBINATIONS		
0630	3071	TST33,	TAD REGA	/GET AC NUMBER
0631	1071	JMS I XIOTG	JMS I XIOTG	/IOT 6133, CLAB
0632	4456	DCA RECEV	DCA RECEV	/SAVE INPUT FOR ERROR PRINTER
0633	4472	TAD RECEV	TAD RECEV	
0634	4473	JMS I XSNDRV	JMS I XSNDRV	/CHECK SEND AND RECEV REGISTERS
0635	3033	JMS I NERRR	JMS I NERRR	/CHECK NON-ERROR HANDLER
0636	0626	JMS I ERROR	JMS I ERROR	/ERROR:CLAB CHANGED AC
		3033	3033	/TST33 ERROR MESSAGE
		TST33	TST33	/SCOPE LOOP
/				
0637	6027	/DOES CAF CLEAR BUFFER REGISTER?		
0640	7340	/CHECK FOR JAM TO AC, CLBA.		
0641	4432	TST34,	6007	/CAF OR CLEAR THE WORLD
0642	7650	CLA CLL CMA	CLA CLL CMA	/AC TO 7777
0643	4472	JMS I XIOTJ	JMS I XIOTJ	/IOT 6136, CLJA
0644	4473	SNA CLA	SNA CLA	/WAS BUFFER ALL 'S?
0645	3434	JMS I NERRR	JMS I NERRR	/CHECK NON-ERROR HANDLER
0646	0637	JMS I ERROR	JMS I ERROR	/ERROR:CAF OR CLBA FAILED.
		3434	3434	/TST34 ERROR MESSAGE
		TST34	TST34	/SCOPE LOOP
/				
0647	6027	/DOES CAF CLEAR ENABLE REGISTER?		
0650	7340	/CHECK FOR JAM TO AC, CLEN.		
0651	4430	TST35,	6007	/CAF OR 'LEAR THE WORLD
0652	7650	CLA CLL CMA	CLA CLL CMA	/AC TO 7777
0653	4472	JMS I XIOTH	JMS I XIOTH	/IOT 6134, CLEN
0654	4473	SNA CLA	SNA CLA	/WAS ENABLE REGISTER ALL 0'S?
0655	4435	JMS I NERRR	JMS I NERRR	/CHECK NON-ERROR HANDLER
0656	0647	JMS I ERROR	JMS I ERROR	/ERROR:CAL OR CLEN FAILED.
		4435	4435	/TST35 ERROR MESSAGE
		TST35	TST35	/SCOPE LOOP

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/
/DOES CAF CLEAR STATUS REGISTER ?
/CHECK JAM TO AC CLSA
/
TST36, 6007 /CAF OR THE CLEAR THE WORLD
        CLA ALL CMA /AC TO 7777
        JMS I XIOTI /IOT 6135, CLSA
        SNA CLA /WAS STATUS REGISTER ALL 0'S ?
        JMS I NERROR /CHECK NON-ERROR HANDLER
        JMS I ERROR /CAF OR CLSA FAILED
        5036 /TST36 ERROR MESSAGE
        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
        CLA ALL CMA /AC TO 7777
        JMS I XIOTJ /IOT 6136, CLBA
        SNA CLA /WAS BUFFER ALL 0'S?
        JMS I NERROR /CHECK NON-ERROR HANDLER
        JMS I ERROR /ERROR:CLAB OR CLBA FAILED
        3437 /TST37 ERROR MESSAGE
        TST37 /SCOPE LOOP

/
/DOES AC LOAD BUFFER REGISTER ?
/CHECK ALL 1'S TRANSFER
/CHECK JAM TO AC, CLBA
/
TST40, CLA ALL CMA /AC TO 7777
        JMS I XIOTG /IOT 6133, CLAB
        CLA ALL /CLEAR THE AC AND LINK
        JMS I XIOTJ /IOT 6136, CLBA
        SNA CLA /COMPLEMENT THE AC
        JMS I NERROR /WAS BUFFER ALL 1'S?
        JMS I ERROR /CHECK NON-ERROR HANDLER
        3440 /ERROR:CLAB OR CLBA FAILED
        TST40 /TST40 ERROR MESSAGE
        TST40 /SCOPE LOOP

/
/DOES BUFFER SURVIVE PATTERN 2525 ?
/
TST41, TAD K2525 /GET AC NUMBER
        JMS I XIOTG /IOT 6133, CLAB
        CMA /COMPLEMENT AC
        JMS I XIOTJ /IOT 6136, CLBA
        JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
        JMS I NERROR /CHECK NON-ERROR HANDLER
        JMS I ERROR /ERROR: BUFFER OR AC FAILED
        3441 /TST41 ERROR MESSAGE
        TST41 /SCOPE LOOP

/
/DOES BUFFER SURVIVE PATTERN 5252 ?
/
0657 6007
0660 7340
0661 4431
0662 7650
0663 4472
0664 4473
0665 5036
0666 0657

0667 4427
0670 7340
0671 4432
0672 7650
0673 4472
0674 4473
0675 3437
0676 0667

0677 7340
0700 4427
0701 7300
0702 4432
0703 7040
0704 7650
0705 4472
0706 4473
0707 3440
0710 0677

0711 1016
0712 4427
0713 7040
0714 4432
0715 4456
0716 4472
0717 4473
0720 3441
0721 0711

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/
TST42,      TAD K5252      /GET AC NUMBER
JMS I XIOTG  /IOT 6133, CLXB
CMA          /COMPLEMENT AC
JMS I XIOTJ  /IOT 6136, CLBA
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR  /ERROR: BUFFER OR AC FAILED
3442        /TST42 ERROR MESSAGE
TST42       /SCOPE LOOP

/
/DOES CAF REALLY CLEAR BUFFER ?
/
TST43,      CLA CLA CMA    /AC TO ALL 7777
JMS I XIOTG  /IOT 6133, CLAB
6007        /CAF OR CLEAR THE WORLD
DCA SEND     /SAVE OUTPUT FOR ERROR PRINTER
CLA CLL CMA  /IOT 6136, CLBA
JMS I XIOTJ  /WAS BUFFER ALL 0'S ?
SNA CLA     /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: CAF OR BUFFER FAILED
JMS I ERROR  /TST43 ERROR MESSAGE
3443        /SCOPE LOOP
TST43

/
/DOES CAF REALLY CLEAR BUFFER ?
/DO ALL COMBINATIONS
/
TST44,      TAD REGA      /GET AC NUMBER
JMS I XIOTG  /IOT 6133, CLAB
6007        /CAF OR CLEAR THE WORLD
DCA SEND     /SAVE OUTPUT FOR ERROR PRINTER
CLA CLL CMA  /IOT 6136, CLBA
JMS I XIOTJ  /WAS BUFFER ALL 0'S ?
SNA CLA     /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: CAF OR BUFFER FAILED
JMS I ERROR  /TST44 ERROR MESSAGE
3444        /SCOPE LOOP
TST44

/
/CHECK AC TO BUFFER REGISTER AND
/BUFFER REGISTER TO AC TRANSFERS.
/CHECK ALL COMBINATIONS.
/CHECK LOAD ON BUFFER REGISTER.
/
TST45,      CLA CLL CMA    /GET AC NUMBER
DCA REGA     /IOT 6133, CLAB
TAD REGB     /COMPLEMENT THE AC
JMS I XIOTG  /IOT 6136, CLBA
CMA          /CHECK SEND RECEV REGISTERS
JMS I XIOTJ
JMS I XSNDRV
SKP CLA
JMP T45A
152 REGB    /UPDATE AC NUMBER

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/
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0773      5363      JMP T45B      /CHECK NON-ERROR HANDLER
0774      4472      JMS I NERRR      /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 ?
/
TST46,      CLA CLL CMA      /AC TO 7777
            DCA REGA
            TAD K2525      /GET AC NUMBER
            JMS I XIOTG      /IOT 6133, CLAB
            CMA      /COMPLEMENT AC
            JMS I XIOTJ      /IOT 6136, CLBA
            JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
            SKP CLA
            JMP T46A
            ISZ REGB
            JMP T46B
            JMS I NERRR
            JMS I ERROR
            JMS I ERROR      /TST46 ERROR MESSAGE
            3446
            TST46

/DOES READING BUFFER CHANGE ITS CONTENTS ?
/
TST47,      CLA CLL CMA      /AC TO 7777
            DCA REGA
            TAD K5252      /GET AC NUMBER
            JMS I XIOTG      /IOT 6133, CLAB
            CMA      /COMPLEMENT AC
            JMS I XIOTJ      /IOT 6136, CLBA
            JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
            SKP CLA
            JMP T47A
            ISZ REGB
            JMP T47B
            JMS I NERRR
            JMS I ERROR
            JMS I ERROR      /TST47 ERROR MESSAGE
            3447
            TST47

/DOES BUFFER SURVIVE RANDOM PATTERNS ?
/
TST50,      CLA CLL CMA      /AC TO 7777
            DCA REGA
            JMS I RANDY      /GET RANDOM NUMBER
            JMS I XIOTG      /IOT 6133, CLAB
            CMA      /COMPLEMENT AC
            JMS I XIOTJ      /IOT 6136, CLBA
            JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
            SKP CLA
            JMP T50A
            ISZ REGB
            JMP T50B
            1050

1000      7340
1001      3040
1002      1016
1003      4427
1004      7040
1005      4432
1006      4456
1007      7610
1008      5214
1009      2041
1010      5205
1011      4472
1012      4473
1013      3446
1014      1000

1017      7340
1018      3040
1019      1017
1020      4427
1021      7040
1022      4432
1023      4456
1024      7610
1025      5233
1026      2041
1027      5224
1028      4472
1029      4473
1030      3447
1031      1017

1036      7340
1037      3040
1038      4455
1039      4427
1040      7040
1041      4432
1042      4456
1043      7610
1044      5252
1045      2041
1046      5240
1047      1050

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1051	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
1052	4473	JMS I ERROR	/ERROR: BUFFER FAILED	
1053	3450	T50A,	/TST50 ERROR MESSAGE	
1054	1036	TST50	/SCOPE LOOP	
		/	/DOES BUFFER SURVIVE FAST TOGGLE ?	
		/		
1055	1040	TST51,	/GET AC NUMBER	
1056	3070	DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER	
1057	1040	TAD REGA		
1060	4435	JMS I XIOTS1	/IOT'S 6133 AND 6136	
1061	3071	DCA RECEV	/SAVE INPUT FOR ERROR PRINTER	
1062	1071	TAD RECEV		
1063	4456	JMS I XSNDRV	/CHECK SEND RECEV REGISTERS	
1064	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
1065	4473	JMS I ERROR	/ERROR: BUFFER FAILED	
1066	3451	3451	/TST51 ERROR MESSAGE	
1067	1055	TST51	/SCOPE LOOP	
		/	/DOES AC SET ENABLE REGISTER?	
		/	/CHECK ALL 1'S TRANSFER.	
		/	/CHECK JAM TO AC, CLEN	
		/		
1070	7340	TST52,	/AC TO 7777	
1071	4425	CLA CLL CMA	/IOT 6132, CLOE	
1072	7040	JMS I XIOTF	/COMPLEMENT AC	
1073	4430	CMA	/IOT 6134, CLEN	
1074	7040	JMS I XIOTH	/COMPLEMENT AC	
1075	7650	CMA	/WAS ENABLE REGISTER ALL 1'S ?	
1076	4472	SNA CLA	/CHECK NON-ERROR HANDLER	
1077	4473	JMS I NERROR	/ERROR: CLOE OR CLEN FAILED.	
1100	4452	JMS I ERROR	/TST52 ERROR MESSAGE	
1101	1070	4452	/SCOPE LOOP	
		TST52		
		/	/DOES AC SET ENABLE REGISTER?	
		/	/CHECK ALL 0'S TRANSFER.	
		/		
		/	/CHECK FOR JAM TO AC, CLEN	
		/		
1102	7340	TST53,	/AC TO 7777	
1103	4425	CLA CLL CMA	/IOT 6132, CLOE	
1104	7320	JMS I XIOTF	/CLEAR THE AC AND LINK	
1105	4426	CLA CLL	/IOT 6132, CLOE	
1106	4430	JMS I XIOTF1	/IOT 6134, CLEN	
1107	7040	JMS I XIOTH	/COMPLEMENT THE AC	
1110	7650	CMA	/WAS ENABLE REGISTER ALL 1'S?	
1111	4472	SNA CLA	/CHECK NON-ERROR HANDLER	
1112	4473	JMS I NERROR	/ERROR: CLOE OR CLEN FAILED	
1113	4453	JMS I ERROR	/TST53 ERROR MESSAGE	
1114	1102	4453	/SCOPE LOOP	
		TST53		
		/	/DOES CAF REALLY CLEAR ENABLE REGISTER?	
		/		
1115	7340	TST54,	/AC TO 7777	
1116	4425	CLA CLL CMA	/IOT 6132, CLOE	
		JMS I XIOTF		

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1117	6007	6007		/CAF OR CLEAR THE WORLD
1120	3070	DCA SEND		/SAVE OUTPUT FOR ERROR PRINTER
1121	7340	CLA CLL CMA		/AC TO 7777
1122	4430	JMS I X10TH		/IOT 6134, CLEN
1123	7650	SNA CLA		/WAS REGISTER ALL 0'S
1124	4472	JMS I NERROR		/CHECK NON-ERROR HANDLER
1125	4473	JMS I ERROR		/ERROR:CAF,CLOE,OR CLEN FAILED
1126	4454	4454		/TST54 ERROR MESSAGE
1127	1115	TST54		/SCOPE LOOP
/DOES CAF REALLY CLEAR ENABLE REGISTER ?				
/DO ALL COMBINATIONS				
/				
1130	1040	TST55,		/GET AC NUMBER
1131	4426	JMS I X10TF1		/IOT 6132, CLOE
1132	6007	6007		/CAF OR CLEAR THE WORLD
1133	7340	CLA CLL CMA		/AC TO 7777
1134	4430	JMS I X10TH		/IOT 6134, CLEN
1135	7650	SNA CLA		/WAS ENABLE REGISTER ALL 0'S ?
1136	4472	JMS I NERROR		/CHECK NON-ERROR HANDLER
1137	4473	JMS I ERROR		/ERROR: ENABLE REGISTER FAILED
1140	4455	4455		/TST55 ERROR MESSAGE
1141	1130	TST55		/SCOPE LOOP
/DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?				
/				
1142	1016	TST56,		/GET AC NUMBER
1143	4425	JMS I X10TF		/IOT 6132, CLOE
1144	7040	CMA		/COMPLEMENT AC
1145	4430	JMS I X10TH		/IOT 6134, CLEN
1146	4436	JMS I XSNDRV		/CHECK SEND AND RECEV REGISTERS
1147	4472	JMS I NERROR		/CHECK NON-ERROR HANDLER
1150	4473	JMS I ERROR		/ERROR: EBABLE REGISTER FAILED
1151	4456	4456		/TST56 ERROR MESSAGE
1152	1142	TST56		/SCOPE LOOP
/DOES ENABLE REGISTER SURVIVE PATTERN 252 ?				
/				
1153	1017	TST57,		/GET AC NUMBER
1154	4425	JMS I X10TF		/IOT 6132, CLOE
1155	7040	CMA		/COMPLEMENT AC
1156	4430	JMS I X10TH		/IOT 6134, CLEN
1157	4436	JMS I XSNDRV		/CHECK SEND AND RECEV REGISTERS
1160	4472	JMS I NERROR		/CHECK NON-ERROR HANDLER
1161	4473	JMS I ERROR		/ERROR: ENABLE REGISTER FAILED
1162	4457	4457		/TST57 ERROR MESSAGE
1163	1153	TST57		/SCOPE LOOP
/DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?				
/				
1164	1016	TST60,		/GET AC NUMBER
1165	4425	JMS I X10TF		/IOT 6132, CLOE
1166	7320	CLA CLL		/CLEAR THE AC AND LINK
1167	4426	JMS I X10TF1		/IOT 6132, CLOE
1170	7340	CLA CLL CMA		/AC TO 7777

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1171 4430 JMS I XIOTH /IOT 6134, CLEN
1172 4436 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 ?
/
TST61, TAD K252 /GET AC NUMBER
1177 1017 JMS I XIOTF /IOT 6132, CLOE
1200 4425 CLA CLL /CLEAR THE AC AND LINK
1201 7300 JMS I XIOTF1 /IOT 6132, CLOE
1202 4426 CLA CLL CMA /AC TO 7777
1203 7340 JMS I XIOTH /IOT 6134, CLEN
1204 4430 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
1205 4436 JMS I NERRR /CHECK NON-ERROR HANDLER
1206 4472 JMS I ERROR /ERROR: ENABLE REGISTER FAILED
1207 4473 4461 /TST61 ERROR MESSAGE
1210 4461 TST61 /SCOPE LOOP
1211 1177

/DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?
/
TST62, CLA CLL CMA /AC TO 7777
1212 7340 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
1213 3070 TAD K2525 /GET AC NUMBER
1214 1016 JMS I XIOTF1 /IOT 6132, CLOE
1215 4426 CMA /COMPLEMENT AC
1216 7040 JMS I XIOTF1 /IOT 6132, CLOE
1217 4426 CLA CLL /CLEAR THE AC AND LINK
1220 7300 JMS I XIOTH /IOT 6134, CLEN
1221 4430 JMS I XSNDRV /CHECK SEND RECEV REGISTERS
1222 4436 JMS I NERRR /CHECK NON-ERROR HANDLER
1223 4472 JMS I ERROR /ERROR: ENABLE REGISTER FAILED
1224 4473 4462 /TST62 ERROR MESSAGE
1225 4462 TST62 /SCOPE LOOP
1226 1212

/DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?
/
TST63, CLA CLL CMA /AC TO 7777
1227 7340 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
1230 3070 TAD K252 /GET AC NUMBER
1231 1017 JMS I XIOTF1 /IOT 6132, CLOE
1232 4426 CMA /COMPLEMENT AC
1233 7040 JMS I XIOTF1 /IOT 6132, CLOE
1234 4426 CLA CLL /IOT 6134, CLEN
1235 7300 JMS I XIOTH /CHECK SEND AND RECEV REGISTERS
1236 4430 JMS I XSNDRV /CHECK NON-ERROR HANDLER
1237 4436 JMS I NERRR /ERROR: ENABLE REGISTER
1240 4472 JMS I ERROR /TST63 ERROR MESSAGE
1241 4473 4463 /SCOPE LOOP
1242 4463 TST63
1243 1227

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

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1247      4430
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1251      4472
1252      4473
1253      4464
1254      1244

TST64,      TAD REGA      /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
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: AC OR ENABLE REGISTER FAILED.
4464      /TST64 ERROR MESSAGE
TST64      /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN.
/DO ALL COMBINATIONS.
/
TST65,      CLA CLL CMA      /AC TO 7777
DCA SEND      /SAVE OUTPUT FOR ERROR PRINTER
TAD REGA      /GET AC NUMBER
JMS I XIOTF1      /IOT 6132, CLOE
CMA      /COMPLEMENT THE AC
JMS I XIOTF1      /IOT 6132, CLOE
JMS I XIOTH      /IOT 6134, CLEN
JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: AC OR ENABLE REGISTER FAILED.
4465      /TST65 ERROR MESSAGE
TST65      /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE RANDOM PATTERN ?
/
TST66,      JMS I RANDY      /GET RANDOM 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 AND RECEV REGISTERS
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
4466      /TST66 ERROR MESSAGE
TST66      /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE RANDOM COMPLEMENT PATTERN ?
/
TST67,      CLA CLL CMA      /AC TO 7777
DCA SEND      /SAVE OUTPUT FOR ERROR PRINTER
JMS I RANDY      /GET RANDOM NUMBER
JMS I XIOTF1      /COMPLEMENT AC
CMA      /IOT 6132, CLOE
JMS I XIOTF1      /IOT 6134, CLEN
JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
4467      /TST67 ERROR MESSAGE
TST67      /SCOPE LOOP

```

/DOES READING ENABLE REGISTER CHANGE ITS CONTENTS ?

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1316 7340      CLA CLL CMA      /AC TO 7777
1317 3040      DCA REGA
1320 1016      TAD K2525
1321 4425      JMS I XIOTF
1322 7340      CLA CLL CMA
1323 4430      JMS I XIOTH
1324 4426      JMS I XSNDRV
1325 7610      SKP CLA
1326 5332      JMP T70A
1327 2041      ISZ REGB
1330 5322      JMP T70B
1331 4472      JMS I NERROR
1332 4473      JMS I ERROR
1333 4470      4470
1334 1316      TST70

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/DOES READING ENABLE REGISTER CHANGE TIS CONTENTS ?

```

1335 7340      CLA CLL CMA      /AC TO 7777
1336 3040      DCA REGA
1337 1017      TAD K2525
1340 4425      JMS I XIOTF
1341 7300      CLA CLL
1342 4430      JMS I XIOTH
1343 4426      JMS I XSNDRV
1344 7610      SKP CLA
1345 5351      JMP T71A
1346 2041      ISZ REGB
1347 5341      JMP T71B
1350 4472      JMS I NERROR
1351 4473      JMS I ERROR
1352 4471      4471
1353 1335      TST71

```

/DOES ENABLE REGISTER SURVIVE FAST TOGGLE ?

```

1354 1040      TAD REGA
1355 3070      DCA SEND
1356 1040      TAD REGA
1357 4434      JMS I XIOTS
1360 3071      DCA RECEV
1361 1071      TAD RECEV
1362 4426      JMS I XSNDRV
1363 4472      JMS I NERROR
1364 4473      JMS I ERROR
1365 4472      4472
1366 1354      TST72

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/DOES CLZE CLEAR ENABLE REGISTER?

```

1367 7340      CLA CLL CMA      /AC TO 7777
1370 4426      JMS I XIOTF1
1371 7340      CLA CLL CMA

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1372 JMS I XIOTD
1373 CLA CLL
1374 DCA SEND
1375 CLA CLL CMA
1376 JMS I XIOTH
1377 SNA CLA
1400 JMS I NERROR
1401 JMS I ERROR
1402 4473
1403 TST73

/DOES CLZE CLEAR ENABLE REGISTER?
/
TST74, CLA CLL CMA
1404 7340
1405 JMS I XIOTF
1406 4425
1407 CLA CLL
1408 7300
1409 JMS I XIOTD
1410 4423
1411 CLA CLL CMA
1412 7340
1413 DCA SEND
1414 3070
1415 JMS I XIOTH
1416 4430
1417 CMA CLA
1418 7040
1419 SNA CLA
1420 7650
1421 JMS I NERROR
1422 4472
1423 JMS I ERROR
1424 4473
1425 4474
1426 TST74

/DOES CLZE CLEAR ENABLE REGISTER?
/
TST75, TAD K2525
1421 1016
1422 JMS I XIOTF
1423 4425
1424 CMA
1425 7040
1426 JMS I XIOTD
1427 4423
1428 CMA
1429 7040
1430 DCA SEND
1431 3070
1432 JMS I XIOTH
1433 4430
1434 JMS I XSNDRV
1435 4456
1436 JMS I NERROR
1437 4472
1438 JMS I ERROR
1439 4473
1440 4475
1441 TST75

/DOES CLZE CLEAR ENABLE REGISTER ?
/
TST76, TAD K5252
1435 1017
1436 JMS I XIOTF
1437 4425
1438 CMA
1439 7040
1440 JMS I XIOTD
1441 4423
1442 CMA
1443 7040
1444 DCA SEND
1445 3070
1446 JMS I XIOTH
1447 4430
1448 JMS I XSNDRV
1449 4456
1450 JMS I NERROR
1451 4472
1452 JMS I ERROR
1453 4473
1454 4475
1455 TST76

/GET AC NUMBER
/NOT 6132, CLOE
/COMPLEMENT AC
/NOT 6130, CLZE
/COMPLEMENT AC
/SAVE OUTPUT FOR ERROR PRINTER
/NOT 6134, CLEN
/CHECK SEND AND RECEV REGISTERS
/CHECK NON-ERROR HANDLER
/ERROR:CLZE,CLOE, OR CLEN FAILED
/TST75 ERROR MESSAGE
/SCOPE LOOP

/NOT 6130, CLZE
/CLEAR THE AC AND LINK
/SAVE OUTPUT FOR ERROR PRINTER
/AC TO 7777
/NOT 6134, CLEN
/WAS REGISTER ALL 0'S
/CHECK NON-ERROR HANDLER
/ERROR:CLZE OR CLEN FAILED.
/TST73 ERROR MESSAGE
/SCOPE LOOP

/AC TO 7777
/NOT 6132, CLOE
/NOT 6130, CLZE
/AC TO 7777
/SAVE OUTPUT ERROR PRINTER
/NOT 6134, CLEN
/COMPLEMENT AC
/WAS REGISTER ALL 0'S?
/CHECK NON-ERROR HANDLER
/ERROR:CLZE OR CLEN FAILED.
/TST74 ERROR MESSAGE
/SCOPE LOOP

/NOT 6132,CLOE
/COMPLEMENT THE AC
/NOT 6130, CLZE
/COMPLEMENT AC
/SAVE OUTPUT FOR ERROR PRINTER
/NOT 6134, CLEN
/CHECK SEND AND RECEV REGISTERS
/CHECK NON-ERROR HANDLER
/ERROR:CLZE,CLOE, OR CLEN FAILED
/TST75 ERROR MESSAGE
/SCOPE LOOP

/NOT 6132, CLOE
/COMPLEMENT THE AC
/NOT 6130, CLZE
/COMPLEMENT AC
/SAVE OUTPUT FOR ERROR PRINTER
/NOT 6134, CLEN
/CHECK SEND AND RECEV REGISTERS
/CHECK NON-ERROR HANDLER
/ERROR:CLZE,CLOE, OR CLEN FAILED
/TST76 ERROR MESSAGE
/SCOPE LOOP

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1450  1435      /
/
/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 1'S?
JMS I NERROR      /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      /COMPLEMENT THE AC
DCA SEND      /SAVE OUTPUT FOR ERROR PRINTER
JMS I XIOTH      /IOT 6134, CLEN
JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR:CLZE, CLOE, OR CLEN FAILED
4500      /TST100 ERROR MESSAGE
TST100      /SCOPE LOOP

/DOES CLZE SURVIVE RANDOM PATTERN ?
/
TST101,      JMS I RANDY      /GET RANDOM 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
JMS I XIOTH      /IOT 6134, CLEN
JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
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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/
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1517 4423 JMS I XIOTD /IOT 6130, CLCA
1520 7040 CMA /COMPLEMENT AC
1521 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
1522 4430 JMS I XIOTH /IOT 6134, CLEN
1523 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
1524 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
1525 4473 JMS I ERROR /ERROR: ENABLE REGISTER FAILED
1526 4502 4502 /TST102 ERROR MESSAGE
1527 1514 TST102 /SCOPE LOOP

/
/DOES CLZE SURVIVE FAST TOGGLE ?
/
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
1534 1071 JMS I XSNDRV /CHECK SEND RECEV REGISTERS
1535 4456 JMS I NERROR /CHECK NON-ERROR HANDLER
1536 4472 JMS I ERROR /ERROR: ENABLE REGISTER FAILED
1537 4473 JMS I ERROR /TST103 ERROR MESSAGE
1540 4503 4503 /SCOPE LOOP
1541 1530 TST103

/
/DOES AC TRANSFER TO BUFFER THEN TO COUNTER ?
/
TST104, JMS I XIOTG /IOT 6133, CLAH
1542 4427 CLA CLL CMA /AC TO ALL 1'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 1'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
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 7320 JMS I XIOTK /IOT 6137, CLCA
1566 4433 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
1567 4456 JMS I NERROR /CHECK NON-ERROR HANDLER
1570 4472

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1571  4473      JMS I ERROR      /ERROR: COUNTER FAILED
1572  4126      4106              /TST106 ERROR MESSAGE
1573  1563      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

/DOES COUNTER SURVIVE FAST TOGGLE?
/
TST111, TAD REGA      /GET AC NUMBER
DCA SEND      /SAVE OUTPUT FOR ERROR PRINTFM
TAD SEND      /IOT 6133 AND 6137
JMS I XIOTS2      /SAVE INPUT FOR ERROR PRINTFM
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

/DOES CAF AFFECT COUNTER ?
/
TST112, TAD REGA      /GET AC NUMBER
JMS I XIOTG      /IOT 6133, CLAB
6007              /CAF OR CLEAR THE 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

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1576  7340      1607  7040
1577  4433      1610  4433
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1601  4472      1612  4472
1602  4473      1613  4473
1603  4127      1614  4110
1604  1574      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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TST112 /SCOPE LOOP

```
/
/DOES READING COUNTER CHANGE ITS CONTENTS?
/PATTERN 2525.
/
TST113, CLA CLL CMA /AC TO 7777
DCA REGA
TAD K2525
JMS I XIOTG /IOT 6133, CLAB
JMS I XIOTK /IOT 6137, CLCA
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
SKP T113A
JMP T113A
ISZ REGB
JMP T113B
JMS I NERRR /CHECK NON-ERROR
JMS I ERROR /ERROR: CLAR OR CLCA FAILED
T113A, JMS I ERROR /TST113 ERROR MESSAGE
4113 /SCOPE LOOP
TST113
```

```
/
/DOES READING COUNTER CHANGE ITS CONTENTS?
/PATTERN 5252
/
```

```
TST114, CLA CLL CMA /AC TO 7777
DCA REGA
TAD K2525
JMS I XIOTG /IOT 6133, CLAB
JMS I XIOTK /IOT 6137, CLCA
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
SKP T114A
JMP T114A
ISZ REGB
JMP T114B
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: COUNTER FAILED
T114A, JMS I ERROR /TST114 ERROR MESSAGE
4114 /SCOPE LOOP
TST114
```

```
/
/DOES COUNTER SURVIVE RANDOM PATTERN ?
/
```

```
TST115, JMS I RANDY /GET RANDOM NUMBER
JMS I XIOTG /IOT 6133, CLAB
CLA CLL CMA
JMS I XIOTK /IOT 6137, CLCA
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: COUNTER FAILED
4115 /TST115 ERROR MESSAGE
TST115 /SCOPE LOOP
```

```
/
/TEST FOR NO INT. RQST.
/
```

1707 7340
TST116, CLA CLL CMA /AC TO 7777

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1710	4427	JMS I XIOTG		/IOT 6133, CLAB
1711	3040	DCA REGA		
1712	1142	TAD K0010		/GET ENABLES
1713	1147	TAD K0600		/IOT 6132, CLOE
1714	4425	JMS I XIOTF		/GO TO PI, NO PI EXPECTED
1715	4447	JMS I XPIG01		/CHECK NON-ERROR HANDLER
1716	4472	JMS I NERROR		/ERROR: INT. ROST. FAILED
1717	4473	JMS I ERROR		/TST116, ERROR MESSAGE
1720	1116	1116		/SCOPE LOOP
1721	1707	TST116		
		/DOES CLSK SKIP ON CLOCK OVERFLOW?		
		/SKIP EXPECTED, MODE 0, RATE 6		
		/		
1722	7340	TST117, CLA CLL CMA		/AC TO 7777
1723	4427	JMS I XIOTG		/IOT 6133, CLAB
1724	7300	CLA CLL		/CLEAR THE AC AND LINK
1725	1147	TAD K0600		/GET RATE 6
1726	4425	JMS I XIOTF		/IOT 6132, CLOE
1727	4424	JMS I XIOTE		/IOT 6131, CLSK
1730	7410	SKP		
1731	4472	JMS I NERROR		/CHECK NON-ERROR HANDLER
1732	4473	JMS I ERROR		/ERROR: CLSK OR OVERFLOW FAILED
1733	0517	0517		/TST117 ERROR MESSAGE
1734	1722	TST117		/SCOPE LOOP
		/DOES OVERFLOW REMAIN SET ?		
		/		
1735	7340	TST120, CLA CLL CMA		/IOT 6133, CLAB
1736	4427	JMS I XIOTG		
1737	3040	DCA REGA		/GET ENABLES
1740	1147	TAD K0600		/IOT 6132, CLOE
1741	4425	JMS I XIOTF		/IOT 6131, CLSK
1742	4424	JMS I XIOTE		
1743	5351	JMP T120A		
1744	2041	ISZ REG8		/WAIT ABOUT 15 MS
1745	5344	JMP .-1		/IOT 6131, CLSK
1746	4424	JMS I XIOTE		
1747	7410	SKP		/CHECK NON-ERROR HANDLER
1750	4472	JMS I NERROR		/ERROR: CLSK OR OVERFLOW FAILED
1751	4473	JMS I ERROR		/TST120 ERROR MESSAGE
1752	0520	0520		/SCOPE LOOP
1753	1735	TST120		
		/DOES CAF CLEAR THAT FLAG ?		
		/		
1754	7340	TST121, CLA CLL CMA		/IOT 6133, CLAB
1755	4427	JMS I XIOTG		
1756	3040	DCA REGA		/GET ENABLES
1757	1147	TAD K0600		/IOT 6132, CLOE
1760	4425	JMS I XIOTF		/IOT 6131, CLSK
1761	4424	JMS I XIOTE		
1762	5361	JMP .-1		/CAF OR CLEAR THE WORLD
1763	6007	6007		/IOT 6131, CLSK
1764	4424	JMS I XIOTE		

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1765	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER
1766	4473	JMS I ERROR	/ERROR: CAF OR OVERFLOW FAILED
1767	0121	T121A,	/TST121 ERROR MESSAGE
1770	1754	TST121	/SCOPE LOOP

1771	1131	/DOES CLSK SKIP ON OVERFLOW ?	
1772	3041	/SKIP EXPECTED, RATE 2-6, MODE 0	
1773	1015	TST122, TAD K7773	
1774	3044	DCA REGB	
1775	7340	TAD K0200	
1776	4427	DCA REGE	/AC TO 7777
1777	3040	CLA CLL CMA	/IOT 6133, CLAB
2000	1044	JMS I XIOTG	
2001	4425	DCA REGA	/GET ENABLES
2002	2043	TAD REGE	/IOT 6132, CLOE
2003	5202	JMS I XIOTF	
2004	4424	ISZ REGD	/WAIT
2005	5214	JMP -1	/IOT 6131, CLSK
2006	1013	JMS I XIOTE	/NO OVERFLOW FOUND
2007	3044	JMP T122A	
2010	0007	TAD K0100	/UPDATE CLOCK RATE
2011	2041	DCA REGE	/CAF OR CLEAR THE WORLD
2012	5571	ISZ REGB	
2013	4472	JMP I XCRS1	
2014	4473	JMS I NERROR	/CHECK NON-ERROR HANDLER
2015	0522	JMS I ERROR	/ERROR: CLSK OR OVERFLOW FAILED
2016	1771	0522	/TST122 ERROR MESSAGE
		TST122	/SCOPE LOOP

2017	1131	/DOES CLSK SKIP ON OVERFLOW ?	
2020	3041	/SKIP EXPECTED, RATE 2-6, MODE 1	
2021	1144	TST123, TAD K7773	
2022	1015	DCA REGB	
2023	3044	TAD K1000	
2024	7340	TAD K0200	
2025	4427	DCA REGE	/AC TO 7777
2026	3040	CLA CLL CMA	/IOT 6133, CLAB
2027	1044	JMS I XIOTG	
2030	4425	DCA REGA	/GET ENABLES
2031	2043	TAD REGE	/IOT 6132, CLOE
2032	5231	JMS I XIOTF	
2033	4424	ISZ REGD	/WAIT
2034	5243	JMP -1	/IOT 6131, CLSK
2035	1013	JMS I XIOTE	/NO OVERFLOW FOUND
2036	3044	JMP T123A	
2037	0007	TAD K0100	/UPDATE CLCOK RATE
2040	2041	DCA REGE	/CAF OR CLEAR THE WORLD
2041	5224	ISZ REGB	
2042	4472	JMP T123B	/DO RATES 2-6
2043	4473	JMS I NERROR	/CHECK NON-ERROR HANDLER
		JMS I ERROR	/ERROR: CLSK OR OVERFLOW FAILED

2044	0523
2045	2017

/TST123 ERROR MESSAGE
/SCOPE LOOP

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

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2046	1131
2047	3041
2050	1143
2051	1015
2052	3044
2053	7340
2054	4427
2055	3040
2056	1044
2057	4425
2060	2043
2061	9260
2062	4424
2063	5272
2064	1013
2065	3044
2066	6067
2067	2041
2070	9257
2071	4472
2072	4473
2073	0524
2074	2046

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TST124,      TAD K773
              DCA REGB
              TAD K2000
              TAD K0200
              DCA REGE
              CLA CLL CHA
              JMS I XIOTG
              DCA REGA
              TAD REGE
              JMS I XIOTF
              ISZ REGD
              JMP I-1
              JMS I XIOTE
              JMS T124A
              TAD K0100
              DCA REGE
              6007
              ISZ REGB
              JMP T124B
              JMS I NERROR
              JMS I ERROR
              0524
              TST124
T124A,

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2075	1131
2076	3041
2077	1120
22101	1015
22101	3044
22102	7304
22103	4427
22104	3040
22105	1044
22106	4425
22107	2043
22110	3307
22111	4424
22112	3320
22113	1013
22114	3044
22115	2041
22116	5302
22117	4472
22120	4473
22121	0525
22122	2075

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T125, TAD K7773
      DCA REGB
TAD K3000
TAD K0200
DCA REGE
      CLA CLL CMA
T125B, JMS I XIOTG
      DCA REGA
      TAD REGE
      JMS I XIOTF
      ISB REGD
      JMP -1
      JMS I XIOTE
TAD T125A
TAD K0100
DCA REGE
ISB REGB
JMP T125B
JMS I NERRR
T125A, JMS I ERROR
      0025
      TST125

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2123 1122 TST126, TAD K770
2124 3043 DCA REGD
2125 7340 CLA CLL CMA
2126 4427 JMS I XIOTG
2127 3040 DCA REGA
2128 1140 TAD K0020
2129 1041 TAD REGB
2130 4425 JMS I XIOTF
2131 2042 ISZ REGC
2132 5333 JMP -1
2133 4424 JMS I XIOTE
2134 7410 SKP
2135 9347 JMP T126A
2136 0150 AND K0700
2137 1013 TAD K0100
2138 3041 DCA REGB
2139 6007 6007
2140 2043 ISZ REGD
2141 9325 JMP T126B
2142 4472 JMS I NERRR
2143 4473 JMS I ERROR
2144 0126 0126
2145 2123 TST126
2146
2147
2148
2149
2150
2151
```

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/DOES CLSK SKIP ON OVERFLOW ?
/NO SKIP EXPECTED, RATE 0.7, MODE 0, DISABLE BIT 7
/
T126A,
/DOES CLSK SKIP ON OVERFLOW ?
/NO SKIP EXPECTED, RATE 0.1,7 MODE 0
/
```

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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
2158 4424 JMS I XIOTE
2159 7410 SKP
2160 9572 JMP I XCRS2
2161 1013 TAD K0100
2162 4426 JMS I XIOTF1
2163 2042 ISZ REGC
2164 9365 JMP -1
2165 4424 JMS I XIOTE
2166 7410 SKP
2167 9572 JMP I XCRS2
2168 1147 TAD K0600
2169 4426 JMS I XIOTF1
2170 2043 ISZ REGD
2171 5374 JMP -1
2172 4424 JMS I XIOTE
2173 4472 JMS I NERRR
2174 4473 JMS I ERROR
2175 0127 0127
2176
2177
2178
2179
2200
2201
```

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T127A,
/DOES CLSK SKIP ON OVERFLOW ?
/NO SKIP EXPECTED, RATE 0.1,7 MODE 0
/
```

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/
TST127      /SCOPE LOOP
/DOES CLSA READ OVERFLOW BIT ?
/
TST130.  CLA CLL CMA      /IOT 6132, CLOE
JMS I XIOTG      /AC TO 4000
CLA CLL CML RAR      /SAVE OUTPUT FOR ERROR PRINTER
DCA SEND      /AC TO 4000
CLA CLL IAC RTR      /GET ENABLE
TAD K0600
JMS I XIOTF1
JMS I XIOTE      /IOT 6131, CLSK
JMP -1
CLA CLL CMA RAR      /AC TO 3777
JMS I XIOTI      /IOT 6135, CLSA
JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR! CLSI OR OVERFLOW FAILED
T130A.  5130      /TST130 ERROR MESSAGE
TST130      /SCOPE LOOP
/DOES CLSA CLEAR OVERFLOW FLOP ?
/
TST131.  CLA CLL CMA      /AC TO 7777
JMS I XIOTG      /IOT 6133, CLAB
CLA CLL IAC RTR      /AC TO 4000
TAD K0600      /GET ENABLE
JMS I XIOTF1      /IOT 6132, CLOE
JMS I XIOTE      /IOT 6131, CLSK
JMP -1
CLA CLL CMA RAR      /AC TO 3777
JMS I XIOTI      /IOT 6135, CLSA
CLA CLL      /CLEAR AC AND LINK
DCA SEND      /SAVE OUTPUT FOR ERROR PRINTER
CLA CLL CMA      /AC TO 7777
JMS I XIOTI      /IOT 6135, CLSA
SNA CLA      /WAS STATUS REGISTER ALL 0'S ?
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR! CLSA OR OVERFLOW FAILED
5131      /TST131 ERROR MESSAGE
TST131      /SCOPE LOOP
/DOES CLSA READ OVERFLOW BIT ?
/
TST132.  CLA CLL CMA      /IOT 6133, CLAB
JMS I XIOTG      /IOT 6133, CLAB
CLA CLL      /SAVE OUTPUT FOR ERROR PRINTER
DCA SEND      /GET ENABLES
TAD K0600      /IOT 6132, CLOE
JMS I XIOTF1      /IOT 6131, CLSK
JMS I XIOTE      /IOT 6131, CLSK
JMP -1
CLA CLL CMA RAR      /AC TO 3777
JMS I XIOTI      /IOT 6135, CLSA
SNA CLA      /WAS STATUS 0 ?

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

/DOES BUFFER TO COUNTER ON OVERFLOW ?				
/MODE 1, RATE 2				
/				
2264	7340	TST133, CLA CLL CMA	/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	/GET ENABLES	
2271	1144	TAD K1000	/IOT 6132, CLOE	
2272	4426	JMS I XIOTF1	/IOT 6131, CLSK	
2273	4424	JMS I XIOTE	/WAIT FOR FLAG	
2274	5273	JMP .-1	/CLEAR THE AC AND LINK	
2275	7300	CLA CLL	/IOT 6137, CLCA	
2276	4433	JMS I XIOTK	/FOR TESTING	
2277	7040	CMA	/WAS COUNTER ALL 1'S ?	
2300	7440	SZA T133A		
2301	5306	JMP T133A	/IOT 6135, CLSA	
2302	4431	JMS I XIOTI		
2303	2041	ISZ REGB	/DO TEST 4096 TIMES	
2304	5273	JMP T133B	/CHECK NON-ERROR HANDLER	
2305	4472	JMS I NERROR	/ERROR: COUNTER FAILED	
2306	4473	JMS I ERROR	/TST133 ERROR MESSAGE	
2307	4133	4133	/SCOPE LOOP	
2310	2264	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	/GET ENABLES	
2316	1116	TAD K0400	/IOT 6132, CLOE	
2317	4426	JMS I XIOTF1	/IOT 6131, CLSK	
2320	4424	JMS I XIOTE	/WAIT FOR FLAG	
2321	5320	JMP .-1	/AC TO 7777	
2322	7340	CLA CLL CMA	/IOT 6137, CLCA	
2323	4433	JMS I XIOTK	/CHECK SEND AND RECEV REGISTERS	
2324	4456	JMS I XSNDRV	/CHECK NON-ERROR HANDLER	
2325	4472	JMS I NERROR	/ERROR: COUNTER FAILED	
2326	4473	JMS I ERROR	/TST134 ERROR MESSAGE	
2327	4134	4134	/SCOPE LOOP	
2330	2311	TST134		

/DOES BUFFER TO COUNTER ON OVERFLOW ?				
/MODE 1, RATE 4				
/				
2331	1016	TST135, TAD K5255	/GET AC NUMBER	
2332	4427	JMS I XIOTG	/IOT 6133, CLAB	

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2333	7340	CLA CLL CMA	/AC TO 7777
2334	3040	DCA REGA	
2335	1144	TAD K1000	/GET ENABLES
2336	1116	TAD K0400	/IOT 6132, CLOE
2337	4426	JMS I XIOTF1	/IOT 6131, CLSK
2340	4424	JMS I XIOTE	/WAIT FOR OVERFLOW
2341	5340	JMP --1	/IOT 6137, CLCA
2342	4433	JMS I XIOTK	/CHECK SEND AND RECEV REGISTERS
2343	4456	JMS I XSNDV	/CHECK NON-ERROR HANDLER
2344	4472	JMS I NERRR	/ERROR: COUNTER FAILED
2345	4473	JMS I ERROR	/TST135 ERROR MESSAGE
2346	4135	4135	/SCOPE LOOP
2347	2331	TST135	

/DOES BUFFER TO COUNTER ON OVERFLOW ?			
/RATE 4, MODE 2			
/			
2350	7340	TST136, CLA CLL CMA	/AC TO 7777
2351	4427	JMS I XIOTG	/IOT 6133, CLAB
2352	3040	DCA REGA	
2353	3070	DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER
2354	1116	TAD K0400	
2355	1143	TAD K2000	/GET ENABLES
2356	4426	JMS I XIOTF1	/IOT 6132, CLOE
2357	4424	JMS I XIOTE	/IOT 6131, CLSK
2360	5357	JMP --1	/WAIT FOR FLAG
2361	4433	JMS I XIOTK	/IOT 6137, CLCA
2362	7650	SNA CLA	/WAS COUNTER ALL 0'S ?
2363	4472	JMS I NERRR	/CHECK NON-ERROR HANDLER
2364	4473	JMS I ERROR	/ERROR: COUNTER FAILED
2365	4136	4136	/TST136 ERROR MESSAGE
2366	2350	TST136	/SCOPE LOOP

/DOES BUFFER TO COUNTER ON OVERFLOW ?			
/MODE 3, RATE 4			
/			
2367	7340	TST137, CLA CLL CMA	/IOT 6133, CLAB
2370	4427	JMS I XIOTG	
2371	3040	DCA REGA	/SAVE OUTPUT FOR ERROR PRINTER
2372	3070	DCA SEND	
2373	1116	TAD K0400	/GET ENABLES
2374	1120	TAD K3000	/IOT 6132, CLOE
2375	4426	JMS I XIOTF1	/IOT 6131, CLSK
2376	4424	JMS I XIOTE	/WAIT FOR OVERFLOW
2377	5376	JMP --1	
2400	7340	CLA CLL CMA	/IOT 6137, CLCA
2401	4433	JMS I XIOTK	/WAS COUNTER ALL 0'S ?
2402	7650	SNA CLA	/CHECK NON-ERROR HANDLER
2403	4472	JMS I NERRR	/ERROR: COUNTER FAILED
2404	4473	JMS I ERROR	/TST137 ERROR MESSAGE
2405	4137	4137	/SCOPE LOOP
2406	2367	TST137	

/DOES INT. WITHOUT BIT 0 ?			
/			

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TST140,  CLA CLL CMA
2407 JMS I XIOTG
2410 /IOT 6133, CLAB
2411 DCA REGA
2412 CLA CLL IAC RTR /AC TO 4000
2413 TAD K0007
2414 TAD K0600
2415 JMS I XIOTF
2416 JMS I XPIG01
2417 /GO TO PI, NO PI EXPECTED
2418 JMS I NERROR
2419 /CHECK NON-ERROR HANDLER
2420 JMS I ERROR
2421 /ERROR: INT. RGST. OR ENA 0 FAILED
2422 1140
2407 TST140
2408 /SCOPE LOOP

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2462	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
2463	4473	JMS I ERROR	/ERROR: OVERFLOW OR COUNTER FAILED	
2464	1543	1543	/TST143 ERROR MESSAGE	
2465	2452	TST143	/SCOPE LOOP	
		/DOES COUNTER COUNT ?		
		/RATE 6, MODE 1		
		/		
2466	7340	TST144, CLA CMA CLL		
2467	3040	DCA REGA		
2470	4427	JMS I XIOTG	/IOT 6133, CLAB	
2471	1121	TAD K5000		
2472	1142	TAD K0010		
2473	1147	TAD K0600	/GET RATE * MODE	
2474	4425	JMS I XIOTF	/IOT 6132, CLOE	
2475	4450	JMS I XPIG02	/GO TO PI	
2476	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
2477	4473	JMS I ERROR	/ERROR: OVERFLOW OR COUNTER FAILED	
2500	1544	1544	/TST144 ERROR MESSAGE	
2501	2466	TST144	/SCOPE LOOP	
		/DOES COUNTER COUNT ?		
		/RATE 6, MODE 2		
		/		
2502	7340	TST145, CLA CLL CMA		
2503	3040	DCA REGA	/AC TO 7777	
2504	4427	JMS I XIOTG		
2505	1117	TAD K6000	/IOT 6133, CLAB	
2506	1142	TAD K0010		
2507	1147	TAD K0600	/GET ENABLES	
2510	4425	JMS I XIOTF	/IOT 6132, CLOE	
2511	4450	JMS I XPIG02	/GO TO PI, PI EXPECTED	
2512	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
2513	4473	JMS I ERROR	/ERROR: OVERFLOW OR COUNTER FAILED	
2514	1545	1545	/TST145 ERROR MESSAGE	
2515	2502	TST145	/SCOPE LOOP	
		/DOES COUNTER COUNT ?		
		/RATE 6, MODE 3		
		/		
2516	7340	TST146, CLA CLL CMA		
2517	3040	DCA REGA	/AC TO 7777	
2520	4427	JMS I XIOTG		
2521	1141	TAD K7000	/IOT 6133, CLAB	
2522	1142	TAD K0010		
2523	1147	TAD K0600	/GET ENABLES	
2524	4425	JMS I XIOTF	/IOT 6132, CLOE	
2525	4450	JMS I XPIG02	/GO TO PI, PI EXPECTED	
2526	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
2527	4473	JMS I ERROR	/ERROR: COUNTER OR MODE 3 FAILED	
2530	1546	1546	/TST146 ERROR MESSAGE	
2531	2516	TST146	/SCOPE LOOP	
		/DOES OVERFLOW CAUSE ROST. ?		
		/RATE 2-6, MODE 0		

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2532 1131 /
2533 3041 TST147, TAD K7773
2534 1014 DCA REG8
2535 1142 TAD K4000
2536 1015 TAD K0010
2537 3044 TAD K0200
2540 7340 T1478, DCA REGE
2541 4427 CLA CLL CMA
2542 3040 JMS I XIOTG
2543 1044 DCA REGA
2544 4425 TAD REGE
2545 4447 JMS I XIOTF
2546 5355 JMS I XPIG01
2547 6007 JMP T147A
2550 1013 6007
2551 1044 TAD K0100
2552 2041 TAD REGE
2553 5337 ISZ REG8
2554 4472 JMP T147B
2555 4473 JMS I NERR0R
2556 1547 JMS I ERR0R
2557 2532 TST147

/DOES OVERFLOW CAUSE ROST. ?
/RATE 2-6, MODE 1
/

TST150, TAD K7773
DCA REG8
TAD K5020
TAD K0010
TAD K0200
DCA REGE
T150B, 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 REG8
JMP I XCRS4
JMS I NERR0R
T150A, JMS I ERR0R
1550
TST150

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

TST151, TAD K7773
DCA REG8
```

2532 1131 /SET UP ENABLES
2533 3041 /AC TO 7777
2534 1014 /IOT 6133, CLAB
2535 1142 /GET ENABLES
2536 1015 /IOT 6132, CLOE
2537 3044 /GO TO PI, PI EXPECTED
2540 7340 /CAF OR CLEAR THE WORLD
2541 4427
2542 3040
2543 1044
2544 4425
2545 4447
2546 5355
2547 6007
2550 1013
2551 1044
2552 2041
2553 5337
2554 4472
2555 4473
2556 1547
2557 2532

2560 1131 /DO RATES 2-6
2561 3041 /CHECK NON-ERROR HANDLER
2562 1121 /ERROR: OVERFLOW OR MODE FAILED
2563 1142 /TST147 ERROR MESSAGE
2564 1015 /SCOPE LOOP
2565 3044 /MAKE ENABLES
2566 7340 /AC TO 7777
2567 4427 /IOT 6133, CLAB
2570 3040 /GET ENABLES
2571 1044 /IOT 6132, CLOE
2572 4425 /GO TO PI, PI EXPECTED
2573 4447
2574 5573 /CAF OR CLEAR THE WORLD
2575 6007
2576 1013
2577 1044
2600 2041
2601 5574
2602 4472
2603 4473
2604 1550
2605 2560

2606 1131 /CHECK NON-ERROR HANDLER
2607 3041 /ERROR: OVERFLOW OR MODE FAILED
/TST150 ERROR MESSAGE
/SCOPE LOOP

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2610	1117		TAD K0000	
2611	1142		TAD K0010	
2612	1015		TAD K0200	
2613	3044	T1518,	DCA REGE	/MAKE ENABLES
2614	7340		CLA CLL CMA	/AC TO 7777
2615	4427		JMS I XIOTG	/IOT 6133, CLAB
2616	3040		DCA REGA	
2617	1044		TAD REGE	/GET ENABLES
2620	4425		JMS I XIOTF	/IOT 6132, CLDE
2621	4447		JMS I XPIC01	/GO TO PI, PI EXPECTED
2622	5231		JMP T151A	
2623	6027		6007	/CAF OR CLEAR THE WORLD
2624	1013		TAD K0100	
2625	1044		TAD REGE	
2626	2041		IS2 REGB	
2627	5213		JMP T151B	
2630	4472		JMS I NERROR	/CHECK NON-ERROR HANDLER
2631	4473	T151A,	JMS I ERROR	/ERROR: OVERFLOW OR MODE FAILED
2632	1531		1551	/TST151 ERROR MESSAGE
2633	2606		TST151	/SCOPE LOOP
			/DOES OVERFLOW CAUSE ROST. ?	
			/RATE 2-6, MODE 3	
			/	
2634	1131	TST152,	TAD K7773	
2635	3041		DCA REGB	
2636	1141		TAD K7000	
2637	1142		TAD K0010	
2640	1015		TAD K0200	/MAKE ENABLES
2641	3044	T152B,	DCA REGE	
2642	7340		CLA CLL CMA	/AC TO 7777
2643	4427		JMS I XIOTG	/IOT 6133, CLAB
2644	3040		DCA REGA	
2645	1044		TAD REGE	/GET ENABLES
2646	4425		JMS I XIOTF	/IOT 6132, CLDE
2647	4447		JMS I XPIC01	/GO TO PI, PI EXPECTED
2650	5257		JMP T152A	
2651	6027		6007	/CAF OR CLEAR THE WORLD
2652	1013		TAD K0100	
2653	1044		TAD REGE	
2654	2041		IS2 REGB	
2655	5241		JMP T152B	/DO RATES 2-6
2656	4472		JMS I NERROR	/CHECK NON-ERROR HANDLER
2657	4473	T152A,	JMS I ERROR	/ERROR: OVERFLOW OR MODE FAILED
2660	1552		1552	/TST152 ERROR MESSAGE
2661	2634		TST152	/SCOPE LOOP
			/DOES OVERFLOW CAUSE 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	T153B,	DCA REG	/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 REG	/GET ENABLES
2674	4425		JMS I XIOTF	/IOT 6132, CLOE
2675	4420		JMS I XPIG02	/GO TO PI, NO PI EXPECTED
2676	5305		JMP T153A	
2677	6027		6007	/CAF OR CLEAR THE WORLD
2700	1013		TAD K0100	
2701	1044		TAD REG	
2702	2041		IS2 REG	
2703	5267		JMP T153B	/DO RATE 0-7
2704	4472		JMS I NERROR	/CHECK NON-ERROR HANDLER
2705	4473	T153A,	JMS I ERROR	/ERROR: OVERFLOW OR CLK ENA FAILED
2706	1153		1153	/TST153 ERROR MESSAGE
2707	2662		TST153	/SCOPE LOOP
		/		
		/DOES OVERFLOW CAUSE RQST. ?		
		/RATE 0-7, MODE 2, DISABLE INT. RQST. BIT		
		/		
2710	1142	TST154,	TAD K7770	
2711	3041		DCA REG	/MAKE ENABLES
2712	1117		TAD K6000	/AC TO 7777
2713	1142		TAD K0010	/IOT 6133, CLAH
2714	1140		TAD K0020	
2715	3044		DCA REG	
2716	7340		CLA CLL CMA	
2717	4427		JMS I XIOTG	
2720	3040		DCA REGA	
2721	1044		TAD REG	/GET ENABLES
2722	4425		JMS I XIOTF	/IOT 6132, CLOE
2723	4420		JMS I XPIG02	/GO TO PI, NO PI EXPECTED
2724	5333		JMP T154A	
2725	6027		6007	/CAF OR CLEAR THE WORLD
2726	1013		TAD K0100	
2727	1044		TAD REG	
2730	2041		IS2 REG	
2731	5315		JMP T154B	/DO RATE 0-7
2732	4472		JMS I NERROR	/CHECK NON-ERROR HANDLER
2733	4473	T154A,	JMS I ERROR	/ERROR: OVERFLOW OR CLK ENA FAILED
2734	1154		1154	/TST154 ERROR MESSAGE
2735	2710		TST154	/SCOPE LOOP
		/		
		/DOES OVERFLOW CAUSE INT. RQST. ?		
		/MODE 0, RATE 6		
		/		
2736	7340	TST155,	CLA CLL CMA	/AC TO 7777
2737	4427		JMS I XIOTG	/IOT 6133, CLAB
2740	7330		CLA CLL CML RAR	/AC TO 4000
2741	1147		TAD K0600	
2742	1142		TAD K0010	/GET ENABLES
2743	4425		JMS I XIOTF	/IOT 6132, CLOE
2744	4422		JMS I XPIG04	/GO TO PI, PI EXPECTED
2745	4472		JMS I NERROR	/CHECK NON-ERROR HANDLER

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2746	4473	JMS I ERROR	/ERROR: OVERFLOW OR COUNTER FAILED
2747	1555	1555	/TST155 ERROR MESSAGE
2750	2736	TST155	/SCOPE LOOP

/DOES CLSK SKIP THEN INTERRUPT ?			
/RATE 6, MODE 0			

2751	7340	TST156, CLA CLL CMA	/AC TO 7777
2752	4427	JMS I XIOTG	/IOT 6133, CLAH
2753	7330	CLA CLL CML RAR	
2754	1142	TAD K0010	
2755	1147	TAD K0600	/MAKE ENABLES
2756	4425	JMS I XIOTF	/IOT 6132, CLOE
2757	4424	JMS I XIOTE	/IOT 6131, CLSK
2760	5357	JMP -1	/WAIT FOR OVERFLOW
2761	4452	JMS I XPIG04	/GO TO PI, PI EXPECTED
2762	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER
2763	4473	JMS I ERROR	/ERROR: CLSK OR PI FAILED
2764	1556	1556	/TST156 ERROR MESSAGE
2765	2751	TST156	/SCOPE LOOP

/CHECK FOR NO INT, ROST:			
/MODE 0, RATE 6, DISABLE WITH CLSA			

2766	7340	TST157, CLA CLL CMA	/AC TO 7777
2767	4427	JMS I XIOTG	/IOT 6133, CLAH
2770	7330	CLA CLL CML RAR	/AC TO 4000
2771	1147	TAD K0600	
2772	1142	TAD K0010	
2773	4425	JMS I XIOTF	/IOT 6132, CLOE
2774	4424	JMS I XIOTE	/IOT 6131, CLSK
2775	5374	JMP -1	/WAIT FOR OVERFLOW
2776	4431	JMS I XIOTI	/IOT 6135, CLSA
2777	4451	JMS I XPIG03	/GO TO PI, NO PI EXPECTED
3000	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER
3001	4473	JMS I ERROR	/ERROR: INT, ROST, FAILED
3002	1157	1157	/TST157 ERROR MESSAGE
3003	2766	TST157	/SCOPE LOOP

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

3004	7340	TST160, CLA CLL CMA	/AC TO 7777
3005	3040	DCA REGA	
3006	1151	TAD KTA	
3007	3076	DCA KREGC	
3010	4427	JMS I XIOTG	/IOT 6133, CLAH
3011	1014	TAD K4000	
3012	1142	TAD K0010	
3013	1015	TAD K0200	
3014	4425	JMS I XIOTF	/MAKE ENABLES
3015	4453	JMS I XPIG05	/IOT 6132, CLOE
3016	7610	SKP CLA	
3017	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER
3020	4473	JMS I ERROR	/ERROR: CLOCK FREQUENCY FAST

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3021	2160	2160		/TST160 ERROR MESSAGE
3022	3024	TST160		/SCOPE LOOP
		/		/DOES CLOCK FREQUENCY TIME OUT ?
		/RATE 2, MODE 0		/
3023	7340	TST161, CLA CLL CMA	/AC TO 7777	
3024	3040	DCA REGA		
3025	1152	TAD KTA1		
3026	3076	DCA KREGC		
3027	4427	JMS I XIOTG	/IOT 6133, CLAB	
3030	1014	TAD K4000		
3031	1142	TAD K0010		
3032	1015	TAD K0200		
3033	4425	JMS I XIOTF	/MAKE ENABLES	
3034	4453	JMS I XPIG05	/IOT 6132, CLOE	
3035	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
3036	4473	JMS I ERROR	/ERROR: CLOCK FREQUENCY SLOW	
3037	2561	JMS I ERROR	/TST161 ERROR MESSAGE	
3040	3023	2561	/SCOPE LOOP	
		TST161		
		/		/DOES CLOCK FREQUENCY TIME OUT ?
		/RATE 3, MODE 0		/
3041	7340	TST162, CLA CLL CMA	/AC TO 7777	
3042	3040	DCA REGA		
3043	1153	TAD KTB1		
3044	3076	DCA KREGC		
3045	4427	JMS I XIOTG	/IOT 6133, CLAB	
3046	1014	TAD K4000		
3047	1142	TAD K0010		
3050	1145	TAD K0300		
3051	4425	JMS I XIOTF	/MAKE ENABLES	
3052	4453	JMS I XPIG05	/IOT 6132, CLOE	
3053	7610	SKP CLA		
3054	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
3055	4473	JMS I ERROR	/ERROR: CLOCK FREQUENCY FAST	
3056	2162	JMS I ERROR	/TST162 ERROR MESSAGE	
3057	3041	2162	/SCOPE LOOP	
		TST162		
		/		/DOES CLOCK FREQUENCY TIME OUT ?
		/RATE 3, MODE 0		/
3060	7340	TST163, CLA CLL CMA	/AC TO 7777	
3061	3040	DCA REGA		
3062	1154	TAD KTB1		
3063	3076	DCA KREGC		
3064	4427	JMS I XIOTG	/IOT 6133, CLAB	
3065	1014	TAD K4000		
3066	1142	TAD K0010		
3067	1145	TAD K0300		
3070	4425	JMS I XIOTF	/MAKE ENABLES	
3071	4453	JMS I XPIG05	/IOT 6132, CLOE	
3072	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
3073	4473	JMS I ERROR	/ERROR: CLOCK FREQUENCY SLOW	

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3074	2563		2563	/TST163 ERROR MESSAGE
3075	3060		TST163	/SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?				
/RATE 4, MODE 0				
/				
3076	7340		TST164, CLA CLL CMA	/AC TO 7777
3077	3040		DCA REGA	
3100	1155		TAD KTC	
3101	3076		DCA KREGC	
3102	1156		TAD KTC1	
3103	3043		DCA REGD	
3104	4427		JMS I XIOTG	/SET TIMER FOR 10000 CPS CLOCK
3105	1014		TAD K4000	/IOT 6133, CLAB
3106	1142		TAD K0010	
3107	1116		TAD K0400	/MAKE ENABLES
3110	4425		JMS I XIOTF	/IOT 6132, CLOE
3111	4453		JMS I XPIG05	
3112	7610		SKP CLA	
3113	4472		JMS I NERROR	/CHECK NON-ERROR HANDLER
3114	4473		JMS I ERROR	/ERROR: CLOCK FREQUENCY FAST
3115	2164		2164	/TST164 ERROR MESSAGE
3116	3076		TST164	/SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?				
/RATE 4, MODE 0				
/				
3117	7340		TST165, CLA CLL CMA	/AC TO 7777
3120	3040		DCA REGA	
3121	1155		TAD KTC	
3122	3076		DCA KREGC	
3123	1157		TAD KTC2	
3124	3043		DCA REGD	/SET TIMER FOR 10000 CLOCK
3125	4427		JMS I XIOTG	/IOT 6133, CLAB
3126	1014		TAD K4000	
3127	1142		TAD K0010	
3130	1116		TAD K0400	/MAKE ENABLES
3131	4425		JMS I XIOTF	/IOT 6132, CLOE
3132	4453		JMS I XPIG05	
3133	4472		JMS I NERROR	/CHECK NON-ERROR HANDLER
3134	4473		JMS I ERROR	/ERROR: CLOCK FREQUENCY SLOW
3135	2565		2565	/TST165 ERROR MESSAGE
3136	3117		TST165	/SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?				
/RATE 5, MODE 0				
/				
3137	7340		TST166, CLA CLL CMA	/AC TO 7777
3140	3040		DCA REGA	
3141	7350		CLA CLL CMA RAR	
3142	4427		JMS I XIOTC	/IOT 6133, CLAB
3143	7360		CLA CLL	/CLEAR THE AC AND LINK
3144	1160		TAD KTD	
3145	3043		DCA REGD	/SET TIMER FOR 10000 CPS CLOCK
3146	1014		TAD K4000	

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

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 5, MODE 0
/
TST167, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL CMA RAR
JMS I XIOTG /IOT 6133, CLAB
CLA CLL /CLEAR THE AC AND LINK
TAD KTD1
DCA REGD /SET TIMER FOR 100000 CPS CLOCK
TAD K4000
TAD K0010
TAD K0500 /MAKE ENABLES
JMS I XIOTF /IOT 6132, CLOE
JMS I XPIG02 /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: CLOCK FREQUENCY SLOW
JMS I ERROR /TST167 ERROR MESSAGE
2567 /SCOPE LOOP
TST167

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 6, MODE 0
/
TST170, CLA CLL CMA /AC TO 7777
DCA REGA
TAD KTE
DCA REGD /SET TIMER FOR 1000000 CPS CLOCK
JMS I XIOTG /IOT 6133, CLAB
TAD K4000
TAD K0010
TAD K0500 /MAKE ENABLES
JMS I XIOTF /IOT 6132, CLOE
JMS I XPIG01 /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: CLOCK FREQUENCY FAST
JMS I ERROR /TST170 ERROR MESSAGE
2170 /SCOPE LOOP
TST170

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 6, MODE 0
/
TST171, CLA CLL CMA /AC TO 7777
DCA REGA
TAD KTE1
DCA REGD /SET TIMER FOR 1000000 CPS CLOCK
JMS I XIOTG /IOT 6133, CLAB
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3222 1014 TAD K4000
3223 1142 TAD K0010
3224 1147 TAD K0600
3225 4425 JMS I XIOTF
3226 4450 JMS I XPIG02
3227 4472 JMS I NERROR
3230 4473 JMS I ERROR
3231 2571 2571
3232 3215 TST171

/DOES COUNTER REALLY COUNT ?
/RATE 2, MODE 0
/
TST172, CLA CLL CMA
3233 7340 JMS I XIOTG
3234 4427 DCA REGA
3235 3040 TAD K0200
3236 1015 JMS I XIOTF1
3237 4426 CLA CLL
3240 7300 DCA REGC
3241 3042 TAD REGB
3242 1041 DCA SEND
3243 3070 JMS I XIOTK
3244 4433 CIA
3245 7041 TAD REGB
3246 1041 SNA CLA
3247 7650 JMP T172A
3250 5254 ISZ REGC
3251 2042 JMP T172B
3252 5244 JMP T172A1
3253 5257 ISZ REGB
3254 2041 JMP T172B1
3255 5240 JMS I NERROR
3256 4472 JMS I ERROR
3257 4473 4172
3260 4172 TST172
3261 3253

/DOES COUNTER REALLY COUNT ?
/RATE 3, MODE 0
/
TST173, CLA CLL CMA
3262 7340 JMS I XIOTG
3263 4427 DCA REGA
3264 3040 TAD K0300
3265 1145 JMS I XIOTF1
3266 4426 CLA CLL
3267 7300 DCA REGC
3270 3042 TAD REGB
3271 1041 DCA SEND
3272 3070 JMS I XIOTK
3273 4433 CIA
3274 7041 TAD REGB
3275 1041 SNA CLA
3276 7650 JMP T173A
3277 5303 ISZ REGC
3300 2042

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

/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

/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			
3302	5306	JMP T173B		/WAIT ABOUT 15 MS FOR REGISTER
3303	2041	JMP T173A1		/NUMBER NOT FOUND
3304	5267	IS2 REGB		/UPDATE COMPARE REGISTER
3305	4472	JMP T173B1		/TEST FOR NEXT COUNTER PULSE
3306	4473	JMS I NERROR		/CHECK NON-ERROR HANDLER
3307	4173	JMS I ERROR		/ERROR: COUNTER FAILED
3310	3262	4173		/TST173 ERROR MESSAGE
		TST173		/SCOPE LOOP
		/		
		/DOES COUNTER REALLY COUNT ?		
		/RATE 2, MODE 1		
		/		
3311	7340	TST174, CLA CLL CMA		/AC TO 7777
3312	4427	JMS I XIOTG		/IOT 6133, CLAB
3313	3040	DCA REGA		
3314	1015	TAD K0200		
3315	1144	TAD K1000		/GET RATE + MODE
3316	4426	JMS I XIOTF1		/IOT 6132, CLOE
3317	4424	JMS I XIOTE		/IOT 6131, CLSK
3320	5317	JMP -1		
3321	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		/COMPARE TO THIS REGISTER
3331	7650	SNA CLA		/ARE THEY THE SAME YET ?
3332	5336	JMP T174A		/YES, TEST NEXT NUMBER
3333	2042	IS2 REGC		
3334	5326	JMP T174B		/WAIT ABOUT 15 MS FOR REGISTER
3335	5341	JMP T174A1		/NUMBER NOT FOUND
3336	2041	IS2 REGB		/UPDATE COMPARE REGISTER
3337	5323	JMP T174B1		/TEST FOR NEXT COUNTER PULSE
3340	4472	JMS I NERROR		/CHECK NON-ERROR HANDLER
3341	4473	JMS I ERROR		/ERROR: COUNTER FAILED
3342	4174	4174		/TST174 ERROR MESSAGE
3343	3311	TST174		/SCOPE LOOP
		/		
		/DOES COUNTER REALLY COUNT ?		
		/RATE 4, MODE 1		
		/		
3344	7340	TST175, CLA CLL CMA		/AC TO 7777
3345	4427	JMS I XIOTG		/IOT 6133, CLAB
3346	3040	DCA REGA		
3347	1116	TAD K0400		
3350	1144	TAD K1000		/GET RATE + MODE
3351	4426	JMS I XIOTF1		/IOT 6132, CLOE
3352	4424	JMS I XIOTE		/IOT 6131, CLSK
3353	5352	JMP -1		
3354	7320	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	T175B,	JMS I XIOTK	/IOT 6137, CLCA
3362	7041		CIA	
3363	1041		TAD REGB	/COMPARE TO THIS REGISTER
3364	7650		SNA CLA	/ARE THEY THE SAME YET ?
3365	5371		JMP T175A	/YES, TEST NEXT NUMBER
3366	2042		ISZ REGC	
3367	5361		JMP T175B	/WAIT ABOUT 15 MS FOR REGISTER
3370	5374		JMP T175A1	/NUMBER NOT FOUND
3371	2041	T175A,	ISZ REGB	/UPDATE COMPARE REGISTER
3372	5396		JMP T175R1	/TEST FOR NEXT COUNTER PULSE
3373	4472		JMS I NERRR	/CHECK NON-ERROR HANDLER
3374	4473	T175A1,	JMS I ERROR	/ERROR: COUNTER FAILED
3375	4175		4175	/TST175 ERROR MESSAGE
3376	3344		TST175	/SCOPE LOOP
		/		
		/DOES COUNTER REALLY COUNT ?		
		/RATE 2, MODE 2		
		/		
3377	7340	TST176,	CLA CLL CMA	/AC TO 7777
3400	4427		JMS I XIOTG	/IOT 6133, CLAB
3401	3040		DCA REGA	
3402	1015		TAD K0200	
3403	1143		TAD K2000	/GET RATE + MODE
3404	4426		JMS I XIOTF1	/IOT 6132, CLOE
3405	7300	T176R1,	CLA CLL	/CLEAR THE AC AND LINK
3406	3042		DCA REGC	
3407	1041		TAD REGB	
3410	3070		DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER
3411	4433	T176B,	JMS I XIOTK	/IOT 6137, CLCA
3412	7041		CIA	
3413	1041		TAD REGB	/COMPARE TO THIS REGISTER
3414	7650		SNA CLA	/ARE THEY THE SAME YET ?
3415	5221		JMP T176A	/YES, TEST NEXT NUMBER
3416	2042		ISZ REGC	
3417	5211		JMP T176B	/WAIT ABOUT 15 MS FOR REGISTER
3420	5224		JMP T176A1	/NUMBER NOT FOUND
3421	2041	T176A,	ISZ REGB	/UPDATE COMPARE REGISTER
3422	5205		JMP T176R1	/TEST FOR NEXT COUNTER PULSE
3423	4472		JMS I NERRR	/CHECK NON-ERROR HANDLER
3424	4473	T176A1,	JMS I ERROR	/ERROR: COUNTER FAILED
3425	4176		4176	/TST176 ERROR MESSAGE
3426	3377		TST176	/SCOPE LOOP
		/		
		/DOES COUNTER REALLY COUNT ?		
		/RATE 4, MODE 2		
		/		
3427	7340	TST177,	CLA CLL CMA	/AC TO 7777
3430	4427		JMS I XIOTG	/IOT 6133, CLAB
3431	3040		DCA REGA	
3432	1116		TAD K0400	
3433	1143		TAD K2000	/GET RATE + MODE
3434	4426		JMS I XIOTF1	/IOT 6132, CLOE
3435	7300	T177B1,	CLA CLL	/CLEAR THE AC AND LINK
3436	3042		DCA REGC	

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3437	1041	TAD REG8
3440	3070	DCA SEND
3441	4433	JMS I XIOTK
3442	7041	CIA
3443	1041	TAD REG8
3444	7650	SNA CLA
3445	5251	JMP T177A
3446	2042	IS2 REGC
3447	5241	JMP T177B
3450	5254	JMP T177A1
3451	2041	IS2 REG8
3452	5255	JMP T177B1
3453	4472	JMS I NERROR
3454	4473	JMS I ERROR
3455	4177	4177
3456	3427	TST177
		/
		/DOES COUNTER REALLY COUNT ?
		/RATE 4, MODE 3
		/
		TST200, CLA CLL CMA
3457	7340	JMS I XIOTG
3460	4427	DCA REGA
3461	3040	TAD K4200
3462	1116	TAD K3000
3463	1120	JMS I XIOTF1
3464	4426	CLA CLL
3465	7300	DCA REGC
3466	3042	TAD REG8
3467	1041	DCA SEND
3470	3070	JMS I XIOTK
3471	4433	CIA
3472	7041	TAD REG8
3473	1041	SNA CLA
3474	7650	JMP T200A
3475	5301	IS2 REGC
3476	2042	JMP T200B
3477	5271	JMP T200A1
3500	5304	IS2 REG8
3501	2041	JMP T200B1
3502	5265	JMS I NERROR
3503	4472	JMS I ERROR
3504	4473	4200
3505	4200	TST200
3506	3457	
		/
		/DO IOT'S AFFECT AC ?
		/
		TST201, CLA CLL CMA
3507	7340	JMS I XIOTG
3510	4427	DCA REGA
3511	3040	6007
3512	6007	TAD K1000
3513	1144	TAD K0200
3514	1015	JMS I XIOTF1
3515	4426	JMS I XIOTE
3516	4424	

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3517	5316			
3520	7340			
3521	4423			
3522	7300			
3523	3070			
3524	1041			
3525	4432			
3526	7640			
3527	5351			
3530	1041			
3531	4433			
3532	7640			
3533	5351			
3534	1041			
3535	4430			
3536	7640			
3537	5351			
3540	1041			
3541	4431			
3542	7640			
3543	5351			
3544	4424			
3545	5344			
3546	2041			
3547	5322			
3550	4472			
3551	4473			
3552	3201			
3553	3527			
3554	4570			
3555	5463			
3556	7300			
3557	1112			
3560	3077			
3561	7340			
3562	3040			
3563	7307			
3564	1142			
3565	4425			
3566	4420			
3567	4472			
3570	4473			
3571	1602			
3572	3561			
3573	7340			
3574	3040			
3575	7326			
3576	1142			

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T201B,
      JMP -1
      CLA CLL CMA
      JMS I XIOTD
      CLA CLL
      DCA SEND
      TAD REGR
      JMS I XIOTJ
      SZA CLA
      JMP T201A
      TAD REGR
      JMS I XIOTK
      SZA CLA
      JMP T201A
      TAD REGR
      JMS I XIOTI
      SZA CLA
      JMP T201A
      JMS I XIOTE
      JMP -1
      ISZ REGR
      JMP T201B
      JMS I NERRR
      JMS I ERROR
      3201
      TST201
      /
      JMS I XPASS
      JMP I XDK8EP
      /DOES INPUT 4 CAUSE INT. ROST.
      /
      CLA CLL
      TAD K7400
      DCA LOOP
      TST202, CLA CLL CMA
      DCA REGA
      CLA CLL IAC RTL /AC TO 0004
      TAD K0010 /GET ENABLES
      JMS I XIOTF /IOT 6132, CLOE
      JMS I XPIG02 /GO TO PI, PI EXPECTED
      JMS I NERRR /CHECK NON-ERROR HANDLER
      JMS I ERROR /ERROR: INPUT 4 FAILED
      1602
      TST202
      /DOES INPUT 2 CAUSE INT. ROST.
      /
      TST203, CLA CLL CMA /AC TO 7777
      DCA REGA
      CLA CLL CML RTL /AC TO 0002
      TAD K0010 /GET ENABLES

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3577	4425	JMS I XIOTF	/IOT 6132, CLOE
3600	4450	JMS I XPIG02	/GO TO PI, PI EXPECTED
3601	4472	JMS I NERR0R	/CHECK NON-ERROR HANDLER
3602	4473	JMS I ERROR	/ERROR: INPUT 2 FAILED
3603	1603		/TST203 ERROR MESSAGE
3604	3573	TST203	/SCOPE LOOP
/			
		/DOES INPUT 1 CAUSE INT. ROST.	
/			
3605	7340	TST204, CLA CLL CMA	/AC TO 7777
3606	3040	DCA REGA	
3607	7324	CLA CLL CML RAL	/AC TO 0001
3610	1142	TAD K0010	/GET ENABLES
3611	4425	JMS I XIOTF	/IOT 6132, CLOE
3612	4450	JMS I XPIG02	/GO TO PI, PI EXPECTED
3613	4472	JMS I NERR0R	/CHECK NON-ERROR HANDLER
3614	4473	JMS I ERROR	/ERROR: INPUT 1 FAILED
3615	1604		/TST204 ERROR MESSAGE
3616	3605	TST204	/SCOPE LOOP
/			
		/DOES INPUT 4 RQST. LAST ?	
/			
3617	7340	TST205, CLA CLL CMA	/AC TO 7777
3620	3040	DCA REGA	
3621	7307	CLA CLL IAC RTL	/AC TO 0004
3622	1142	TAD K0010	/GET ENABLES
3623	4425	JMS I XIOTF	/IOT 6132, CLOE
3624	4447	JMS I XPIG01	/GO TO PI, PI EXPECTED
3625	5252	JMP T205A	/NO RQST. FOUND
3626	2041	ISZ REG8	/UPDATE COUNTER
3627	5226	JMP .-1	/WAIT 15 MS
3630	4450	JMS I XPIG02	/GO TO PI, PI EXPECTED
3631	4472	JMS I NERR0R	/CHECK NON-ERROR HANDLER
3632	4473	JMS I ERROR	/ERROR: INPUT 4 FAILED
3633	1605		/TST205 ERROR MESSAGE
3634	3617	TST205	/SCOPE LOOP
/			
		/DOES INPUT 2 RQST. LAST ?	
/			
3635	7340	TST206, CLA CLL CMA	/AC TO 7777
3636	3040	DCA REGA	
3637	7305	CLA CLL IAC RAL	/AC TO 0002
3640	1142	TAD K0010	/GET ENABLES
3641	4425	JMS I XIOTF	/IOT 6132, CLOE
3642	4447	JMS I XPIG01	/GO TO PI, PI EXPECTED
3643	5250	JMP T206A	/NO RQST. FOUND
3644	2041	ISZ REG8	/UPDATE COUNTER
3645	5244	JMP .-1	/WAIT 15 MS
3646	4450	JMS I XPIG02	/GO TO PI, PI EXPECTED
3647	4472	JMS I NERR0R	/CHECK NON-ERROR HANDLER
3650	4473	JMS I ERROR	/ERROR: INPUT 2 FAILED
3651	1606		/TST206 ERROR MESSAGE
3652	3635	TST206	/SCOPE LOOP
/			
		/DOES INPUT 1 RQST. LAST ?	

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3653 7340 /
3654 3040 TST207, CLA CLL CMA /AC TO 7777
3655 7324 DCA REGA
3656 1142 CLA CLL CML RAL /AC TO 0001
3657 4425 TAD K0010 /GET ENABLES
3660 4447 JMS I XIOTF /IOT 6132, CLOE
3661 5266 JMS I XPIG01 /GO TO PI, PI EXPECTED
3662 2041 JMP T207A /NO RQST. FOUND
3663 5262 IS2 REG8 /UPDATE COUNTER
3664 4450 JMP :-1 /WAIT 15 MS
3665 4472 JMS I XPIG02 /GO TO PI, PI EXPECTED
3666 4473 JMS I NERR0R /CHECK NON-ERROR HANDLER
3667 1627 JMS I ERROR /ERROR: INPUT 1 FAILED
3670 3653 T207A, 1607 /TST207 ERROR MESSAGE
      TST207 /SCOPE LOOP
/
/DOES INPUTS 4,2,1 WITHOUT BIT 8 ?
/
TST210, CLA CLL CMA /AC TO 7777
      DCA REGA
      CLA CLL IAC RTR /AC TO 4000
      TAD K0007
      TAD K0600
      JMS I XIOTF /IOT 6132, CLOE
      JMS I XPIG01 /GO TO PI, NO PI EXPECTED
      JMS I NERR0R /CHECK NON-ERROR HANDLER
      JMS I ERROR /ERROR:ENABLE BIT 8 FAILED
      1212 /TST210 ERROR MESSAGE
      TST210 /SCOPE LOOP
/
/DOES INPUT 4 CAUSE SKIP ?
/
TST211, CLA CLL CMA /AC TO 7777
      DCA REGA
      TAD KTICPS
      DCA REGF
      CLA CLL IAC RTL /AC TO 0004
      JMS I XIOTF /IOT 6132, CLOE
      JMS I XIOTE /IOT 6131, CLSK
      JMS I SKPWAT /LET'S WAIT FOR A FLAG
      JMS I NERR0R /CHECK NON-ERROR HANDLER
      JMS I ERROR /ERROR: INPUT 4 OR SKIP FAILED
      0611 /TST211 ERROR MESSAGE
      TST211 /SCOPE LOOP
/
/DOES INPUT 2 CAUSE SKIP ?
/
TST212, CLA CLL CMA /AC TO 7777
      DCA REGA
      TAD KTICPS
      DCA REGF
      CLA CLL CML RTL /AC TO 0002
      JMS I XIOTF /IOT 6132, CLOE
      JMS I XIOTE /IOT 6131, CLSK
      JMS I SKPWAT /LET'S WAIT FOR A FLAG

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

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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 /IOT 6131, CLSK
JMS I XIOTE
JMP .-1
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INPUT 1 SKIP OR INT. ROST. FAILED
1616 /TST216 ERROR MESSAGE
TST216 /SCOPE LOOP

/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 XIOTF /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 XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INPUT 4 SKIP OR ROST. FAILED
0217 /TST217 ERROR MESSAGE
TST217 /SCOPE LOOP

/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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PAL10  V141  4064  7305  CLA CLL IAC RAL /AC TO 0002
          4065  4425  JMS I XIOTF /IOT 6132, CLOE
          4066  4424  JMS I XIOTE /IOT 6131, CLSK
          4067  4472  JMS I NERRR /CHECK NON-ERROR HANDLER
          4070  4473  JMS I ERROR /ERROR: INPUT 2 SKIP OR ROST, FAILED
          4071  0220  0220 /TST220 ERROR MESSAGE
          4072  4050  TST220 /SCOPE LOOP

/DOES CAF CLEAR INPUT 3 ROST, ?
/
TST221, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC /AC TO 0001
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP .-1 /WAIT FOR FIRST FLAG
6007 /CAF OR CLEAR THE WORLD
CLA CLL IAC /AC TO 0001
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP .-1 /WAIT FOR SECONED FLAG
6007 /CAF OR CLEAR THE WORLD
CLA CLL IAC
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMS I NERRR /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 ?
/
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 NERRR /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 ?
/
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

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4142 4431 JMS I XIOTI /IOT 6135, CLSA
4143 4436 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4144 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
4145 4473 JMS I ERROR /ERROR: CLSA OR INPUT 2 FAILED
4146 5223 5223 /TST223 ERROR MESSAGE
4147 4133 TST223 /SCOPE LOOP

/DOES CLSA READ RQST. INPUT 1 ?
/
TST224, CLA CLL CMA /AC TO 7777
DCA REGA /AC TO 0001
CLA CLL IAC /IOT 6132, CLOE
JMS I XIOTF /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR FLAG
JMP -1 /AC TO 7776
CMA /IOT 6135, CLSA
JMS I XIOTI /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV /CHECK NON-ERROR HANDLER
JMS I NERRR /ERROR: CLSA OR INPUT 1 FAILED
JMS I ERROR /TST224 ERROR MESSAGE
5224 TST224 /SCOPE LOOP

/DOES CLSA CLEAR INPUT 4 RQST. ?
/
TST225, CLA CLL CMA /AC TO 7777
DCA REGA /AC TO 0004
CLA CLL IAC RTL /IOT 6132, CLOE
JMS I XIOTF1 /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR FIRST FLAG
JMP -1 /IOT 6135, CLSA
JMS I XIOTI /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR SECOND FLAG
JMP -1 /IOT 6135, CLSA
JMS I XIOTI /IOT 6131, CLSK
JMS I XIOTE /CHECK NON-ERROR HANDLER
JMS I NERRR /ERROR: CLSA OR INPUT 1 FAILED
JMS I ERROR /TST225 ERROR MESSAGE
0225 TST225 /SCOPE LOOP

/DOES CLSA CLEAR INPUT 2 RQST. ?
/
TST226, CLA CLL CMA /AC TO 7777
DCA REGA /AC TO 0002
CLA CLL IAC RAL /IOT 6132, CLOE
JMS I XIOTF /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR FIRST FLAG
JMP -1 /IOT 6135, CLSA
JMS I XIOTI /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR SECOND FLAG
JMP -1 /IOT 6135, CLSA
JMS I XIOTI /IOT 6131, CLSK
JMS I XIOTE /CHECK NON-ERROR HANDLER
JMS I NERRR /ERROR: CLSA OR INPUT 1 FAILED
JMS I ERROR /TST226 ERROR MESSAGE
0226 TST226 /SCOPE LOOP

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/
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4220 4473 JMS I ERROR /ERROR: CLSA OR INPUT 2 FAILED
4221 0226 0226 /TST226 ERROR MESSAGE
4222 4204 TST226 /SCOPE LOOP
/
/DOES CLSA CLEAR INPUT 4 ROST. ?
/
TST227, CLA CLL CMA /AC TO 7777
DCA REGA /AC TO 0001
CLA CLL IAC /IOT 6132, CLOE
JMS I XIOTF /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR FIRST FLAG
JMP -1 /IOT 6135, CLSA
JMS I XIOTI /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR SECOND FLAG
JMP -1 /IOT 6135, CLSA
JMS I XIOTI /IOT 6131, CLSK
JMS I XIOTE /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: CLSA OR INPUT 1 FAILED
JMS I ERROR /TST227 ERROR MESSAGE
0227 /SCOPE LOOP
TST227
/
/DOES CLSA READ INPUT 4,2,1 ?
/
TST230, CLA CLL CMA /AC TO 7777
DCA REGA /GET ENABLES
TAD K0007 /IOT 6132, CLOE
JMS I XIOTF
NOP
ISE REGB /WAIT FOR ALL
JMP -2 /IOT 6131, CLOE
JMS I XIOTE /WAIT FOR FLAGS
JMP -1 /AC TO 7777
CLA CLL CMA /IOT 6135, CLSA
JMS I XIOTI /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV /ERROR, STATUS REGISTER
SKP CLA /SAVE OUTPUT FOR ERROR PRINTER
JMP T230A /AC TO 7777
DCA SEND /IOT 6135, CLSA
CLA CLL CMA /WAS STATUS ALL 0'S ?
JMS I XIOTI /CHECK NON-ERROR HANDLER
SNA CLA /ERROR: CLSA OR INPUTS 1,2,3 FAILED
JMS I NERROR /TST230 ERROR MESSAGE
JMS I ERROR /SCOPE LOOP
5230
TST230
/
/DOES INPUT 4 CLEAR BIT 7 ?
/
TST231, CLA CLL CMA
DCA REGA
CLA CLL IAC RTL /AC TO 0004
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
TAD SEND
TAD K0020 /GET ENABLES
4270 7340
4271 3040
4272 7307
4273 3070
4274 1070
4275 1140

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

/DOES INPUT 2 CLEAR BIT 7 ?
/
TST232, CLA CLL CMA
DCA REGA
CLA CLL IAC RAL /AC TO 0002
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
TAD SEND
TAD K0020
JMS I XIOTF1 /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP -1 /WAIT FOR FLAG
CLA CLL CMA /IOT 6134, CLEN
JMS I XIOTH /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV /CHECK NON-ERROR HANDLER
JMS I NERRR /ERROR: BIT 7 OR INPUT 2 FAILED
JMS I ERROR /TST232 ERROR MESSAGE
4632 TST232 /SCOPE LOOP

/DOES INPUT 1 CLEAR BIT 7 ?
/
TST233, CLA CLL CMA /AC TO 7777
DCA REGA /AC TO 0001
CLA CLL IAC /SAVE OUTPUT FOR ERROR PRINTER
DCA SEND
TAD SEND
TAD K0020
JMS I XIOTF1 /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP -1 /WAIT FOR FLAG
CLA CLL CMA /AC TO 7777
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: BIT 7 OR INPUT 1 FAILED
4633 TST233 /SCOPE LOOP

/DOES INPUT 4,2,1 GENERATE CLR CNT ?
/MODE 3, RATE 0
/
TST234, CLA CLL CMA /AC TO 7777
DCA REGA /GET AC NUMBER
TAD K2525

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4353 JMS I XIOTG /IOT 6133, CLAB
4354 CLA CLL IAC RTL /AC TO 0004
4355 TAD K3000 /GET ENABLES
4356 JMS I XIOTF1 /IOT 6132, CLOE
4357 JMS I XIOTE /IOT 6131, CLSK
4360 JMP .-1 /WAIT FOR FLAG
4361 CLA CLL
4362 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
4363 CLA CLL CMA /AC TO 7777
4364 JMS I XIOTK /IOT 6137, CLCA
4365 SNA CLA /WAS COUNTER ALL 0'S ?
4366 JMS I NERRR /CHECK NON-ERROR HANDLER
4367 JMS I ERROR /ERROR: CLR CNT FAILED
4370 J234 /TST234 ERROR MESSAGE
4371 TST234 /SCOPE LOOP
4370

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

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TST235,      CLA CLL CMA      /AC TO 7777
DCA REGA
TAD K252
JMS I XIOTG      /GET AC NUMBER
JMS I XIOTG      /IOT 6133, CLAB
JMS I XIOTG      /AC TO 0002
JMS I XIOTG      /GET ENABLES
JMS I XIOTG      /IOT 6132, CLOE
JMS I XIOTG      /IOT 6131, CLSK
JMS I XIOTG      /WAIT FOR FLAG
JMS I XIOTG      /SAVE OUTPUT FOR ERROR PRINTER
JMS I XIOTG      /AC TO 7777
JMS I XIOTG      /IOT 6137, CLCA
JMS I XIOTG      /WAS COUNTER ALL 0'S ?
JMS I XIOTG      /CHECK NON-ERROR HANDLER
JMS I XIOTG      /ERROR: CLR CNT FAILED ?
JMS I XIOTG      /TST235 ERROR MESSAGE
JMS I XIOTG      /SCOPE LOOP
JMS I XIOTG      TST235

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

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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, CLAR
4420 6027 6007 /CAF OR CLEAR THE WORLD
4421 7321 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 9224 JMP , -1 /WAIT FOR FLAG
4426 7340 CLA CLL CMA /AC TO 7777
4432 4432 JMS I XIOTJ /IOT 6136, CLBA
4436 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4437 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
4438 4473 JMS I ERROR /ERROR: COUNTER TO BUFFER FAILED

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PAL10	V141	3636	3636	/TST236 ERROR MESSAGE
	4433	4414	TST236	/SCOPE LOOP
				/
				/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 NERROR
				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 NERROR
				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
				/IOT 6133, CLAB
				/CAF OR CLEAR THE WORLD
				/AC TO 0002
				/GET ENABLES

PAL10	V141	3636	3636	/TST236 ERROR MESSAGE
	4433	4414	TST236	/SCOPE LOOP
				/
				/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 NERROR
				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 NERROR
				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
				/IOT 6133, CLAB
				/CAF OR CLEAR THE WORLD
				/AC TO 0002
				/GET ENABLES

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

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

TST242, 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 XIOTJ
JMS I XSNDRV
JMS I NERROR
JMS I ERROR
3642
TST242

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

TST243, CLA CLL CMA      /AC TO 7777
DCA REGA
TAD K2525
JMS I XIOTG
6007
CLA CLL IAC RAL
TAD K2000
JMS I XIOTF1
JMS I XIOTE
JMP .-1
CLA CLL CMA
JMS I XIOTJ
JMS I XSNDRV
JMS I NERROR
JMS I ERROR
3643
TST243

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

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

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

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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

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

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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 5232 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 4621 TST246

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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
TAD K252
JMS I XIOTG /GET AC NUMBER
CLA CLL IAC RTL /IOT 6133, CLAB
TAD K1000 /AC TO 0004
JMS I XIOTF1 /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMP -1 /WAIT FOR FLAG
CLA CLL CMA /AC TO 7777
JMS I XIOTJ /IOT 6136, CLBA
JMS I XSNDV /CHECK SEND AND RECEV REGISTERS
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: MODE 1 FAILED
3647 /TST247 ERROR MESSAGE
TST247 /SCOPE LOOP

/DOES CLSA READ INPUTS 4.2.1 ?
/
TST250, CLA CLL CMA /AC TO 7777
DCA REGA
TAD K0007 /GET ENABLES
JMS I XIOTF1 /IOT 6132, CLOE
NOP
ISZ REGB
JMP -2 /WAIT FOR ALL
JMS I XIOTE /IOT 6131, CLSK
JMP -1
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 7777
JMS I XIOTI /IOT 6135, CLSA
SNA CLA /WAS STATUS ALL 0'S ?
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INPUT 4.2.1 OR STATUS FAILED
5250 /TEST250 ERROR MESSAGE
TST250 /SCOPE LOOP

/DOES CLSA READ STATUS REGISTER ?
/
TST251, CLA CLL CMA /AC TO 7777
DCA REGA
TAD K0007 /GET ENABLES
JMS I XIOTF /IOT 6132, CLOE
NOP
ISZ REGB
JMP -2
JMS I XIOTE /WAIT FOR FLAGS
JMP -1 /IOT 6131, CLSK
CLA CLL CMA /AC TO 7777
JMS I XIOTI /IOT 6135, CLSA

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	PAL10	V141	9-OCT-71	15144	PAGE 1-58
	5042	5620		JMP I ERRO	/ENTER SCOPE LOOP
/					
	5043	1620		TAD I ERRO	
	5044	3200		DCA NERRO	
	5045	5600		JMP I NERRO	
/					
	5046	0000		BELL, 0000	
	5047	7604		LAS	
	5050	0116		AND K0400	
	5051	7640		SZA CLA	
	5052	5646		JMP I BELL	
	5053	1026		TAD K0207	
	5054	4527		JMS I XTYPE	
	5055	5646		JMP I BELL	
/					
	5056	0000		TYPE, 0000	
	5057	6046		TLS	
	5060	6041		TSF	
	5061	5260		JMP .-1	
	5062	7200		CLA	
	5063	6042		TCF	
	5064	5656		JMP I TYPE	
/					
	5065	0000		CLRREG, 0000	/CLEAR THE AC AND LINK
	5066	7300		CLA CLL	
	5067	3041		DCA REGB	
	5070	3042		DCA REGC	
	5071	3043		DCA REGD	
	5072	3070		DCA SEND	
	5073	3071		DCA RECEV	
	5074	7604		LAS	
	5075	0117		AND K6000	
	5076	7650		SNA CLA	
	5077	7340		CLA CLL CMA	
	5100	3040		DCA REGA	
	5101	5665		JMP I CLRREG	
/					
	5102	0000		IOTA, 0000	/FIELD SERVICE CHANGE
	5103	6131		6131	
	5104	5702		JMP I IOTA	
	5105	2302		ISZ IOTA	
	5106	5702		JMP I IOTA	
/					
	5107	0000		IOTB, 0000	/FIELD SERVICE CHANGE
	5110	6132		6132	
	5111	5707		JMP I IOTB	
	5112	2307		ISZ IOTB	
	5113	5707		JMP I IOTB	
/					
	5114	0000		IOTC, 0000	/FIELD SERVICE CHANGE
	5115	6133		6133	
	5116	5714		JMP I IOTC	
	5117	2314		ISZ IOTC	
	5120	5714		JMP I IOTC	
/					

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5121	0000	IOTD,	0000	/SAVE OUTPUT FOR ERROR PRINTER
5122	3070		DCA SEND	
5123	1070		TAD SEND	
5124	6130		6130	/FIELD SERVICE CHANGE
5125	5721		JMP I IOTD	
5126	7422	EHLT2,	HLT	/SKIP TRAP, CLDE
		/		
5127	0000	IOTE,	0000	/FIELD SERVICE CHANGE
5130	6131		6131	
5131	5727		JMP I IOTE	
5132	2627		ISZ IOTE	
5133	5727		JMP I IOTE	
		/		
5134	0000	IOTF,	0000	/SAVE OUTPUT FOR ERROR PRINTER
5135	3070		DCA SEND	
5136	1070		TAD SEND	
5137	6132		6132	/FIELD SERVICE CHANGE
5140	5734		JMP I IOTF	
5141	7422	EHLT3,	HLT	/SKIP TRAP, CLOE
		/		
5142	0000	IOTF1,	0000	/FIELD SERVICE CHANGE
5143	6132		6132	
5144	5742		JMP I IOTF1	
5145	7422	EHLT4,	HLT	/SKIP TRAP, CLOE
		/		
5146	0000	IOTG,	0000	/SAVE OUTPUT FOR ERROR PRINTER
5147	3070		DCA SEND	
5150	1070		TAD SEND	
5151	6133		6133	/FIELD SERVICE CHANGE
5152	5746		JMP I IOTG	
5153	7422	EHLT5,	HLT	/SKIP TRAP, CLAB
		/		
5154	0000	IOTH,	0000	/FIELD SERVICE CHANGE
5155	6134		6134	
5156	7410		SKP	
5157	7422	EHLT6,	HLT	/SKIP TRAP, CLEN
5160	3071		DCA RECEV	/SAVE OUTPUT FOR ERROR PRINTER
5161	1071		TAD RECEV	
5162	5754		JMP I IOTH	
		/		
5163	0000	IOTI,	0000	/FIELD SERVICE CHANGE
5164	6135		6135	
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	5200	*5200		
		/		
5200	0000	IOTJ,	0000	/FIELD SERVICE CHANGE
5201	6136		6136	
5202	7410		SKP	
5203	7422	EHLT10,	HLT	/SKIP TRAP, CLBA
5204	3071		DCA RECEV	/SAVE OUTPUT FOR ERROR PRINTER

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5205	1071	TAD RECEV		
5206	5600	JMP I IOTJ		
5207	0000	/		/FIELD SERVICE CHENGE
5210	6137	10TK, 0000		
5211	7410	6137		/SKIP TRAP, CLCA
5212	7402	SKP		/SAVE OUTPUT FOR ERROR PRINTER
5213	3071	EHLT11, HLT		
5214	1071	DCA RECEV		
5215	5607	TAD RECEV		
		JMP I IOTK		
5216	0000	/		/WAS SEND AND RECEV THE SAME ?
5217	7041	SNDRV, 0000		
5220	1070	CIA		
5221	7640	TAD SEND		
5222	2216	SZA CLA		
5223	5616	ISZ SNDRV		
		JMP I SNDRV		
5224	0000	/		
5225	1044	RANDOM, 0000		
5226	7024	TAD REGE		/CLEAR THE AC AND LINK
5227	7430	RAL		/SET FOR PI RETURN
5230	1410	SZL		/CLEAR THE AC AND LINK
5231	3044	TAD I 10		/READ THE COUNTER
5232	1044	DCA REGE		
5233	5624	TAD REGE		
5234	0000	JMP I RANDOM		
5235	7300	0000		
5236	1254	CLA CLL		
5237	3002	TAD PRET5		
5240	6001	DCA 2		
5241	7300	ION		
5242	1076	CLA CLL		
5243	3042	TAD KREGC		
5244	4433	DCA REGC		
5245	2042	JMS I XIOTK		
5246	5245	ISZ REGC		
5247	2043	JMP .-1		
5250	5241	ISZ REGD		
5251	2234	JMP .-7		
5252	6002	ISZ PIG05		
5253	5634	PIRET5, IOF		/DISABLE PROGRAM INTERRUPT
		JMP I PIG05		
5254	5252	/		
		PIRET5, PIRET5		
5255	0000	/		/CLEAR THE AC AND LINK
5256	7300	PIG01, 0000		/SET FOR PI RETURN
5257	1267	CLA CLL		/ENABLE PROGRAM INTERRUPT
5260	3002	TAD PRET1		
5261	6001	DCA 2		
5262	4454	ION		
5263	7410	JMS I XISZ		
5264	2255	SKP		
5265	6002	PIRET1, ISZ PIG01		/DISABLE PROGRAM INTERRUPT
5266	5655	IOF		
		JMP I PIG01		

```

/
5267 5264 / PRET1, PIRET1
5270 0000 / PIG02, 0000
5271 7300 CLA CLL
5272 1301 TAD PRET2
5273 3002 DCA 2
5274 6001 ION
5275 4454 JMS I XISZ
5276 2270 ISZ PIG02
5277 6002 PIRET2, IOF
5300 5670 JMP I PIG02

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

/
5310 0000 ISZLOP, 0000
5311 7300 CLA CLL
5312 1113 TAD XIOTCPS
5313 3045 DCA REGF
5314 7001 IAC
5315 7000 NOP
5316 2043 ISZ REGD
5317 5314 JMP -3
5320 2045 ISZ REGF
5321 5314 JMP -5
5322 5710 JMP I ISZLOP

/
5323 0000 PIG03, 0000
5324 7300 CLA CLL
5325 1335 TAD PRETC
5326 3002 DCA 2
5327 6001 ION
5330 7000 NOP
5331 7410 SKP
5332 2523 ISZ PIG03
5333 6002 IOF
5334 5723 JMP I PIG03

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

```

/CLEAR THE AC AND LINK

/SET FOR PI RETURN

/WAIT

/CLEAR THE AC AND LINK

/CLEAR THE AC AND LINK

5346	5736	JMP I PIG04
5347	5345	PRETD, RETD
5350	0000	IOTS,
5351	6132	0000
5352	6134	6132
5353	6132	6134
5354	6134	6132
5355	6132	6134
5356	6134	6132
5357	5750	6134
		JMP I IOTS
5360	0000	IOTS1,
5361	6133	0000
5362	6136	6133
5363	6133	6136
5364	6136	6133
5365	6133	6136
5366	6136	6133
5367	5760	6136
		JMP I IOTS1
5370	0000	IOTS2,
5371	6133	0000
5372	6137	6133
5373	6133	6137
5374	6137	6133
5375	6133	6137
5376	6137	6133
5377	5770	6137
		JMP I IOTS2
	5400	IOTS3,
5400	0000	0000
5401	6134	6134
5402	7040	CMA
5403	6130	6130
5404	7040	CMA
5405	6134	6134
5406	7040	CMA
5407	6130	6130
5410	7040	CMA
5411	6134	6134
5412	5600	6134
		JMP I IOTS3
5413	0000	CLOCK,
5414	7604	0000
5415	0007	LAS
5416	3075	AND K0007
5417	5613	DCA CLOCKS
		JMP I CLOCK
		/ROUTINE TO TYPE OCT
		/ENTER WITH NUMBER I
5420	0000	OCTEL, 0000

5421	7006	RTL	
5422	7006	RTL	
5423	3041	DCA REGB	/SAVE NUMBER
5424	1130	TAD K7774	
5425	3042	DCA RECC	/SET UP COUNTER
5426	1041	TAD REGB	/GET NUMBER
5427	0007	AND K0007	
5430	1123	TAD K0260	
5431	4507	JMS I XTYPE	
5432	1041	TAD REGB	/GET NUMBER
5433	7006	RTL	
5434	7004	RAL	
5435	3041	DCA REGB	/SAVE THE REST
5436	2042	ISZ RECC	
5437	5226	JMP :-11	
5440	5620	JMP I OCTEL	
/ROUTINE FOR CRLF			
5441	0000	CRLF, 0000	
5442	7300	CLA CLL	/CLEAR THE AC AND LINK
5443	1134	TAD K0215	
5444	4507	JMS I XTYPE	
5445	1135	TAD K0212	
5446	4507	JMS I XTYPE	
5447	5641	JMP I CRLF	
/ROUTINE TO TYPE CLOCK			
5450	0000	POPR, 0000	
5451	7300	CLA CLL	/CLEAR THE AC AND LINK
5452	1262	TAD KTADCK	/GET CLOCK TAD
5453	1075	TAD CLOCKS	/MAKE IT
5454	3255	DCA :+1	
5455	1262	TAD KTADCK	/MODIFIED BY TEST
5456	4504	JMS I XOCTEL	/PRINT NUMBER
5457	4506	JMS I XPRINT	/PRINT CLOCKS
5460	6026	FMS	
5461	5650	JMP I POPR	
/KTADCK, TAD CLKNO			
5462	1263	CLKNO, 0001	
5463	0001	0050	
5464	0050	0100	
5465	0100	0120	
5466	0120	0500	
5467	0500	5000	
5470	5000		
/ROUTINE TO SORT ERROR MESSAGES			
5471	0000	SORT, 0000	
5472	7300	CLA CLL	/CLEAR THE AC AND LINK
5473	4501	JMS I XCRLF	/CRLF
5474	1473	TAD I ERROR	/GET MESSAGE POINT
5475	3044	DCA REGE	

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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	7300	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	4506	JMS I XPRINT		/PRINT MESSAGE
5516	0000	0000		/MODIFIED MESSAGE POINTER
5517	7300	CLA CLL		
5520	1044	TAD REGE		/GET MESSAGE POINTER
5521	1132	TAD K7772		/IS IT GREATER THAN
5522	7620	SNL CLA		
5523	5671	JMP I SORT		
5524	4502	JMS I XREG		
5525	5671	JMP I SORT		
5526	1327	/ KTADM, TAD KTMX		
5527	6107	/ KTMX, MES1		
5530	6131	MES2		
5531	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		
5542	0020	/ ROUTINE TO PRINT TEST + ADDRESS		
5543	7300	/ MESS, 0000		
5544	4501	CLA CLL		/CLEAR THE AC AND LINK
5545	4506	JMS I XCRLF		/CRLF
5546	6046	JMS I XPRINT		/GO PRINT TEST
5547	1473	TMS		
5550	3043	TAD I ERROR		/GET ERROR MESSAGE
5551	1443	DCA REGD		/STORE MESSAGE POINTER
5552	0136	TAD I REGD		
5553	4504	AND K0377		/MASK 4-11
5554	2043	JMS I XOCTEL		/GO PRINT NUMBER
5555	4506	IS2 REGD		/UPDATE POINTER
5556	6051	JMS I XPRINT		/GO PRINT STARTING ADDRESS
5557	1443	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		
		/		
5563	0000	PREG, 0000		
5564	4521	JMS I XCRLF	/CRLF	
5565	4526	JMS I XPRINT	/GO PRINT MESSAGE	
5566	6067	GMES		
5567	1070	TAD SEND	/GET GOOD AC	
5570	4524	JMS I XOCTEL	/PRINT IT	
5571	4526	JMS I XPRINT	/PRINT BAD AC	
5572	6077	BMES		
5573	1071	TAD RECEV	/GET BAD AC	
5574	4524	JMS I XOCTEL	/PRINT IT	
5575	7300	CLA CLL	/CLEAR THE AC AND LINK	
5576	5763	JMP I PREG		
		/		
		*5600		
		/		
5600	0000	SET0,		
5601	1100	TAD JMP12	/GET JMP I 2	
5602	3021	DCA I	/SET FOR PI RETURN	
5603	5600	JMP I SET0		
		/ROUTINE TO TYPE LISTING		
		/ENTER WITH JMS +1 EQUAL TO START OF LIST		
		/		
5604	0000	PRINT, 0000		
5605	7300	CLA CLL	/CLEAR THE AC AND LINK	
5606	1624	TAD I PRINT		
5607	2204	ISE PRINT	/SET FOR RETURN +1	
5610	3041	DCA REG8	/SAVE THE POINTER	
5611	1441	TAD I REG8	/GET THE CHARACTER	
5612	0012	AND K7700	/MASK BITS 0-5	
5613	7450	SNA	/END OF MESSAGE	
5614	5240	JMP EXIT	/YES, EXIT	
5615	7520	SMA	/IS AC MINUS	
5616	7020	CML	/NO, SET THE LINK	
5617	7021	IAC		
5620	7012	RTR		
5621	7012	RTR		
5622	7012	RTR		
5623	4507	JMS I XTYPE	/PRINT THE CHARACTER	
5624	1441	TAD I REG8	/GET THE WORD	
5625	0133	AND K0077	/MASK BITS 6-11	
5626	7450	SNA	/END OF MESSAGE	
5627	5240	JMP EXIT	/YES EXIT	
5630	1125	TAD K3740	/NO, ADD A CONSTANT	
5631	7520	SMA		
5632	1124	TAD K4100		
5633	1126	TAD K0240		
5634	4527	JMS I XTYPE	/TYPE THE CHARACTER	
5635	2041	ISE REG8	/UPDATE WORD LIST	

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5636	7320	CLA CLL		
5637	5211	JMP PRINT*5		/CLEAR THE AC AND LINK
5640	7320	EXIT,		
5641	5624	JMP I PRINT		/CLEAR THE AC AND LINK
		/ROUTINE TO WAIT FOR OVERFLOWS		/YES EXIT
5642	0000	XWAIT,		
5643	3011	DCA SAVAC		/SAVE THE AC
5644	7314	CLA CLL CMA RAL		
5645	1242	TAD XWAIT		
5646	3242	DCA XWAIT		/SET FOR RETURN ADDRESS
5647	2041	ISZ REGB		
5650	5256	JMP RETURN		
5651	2045	ISZ REGF		
5652	5256	JMP RETURN		
5653	7325	CLA CLL CML IAC RAL		
5654	1242	TAD XWAIT		
5655	3242	DCA XWAIT		/UPDATE FOR ERHOR RETURN
5656	1011	RETURN, TAD SAVAC		
5657	5642	JMP I XWAIT		
5660	0000	SWLAS,		
5661	7624	LAS		
5662	0142	AND K0010		/CHECK FOR EXTERNAL CLOCK SCOPE LOOP
5663	7640	SZA CLA		/ENTER SCOPE LOOP
5664	5325	JMP CLKIN		
5665	7624	LAS		
5666	0140	AND K0020		/CHECK FOR EXTERNAL PULSE SCOPE LOOP
5667	7640	SZA CLA		/ENTER SCOPE LOOP
5670	5313	JMP EXTER		
5671	7340	CLA CLL CMA		/AC TO 7777
5672	3113	DCA K1CPS		
5673	7624	LAS		
5674	0114	AND K6007		
5675	7640	SZA CLA		
5676	5321	JMP .+3		
5677	1111	TAD KPRMT1		
5700	3113	DCA K1CPS		
5701	7624	LAS		
5702	7024	RAL		/GET HIS SWITCHES
5703	7710	SPA CLA		/GET BIT 1
5704	5660	JMP I SWLAS		/TEST SCHMITT
5705	2260	ISZ SWLAS		
5706	7624	LAS		/GET HIS SWITCHES
5707	7710	SPA CLA		
5710	5660	JMP I SWLAS		/TEST DK8-EP
5711	2260	ISZ SWLAS		
5712	5660	JMP I SWLAS		/TEST DK8-EA OR DK8-EC
5713	7340	EXTER,		
5714	4427	CLA CLL CMA		/IOT 6133, CLAB
5715	7320	JMS I X10TG		
5716	1137	CLA CLL		
		TAD K0040		

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5717	1147	TAD K0600		/GET ENABLES
5720	4425	JMS I XIOTF		/IOT 6132, CLOE
5721	4424	JMS I XIOTE		/IOT 6131, CLSK
5722	5321	JMP .-1		/WAIT FOR OVERFLOW
5723	6007	6007		/CAF OR CLEAR THE WORLD
5724	5313	JMP EXTER		/CONTINUE WITH SCOPE LOOP
5725	7340	CLKIN, CLA CLL CMA		/AC TO 7777
5726	4427	JMS I XIOTG		/IOT 6133, CLAB
5727	7300	CLA CLL		
5730	1013	TAD K0100		/GET ENABLES
5731	4426	JMS I XIOTF1		/IOT 6132, CLOE
5732	4424	JMS I XIOTE		/IOT 6131, CLSK
5733	5332	JMP .-1		/WAIT FOR OPERATOR
5734	6007	6007		/CAF OR CLEAR THE WORLD
5735	1006	TAD K0207		
5736	4507	JMS I XTYPE		/TTY SIGNAL
5737	5325	JMP CLKIN		/LOOP
5740	0000	PASS, 0000		
5741	4501	JMS I XCRLF		/CRLF
5742	4506	JMS I XPRINT		/PRINT MESSAGE
5743	6014	PHES		
5744	6007	6007		
5745	5740	JMP I PASS		
5746	0000	GTAD, 0000		/GET SELECTED CLOCK
5747	1075	TAD CLOCKS		
5750	1354	TAD CLTAD		
5751	3746	DCA I GTAD		
5752	2346	IS2 GTAD		
5753	5746	JMP I GTAD		
5754	5755	CLTAD, CLTAD +1		
5755	6000	6000		
5756	1612	1612		
5757	4776	4776		
5760	5367	5367		
5761	7306	7306		
5762	7747	7747		
5763	4000	4000		
5764	1527	1527		
5765	4552	4552		
5766	5217	5217		
5767	7276	7276		
5770	7741	7741		
5771	0000	TIMCLK, 0000		
5772	7604	LAS		
5773	0114	AND K6007		
5774	7650	SNA CLA		
5775	1166	TAD PATCH		
5776	1012	TAD K7700		
5777	5771	JMP I TIMCLK		

DKMES, TEXT ?DK8E CLOCKS DIAGNOSTIC?

PMES, TEXT ?DK8E PASS COMPLETE?

FMES, TEXT ? CPS CLOCK SELECTED BY OPERATOR?

TMES, TEXT ?TEST ?

AMES, TEXT ? FAILED, STARTING ADDRESS ?

PAL10	V141	6000	0413
		6001	7025
		6002	4023
		6003	1417
		6004	0313
		6005	2340
		6006	0411
		6007	0107
		6010	1617
		6011	2324
		6012	1123
		6013	0000
		6014	0413
		6015	7025
		6016	4020
		6017	0143
		6020	2340
		6021	0317
		6022	1520
		6023	1425
		6024	2425
		6025	0020
		6026	4023
		6027	2023
		6030	4023
		6031	1417
		6032	0313
		6033	4023
		6034	0514
		6035	0523
		6036	2425
		6037	0440
		6040	0231
		6041	4017
		6042	2025
		6043	2201
		6044	2417
		6045	2200
		6046	2425
		6047	2324
		6050	4020
		6051	4026
		6052	0111
		6053	1425
		6054	0424
		6055	4023
		6056	2421
		6057	2224
		6060	1116
		6061	0740
		6062	0104
		6063	0422
		6064	0523
		6065	2340
		6066	0020

6067 2410
6070 0540
6071 0717
6072 1704
6073 4021
6074 0340
6075 7540
6076 0020
6077 4021
6100 1624
6101 4022
6102 0124
6103 4021
6104 0340
6105 7540
6106 0020
6107 0314
6110 1703
6111 1340
6112 2313
6113 1120
6114 4026
6115 0111
6116 1425
6117 0424
6120 4016
6121 1740
6122 2313
6123 1120
6124 4025
6125 3020
6126 0523
6127 2425
6130 0400
6131 0314
6132 1703
6133 1340
6134 2313
6135 1120
6136 4026
6137 0111
6140 1425
6141 0424
6142 4023
6143 1311
6144 2040
6145 0530
6146 2025
6147 0324
6150 0524
6151 0020
6152 2022
6153 1707
6154 2221
6155 1540

GMES, TEXT ?THE GOOD AC = ?

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?

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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 1707
6204 2201
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 1703
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 4006
6247 2205
6250 2125
6251 0516
6252 0331
6253 4006
6254 0123
6255 2420
6256 0314
6257 1703
6260 1340
6261 1725
6262 2420
6263 2524
6264 4006
6265 0111
6266 1405
6267 0454
6270 4003
6271 1417
6272 0313
6273 4006
6274 2205
6275 2125
6276 0516
6277 0331
6300 4023
6301 1417
6302 2700
6303 2410
6304 0540
6305 0123
6306 4027
6307 0123
6310 4003
6311 1021
6312 1627
6313 0504
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?

PAL10 V141 6334 1123
6335 2405
6336 2240
6337 0116
6340 0440
6341 0103
6342 4024
6343 2201
6344 1623
6345 0605
6346 2240
6347 0601
6350 1114
6351 0504
6352 0000
6353 0314
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 1123
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?

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6423 0625
6424 2240
6425 0621
6426 1114
6427 0524
6430 0020
6431 0314
6432 1703
6433 1340
6434 2324
6435 0124
6436 2523
6437 4022
6440 0527
6441 1123
6442 2425
6443 2240
6444 0116
6445 0440
6446 0123
6447 4024
6450 2201
6451 1623
6452 0625
6453 2240
6454 0621
6455 1114
6456 0524
6457 0020

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

[illegible]

[illegible]

AMES	6051	K0017	0127	LOOP	0077	SETO	5600
AUTO10	0010	K0020	0140	MES1	6107	SNPWAT	0046
BEGIN	0220	K0040	0137	MES10	6402	SNDRV	5216
BELL	5046	K0077	0133	MES11	6431	SPORT	5471
BGNEAC	0215	K0100	0013	MES2	6131	SWLAS	5660
BMES	6077	K0200	0015	MES3	6152	SYNC	5302
CLKIN	5725	K0207	0006	MES4	6202	T113A	1655
CLKNO	5463	K0212	0135	MES5	6231	T113H	1646
CLOCK	5413	K0215	0134	MES6	6256	T114A	1673
CLOCKS	0075	K0240	0126	MES7	6303	T114F	1664
CLPREG	5065	K0260	0123	MES8	6324	T11A	0354
CLTIAD	5754	K0300	0145	MES9	6353	T120A	1751
CRLF	5441	K0377	0136	MES10	5542	T121A	1766
DMES	6020	K0400	0116	NERRO	5000	T122A	2014
EHLT1	5034	K0500	0146	NERROR	0072	T122H	1775
EHLT10	5223	K0600	0147	OCTEL	5420	T123A	2043
EHLT11	5212	K0700	0150	OUT	5015	T123H	2024
EHLT2	5146	K1000	0144	OVER2	0061	T124A	2072
EHLT3	5141	K2000	0143	OVER2A	0062	T124P	2053
EHLT4	5145	K2525	0016	PASS	5740	T125A	2120
EHLT5	5153	K3000	0120	PATCH	0166	T125H	2102
EHLT6	5157	K3740	0125	PIG01	5255	T126A	2147
EHLT7	5166	K4000	0014	PIG02	5270	T126R	2125
ERR0	5020	K4100	0124	PIG03	5323	T127A	2200
ERROR	0073	K5000	0121	PIG04	5336	T12A	0366
EXIT	5640	K5252	0017	PIG05	5234	T130A	2220
EXTER	5713	K6000	0117	PIRET1	5264	T133A	2306
FMES	6026	K6007	0114	PIRET2	5277	T133E	2273
GMS	6067	K7000	0141	PIRET5	5252	T147A	2555
GTAD	5746	K7400	0112	PMES	6014	T147B	2537
IN	5043	K7700	0012	POPR	5450	T150A	2603
IOTA	5102	K7770	0122	PREG	5563	T150R	2565
IOTB	5127	K7772	0132	PRET1	5267	T151A	2631
IOTC	5114	K7773	0131	PRET2	5301	T151P	2613
IOTD	5121	K7774	0130	PRET5	5254	T152A	2657
IOTE	5127	KPRMT1	0111	PRETC	5335	T152R	2641
IOTF	5134	KREGC	0076	PRETD	5347	T153A	2705
IOTF1	5142	KTICPS	0113	PRINT	5604	T153E	2667
IOTG	5146	KT1	0151	RANDOM	5224	T154A	2733
IOTH	5154	KT1A	0152	RANDY	0055	T154E	2715
IOTI	5163	KTADCK	5462	RECEV	0071	T172A	3254
IOTJ	5200	KTADM	5526	REGA	0040	T172A1	3257
IOTK	5207	KT8	0153	REGB	0041	T172B	3244
IOTS	5350	KT81	0154	REGC	0042	T172P1	3240
IOTS1	5360	KTC	0155	REGD	0043	T173A	3303
IOTS2	5370	KTC1	0156	REGE	0044	T173A1	3306
IOTS3	5400	KTC2	0157	REGF	0045	T173B	3273
ISZLOP	5310	KTD	0160	RETC	5332	T173B1	3267
JMPI2	0100	KTD1	0161	RETD	5345	T174A	3336
K0006	0115	KTE	0162	RETURN	5656	T174A1	3341
K0007	0007	KTE1	0163	SAVAC	0011	T174R	3326
K0010	0142	KTMX	5527	SEND	0070	T174R1	3323

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T175A	3371	TSI110	1605	TSI167	3157	4562	
T175A1	3374	TSI111	1616	TSI17	0431	TSI244	
T175B	3361	TSI112	1631	TSI170	3177	TSI245	
T175B1	3356	TSI113	1642	TSI171	3215	TSI246	
T176A	3421	TSI114	1660	TSI172	3233	TSI247	
T176A1	3424	TSI115	1676	TSI173	3262	TSI25	
T176B	3411	TSI116	1707	TSI174	3311	TSI250	
T176B1	3405	TSI117	1722	TSI175	3344	TSI251	
T177A	3451	TSI12	0357	TSI176	3377	TSI26	
T177A1	3454	TSI120	1735	TSI177	3427	TSI27	
T177B	3441	TSI121	1754	TSI2	0251	TSI3	
T177B1	3435	TSI122	1771	TSI20	0441	TSI30	
T200A	3521	TSI123	2017	TSI200	3457	TSI31	
T200A1	3504	TSI124	2046	TSI201	3507	TSI32	
T200B	3471	TSI125	2075	TSI202	3561	TSI33	
T200B1	3465	TSI126	2123	TSI203	3573	TSI34	
T201A	3551	TSI127	2152	TSI204	3605	TSI35	
T201B	3522	TSI13	0371	TSI205	3617	TSI36	
T205A	3632	TSI130	2203	TSI206	3635	TSI37	
T206A	3650	TSI131	2223	TSI207	3653	TSI4	
T207A	3666	TSI132	2245	TSI21	0452	TSI40	
T214A	3764	TSI133	2264	TSI210	3671	TSI41	
T215A	4003	TSI134	2311	TSI211	3704	TSI42	
T216A	4022	TSI135	2331	TSI212	3720	TSI43	
T22A	0473	TSI136	2350	TSI213	3734	TSI44	
T230A	4265	TSI137	2367	TSI214	3750	TSI45	
T45A	0775	TSI14	0400	TSI215	3767	TSI46	
T45B	0763	TSI140	2407	TSI216	4006	TSI47	
T46A	1014	TSI141	2423	TSI217	4025	TSI5	
T46B	1005	TSI142	2437	TSI22	0463	TSI50	
T47A	1033	TSI143	2452	TSI220	4050	TSI51	
T47B	1024	TSI144	2466	TSI221	4073	TSI52	
T50A	1052	TSI145	2502	TSI222	4116	TSI53	
T50B	1040	TSI146	2516	TSI223	4133	TSI54	
T70A	1332	TSI147	2532	TSI224	4150	TSI55	
T70B	1322	TSI15	0407	TSI225	4165	TSI56	
T71A	1351	TSI150	2560	TSI226	4204	TSI57	
T71B	1341	TSI151	2606	TSI227	4223	TSI6	
TMCLK	5771	TSI152	2634	TSI23	0476	TSI60	
TMES	6046	TSI153	2662	TSI230	4242	TSI61	
TSI0	0221	TSI154	2710	TSI231	4270	TSI62	
TSI1	0235	TSI155	2736	TSI232	4310	TSI63	
TSI10	0357	TSI156	2751	TSI233	4330	TSI64	
TSI100	1465	TSI157	2766	TSI234	4350	TSI65	
TSI101	1521	TSI16	0422	TSI235	4372	TSI66	
TSI102	1514	TSI160	3004	TSI236	4414	TSI67	
TSI103	1530	TSI161	3023	TSI237	4435	TSI7	
TSI104	1542	TSI162	3041	TSI24	0505	TSI70	
TSI105	1552	TSI163	3060	TSI240	4456	TSI71	
TSI106	1563	TSI164	3076	TSI241	4477	TSI72	
TSI107	1574	TSI165	3117	TSI242	4520	TSI73	
TSI11	0346	TSI166	3137	TSI243	4541	TSI74	
						TSI75	

PAL10	V141	
TST76	1435	
TST77	1451	
TYPE	5056	
XBELL	0110	
XCLOCK	0074	
XCLREG	0060	
XCRLF	0101	
XCRS1	0171	
XCRS2	0172	
XCRS3	0173	
XCRS4	0174	
XCRS5	0175	
XDR8EP	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	
XIS2	0054	
XLAS	0066	
XMESS	0105	
XMITT	0064	
XMITT1	0065	
XOCTEL	0104	
XOPR	0165	
XPASS	0170	
XPIC01	0047	
XPIC02	0050	
XPIC03	0051	
XPIC04	0052	
XPIC05	0053	
XPRINT	0106	
XREG	0102	
XSET0	0164	
XSDRV	0056	
XSORT	0103	
XSYNC	0057	
XTYPE	0107	
XWAIT	5642	

ERRORS DETECTED: 0
LINKS GENERATED: 0
RUN-TIME: 39 SECONDS
3K CORE USED