

IDENTIFICATION

PRODUCT CODE: MAINDEC-8E-D8AC-D

PRODUCT NAME: DK8E CLOCKS DIAGNOSTIC

DATE CREATED: OCTOBER 8, 1971

MAINTAINER: DIAGNOSTIC PROGRAMMING GROUP

AUTHOR: JOHN VROBEL

ABSTRACT

THE K8E CLOCKS DIAGNOSTIC IS DESIGNED TO VERIFY CORRECT OPERATION OF THE K8E-EA, K8E-EC, K8E-ES, AND K8E-EP REAL TIME CLOCK OPTIONS. THE PROGRAM UTILIZES AND TESTS IOT'S ASSOCIATED WITH THE K8E-EA LINE, K8E-EC CRYSTAL, AND THE K8E-EP/K8E-ES PROGRAMMABLE REAL TIME CLOCKS.

REQUIREMENTS

EQUIPMENT -----

A PDP-8E WITH THE DK8-EA, DK8-EC, DK8-ES, OR THE DK8-EP OPTION INSTALLED AND AN ASB-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 POP8/E POWER SUPPLY FOR THE DK8-EA
CLOCK OPTION.

STORAGE

THE PROGRAM OCCUPIES LOCATIONS 0000-6600.

PRELIMINARY PROGRAMS -----

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

LOADING PRCCEDURE -----

METHOD

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

STARTING PROCEDURE

CONTROL SWITCH SETTINGS

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

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

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

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

4.2 STARTING ADDRESS

THE STARTING ADDRESS IS 0200 OCTAL.

4.3 OPERATOR ACTION

4.3.1 DK8-EA/DK8-EC TEST

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

SET THE SWITCH REGISTER TO 0200.

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 OCCURS 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 0002.

SET SWITCH REGISTER TO INDICATE DK8-EP/DK8-ES REGISTER TEST.
PRESS CLEAR AND THEN PRESS CONTINUE.

THE PROGRAM SHOULD RUN UNTIL AN ERROR OCCURS 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 OCCURS 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,MM1, AND MM2 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 TYPED OUT AND THEN
AN ERROR HALT.

6.1 ERRORS AND DISCUSSION

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 10T

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

AC TO CLOCK ENABLE REGISTER (CLOE)

OCTEL CODE:
OPERATION:

6132
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

20 COUNTER RUNS AT SELECTED RATE.
OVERFLOW OCCURS EVERY 4096 COUNTS.
OVERFLOW REMAINS SET UNTIL CLEARED BY
(CLSA) IOT 6135.

21 COUNTER RUNS AT SELECTED RATE.
OVERFLOW CAUSES THE CLOCK BUFFER
REGISTER TO BE TRANSFERRED TO THE
CLOCK COUNTER REGISTER WHICH WILL
CONTINUE TO RUN AFTER TRANSFER.
OVERFLOW WILL REMAIN SET UNTIL
CLEARED BY (CLSA) IOT 6135.

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

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

3,4 & 5

COUNT RATE

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

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 TRANSFERRED INTO THE CLOCK BUFFER REGISTER; THE CONTENTS OF BUFFER REGISTER IS THEN TRANSFERRED 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 TRANSFERRED 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 TRANSFERRED INTO THE AC. THE BUFFER REGISTER IS NOT AFFECTED.

CLOCK COUNTER REGISTER TO AC (CLCA)

OCTAL CODE: 6137

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 2.

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

OPERATION:

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

12 . LISTING

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

0000	0000	*0000
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0001	5001	0000
0002	0002	5001
0003	0003	0002
0004	0000	0003
0005	0000	0000
0006	0207	0002
0007	0007	0207
0010	0000	K0207, 0007
0011	0000	K0007, 0007
0012	7700	AUTO10, 0000
0013	0100	SAVAC, 0000
0014	4000	K7700, 7700
0015	0200	K0100, 0100
0016	2525	K4000, 4000
0017	5252	K0200, 0200
0020	5102	K2525, 2525
0021	5107	K5252, 5252
0022	5114	X10TA, 10TA
0023	5121	X10TB, 10TB
0024	5127	X10TC, 10TC
0025	5134	X10TD, 10TD
0026	5142	X10TE, 10TE
0027	5146	X10TF, 10TF
0030	5154	X10TF1, 10TF1
0031	5163	X10TG, 10TG
0032	5200	X10TH, 10TH
0033	5207	X10TI, 10TI
0034	5350	X10TJ, 10TJ
0035	5360	X10TK, 10TK
0036	5370	X10TS, 10TS
0037	5400	X10TS1, 10TS1
0040	0000	X10TS2, 10TS2
0041	0000	X10TS3, 10TS3
0042	0000	REGA, 0000
0043	0000	REGB, 0000
0044	0000	REGC, 0000
0045	0000	REGD, 0000
0046	5642	REGF, 0000
0047	5255	SKPWAT, XWAIT
0050	5270	XPIG01, PIG01
0051	5323	XPIG02, PIG02
0052	5336	XPIG03, PIG03
0053	5254	XPIG04, PIG04
		XPIG05, PIG05

0054	5310	X1SZ,	ISZLOP
0055	5224	RANDY,	RANDOM
0056	5216	XSNDRV,	SNDRV
0057	5302	XSYNC,	SYNC
0060	5065	XCLREG,	CLREG
0061	0215	OVER2,	BGNEAC
0062	0217	OVER2A,	BGNEAC +2
0063	0570	XOK8EP,	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	5020	NERROR,	NERROR
0073	5020	ERROR,	ERRC
0074	5413	XCLOCK,	CLOCK
0075	0020	CLOCKS,	0022
0076	0020	KREGC,	0020
0077	0020	LOOP,	0000
0100	5422	JMPI2,	JMP 1 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	7420	K7400,	7400
0113	0020	KT1CPS,	0000
0114	6027	K6007,	6007
0115	0026	K0006,	0026
0116	0420	K0400,	0420
0117	6020	K6000,	6020
0120	3020	K3000,	3220
0121	5020	K5000,	5020
0122	7770	K7770,	7770
0123	0260	K0260,	0260
0124	4100	K4100,	4100
0125	3740	K3740,	3740
0126	0240	K0240,	0240
0127	0017	K0017,	0017
0130	7774	K7774,	7774
0131	7773	K7773,	7773
0132	7772	K7772,	7772
0133	0077	K0077,	0077
0134	0215	K0215,	0215
0135	0212	K0212,	0212
0136	0377	K0377,	0377
0137	0040	K0040,	0040
0140	0020	K0020,	0020
0141	7000	K7000,	7000
0142	0010	K0010,	0010

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Address	Operation	Comment
0143	0200	
0144	1000	
0145	0300	
0146	0500	
0147	0600	
0150	0700	
0151	2725	
0152	2650	
0153	7425	
0154	7350	
0155	7753	
0156	0225	
0157	0150	
0160	1450	
0161	1425	
0162	6575	
0163	6525	
0164	5620	
0165	5450	
0166	0070	
0167	5771	
0170	5740	
0171	1775	
0172	2200	
0173	2603	
0174	2565	
0175	4023	
0200		
0200	7300	
0201	6007	
0202	4501	
0203	4506	
0204	6000	
0205	4501	
0206	4460	
0207	4564	
0210	4466	
0211	5465	
0212	5463	
0213	4474	
0214	4565	
0215	4567	
0216	3077	
0217	4460	
0220	3040	
0221	1040	
0222	3070	
0223	1070	
0224	4420	
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0225 3071 DCA RECEV /SAVE INPUT FOR ERROR PRINTER
0226 1071 TAD RECEV
0227 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
0230 4472 JMS I NERROR /CHECK NON-ERROR HANDLER.
0231 4473 JMS I ERROR /ERROR: CLEI CHANGED AC.
0232 3000 /TST0 ERROR MESSAGE.
0233 0221 TST0 /SCOPE LOOP.
0234 3040 DCA REGA

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

/DOES IOT CLSK CHANGE AC ?
/CHECK ALL COMBINATIONS
/
TST2, TAD REGA /GET AC NUMBER
0251 1040 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
0252 3070 TAD SEND
0253 1070 JMS I XIOTC /IOT 6133, CLSK
0254 4422 NOP /WAIT JUST IN CASE !
0255 7020 DCA RECEV /SAVE INPUT FOR ERROR PRINTER
0256 3071 TAD RECEV
0257 1071 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
0260 4456 JMS I NERROR /CHECK NON-ERROR HANDLER.
0261 4472 JMS I ERROR /ERROR: CLSK CHANGED AC.
0262 4473 JMS I ERROR /TST2 ERROR MESSAGE.
0263 3022 /SCOPE LOOP.
0264 0251 TST2

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

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

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0276      7000      NOP
0277      4422      JMS I XIOTC      /IOT 6133, CLSK
0300      4446      JMS I SKPWAT      /GO WAIT FOR FLAG
0301      4472      JMS I NERROR      /CHECK NON-ERROR HANDLER
0302      4473      JMS I ERROR      /ERROR: CLSK OR FLAG FAILED
0303      0404      /TST4 ERROR MESSAGE
0304      0273      TST4      /SCOPE LOOP

/DOES CLSK CLEAR THE FLAG ?
/
TST5,      TAD K11CPS      /SET UP TIMER
DCA REGF      /IOT 6133, CLSK
JMS I XIOTC
NOP
JMS I XIOTC      /IOT 6133, CLSK
JMS I SKPWAT      /GO WAIT FOR FLAG
SKP I -10      /GOT THE FLAG
JMS I XIOTC      /GO BACK TO TEST 4
JMS I NERROR      /IOT 6133, CLSK
JMS I ERROR      /CHECK NON-ERROR HANDLER
/ERROR: CLSK CLEAR THE FLAG FAILED
/0005
TST5      /TST5 ERROR MESSAGE
/SCOPE LOOP

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

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

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

/DOES CLEI ENABLE CLOCK INTERRUPT ?
/

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

/DOES CLED DISABLE CLOCK INTERRUPT ?
/
TST12,      2357      4420      JMS I XIOTA      /IOT 6131, CLEI
0360      4421      JMS I XIOTB      /IOT 6132, CLED
0361      4452      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      JMS I ERROR      /ERROR: CLEI AND CLED FAST TOGGLE
0367      1012      1012      /TST12 ERROR MESSAGE
0370      0357      TST12      /SCOPE LOOP.

/TEST DECODER FOR 6135, NOT CLEI
/
TST13,      0371      4421      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      /TST13 ERROR MESSAGE
0377      0371      TST13      /SCOPE LOOP.

/TEST DECODER FOR A 6136, NOT CLED
/
TST14,      0400      4420      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      /TST14 ERROR MESSAGE
0406      0400      TST14      /SCOPE LOOP.

/TEST DECODER FOR 6137, NOT CLSK
/
TST15,      0407      1113      TAD KT1CPS
0410      3045      DCA REGF
0411      4422      JMS I XIOTC      /SET UP TIMER
0412      7000      NOP
0413      4433      JMS I XIOTK      /IOT 6137, NOT AN IOT 6133
0414      4446      JMS I SKPMAT      /GO WAIT FOR FLAG
0415      7410      SKP
0416      4472      JMS I NERROR      /ERROR, SKIP OCCURRED
0417      4473      JMS I ERROR      /CHECK NON-ERROR HANDLER,
0420      0015      0015      /ERROR: DID DECODER WORK
/TEST15 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 /SET UP TIMER
DCA REGF /IOT 6131, CLEI
JMS I XIOTA /GO WAIT FOR FLAG
JMS I SKPWAT /ERROR, SKIP OCCURRED
SKP /CHECK NON-ERROR HANDLER,
JMS I NERROR /ERROR: DID CLEI CAUSE A SKIP
JMS I ERROR /TST20 ERROR MESSAGE
0020 /SCOPE LOOP.
TST20
/
/DOES CLED CAUSE A SKIP ON FLAG ?
/
TST21, TAD KT1CPS /SET UP TIMER
DCA REGF /IOT 6132, CLED
JMS I XIOTB /GO WAIT FOR FLAG
JMS I SKPWAT /ERROR, SKIP OCCURRED
SKP /CHECK NON-ERROR HANDLER,
JMS I NERROR /ERROR: DID CLED CAUSE A SKIP ON FLAG
JMS I ERROR /TST21 ERROR MESSAGE
0021 /SCOPE LOOP.
TST21
/
/DOES INT. ROST 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

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0471	4452	JMS I XPIG04	/GO TO PI, PI EXPECTED	
0472	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
0473	4473	JMS I ERROR	/ERROR:DID ROST. LAST ?	
0474	1422	JMS I ERROR	/TST21 ERROR MESSAGE	
0475	0463	TST22	/SCOPE LOOP	
		/DOES CLSK CLEAR ROST. LINE ?		
		/		
0476	4420	TST23,	/IOT 6131, CLEI	
0477	4457	JMS I XIOTA	/SYNC WITH CLOCK FLAG	
0500	4451	JMS I XSYNC	/GO TO PI, NO PI EXPECTED	
0501	4472	JMS I XPIG03	/CHECK NON-ERROR HANDLER	
0502	4473	JMS I NERROR	/ERROR: DID CLSK CLEAR ROST. FLAG	
0503	1023	JMS I ERROR	/TST23 ERROR MESSAGE	
2504	0476	TST23	/SCOPE LOOP	
		/SYNC WITH CLOCK AND		
		/CHECK FOR FAST OUTPUT		
2505	4467	TST24,	/GET TIME CONSTANTS	
0506	0000	JMS I XGTAD	/MODIFIED BY TEST	
0507	1726	2020 I.-1		
0510	3043	DCA REGD		
0511	4420	JMS I XIOTA	/IOT 6131, CLEI	
0512	4457	JMS I XSYNC	/SYNC WITH CLOCK	
0513	4472	JMS I XPIG01	/GO TO PI, NO PI EXPECTED	
0514	4473	JMS I NERROR	/CHECK NON-ERROR HANDLER..	
0515	4473	JMS I ERROR	/ERROR: CLOCK FREQUENCY FAST.	
0516	2024	2024	/TST24 ERROR MESSAGE.	
0517	0505	TST24	/SCOPE LOOP.	
		/SYNC WITH CLOCK AND		
		/CHECK FOR SLOW OUTPUT		
2520	1115	TST25,	/SETUP FOR SLOW CLOCK	
2521	4467	JMS I XGTAD	/GET TIME CONSTANTS	
2522	0000	0222	/MODIFIED BY TEST	
2523	1722	TAD I.-1		
2524	3043	DCA REGD		
2525	4420	JMS I XIOTA	/IOT 6131, CLEI	
2526	4457	JMS I XSYNC	/SYNC WITH CLOCK	
0527	4450	JMS I XPIG02	/GO TO PI, PI EXPECTED	
0530	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER.	
0531	4473	JMS I ERROR	/ERROR: CLOCK FREQUENCY SLOW.	
0532	2425	2425	/TST25 ERROR MESSAGE.	
0533	0520	TST25	/SCOPE LOOP.	
		/CHECK FOR FAST CLOCK AND		
		/BAD CLOCK FLAG WITH CLSK.		
0534	4467	TST26,	/GET TIME CONSTANTS	
0535	0000	JMS I XGTAD	/MODIFIED BY TEST	
0536	1735	2022		
0537	3043	TAD I.-1		
0540	4457	DCA REGD		
		JMS I XSYNC	/SYNC WITH CLOCK	

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

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

TST27, TAD K0006 /SET UP FOR SLOW CLOCK
JMS I XGTAD /GET TIME CONSTANTS
0000 /MODIFIED BY TEST

TAD I -1 /SYNC WITH CLOCK
DCA REGD /WAIT
JMS I XSYN /IOT 6133, CLSK
JMS I XISZ /ERROR, SKIP OCCURRED
JMS I XIOTC /CHECK NON-ERROR HANDLER
SKP /ERROR: CLK OR CLOCK FLAG FAILED
JMS I NERRR /TST27 ERROR MESSAGE
JMS I ERROR 2427 /SCOPE LOOP
0562 2427 TST27
0563 0547 ISZ LOOP
0564 2077 JMP I OVER2A /LOOP ON TEST
0565 5462 JMS I XPASS /TYPE PASS COMPLETE
0566 4570 JMP I OVER2 /RESET COUNTER AND CONTINUE TESTING
0567 5461

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

TST30, TAD REGA /GET AC NUMBER
JMS I XIOTD /IOT 6130, CLZE
DCA RECEV /SAVE INPUT FOR ERROR PRINTER
TAD RECEV /CHECK SEND AND RECEV REGISTERS
JMS I XSNDV /CHECK NON-ERROR HANDLER
JMS I NERRR /ERROR: CLZE CHANGED AC
JMS I ERROR 3030 /TST30 ERROR MESSAGE
0570 3030 TST30 /SCOPE LOOP
0571 1040
0572 4423
0573 3071
0574 1071
0575 4456
0576 4472
0577 4473
0578 3030
0579 0570

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

TST31, TAD REGA /GET AC NUMBER
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
TAD SEND /IOT 6131, CLSK
JMS I XIOTE /SAVE INPUT FOR ERROR PRINTER
NOP /CHECK SEND AND RECEV REGISTERS
DCA RECEV /CHECK NON-ERROR HANDLER
TAD RECEV /ERROR: CLSK CHANGED AC.
JMS I XSNDV
JMS I NERRR
JMS I ERROR 0612
0601 1040
0602 3070
0603 1070
0604 4424
0605 7020
0606 3071
0607 1071
0608 4456
0609 4472
0610 4472
0611 4472
0612 4473

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

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/
/DOES CAF CLEAR STATUS REGISTER ?
/CHECK JAM TO AC CLSA
/
TST36, 6007 /CAF OR THE CLEAR THE WORLD
        CLA 'LL 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 CLL 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 CLL CMA /AC TO 7777
        JMS I XIOTG /IOT 6133, CLAB
        CLA CLL /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
        /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 ?
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0722	1017	/	TST42,	TAD K5252	/GET AC NUMBER
0723	4427			JMS I XIOTG	/IOT 6133, CLXB
0724	7040			CMA	/COMPLEMENT AC
0725	4432			JMS I XIOTJ	/IOT 6136, CLBA
0726	4456			JMS I XSNDRV	/CHECK SEND AND RECEV REGISTERS
0727	4472			JMS I NERROR	/CHECK NON-ERROR HANDLER
0730	4473			JMS I ERROR	/ERROR: BUFFER OR AC FAILED
0731	3442			3442	/TST42 ERROR MESSAGE
0732	0722			TST42	/SCOPE LOOP
		/	/DOES CAF REALLY CLEAR BUFFER ?		
		/	/DO ALL COMBINATIONS		
0733	7240		TST43,	CLA CLA CMA	/AC TO ALL 777
0734	4427			JMS I XIOTG	/IOT 6133, CLAB
0735	6027			6007	/CAF OR CLEAR THE WORLD
0736	3070			DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER
0737	7340			CLA CLL CMA	
0740	4432			JMS I XIOTJ	/IOT 6136, CLBA
0741	7650			SNA CLA	/WAS BUFFER ALL 0'S ?
0742	4472			JMS I NERROR	/CHECK NON-ERROR HANDLER
0743	4473			JMS I ERROR	/ERROR: CAF OR BUFFER FAILED
0744	3443			3443	/TST43 ERROR MESSAGE
0745	0733			TST43	/SCOPE LOOP
		/	/DOES CAF REALLY CLEAR BUFFER ?		
		/	/DO ALL COMBINATIONS		
0746	1040		TST44,	TAD REGA	/GET AC NUMBER
0747	4427			JMS I XIOTG	/IOT 6133, CLAB
0750	6027			6007	/CAF OR CLEAR THE WORLD
0751	3070			DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER
0752	7340			CLA CLL CMA	
0753	4432			JMS I XIOTJ	/IOT 6136, CLBA
0754	7650			SNA CLA	/WAS BUFFER ALL 0'S ?
0755	4472			JMS I NERROR	/CHECK NON-ERROR HANDLER
0756	4473			JMS I ERROR	/ERROR: CAF OR BUFFER FAILED
0757	3444			3444	/TST44 ERROR MESSAGE
0760	0746			TST44	/SCOPE LOOP
		/	/CHECK AC TO BUFFER REGISTER AND		
		/	/BUFFER REGISTER TO AC TRANSFERS.		
		/	/CHECK ALL COMBINATIONS.		
		/	/CHECK LOAD ON BUFFER REGISTER.		
0761	7340		TST45,	CLA CLL CMA	
0762	3040			DCA REGA	/GET AC NUMBER
0763	1041		T45B,	TAD REGB	/IOT 6133, CLAB
0764	4427			JMS I XIOTG	/COMPLEMENT THE AC
0765	7040			CMA	/IOT 6136, CLBA
0766	4432			JMS I XIOTJ	/CHECK SEND RECEV REGISTERS
0767	4456			JMS I XSNDRV	
0770	7610			SKP CLA	
0771	5375			JMP T45A	/UPDATE AC NUMBER
0772	2041			ISZ REGB	

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

/DOES READING BUFFER CHANGE ITS CONTENTS ?
/
TST46,      CLA CLL CMA      /AC TO 7777
            DCA REGA
            TAD K2525
            JMS I XIOTG
            CMA
            JMS I XIOTJ
            JMS I XSNDRV
            SKP CLA
            JMP T46A
            ISZ REGB
            JMP T46B
            JMS I NERROR
            JMS I ERROR
            3446
            TST46

/DOES READING BUFFER CHANGE ITS CONTENTS ?
/
TST47,      CLA CLL CMA      /AC TO 7777
            DCA REGA
            TAD K5252
            JMS I XIOTG
            CMA
            JMS I XIOTJ
            JMS I XSNDRV
            SKP CLA
            JMP T47A
            ISZ REGB
            JMP T47B
            JMS I NERROR
            JMS I ERROR
            3447
            TST47

/DOES BUFFER SURVIVE RANDOM PATTERNS ?
/
TST50,      CLA CLL CMA      /AC TO 7777
            DCA REGA
            JMS I RANDY
            JMS I XIOTG
            CMA
            JMS I XIOTJ
            JMS I XSNDRV
            SKP CLA
            JMP T50A
            ISZ REGB
            JMP T50B

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

/DOES READING BUFFER CHANGE ITS CONTENTS ?
/
TST46,      CLA CLL CMA      /AC TO 7777
            DCA REGA
            TAD K2525
            JMS I XIOTG
            CMA
            JMS I XIOTJ
            JMS I XSNDRV
            SKP CLA
            JMP T46A
            ISZ REGB
            JMP T46B
            JMS I NERROR
            JMS I ERROR
            3446
            TST46

/DOES READING BUFFER CHANGE ITS CONTENTS ?
/
TST47,      CLA CLL CMA      /AC TO 7777
            DCA REGA
            TAD K5252
            JMS I XIOTG
            CMA
            JMS I XIOTJ
            JMS I XSNDRV
            SKP CLA
            JMP T47A
            ISZ REGB
            JMP T47B
            JMS I NERROR
            JMS I ERROR
            3447
            TST47

/DOES BUFFER SURVIVE RANDOM PATTERNS ?
/
TST50,      CLA CLL CMA      /AC TO 7777
            DCA REGA
            JMS I RANDY
            JMS I XIOTG
            CMA
            JMS I XIOTJ
            JMS I XSNDRV
            SKP CLA
            JMP T50A
            ISZ REGB
            JMP T50B

1000 7340
1001 3040
1002 1016
1003 4427
1004 7040
1005 4432
1006 4456
1007 7610
1008 5214
1009 2041
1010 5205
1011 5205
1012 4472
1013 4473
1014 3446
1015 1000
1016

1017 7340
1020 3040
1021 1017
1022 4427
1023 7040
1024 4432
1025 4456
1026 7610
1027 5233
1028 2041
1030 5224
1031 4472
1032 4473
1033 3447
1034 1017
1035

1036 7340
1037 3040
1040 4455
1041 4427
1042 7040
1043 4432
1044 4456
1045 7610
1046 5252
1047 2041
1048 5240
1050
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1051	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
1052	4473	JMS I ERROR	/ERROR: BUFFER FAILED	
1053	3450	3450	/TST50 ERROR MESSAGE	
1054	1036	TST50	/SCOPE LOOP	
		/DOES BUFFER SURVIVE FAST TOGGLE ?		
		/		
1055	1040	TST51,	/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	1270	4452	/SCOPE LOOP	
		TST52		
		/DOES AC SET ENABLE REGISTER?		
		/CHECK ALL 1'S TRANSFER.		
		/CHECK FOR JAM TO AC, CLEN		
		/		
1102	7340	TST53,	/AC TO 7777	
1103	4425	CLA CLL CMA	/IOT 6132, CLOE	
1104	7300	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 /CAF OR CLEAR THE WORLD
1120 3070 /SAVE OUTPUT FOR ERROR PRINTER
1121 7340 /AC TO 7777
1122 4430 /IOT 6134, CLEN
1123 7650 /WAS REGISTER ALL 0'S
1124 4472 /CHECK NON-ERROR HANDLER
1125 4473 /ERROR:CAF,CLOE,OR CLEN FAILED
1126 4454 /TST54 ERROR MESSAGE
1127 1115 /SCOPE LOOP
TST54

/DOES CAF REALLY CLEAR ENABLE REGISTER ?
/DOO ALL COMBINATIONS
/

TST55, TAD REGA /GET AC NUMBER
JMS I XIOTF1 /IOT 6132, CLOE
6027 /CAF OR CLEAR THE WORLD
CLA CLL CMA /AC TO 7777
JMS I XIOTH /IOT 6134, CLEN
SNA CLA /WAS ENABLE REGISTER ALL 0'S ?
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: ENABLE REGISTER FAILED
4455 /TST55 ERROR MESSAGE
TST55 /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?
/

TST56, TAD K2525 /GET AC NUMBER
JMS I XIOTF /IOT 6132, CLOE
CMA /COMPLEMENT AC
JMS I XIOTH /IOT 6134, CLEN
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: EABLE REGISTER FAILED
4456 /TST56 ERROR MESSAGE
TST56 /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE PATTERN 2522 ?
/

TST57, TAD K2522 /GET AC NUMBER
JMS I XIOTF /IOT 6132, CLOE
CMA /COMPLEMENT AC
JMS I XIOTH /IOT 6134, CLEN
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: ENABLE REGISTER FAILED
4457 /TST57 ERROR MESSAGE
TST57 /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?
/

TST60, TAD K2525 /GET AC NUMBER
JMS I XIOTF /IOT 6132, CLOE
CLA CLL /CLEAR THE AC AND LINK
JMS I XIOTF1 /IOT 6132, CLOE
CLA CLL CMA /AC TO 7777
1164 1016
1165 4425
1166 7300
1167 4426
1170 7340

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1171 4430 JMS I X10TH /IOT 6134, CLEN
1172 4456 /CHECK SEND AND RECEV REGISTERS
1173 4472 /CHECK NON-ERROR HANDLER
1174 4473 /ERROR: ENABLE REGISTER FAILED
1175 4460 /TST60 ERROR MESSAGE
1176 1164 /SCOPE LOOP

/DOES ENABLE REGISTER SURVIVE PATTERN 5252 ?
/
TST61, TAD K5252 /GET AC NUMBER
1177 1017 JMS I X10TF /IOT 6132, CLOE
1200 4425 CLA CLL /CLEAR THE AC AND LINK
1201 7300 JMS I X10TF1 /IOT 6132, CLOE
1202 4426 CLA CLL CMA /AC TO 7777
1203 7340 JMS I X10TH /IOT 6134, CLEN
1204 4430 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
1205 4456 JMS I XNDRV /CHECK NON-ERROR HANDLER
1206 4472 JMS I NERRR /ERROR: ENABLE REGISTER FAILED
1207 4473 JMS I ERROR /TST61 ERROR MESSAGE
1210 4461 4462 /SCOPE LOOP
1211 1177 TST61

/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 K5252 /GET AC NUMBER
1214 1016 JMS I X10TF1 /IOT 6132, CLOE
1215 4426 CMA /COMPLEMENT AC
1216 7040 JMS I X10TF1 /IOT 6132, CLOE
1217 4426 CLA CLL /CLEAR THE AC AND LINK
1220 7300 JMS I X10TH /IOT 6134, CLEN
1221 4430 JMS I XSNDRV /CHECK SEND RECEV REGISTERS
1222 4456 JMS I NERRR /CHECK NON-ERROR HANDLER
1223 4472 JMS I ERROR /ERROR: ENABLE REGISTER FAILED
1224 4473 JMS I ERROR /TST62 ERROR MESSAGE
1225 4462 4462 /SCOPE LOOP
1226 1212 TST62

/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 K5252 /GET AC NUMBER
1231 1017 JMS I X10TF1 /IOT 6132, CLOE
1232 4426 CMA /COMPLEMENT AC
1233 7040 JMS I X10TF1 /IOT 6132, CLOE
1234 4426 CLA CLL /IOT 6134, CLEN
1235 7300 JMS I X10TH /CHECK SEND AND RECEV REGISTERS
1236 4430 JMS I XSNDRV /CHECK NON-ERROR HANDLER
1237 4456 JMS I NERRR /ERROR: ENABLE REGISTER
1240 4472 JMS I ERROR /TST63 ERROR MESSAGE
1241 4473 4462 /SCOPE LOOP
1242 4463 TST63
1243 1227

```

/CHECK ALL COMBINATIONS

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

```
/DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN.
/DOO ALL COMBINATIONS.
```

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

```
/DOES ENABLE REGISTER SURVIVE RANDOM PATTERN ?
```

```
1271 4455 /GET RANDOM NUMBER
1272 4425 /IOT 6132, CLOE
1273 7300 /CLEAR THE AC AND LINK
1274 4430 /IOT 6134, CLEN
1275 4456 /CHECK SEND AND RECEV REGISTERS
1276 4472 /CHECK NON-ERROR HANDLER
1277 4473 /ERROR: ENABLE REGISTER FAILED
1280 4466 /TST66 ERROR MESSAGE
1301 1271 /SCOPE LOOP
TST66
```

```
/DOES ENABLE REGISTER SURVIVE RANDOM COMPLEMENT PATTERN ?
```

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

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1316	7340	TST70,	CLA CLL CMA	/AC TO 7777
1317	3040		DCA REGA	
1320	1016		TAD K2525	/GET AC NUMBER
1321	4425		JMS I XIOTF	/IOT 6132, CLOE
1322	7340	T70B,	CLA CLL CMA	/AC TO 7777
1323	4430		JMS I XIOTH	/IOT 6134, CLEN
1324	4456		JMS I XSNDRV	/CHECK SEND AND RECEV REGISTERS
1325	7610		SKP CLA	
1326	5332		JMP T70A	
1327	2041		ISZ REGB	/UPDATE COUNTER
1330	5322		JMP T70B	/DO 4096 TIMES
1331	4472		JMS I NERRR	/CHECK NON-ERROR HANDLER
1332	4473	T70A,	JMS I ERROR	/ERROR: ENABLE REGISTER FAILED
1333	4470		4470	/TST70 ERROR MESSAGE
1334	1316		TST70	/SCOPE LOOP
		/		
		/DOES READING ENABLE REGISTER CHANGE TIS CONTENTS ?		
		/		
1335	7340	TST71,	CLA CLL CMA	/AC TO 7777
1336	3040		DCA REGA	
1337	1017		TAD K2525	/GET AC NUMBER
1340	4425		JMS I XIOTF	/IOT 6132, CLOE
1341	7300	T71B,	CLA CLL	/CLEAR THE AC AND LINK
1342	4430		JMS I XIOTH	/IOT 6134, CLEN
1343	4456		JMS I XSNDRV	/CHECK SEND RECEV REGISTERS
1344	7610		SKP CLA	
1345	5351		JMP T71A	
1346	2041		ISZ REGB	/UPDATE COUNTER
1347	5341		JMP T71B	/DO 4096 TIMES
1350	4472		JMS I NERRR	/CHECK NON-ERROR HANDLER
1351	4473	T71A,	JMS I ERROR	/ERROR: ENABLE REGISTER FAILED
1352	4471		4471	/TST71 ERROR MESSAGE
1353	1335		TST71	/SCOPE LOOP
		/		
		/DOES ENABLE REGISTER SURVIVE FAST TOGGLE ?		
		/		
1354	1040	TST72,	TAD REGA	/GET AC NUMBER
1355	3070		DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER
1356	1040		TAD REGA	
1357	4434		JMS I XIOTS	/IOT'S 6132 AND 6134
1360	3071		DCA RECEV	/SAVE INPUT FOR ERROR PRINTER
1361	1071		TAD RECEV	
1362	4456		JMS I XSNDRV	/CHECK SEND RECEV REGISTERS
1363	4472		JMS I NERRR	/CHECK NON-ERROR HANDLER
1364	4473		JMS I ERROR	/ERROR: ENABLE REGISTER FAILED
1365	4472		4472	/TST72 ERROR MESSAGE
1366	1354		TST72	/SCOPE LOOP
		/		
		/DOES CLEZE CLEAR ENABLE REGISTER?		
		/		
1367	7340	TST73,	CLA CLL CMA	/AC TO 7777
1370	4426		JMS I XIOTF1	/IOT 6132, CLOE
1371	7340		CLA CLL CMA	

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1372	JMS I XIOTD	/IOT 6130, CLZE
1373	CLA CLL	/CLEAR THE AC AND LINK
1374	DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER
1375	CLA CLL CMA	/AC TO 7777
1376	JMS I XIOTH	/IOT 6134, CLEN
1377	SNA CLA	/WAS REGISTER ALL 0'S
1400	JMS I NERROR	/CHECK NON-ERROR HANDLER
1401	JMS I ERROR	/ERROR:CLZE OR CLEN FAILED.
1402	4473	/TST73 ERROR MESSAGE
1403	TST73	/SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?		
/		
TST74,	CLA CLL CMA	/AC TO 7777
	JMS I XIOTF	/IOT 6132, CLOE
	CLA CLL	
	JMS I XIOTD	/IOT 6130, CLZE
	CLA CLL CMA	/AC TO 7777
	DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER
	JMS I XIOTH	/IOT 6134, CLEN
	CMA	/COMPLEMENT AC
	SNA CLA	/WAS REGISTER ALL 0'S?
	JMS I NERROR	/CHECK NON-ERROR HANDLER
	JMS I ERROR	/ERROR:CLZE OR CLEN FAILED.
	4474	/TST74 ERROR MESSAGE
	TST74	/SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?		
/		
TST75,	TAD K2525	/IOT 6132,CLOE
	JMS I XIOTF	/COMPLEMENT THE AC
	CMA	/IOT 6130, CLZE
	JMS I XIOTD	/COMPLEMENT 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
	4475	/TST75 ERROR MESSAGE
	TST75	/SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER ?		
/		
TST76,	TAD K5252	/GET AC NUMBER
	JMS I XIOTF	/IOT 6132, CLOE
	CMA	/COMPLEMENT AC
	JMS I XIOTD	/IOT 6130, CLZE
	DCA SEND	/COMPLEMENT AC
	JMS I XIOTH	/SAVE OUTPUT FOR ERROR PRINTER
	JMS I XSNDRV	/IOT 6134, CLEN
	JMS I NERROR	/CHECK SEND AND RECEV REGISTERS
	JMS I ERROR	/CHECK NON-ERROR HANDLER
	4476	/ERROR: ENABLE REGISTER FAILED
	TST76	/TST76 ERROR MESSAGE

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1450  1435  TST76  /SCOPE LOOP
/
/DOES CLZE CLEAR ENABLE REGISTER?
/CHECK ALL COMBINATIONS
/
TST77,  TAD REGA  /GET AC NUMBER
JMS I XIOTF  /IOT 6132, CLZE
JMS I XIOTD  /IOT 6130, CLZE
CLA CLL  /CLEAR THE AC AND LINK
DCA SEND  /SAVE OUTPUT FOR ERROR PRINTER
JMS I XIOTD  /AC TO ALL 1'S
JMS I XIOTD  /IOT 6134, CLN
SNA CLA  /WAS REGISTER ALL 0'S?
JMS I NERRR  /CHECK NON-ERROR HANDLER
JMS I ERROR  /ERROR:CLZE,CLOE, OR CLN FAILED
4477  /TST77 ERROR MESSAGE
TST77  /SCOPE LOOP
1464  1451
/
/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 XIOTD  /IOT 6134, CLN
JMS I XSDRV  /CHECK SEND AND RECEV REGISTERS
JMS I NERRR  /CHECK NON-ERROR HANDLER
JMS I ERROR  /ERROR:CLZE, CLOE, OR CLN FAILED
4500  /TST100 ERROR MESSAGE
TST100  /SCOPE LOOP
1465  1465
/DOES CLZE SURVIVE RANDOM PATTERN ?
/
TST101,  JMS I RANDY  /GET RANDOM NUMBER
JMS I XIOTF  /IOT 6132, CLZE
JMS I XIOTD  /IOT 6130, CLZE
CLA CLL  /CLEAR THE AC AND LINK
DCA SEND  /SAVE OUTPUT FOR ERROR PRINTER
JMS I XIOTD  /IOT 6134, CLN
JMS I XSDRV  /CHECK SEND AND RECEV REGISTERS
JMS I NERRR  /CHECK NON-ERROR HANDLER
JMS I ERROR  /ERROR: ENABLE REGISTER FAILED
4501  /TST101 ERROR MESSAGE
TST101  /SCOPE LOOP
/DOES CLZE SURVIVE RANDOM COMPLEMENT PATTERN ?
/
TST102,  JMS I RANDY  /GET RANDOM NUMBER
JMS I XIOTF  /IOT 6132, CLOE
CMA  /COMPLEMENT AC
1500  1465
1501  4455
1502  4425
1503  4423
1504  7300
1505  3070
1506  4430
1507  4456
1510  4472
1511  4473
1512  4501
1513  4501
/DOES CLZE SURVIVE RANDOM COMPLEMENT PATTERN ?
/
TST102,  JMS I RANDY  /GET RANDOM NUMBER
JMS I XIOTF  /IOT 6132, CLOE
CMA  /COMPLEMENT AC
1514  4455
1515  4425
1516  7040

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/
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1517      4423      JMS I XIOTG      /IOT 6130, CLZE
1520      7040      CMA      /COMPLEMENT AC
1521      3070      DCA SEND      /SAVE OUTPUT FOR ERROR PRINTER
1522      4430      JMS I XIOTG      /IOT 6134, CLEN
1523      4456      JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1524      4472      JMS I NERRR      /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      /CHECK SEND RECEV REGISTERS
1534      1071      JMS I XSNDRV      /CHECK NON-ERROR HANDLER
1535      4456      JMS I NERRR      /ERROR: ENABLE REGISTER FAILED
1536      4472      JMS I ERROR      /TST103 ERROR MESSAGE
1537      4473      4503      /SCOPE LOOP
1540      4503      TST103
1541      1530

/DOES AC TRANSFER TO BUFFER THEN TO COUNTER ?
/
TST104,    JMS I XIOTG      /IOT 6133, CLAB
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 NERRR      /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      CMA      /COMPLEMENT THE AC
1554      4433      SNA CLA      /WAS COUNTER ALL 1'S?
1555      7040      JMS I NERRR      /CHECK NON-ERROR HANDLER
1556      7650      JMS I ERROR      /ERROR: CLAB OR CLCA FAILED
1557      4472      4105      /TST105 ERROR MESSAGE
1560      4473      TST105      /SCOPE LOOP
1561      4105
1562      1552

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

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1571      4473      JMS I ERROR      /ERROR! COUNTER FAILED
1572      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 PRINTER
          TAD SEND      /IOT 6133 AND 6137
          JMS I XIOTS2      /SAVE INPUT FOR ERROR PRINTER
          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
          4112

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TST112 /SCOPE LOOP

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/
/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
JMP T113A
ISZ REGB
JMP T113B
JMS I NERRR /CHECK NON-ERROR
JMS I ERROR /ERROR: CLAB OR CLCA FAILED
T113A, /TST113 ERROR MESSAGE
4113 /SCOPE LOOP
TST113
/DOES READING COUNTER CHANGE ITS CONTENTS?
/PATTERN 2522
/
TST114, CLA CLL CMA /AC TO 7777
DCA REGA
TAD K2522
JMS I XIOTG /IOT 6133, CLAB
JMS I XIOTK /IOT 6137, CLCA
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
SKP
JMP T114A
ISZ REGB
JMP T114B
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: COUNTER FAILED
T114A, /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. ROST.
/
TST116, CLA CLL CMA /AC TO 7777
```

1642 7340
1643 3040
1644 1016
1645 4427
1646 4433
1647 4456
1650 7410
1651 5255
1652 2041
1653 5246
1654 4472
1655 4473
1656 4113
1657 1642

1660 7340
1661 3040
1662 1017
1663 4427
1664 4433
1665 4456
1666 7410
1667 5273
1670 2041
1671 5264
1672 4472
1673 4473
1674 4114
1675 1660

1676 4455
1677 4427
1700 7340
1701 4433
1702 4456
1703 4472
1704 4473
1705 4115
1706 1676

1707 7340

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1710      1741      JMS I XIOTG      /IOT 6133, CLAB
1711      3040      DCA REGA
1712      1147      TAD K0600
1713      1147      JMS I XIOTF
1714      4425      JMS I XPIG01
1715      4447      JMS I NERROR
1716      4472      JMS I ERROR
1717      4473      1116
1720      1116      TST116
1721      1707      /SCOPE LOOP

/DOES CLSK SKIP ON CLOCK OVERFLOW?
/SKIP EXPECTED, MODE 0, RATE 6
/
TST117, CLA CLL CMA      /AC TO 7777
1722      7390      JMS I XIOTG      /IOT 6133, CLAB
1723      4427      CLA CLL
1724      7390      TAD K0600      /CLEAR THE AC AND LINK
1725      1147      JMS I XIOTF      /GET RATE 6
1726      4425      JMS I XIOTE      /IOT 6132, CLOE
1727      4424      SKP I NERROR      /IOT 6131, CLSK
1730      7410      JMS I NERROR      /CHECK NON-ERROR HANDLER
1731      4472      JMS I ERROR      /ERROR: CLSK OR OVERFLOW FAILED
1732      4473      0517      /TST117 ERROR MESSAGE
1733      0517      TST117
1734      1722      /SCOPE LOOP

/DOES OVERFLOW REMAIN SET ?
/
TST120, CLA CLL CMA      /IOT 6133, CLAB
1735      7390      JMS I XIOTG
1736      4427      DCA REGA
1737      3040      TAD K0600
1740      1147      JMS I XIOTF
1741      4425      JMS I XIOTE
1742      4424      JMP T120A
1743      5351      ISZ REGB
1744      2041      JMP .-1
1745      5344      JMS I XIOTE
1746      4424      SKP
1747      7410      JMS I NERROR
1750      4472      JMS I ERROR
1751      4473      0520
1752      0520      TST120
1753      1735      /SCOPE LOOP

T120A,
/DOES CAF CLEAR THAT FLAG ?
/
TST121, CLA CLL CMA      /IOT 6133, CLAB
1754      7390      JMS I XIOTG
1755      4427      DCA REGA
1756      3040      TAD K0600
1757      1147      JMS I XIOTF
1760      4425      JMS I XIOTE
1761      4424      JMP .-1
1762      5361      6027
1763      6027      JMS I XIOTE
1764      4424      /CAF OR CLEAR THE WORLD
1765      4424      /IOT 6131, CLSK

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PAL10      V141
1765      4472      JMS I NERROR      /CHECK NON-ERROR HANDLER
1766      4473      JMS I ERROR      /ERROR: CAF OR OVERFLOW FAILED
1767      0121      0121      /TST121 ERROR MESSAGE
1770      1754      TST121      /SCOPE LOOP

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

TST122,      TAD K7773
DCA REG8
TAD K0200
DCA REG8
T122B,      CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD REGA
JMS I XIOTF
ISZ REGD
JMP -1
JMS I XIOTE
JMP T122A
TAD K0100
DCA REG8
ISZ REG8
JMP I XCRS1
JMS I NERROR
T122A,      JMS I ERROR
0522
TST122

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

TST123,      TAD K7773
DCA REG8
TAD K1000
TAD K0200
DCA REG8
T123B,      CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD REGA
JMS I XIOTF
ISZ REGD
JMP -1
JMS I XIOTE
JMP T123A
TAD K0100
DCA REG8
ISZ REG8
JMP T123B
JMS I NERROR
T123A,      JMS I ERROR
0522

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/
PAL10      V141      9-OCT-71      15144      PAGE 1-25
2044      0523      0523      /TST123 ERROR MESSAGE
2045      2017      TST123      /SCOPE LOOP

/DOES CLSK SKIP ON OVERFLOW ?
/SKIP EXPECTED, MODE 2, RATE 2-6
/
TST124, TAD K7773
DCA REGB
TAD K2000
TAD K0200
DCA REGC
T124B, CLA CLL CMA
JMS I X10TG
DCA REGA
TAC REGC
JMS I X10TF
ISZ REGD
JMP -1
JMS I X10TE
JMP T124A
TAD K0100
DCA REGC
6007
ISZ REGB
JMP T124B
JMS I NERRR
JMS I ERROR
T124A, 0524
JMS I ERROR
TST124
/DOES CLSK SKIP ON OVERFLOW ?
/SKIP EXPECTED, RATE 2-6, MODE 3
/
TST125, TAD K7773
DCA REGB
TAD K3000
TAD K0200
DCA REGC
T125B, CLA CLL CMA
JMS I X10TG
DCA REGA
TAD REGC
JMS I X10TF
ISZ REGD
JMP -1
JMS I X10TE
JMP T125A
TAD K0100
DCA REGC
ISZ REGB
JMP T125B
JMS I NERRR
JMS I ERROR
T125A, 0525
JMS I ERROR
TST125

2046      1131
2047      3041
2050      1143
2051      1015
2052      3044
2053      7340
2054      4427
2055      304C
2056      1044
2057      4425
2060      2043
2061      5260
2062      4424
2063      5272
2064      1013
2065      3044
2066      6007
2067      2041
2070      5253
2071      4472
2072      4473
2073      0524
2074      2046

2075      1131
2076      3041
2077      1140
2100      1015
2101      3044
2102      7340
2103      4427
2104      3040
2105      1044
2106      4425
2107      2043
2110      5307
2111      4424
2112      5320
2113      1013
2114      3044
2115      2041
2116      5302
2117      4472
2120      4473
2121      0525
2122      2075

/MAKE ENABLES
/IOY 6133, CLAB
/GET ENABLES
/IOY 6132, CLOE
/WAIT ABOUT 15 MS
/IOY 6131, CLSK
/UPDATE RATE
/CAF OR CLEAR THE WORLD
/DO RATES 2-6
/CHECK NON-ERROR HANDLER
/ERROR: CLSK OR OVERFLOW FAILED
/TST124 ERROR MESSAGE
/SCOPE LOOP

/MAKE ENABLES
/SAVE ENABLES
/IOY 6133, CLAB
/GET ENABLES
/IOY 6132, CLOE
/WAIT ABOUT 15 MS
/IOY 6131, CLSK
/UPDATE RATE

/DO RATES 2-6
/CHECK NON-ERROR HANDLER
/ERROR: CLSK OR OVERFLOW FAILED
/TST125 ERROR MESSAGE
/SCOPE LOOP

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2222 2152 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 XSDRV /CHECK SEND AND RECV REGISTERS
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: CLSI OR OVERFLOW FAILED
5132 /TST132 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 2'S ?
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: CLSA OR OVERFLOW FAILED
5131 /TST131 ERROR MESSAGE
TST131 /SCOPE LOOP
/DOES CLSA READ OVERFLOW BIT ?
TST132, CLA CLL CMA /IOT 6133, CLAB
JMS I XIOTG /SAVE OUTPUT FOR ERROR PRINTER
DCA SEND /GET ENABLES
TAD K0600 /IOT 6132, CLOE
JMS I XIOTF1 /IOT 6131, CLSK
JMS I XIOTE
JMP *-1
CLA CLL CMA RAR /AC TO 3777
JMS I XIOTI /IOT 6135, CLSA
SNA CLA /WAS STATUS 0 ?
2245 7340
2246 4427
2247 7300
2250 3070
2251 1147
2252 4426
2253 4424
2254 5253
2255 7344
2256 4431
2257 7650

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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	/GET ENABLES
2270	1116	TAD K0400	/IOT 6132, CLOE
2271	1144	TAD K1000	/IOT 6131, CLSK
2272	4426	JMS I XIOTF1	/WAIT FOR FLAG
2273	4424	JMS I XIOTE	/CLEAR THE AC AND LINK
2274	5273	JMP -1	/IOT 6137, CLCA
2275	7300	CLA CLL	/FOR TESTING
2276	4433	JMS I XIOTK	/WAS COUNTER ALL 1'S ?
2277	7040	CMA	
2300	7440	SZA T133A	/IOT 6135, CLSA
2301	5306	JMP T133A	
2302	4431	JMS I XIOTI	/DO TEST 4096 TIMES
2303	2041	ISZ REGB	/CHECK NON-ERROR HANDLER
2304	5273	JMP T133B	/ERROR: COUNTER FAILED
2305	4472	JMS I NERROR	/TST133 ERROR MESSAGE
2306	4473	JMS I ERROR	/SCOPE LOOP
2307	4133	4133	
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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PAL10      V141      9-0000-71      15144      PAGE 1-29
2333      7340      CLA CLL CMA      /AC TO 7777
2334      3040      DCA REGA
2335      1144      TAD K1000
2336      1116      TAD K0400
2337      4426      JMS I XIOTF1
2340      4424      JMS I XIOTE
2341      5340      JMP -1
2342      4433      JMS I XIOTK
2343      4456      JMS I XSNDV
2344      4472      JMS I NERRR
2345      4473      JMS I ERROR
2346      4135      4135
2347      2331      TST135
                        /SCOPE LOOP
                        /
                        /DOES BUFFER TO COUNTER ON OVERFLOW ?
                        /RATE 4, MODE 2
                        /
TST136,    CLA CLL CMA      /AC TO 7777
          JMS I XIOTG      /IOT 6133, CLAB
          DCA REGA
          DCA SEND
          TAD K0400
          TAD K2000
          JMS I XIOTF1
          JMS I XIOTE
          JMP -1
          JMS I XIOTK
          SNA CLA
          JMS I NERRR
          JMS I ERROR
          4136
          TST136
                        /SCOPE LOOP
                        /
                        /DOES BUFFER TO COUNTER ON OVERFLOW ?
                        /MODE 3, RATE 4
                        /
TST137,    CLA CLL CMA      /IOT 6133, CLAB
          JMS I XIOTG
          DCA REGA
          DCA SEND
          TAD K0400
          TAD K3000
          JMS I XIOTF1
          JMS I XIOTE
          JMP -1
          CLA CLL CMA
          JMS I XIOTK
          SNA CLA
          JMS I NERRR
          JMS I ERROR
          4137
          TST137
                        /SCOPE LOOP
                        /
                        /DOES INT. WITHOUT BIT 8 ?
                        /

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PAL10	V141	9-OCT-71	15144	PAGE 1-30
2407	7340	TST140, CLA CLL CMA		
2410	4427	JMS I XIOTG		
2411	3040	DCA REGA		
2412	7313	CLA CLL IAC RTR /AC TO 4000		
2413	1027	TAD K0007		
2414	1147	TAD K0600		
2415	4425	JMS I XIOTF		
2416	4447	JMS I XPIG01		
2417	4472	JMS I NERROR		
2420	4473	JMS I ERROR		
2421	1140	1140		
2422	2407	TST140		
		/SCOPE LOOP		
		/DOES OVERFLOW CAUSE INT, RQST. ?		
		/RATE 6, MODE 0		
		/		
2423	7340	TST141, CLA CLL CMA		
2424	4427	JMS I XIOTG		
2425	7300	CLA CLL		
2426	1014	TAD K4000		
2427	1142	TAD K0010		
2430	1147	TAD K0600		
2431	4425	JMS I XIOTF		
2432	4452	JMS I XPIG04		
2433	4472	JMS I NERROR		
2434	4473	JMS I ERROR		
2435	1541	1541		
2436	2423	TST141		
		/AC TO 7777		
		/IOT 6133, CLAB		
		/CLEAR THE AC AND LINK		
		/GET RATE + MODE		
		/IOT 6132, CLOE		
		/GO TO PI, PI EXPECTED		
		/CHECK NON-ERROR HANDLER		
		/ERROR: OVERFLOW OR ENA 0 FAILED		
		/TST141 ERROR MESSAGE		
		/SCOPE LOOP		
		/DOES INT, RQST, WITHOUT ENA 0 ?		
		/RATE 6, MODE 0		
		/		
2437	7340	TST142, CLA CLL CMA		
2440	4427	JMS I XIOTG		
2441	7300	CLA CLL		
2442	1142	TAD K0010		
2443	1147	TAD K0600		
2444	4425	JMS I XIOTF		
2445	4451	JMS I XPIG03		
2446	4472	JMS I NERROR		
2447	4473	JMS I ERROR		
2450	1142	1142		
2451	2437	TST142		
		/AC TO 7777		
		/IOT 6133, CLAB		
		/CLEAR THE AC AND LINK		
		/GET RATE + MODE		
		/IOT 6132, CLOE		
		/GO TO PI, NO PI EXPECTED		
		/CHECK NON-ERROR HANDLER		
		/ERROR: ENA 0 FAILED		
		/TST142 ERROR MESSAGE		
		/SCOPE LOOP		
		/DOES COUNTER COUNT ?		
		/RATE 6, MODE 0		
		/		
2452	7340	TST143, CLA CLL CMA		
2453	3040	DCA REGA		
2454	4427	JMS I XIOTG		
2455	1014	TAD K4000		
2456	1142	TAD K0010		
2457	1147	TAD K0600		
2460	4425	JMS I XIOTF		
2461	4450	JMS I XPIG02		
		/AC TO 7777		
		/IOT 6133, CLAB		
		/GET RATE + MODE		
		/IOT 6132, CLOE		
		/GO TO PI		

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

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2532 1131
2533 3041
2534 1014
2535 1142
2536 1015
2537 3044
2540 7340
2541 4427
2542 3040
2543 1044
2544 4425
2545 4447
2546 5355
2547 6027
2550 1013
2551 1044
2552 2041
2553 5337
2554 4472
2555 4473
2556 1547
2557 2532

TST147, TAD K7773
DCA REG8
TAD K4000
TAD K0010
TAD K0200
DCA REGE
CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD REGE
JMS I XIOTF
JMS I XPIG01
JMP T147A
6007
TAD K0100
TAD REGE
ISZ REG8
JMP T147B
JMS I NERROR
JMS I ERROR
1547
TST147

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

TST150, TAD K7773
DCA REG8
TAD K5020
TAD K0010
TAD K0200
DCA REGE
CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD REGE
JMS I XIOTF
JMS I XPIG01
JMP I XCRS3
6007
TAD K0100
TAD REGE
ISZ REG8
JMP I XCRS4
JMS I NERROR
JMS I ERROR
1550
TST150

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

TST151, TAD K7773
DCA REG8
```

/SET UP ENABLES
/AC TO 7777
/IOT 6133, CLAB
/GET ENABLES
/IOT 6132, CLOE
/GO TO PI, PI EXPECTED
/CAF OR CLEAR THE WORLD

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

/MAKE ENABLES
/AC TO 7777
/IOT 6133, CLAB
/GET ENABLES
/IOT 6132, CLOE
/GO TO PI, PI EXPECTED
/CAF OR CLEAR THE WORLD

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

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2610 1117 TAD K0000
2611 1142 TAD K0010
2612 1015 TAD K0200
2613 3044 DCA REGE
2614 7340 CLA CLL CMA
2615 4427 JMS I XIOTG
2616 3040 DCA REGA
2617 1044 TAD REGE
2620 4425 JMS I XIOTF
2621 4447 JMS I XPIG01
2622 5251 JMP T151A
2623 6027
2624 1013 TAD K0100
2625 1044 TAD REGE
2626 2041 ISZ REGE
2627 5213 JMP T151B
2630 4472 JMS I NERROR
2631 4473 JMS I ERROR
2632 1551
2633 2626 TST151
/
/DOES OVERFLOW CAUSE ROST, ?
/RATE 2-6, MODE 3
/
TST152, TAD K7773
DCA REGB
TAD K7000
TAD K0010
TAD K0200
DCA REGE
CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD REGE
JMS I XIOTF
JMS I XPIG01
JMP T152A
6027
TAD K0100
TAD REGE
ISZ REGE
JMP T152B
JMS I NERROR
JMS I ERROR
1552
TST152
/DOES OVERFLOW CAUSE ROST, ?
/RATE 0-7, MODE 1, DISABLE BIT 7
/
TST153, TAD K7770
DCA REGB
TAD K5000
TAD K0010
TAD K0020
2662 1142
2663 3041
2664 1141
2665 1142
2666 1140

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/MAKE ENABLES
/AC TO 7777
/IOT 6133, CLAB
/GET ENABLES
/IOT 6132, CLOE
/GO TO PI, PI EXPECTED
/CAF OR CLEAR THE WORLD
/
/DOES OVERFLOW CAUSE ROST, ?
/RATE 2-6, MODE 3
/
TST152, TAD K7773
DCA REGB
TAD K7000
TAD K0010
TAD K0200
DCA REGE
CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD REGE
JMS I XIOTF
JMS I XPIG01
JMP T152A
6027
TAD K0100
TAD REGE
ISZ REGE
JMP T152B
JMS I NERROR
JMS I ERROR
1552
TST152
/DOES OVERFLOW CAUSE ROST, ?
/RATE 0-7, MODE 1, DISABLE BIT 7
/
TST153, TAD K7770
DCA REGB
TAD K5000
TAD K0010
TAD K0020
2662 1142
2663 3041
2664 1141
2665 1142
2666 1140

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/MAKE ENABLES
/AC TO 7777
/IOT 6133, CLAB
/GET ENABLES
/IOT 6132, CLOE
/GO TO PI, PI EXPECTED
/CAF OR CLEAR THE WORLD
/DO RATES 2-6
/CHECK NON-ERROR HANDLER
/ERROR: OVERFLOW OR MODE FAILED
/TST152 ERROR MESSAGE
/SCOPE LOOP
/
/DOES OVERFLOW CAUSE ROST, ?
/RATE 0-7, MODE 1, DISABLE BIT 7
/
TST153, TAD K7770
DCA REGB
TAD K5000
TAD K0010
TAD K0020
2662 1142
2663 3041
2664 1141
2665 1142
2666 1140

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2667 3044      *T1539,      DCA REGC      /MAKE ENABLES
2672 7340      CLA C-LL CMA      /AC TC 7777
2671 4427      JMS I XIOTG      /IOT 6133, CLAB
2672 3240      DCA REGA
2673 1044      TAD REGC      /GET ENABLES
2674 4425      JMS I XIOTF      /IOT 6132, CLOE
2675 4452      JMS I XPIG02      /GO TO PI, NO PI EXPECTED
2676 5305      JMP T153A
2677 6007      6007      /CAF OR CLEAR THE WORLD
2720 1013      TAD K0100
2701 1044      TAD REGC
2702 2041      ISZ REGH
2723 5267      JMP T153B
2704 4472      JMS I NERROR
2725 4473      JMS I ERROR
2726 1153      1153
2727 2662      TST153

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

TST154,      TAD K7770
DCA REGC
TAD K6000
TAD K0012
TAD K0020
DCA REGC
CLA C-LL CMA
JMS I XIOTG
DCA REGA
TAD REGC
JMS I XIOTF
JMS I XPIG02
JMP T154A
6007
TAD K2100
TAD REGC
ISZ REGC
JMP T154B
JMS I NERROR
JMS I ERROR
1154
TST154

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

TST155,      CLA C-LL CMA      /AC TC 7777
JMS I XIOTG      /IOT 6133, CLAB
CLA C-LL CML RAR      /AC TC 4000
TAD K2620
TAD K2012
JMS I XIOTF
JMS I XPIG04
JMS I NERROR

2710 1142      TST154,      TAD K7770
2711 3041      DCA REGC
2712 1117      TAD K6000
2713 1142      TAD K0012
2714 1140      TAD K0020
2715 3044      DCA REGC
2716 7340      CLA C-LL CMA
2717 4427      JMS I XIOTG
2720 3040      DCA REGA
2721 1044      TAD REGC
2722 4425      JMS I XIOTF
2723 4452      JMS I XPIG02
2724 5333      JMP T154A
2725 6007      6007
2726 1213      TAD K2100
2727 1044      TAD REGC
2730 2041      ISZ REGC
2731 5315      JMP T154B
2732 4472      JMS I NERROR
2733 4473      JMS I ERROR
2734 1154      1154
2735 2712      TST154

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

TST155,      CLA C-LL CMA      /AC TC 7777
JMS I XIOTG      /IOT 6133, CLAB
CLA C-LL CML RAR      /AC TC 4000
TAD K2620
TAD K2012
JMS I XIOTF
JMS I XPIG04
JMS I NERROR

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

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

/
TST156, CLA CLL CMA      /AC TO 7777
JMS I XIOTG      /IOT 6133, CLAB
CLA CLL CML RAR
TAD K0010
TAD K0600
JMS I XIOTF      /MAKE ENABLES
JMS I XIOTE      /IOT 6132, CLOE
JMS I XIOTE      /IOT 6131, CLSK
JMP -1      /WAIT FOR OVERFLOW
JMS I XPIG04      /GO TO PI, PI EXPECTED
JMS I NERRR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: CLSK OR PI FAILED
1556      /TST156 ERROR MESSAGE
TST156      /SCOPE LOOP

/
/CHECK FOR NO INT. RQST.
/MODE 0, RATE 6, DISABLE WITH CLSA

/
TST157, CLA CLL CMA      /AC TO 7777
JMS I XIOTG      /IOT 6133, CLAB
CLA CLL CML RAR      /AC TO 4000
TAD K0600
TAD K0010
JMS I XIOTF      /IOT 6132, CLOE
JMS I XIOTE      /IOT 6131, CLSK
JMP -1      /WAIT FOR OVERFLOW
JMS I XIOTI      /IOT 6135, CLSA
JMS I XPIG03      /GO TO PI, NO PI EXPECTED
JMS I NERRR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: INT. RQST. FAILED
1157      /TST157 ERROR MESSAGE
TST157      /SCOPE LOOP

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

/
TST160, CLA CLL CMA      /AC TO 7777
DCA REGA
TAD KTA
DCA KREGC
JMS I XIOTG      /IOT 6133, CLAB
TAD K4000
TAD K0010
TAD K0200
JMS I XIOTF      /MAKE ENABLES
JMS I XPIG05      /IOT 6132, CLOE
SKP CLA
JMS I NERRR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: CLOCK FREQUENCY FAST
JMS I ERROR

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/
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3021 2160 /TST162 ERROR MESSAGE
3022 3024 /SCOPE LOOP

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

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

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

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

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

/
TST163, CLA CLL CMA /AC TO 7777
DCA REGA
TAD KTB1
DCA KREGC
JMS I XIOTG /IOT 6133, CLAB
TAD K4000
TAD K0010
TAD K2320
JMS I XIOTF /MAKE ENABLES
JMS I XPIG05 /IOT 6132, CLOE
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: CLOCK FREQUENCY SLOW
4-73 4-73

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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	/CHECK NON-ERROR HANDLER	
3113	4472	JMS I NERROR	/ERROR: CLOCK FREQUENCY FAST	
3114	4473	JMS I ERROR	/TST164 ERROR MESSAGE	
3115	2164	2164	/SCOPE LOOP	
3116	3076	TST164		
				/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 10030 CLOCK	
3125	4427	JMS I XIOTG	/IOT 6133, CLAB	
3126	1014	TAD K4000		
3127	1142	TAD K0010	/MAKE ENABLES	
3130	1116	TAD K0400	/IOT 6132, CLOE	
3131	4425	JMS I XIOTF		
3132	4453	JMS I XPIG05	/CHECK NON-ERROR HANDLER	
3133	4472	JMS I NERROR	/ERROR: CLOCK FREQUENCY SLOW	
3134	4473	JMS I ERROR	/TST165 ERROR MESSAGE	
3135	2565	2565	/SCOPE LOOP	
3136	3117	TST165		
				/DOES CLOCK FREQUENCY TIME OUT ?
				/RATE 5, MODE 0
				/
3137	7340	TST166, CLA CLL CMA	/AC TO 7777	
3140	3040	DCA REGA		
3141	7350	CLA CLL CMA RAR		
3142	4427	JMS I XIOTG	/IOT 6133, CLAB	
3143	7300	CLA CLL	/CLEAR THE AC AND LINK	
3144	1100	TAD KTD		
3145	3043	DCA REGD	/SET TIMER FOR 10000 CPS CLOCK	
3146	1014	TAD K4020		

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3147	1142	TAD K2010		
3150	1146	TAD K2500	/MAKE ENABLES	
3151	4425	JMS I XIOTF	/IOT 6132, CLOE	
3152	4447	JMS I XPIG01	/CHECK NON-ERROR HANDLER	
3153	4472	JMS I NERR0R	/ERROR: CLOCK FREQUENCY FAST	
3154	4473	JMS I ERROR	/TST166 ERROR MESSAGE	
3155	2166	2166	/SCOPE LOOP	
3156	3137	TST166		

/DOES CLOCK FREQUENCY TIME OUT ?				
/RATE 5, MODE 0				
/				
3157	7340	TST167, CLA CLL CMA	/AC TO 7777	
3160	3040	DCA REGA		
3161	7350	CLA CLL CMA RAR		
3162	4427	JMS I XIOTG	/IOT 6133, CLAB	
3163	7300	CLA CLL	/CLEAR THE AC AND LINK	
3164	1161	TAD KTD1	/SET TIMER FOR 100000 CPS CLOCK	
3165	3043	DCA REGD		
3166	1014	TAD K4000		
3167	1142	TAD K0010	/MAKE ENABLES	
3170	1146	TAD K0500	/IOT 6132, CLOE	
3171	4425	JMS I XIOTF	/CHECK NON-ERROR HANDLER	
3172	4450	JMS I XPIG02	/ERROR: CLOCK FREQUENCY SLOW	
3173	4472	JMS I NERR0R	/TST167 ERROR MESSAGE	
3174	4473	JMS I EPR0R		
3175	2567	2567	/SCOPE LOOP	
3176	3157	TST167		

/DOES CLOCK FREQUENCY TIME OUT ?				
/RATE 6, MODE 0				
/				
3177	7340	TST170, CLA CLL CMA	/AC TO 7777	
3200	3040	DCA REGA		
3201	1162	TAD KTE	/SET TIMER FOR 100000 CPS CLOCK	
3202	3043	DCA REGD	/IOT 6133, CLAB	
3203	4427	JMS I XIOTG		
3204	1014	TAD K4020		
3205	1142	TAD K0010	/MAKE ENABLES	
3206	1147	TAD K0600	/IOT 6132, CLOE	
3207	4425	JMS I XIOTF	/CHECK NON-ERROR HANDLER	
3210	4447	JMS I XPIG01	/ERROR: CLOCK FREQUENCY FAST	
3211	4472	JMS I NERR0R	/TST170 ERROR MESSAGE	
3212	4473	JMS I ERROR	/SCOPE LOOP	
3213	2170	2170		
3214	3177	TST170		

/DOES CLOCK FREQUENCY TIME OUT ?				
/RATE 6, MODE 0				
/				
3215	7340	TST171, CLA CLL CMA	/AC TO 7777	
3216	3040	DCA REGA		
3217	1163	TAD KTE1	/SET TIMER FOR 100000 CPS CLOCK	
3220	3043	DCA REGD	/IOT 6133, CLAB	
3221	4427	JMS I XIOTG		

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3222 1014
3223 1142
3224 1147
3225 4425
3226 4450
3227 4472
3228 4473
3231 2571
3232 3215

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

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

3233 7340
3234 4427
3235 3040
3236 1015
3237 4426
3240 7300
3241 3042
3242 1041
3243 3070
3244 4433
3245 7041
3246 1041
3247 7050
3250 5254
3251 2042
3252 5244
3253 5257
3254 2041
3255 5240
3256 4472
3257 4473
3260 4172
3261 3253

TST172, CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD K0200
JMS I XIOTF1
T172B1, CLA CLL
DCA REGC
TAD REGB
DCA SEND
T172B, JMS I XIOTK
CIA
TAD REGB
SNA CLA
JMP T172A
IS2 REGC
JMP T172B
JMP T172A1
IS2 REGB
JMP T172B1
JMS I NERROR
T172A1, JMS I ERROR
4172
TST172
/AC TO 7777
/IOT 6133, CLAB
/GET RATE + MODE
/IOT 6132, CLOE
/CLEAR THE AC AND LINK
/SAVE OUTPUT FOR ERROR PRINTER
/IOT 6137, CLCA
/COMPARE TO THIS REGISTER
/ARE THEY THE SAME YET ?
/YES, TEST NEXT NUMBER
/WAIT ABOUT 15 MS FOR REGISTER
/NUMBER NOT FOUND
/UPDATE COMPARE REGISTER
/TEST FOR NEXT COUNTER PULSE
/CHECK NON-ERROR HANDLER
/ERROR: COUNTER FAILED
/TST172 ERROR MESSAGE
/SCOPE LOOP

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

3262 7340
3263 4427
3264 3040
3265 1145
3266 4426
3267 7300
3270 3042
3271 1041
3272 3070
3273 4433
3274 7041
3275 1041
3276 7050
3277 5303
3300 2042

TST173, CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD K0300
JMS I XIOTF1
T173B1, CLA CLL
DCA REGC
TAD REGB
DCA SEND
T173B, JMS I XIOTK
CIA
TAD REGB
SNA CLA
JMP T173A
IS2 REGC
/AC TO 7777
/IOT 6133, CLAB
/GET RATE + MODE
/IOT 6132, CLOE
/CLEAR THE AC AND LINK
/SAVE OUTPUT FOR ERROR PRINTER
/IOT 6137, CLCA
/COMPARE TO THIS REGISTER
/ARE THEY THE SAME YET ?
/YES, TEST NEXT NUMBER

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/
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5301 5273 JMP T1739 /WAIT ABOUT 15 MS FOR REGISTER
5302 5306 JMP T173A1 /NUMBER NOT FOUND
5303 2041 IS2 REGC /UPDATE COMPARE REGISTER
5304 5267 JMP T173B1 /TEST FOR NEXT COUNTER PULSE
5305 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
5306 4473 JMS I ERROR /ERROR: COUNTER FAILED
5307 4173 4174 /TST173 ERROR MESSAGE
5310 3262 TST173 /SCOPE LOOP

/DOES COUNTER REALLY COUNT ?
/RATE 2, MODE 1
/
TST174, CLA CLL CMA /AC TO 7777
5311 7340 JMS I XIOTG /IOT 6133, CLAB
5312 4427 DCA REGA
5313 3040 TAD K0200
5314 1015 TAD K1020 /GET RATE + MODE
5315 1144 JMS I XIOTF1 /IOT 6132, CLOE
5316 4426 JMS I XIOTE /IOT 6131, CLSK
5317 4424 JMP --1 /CLEAR THE AC AND LINK
5320 5317 CLA CLL /IOT 6133, CLAB
5321 7320 JMS I XIOTG
5322 4427 DCA REGC
5323 3042 TAD REGB
5324 1041 DCA SEND
5325 3070 JMS I XIOTK /SAVE OUTPUT FOR ERROR PRINTER
5326 4433 CIA /IOT 6137, CLCA
5327 7041 TAD REGB /COMPARE TO THIS REGISTER
5330 1041 SNA CLA /ARE THEY THE SAME YET ?
5331 7650 JMP T174A /YES, TEST NEXT NUMBER
5332 5336 IS2 REGC
5333 2042 JMP T174B
5334 5326 JMP T174A1 /WAIT ABOUT 15 MS FOR REGISTER
5335 5341 IS2 REGC /NUMBER NOT FOUND
5336 2041 JMS I NERRR /UPDATE COMPARE REGISTER
5337 5323 JMS I ERROR /TEST FOR NEXT COUNTER PULSE
5340 4472 JMS I ERROR /CHECK NON-ERROR HANDLER
5341 4473 4174 /ERROR: COUNTER FAILED
5342 4174 TST174 /TST174 ERROR MESSAGE
5343 3311 TST174 /SCOPE LOOP

/DOES COUNTER REALLY COUNT ?
/RATE 4, MODE 1
/
TST175, CLA CLL CMA /AC TO 7777
5344 7340 JMS I XIOTG /IOT 6133, CLAB
5345 4427 DCA REGA
5346 3040 TAD K0400 /GET RATE + MODE
5347 1116 JMS I XIOTF1 /IOT 6132, CLOE
5350 1144 JMS I XIOTE /IOT 6131, CLSK
5351 4426 JMP --1 /CLEAR THE AC AND LINK
5352 4424 CLA CLL /IOT 6133, CLAB
5353 5352 JMS I XIOTG
5354 7322 DCA REGC
5355 4427 TAD REGB
5356 3042
5357 1041

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3360	3070		DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER
3361	4433	T175B,	JMS I X10TK	/IOT 6137, CLCA
3362	7041		CIA	/COMPARE TO THIS REGISTER
3363	1041		TAD REG8	/ARE THEY THE SAME YET ?
3364	7650		SNA CLA	/YES, TEST NEXT NUMBER
3365	5371		JMP T175A	
3366	2042		ISZ REGC	/WAIT ABOUT 15 MS FOR REGISTER
3367	5361		JMP T175B	/NUMBER NOT FOUND
3370	5374		JMP T175A1	/UPDATE COMPARE REGISTER
3371	2041	T175A,	ISZ REG8	/TEST FOR NEXT COUNTER PULSE
3372	5356		JMP T175R1	/CHECK NON-ERROR HANDLER
3373	4472		JMS I NERRR	/ERROR: COUNTER FAILED
3374	4473	T175A1,	JMS I ERROR	/TST175 ERROR MESSAGE
3375	4175		4175	/SCOPE LOOP
3376	3344		TST175	
		/	/DOES COUNTER REALLY COUNT ?	
		/	/RATE 2, MODE 2	
3377	7350	TST176,	CLA CLL CMA	/AC TO 7777
3400	4427		JMS I X10TG	/IOT 6133, CLAB
3401	3040		DCA REGA	
3402	1015		TAD K0200	/GET RATE + MODE
3403	1143		TAD K2000	/IOT 6132, CLOE
3404	4426		JMS I X10TF1	/CLEAR THE AC AND LINK
3405	7320	T176B1,	CLA CLL	
3406	3042		DCA REGC	
3407	1041		TAD REG8	/SAVE OUTPUT FOR ERROR PRINTER
3410	3070		DCA SEND	/IOT 6137, CLCA
3411	4433	T176B,	JMS I X10TK	
3412	7041		CIA	/COMPARE TO THIS REGISTER
3413	1041		TAD REG8	/ARE THEY THE SAME YET ?
3414	7650		SNA CLA	/YES, TEST NEXT NUMBER
3415	5221		JMP T176A	
3416	2042		ISZ REGC	/WAIT ABOUT 15 MS FOR REGISTER
3417	5211		JMP T176B	/NUMBER NOT FOUND
3420	5224		JMP T176A1	/UPDATE COMPARE REGISTER
3421	2041	T176A,	ISZ REG8	/TEST FOR NEXT COUNTER PULSE
3422	5205		JMP T176B1	/CHECK NON-ERROR HANDLER
3423	4472		JMS I NERRR	/ERROR: COUNTER FAILED
3424	4473	T176A1,	JMS I ERROR	/TST176 ERROR MESSAGE
3425	4176		4176	/SCOPE LOOP
3426	3377		TST176	
		/	/DOES COUNTER REALLY COUNT ?	
		/	/RATE 4, MODE 2	
3427	7340	TST177,	CLA CLL CMA	/AC TO 7777
3430	4427		JMS I X10TG	/IOT 6133, CLAB
3431	3040		DCA REGA	
3432	1116		TAD K0400	/GET RATE + MODE
3433	1143		TAD K2000	/IOT 6132, CLOE
3434	4426		JMS I X10TF1	/CLEAR THE AC AND LINK
3435	7320	T177B1,	CLA CLL	
3436	3042		DCA REGC	

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

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

TST200, CLA CLL CMA
3457 7340      JMS I XIOTG
3460 4427      DCA REGA
3461 3040      TAD K0400
3462 1116      TAD K3000
3463 1120      JMS I XIOTF1
3464 4426      CLA CLL
3465 7300      DCA REGC
3466 3042      TAD REGB
3467 1041      DCA SEND
3470 3070      JMS I XIOTK
3471 4433      CIA
3472 7041      TAD REGB
3473 1041      SNA CLA
3474 7650      JMP T200A
3475 5301      ISZ REGC
3476 2042      JMP T200B
3477 5271      JMP T202A1
3500 5304      ISZ REGB
3501 2041      JMP T200R1
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

```

```

/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
/TST177 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: MODE 3, COUNTER FAILED
/TST200 ERROR MESSAGE
/SCOPE LOOP

```

```

/AC TO 7777
/IOT 6133, CLAB
/PASS COUNT 1
/CAF OR CLEAR THE WORLD
/GET ENABLES
/IOT 6132, CLOE
/IOT 6131, CLSK

```

```

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3517      5316      JMP --1
3520      7340      CLA CLL CMA
3521      4423      JMS I XIOTD
3522      7300      CLA CLL
3523      3070      DCA SEND
3524      1041      TAD REGB
3525      4432      JMS I XIOTJ
3526      7640      SZA CLA
3527      5351      JMP T201A
3530      1041      TAD REGB
3531      4433      JMS I XIOTK
3532      7640      SZA CLA
3533      5351      JMP T201A
3534      1041      TAD REGB
3535      4430      JMS I XIOTH
3536      7642      SZA CLA
3537      5351      JMP T201A
3540      1041      TAD REGB
3541      4431      JMS I XIOTI
3542      7640      SZA CLA
3543      5351      JMP T201A
3544      4424      JMS I XIOTE
3545      5344      JMP --1
3546      2041      ISZ REGB
3547      5322      JMP T201B
3550      4472      JMS I NERROR
3551      4473      JMS I ERROR
3552      3201      T201A, 3201
3553      3507      TST201

3554      4570      JMS I XPASS
3555      5463      JMP I XDK8EP

/DOES INPUT 4 CAUSE INT. RQST.
/

3556      7300      CLA CLL
3557      1112      TAD K7402
3560      3077      DCA LOOP
3561      7340      CLA CLL CMA
3562      3042      DCA REGA
3563      7307      CLA CLL IAC RTL
3564      1142      TAD K0010
3565      4425      JMS I XIOTF
3566      4450      JMS I XPIG02
3567      4472      JMS I NERROR
3570      4473      JMS I ERROR
3571      1602      1622
3572      3561      TST202

/DOES INPUT 2 CAUSE INT. RQST.
/

3573      7340      CLA CLL CMA
3574      3040      DCA REGA
3575      7326      CLA CLL CML RTL
3576      1142      TAD K0010

```

/WAIT FOR COUNTER TO GET CLEARED

/IOT 6130, CLZE

/CLEAR AC AND LINK

/SAVE OUTPUT FOR ERROR PRINTER

/GET AC NUMBER

/IOT 6136, CLBA

/WAS AC ALL 0'S ?

/GET AC NUMBER

/IOT 6137, CLCA

/WAS AC ALL 0'S ?

/GET AC NUMBER

/IOT 6134, CLEV

/WAS AC ALL 0'S ?

/GET AC NUMBER

/IOT 6135, CLSA

/WAS AC ALL 0'S ?

/IOT 6131, CLSK

/WAS FLAG STILL SET ?

/UPDATE PASS COUNTER

/TEST IOT'S AGAIN

/CHECK NON-ERROR HANDLER

/ERROR: IOT FAILED

/TST201 ERROR MESSAGE

/SCOPE LOOP

/TYPE PASS COMPLETE

/CONTINUE TESTING

/LOAD LOOP COUNTER

/AC TO 7777

/AC TO 0004

/GET ENABLES

/IOT 6132, CLOE

/GO TO PI, PI EXPECTED

/CHECK NON-ERROR HANDLER

/ERROR: INPUT 4 FAILED

/TST202 ERROR MESSAGE

/SCOPE LOOP

/DOES INPUT 2 CAUSE INT. RQST.

/AC TO 7777

/AC TO 0002

/GET ENABLES

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```

3577 4425 JMS I XIOTF /IOT 6132, CLOE
3620 4450 JMS I XPIG02 /GO TO PI, PI EXPECTED
3601 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
3602 4473 JMS I ERROR /ERROR: INPUT 2 FAILED
3603 1603 /TST203 ERROR MESSAGE
3624 3573 TST203 /SCOPE LOOP

/DOES INPUT 1 CAUSE INT. RQST.
/DOES INPUT 1 CAUSE INT. RQST.
/DOES INPUT 1 CAUSE INT. RQST.

TST204, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL CML RAL /AC TO 0001
TAD K0010 /GET ENABLES
JMS I XIOTF /IOT 6132, CLOE
JMS I XPIG02 /GO TO PI, PI EXPECTED
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INPUT 1 FAILED
1604 /TST204 ERROR MESSAGE
3615 1604 TST204 /SCOPE LOOP
3616 3625

/DOES INPUT 4 RQST. LAST ?
/DOES INPUT 4 RQST. LAST ?
/DOES INPUT 4 RQST. LAST ?

TST205, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC RTL /AC TO 0004
TAD K0010 /GET ENABLES
JMS I XIOTF /IOT 6132, CLOE
JMS I XPIG01 /GO TO PI, PI EXPECTED
JMP T205A /NO RQST. FOUND
ISZ REGB /UPDATE COUNTER
JMP -1 /WAIT 15 MS
JMS I XPIG02 /GO TO PI, PI EXPECTED
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INPUT 4 FAILED
1625 /TST205 ERROR MESSAGE
3633 1625 TST205 /SCOPE LOOP
3634 3617

/DOES INPUT 2 RQST. LAST ?
/DOES INPUT 2 RQST. LAST ?
/DOES INPUT 2 RQST. LAST ?

TST206, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC RAL /AC TO 0002
TAD K0010 /GET ENABLES
JMS I XIOTF /IOT 6132, CLOE
JMS I XPIG01 /GO TO PI, PI EXPECTED
JMP T206A /NO RQST. FOUND
ISZ REGB /UPDATE COUNTER
JMP -1 /WAIT 15 MS
JMS I XPIG02 /GO TO PI, PI EXPECTED
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INPUT 2 FAILED
1676 /TST206 ERROR MESSAGE
3651 1626 TST206 /SCOPE LOOP
3652 3635

/DOES INPUT 1 RQST. LAST ?
/DOES INPUT 1 RQST. LAST ?
/DOES INPUT 1 RQST. LAST ?

```

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```

3653 TST207, CLA CLL CMA /AC TO 7777
3654 DCA REGA
3655 CLA CLL CML RAL /AC TO 0001
3656 TAD K0010 /GET ENABLES
3657 JMS I XIOTF /IOT 6132, CLOE
3660 JMS I XPIG01 /GO TO PI, PI EXPECTED
3661 JMP T207A /NO RQST, FOUND
3662 ISZ REGB /UPDATE COUNTER
3663 JMP -1 /WAIT 15 MS
3664 JMS I XPIG02 /GO TO PI, PI EXPECTED
3665 JMS I NERRR /CHECK NON-ERROR HANDLER
3666 JMS I ERROR /ERROR: INPUT 1 FAILED
3667 T207A, 1627 /TST227 ERROR MESSAGE
3670 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 K0027
TAD K0600 /IOT 6132, CLOE
JMS I XIOTF /GO TO PI, NO PI EXPECTED
JMS I XPIG01 /CHECK NON-ERROR HANDLER
JMS I NERRR /ERROR:ENABLE BIT 8 FAILED
JMS I ERROR /TST212 ERROR MESSAGE
1212 /SCOPE LOOP
TST210

/DOES INPUT 4 CAUSE SKIP ?
/
TST211, CLA CLL CMA /AC TO 7777
DCA REGA
TAD KTICPS
DCA REGF
CLA CLL IAC RTL /AC TO 2004
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
JMS I SKPWAT /LET'S WAIT FOR A FLAG
JMS I NERRR /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
3720 3720 7340
3721 3721 3040
3722 3722 1113
3723 3723 3045
3724 3724 7326
3725 3725 4425
3726 3726 4424
3727 3727 4446

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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

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

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

/DOES INPUT 2 SKIP THEN INT. RQST. AND VICE-VERSA ?
/
TST215,   CLA CLL CMA      /AC TO 7777
DCA REGA
CLA CLL IAC RAL  /AC TO 0002
TAD K0010      /GET ENABLES
JMS I XIOTF      /IOT 6132, CLOE
JMS I XIOTE      /IOT 6131, CLSK
JMP -1
JMS I XPIG01      /GO TO PI, PI EXPECTED
JMP I XCRS5
JMS I XIOTE      /IOT 6131, CLSK
JMP -1
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: INPUT 2 SKIP OR RQST. FAILED
T215A,     1615      /TST215 ERROR MESSAGE
TST215      /SCOPE LOOP
4025      3767

```

/ DOES INPUT 1 SKIP THEN INT, RQST. AND VICE-VERSA ?

```
4006 7340 TST216, CLA CLL CMA /AC TO 7777
4007 3040 DCA REGA
4010 7301 CLA CLL IAC /AC TO 0001
4011 1142 TAD K0010 /GET ENABLES
4012 4425 JMS I XIOTF /IOT 6132, CLOE
4013 4424 JMS I XIOTE /IOT 6131, CLSK
4014 5213 JMP .-1
4015 4447 JMS I XPIG01 /GO TO PI, PI EXPECTED
4016 5222 JMP T216A
4017 4424 JMS I XIOTE /IOT 6131, CLSK
4020 5217 JMP .-1
4021 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
4022 4473 JMS I ERROR /ERROR: INPUT 1 SKIP OR INT, RQST. FAILED
4023 1616 1616 /TST216 ERROR MESSAGE
4024 4026 TST216 /SCOPE LOOP
```

/ DOES CAF CLEAR INPUT 4 INT, RQST. ?

```
4025 7340 TST217, CLA CLL CMA /AC TO 7777
4026 3042 DCA REGA
4027 7307 CLA CLL IAC RTL /AC TO 0004
4030 4425 JMS I XIOTF /IOT 6132, CLOE
4031 4424 JMS I XIOTE /IOT 6131, CLSK
4032 5251 JMP .-1 /WAIT FOR FIRST FLAG
4033 6027 6027 /CAF OR CLEAR THE WORLD
4034 7307 CLA CLL IAC RTL /AC TO 0004
4035 4425 JMS I XIOTF /IOT 6132, CLOE
4036 4424 JMS I XIOTE /IOT 6131, CLSK
4037 5256 JMP .-1 /WAIT FOR SECOND FLAG
4040 6027 6027 /CAF OR CLEAR THE WORLD
4041 7307 CLA CLL IAC RTL
4042 4425 JMS I XIOTF /IOT 6132, CLOE
4043 4424 JMS I XIOTE /IOT 6131, CLSK
4044 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
4045 4473 JMS I ERROR /ERROR: INPUT 4 SKIP OR RQST. FAILED
4046 0217 0217 /TST217 ERROR MESSAGE
4047 4025 TST217 /SCOPE LOOP
```

/ DOES CAF CLEAR INPUT 2 RQST. ?

```
4050 7340 TST220, CLA CLL CMA /AC TO 7777
4051 3040 DCA REGA
4052 7305 CLA CLL IAC RAL /AC TO 0002
4053 4425 JMS I XIOTF /IOT 6132, CLOE
4054 4424 JMS I XIOTE /IOT 6131, CLSK
4055 5254 JMP .-1 /WAIT FOR FIRST FLAG
4056 6027 6027 /CAF OR CLEAR THE WORLD
4057 7305 CLA CLL IAC RAL /AC TO 0002
4060 4425 JMS I XIOTF /IOT 6132, CLOE
4061 4424 JMS I XIOTE /IOT 6131, CLSK
4062 5261 JMP .-1 /WAIT FOR SECOND FLAG
4063 6027 6027 /CAF OR CLEAR THE WORLD
```

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

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

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

/DOES CLSA READ ROST. INPUT 2 ?
/
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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/
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4142  4431      JMS I XIOTI      /IOT 6135, CLSA
4143  4426      JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
4144  4472      JMS I NERROR      /CHECK NON-ERROR HANDLER
4145  4473      JMS I ERROR      /ERROR: CLSA OR INPUT 2 FAILED
4146  5223      5223              /TST223 ERROR MESSAGE
4147  4133      TST223              /SCOPE LOOP

/DOES CLSA READ ROST. INPUT 1 ?
/
TST224, 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 FLAG
CMA              /AC TO 7776
JMS I XIOTI      /IOT 6135, CLSA
JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: CLSA OR INPUT 1 FAILED
5224              /TST224 ERROR MESSAGE
TST224              /SCOPE LOOP

/DOES CLSA CLEAR INPUT 4 ROST. ?
/
TST225, CLA CLL CMA      /AC TO 7777
DCA REGA
CLA CLL IAC RTL      /AC TO 0004
JMS I XIOTF1      /IOT 6132, CLOE
JMS I XIOTE      /IOT 6131, CLSK
JMP .-1          /WAIT FOR FIRST FLAG
JMS I XIOTI      /IOT 6135, CLSA
JMS I XIOTE      /IOT 6131, CLSK
JMP .-1          /WAIT FOR SECOND FLAG
JMS I XIOTI      /IOT 6135, CLSA
JMS I XIOTE      /IOT 6131, CLSK
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: CLSA OR INPUT 1 FAILED
5225              /TST225 ERROR MESSAGE
TST225              /SCOPE LOOP

/DOES CLSA CLEAR INPUT 2 ROST. ?
/
TST226, 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
JMS I XIOTI      /IOT 6135, CLSA
JMS I XIOTE      /IOT 6131, CLSK
JMP .-1          /WAIT FOR SECOND FLAG
JMS I XIOTI      /IOT 6135, CLSA
JMS I XIOTE      /IOT 6131, CLSK
JMS I NERROR      /CHECK NON-ERROR HANDLER

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4220 4473      JMS I ERROR      /ERROR: CLSA OR INPUT 2 FAILED
4221 2226      0226             /TST226 ERROR MESSAGE
4222 4224      TST226           /SCOPE LOOP

/DOES CLSA CLEAR INPUT 4 ROST. ?
/
TST227, CLA CLL CMA      /AC TO 7777
DCA REGA
CLA CLL IAC
JMS I XIOTF             /AC TO 0001
JMS I XIOTE             /IOT 6132, CLOE
JMS I XIOTE             /IOT 6131, CLSK
JMP -1                 /WAIT FOR FIRST FLAG
JMS I XIOTI             /IOT 6135, CLSA
JMS I XIOTE             /IOT 6131, CLSK
JMP -1                 /WAIT FOR SECOND FLAG
JMS I XIOTI             /IOT 6135, CLSA
JMS I XIOTE             /IOT 6131, CLSK
JMS I NERRR             /CHECK NON-ERROR HANDLER
JMS I ERROR            /ERROR: CLSA OR INPUT 1 FAILED
0227
TST227           /TST227 ERROR MESSAGE
/SCOPE LOOP

/DOES CLSA READ INPUT 4.2.1 ?
/
TST230, CLA CLL CMA      /AC TO 7777
DCA REGA
TAD K0027              /GET ENABLES
JMS I XIOTF            /IOT 6132, CLOE
NOP
ISZ REG8
JMP -2
JMS I XIOTE
JMP -1
CLA CLL CMA
JMS I XIOTI
JMS I XSNDRV
SKP CLA
JVE T232A
DCA SEND
CLA CLL CMA
JMS I XIOTI
SNA CLA
JMS I NERRR
JMS I ERROR
T230A, 5230
TST230               /TST230 ERROR MESSAGE
/SCOPE LOOP

/DOES INPUT 4 CLEAR BIT 7 ?
/
TST231, CLA CLL CMA
DCA REGA
CLA CLL IAC RTL      /AC TO 0004
DCA SEND
TAD SEND
TAD K0022             /GET ENABLES
```

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4276	4426	JMS I XIOTF1	/IOT 6132, CLOE	
4277	4424	JMS I XIOTE	/IOT 6131, CLSK	
4300	5277	JMP *-1	/WAIT FOR FLAG	
4301	7340	CLA CLL CMA	/AC TO 7777	
4302	4430	JMS I XIOTH	/IOT 6134, CLEN	
4303	4456	JMS I XSNDRV	/CHECK SEND AND RECEV REGISTERS	
4304	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
4305	4473	JMS I ERROR	/ERROR: BIT 7 OR INPUT 4 FAILED	
4306	4631	4631	/TST231 ERROR MESSAGE	
4307	4270	TST231	/SCOPE LOOP	
		/DOES INPUT 2 CLEAR BIT 7 ?		
		/		
4310	7340	TST232, CLA CLL CMA		
4311	3040	DCA REGA		
4312	7305	CLA CLL IAC RAL	/AC TO 0002	
4313	3070	DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER	
4314	1070	TAD SEND		
4315	1140	TAD K0020		
4316	4426	JMS I XIOTF1	/IOT 6132, CLOE	
4317	4424	JMS I XIOTE	/IOT 6131, CLSK	
4320	5317	JMP *-1	/WAIT FOR FLAG	
4321	7340	CLA CLL CMA	/IOT 6134, CLEN	
4322	4430	JMS I XIOTH	/CHECK SEND AND RECEV REGISTERS	
4323	4456	JMS I XSNDRV	/CHECK NON-ERROR HANDLER	
4324	4472	JMS I NERROR	/ERROR: BIT 7 OR INPUT 2 FAILED	
4325	4473	JMS I ERROR	/TST232 ERROR MESSAGE	
4326	4632	4632	/SCOPE LOOP	
4327	4310	TST232		
		/DOES INPUT 1 CLEAR BIT 7 ?		
		/		
4330	7340	TST233, CLA CLL CMA	/AC TO 7777	
4331	3040	DCA REGA		
4332	7301	CLA CLL IAC	/AC TO 0001	
4333	3070	DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER	
4334	1070	TAD SEND		
4335	1140	TAD K0020		
4336	4426	JMS I XIOTF1	/IOT 6132, CLOE	
4337	4424	JMS I XIOTE	/IOT 6131, CLSK	
4340	5337	JMP *-1	/WAIT FOR FLAG	
4341	7340	CLA CLL CMA	/AC TO 7777	
4342	4430	JMS I XIOTH	/IOT 6134, CLEN	
4343	4456	JMS I XSNDRV	/CHECK SEND AND RECEV REGISTERS	
4344	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
4345	4473	JMS I ERROR	/ERROR: BIT 7 OR INPUT 1 FAILED	
4346	4633	4633	/TST233 ERROR MESSAGE	
4347	4330	TST233	/SCOPE LOOP	
		/DOES INPUT 4,2,1 GENERATE CLR CNT ?		
		/MODE 3, RATE 0		
		/		
4350	7340	TST234, CLA CLL CMA	/AC TO 7777	
4351	3040	DCA REGA		
4352	1016	TAD K2525	/GET AC NUMBER	

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4353 4427 JMS I XIOTG /IOT 6133, CLAB
4354 7327 CLA CLL IAC RTL /AC TO 0004
4355 1120 TAD K3020 /GET ENABLES
4356 4426 JMS I XIOTF1 /IOT 6132, CLOE
4357 4424 JMS I XIOTE /IOT 6131, CLSK
4360 5357 JMP -1 /WAIT FOR FLAG
4361 7320 CLA CLL /SAVE OUTPUT FOR ERROR PRINTER
4362 3070 DCA SEND /AC TO 7777
4363 7340 CLA CLL CMA /IOT 6137, CLCA
4364 4433 JMS I XIOTK /WAS COUNTER ALL 0'S ?
4365 7650 SNA CLA /CHECK NON-ERROR HANDLER
4366 4472 JMS I NERRR /ERROR: CLR CNT FAILED
4367 4473 JMS I ERROR /TST234 ERROR MESSAGE
4370 4234 4234
4371 4352 TST234 /SCOPE LOOP

/DOES INPUT 4,2,1 CAUSE CLR CNT ?
/MODE 3, RATE 0
/
TST235, CLA CLL CMA /AC TO 7777
DCA REGA /GET AC NUMBER
TAD K252 /IOT 6133, CLAB
JMS I XIOTG /AC TO 0002
CLA CLL IAC RAL /GET ENABLES
TAD K3020 /IOT 6132, CLOE
JMS I XIOTF1 /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR FLAG
JMP -1 /SAVE OUTPUT FOR ERROR PRINTER
CLA CLL /AC TO 7777
DCA SEND /IOT 6137, CLCA
CLA CLL CMA /WAS COUNTER ALL 0'S ?
JMS I XIOTK /CHECK NON-ERROR HANDLER
SNA CLA /ERROR: CLR CNT FAILED ?
JMS I NERRR /TST235 ERROR MESSAGE
JMS I ERROR /SCOPE LOOP
4235
TST235

/DOES INPUT 4,2,1 TRANSFER COUNTER TO BUFFER ?
/
TST236, CLA CLL CMA /AC TO 7777
DCA REGA /GET AC NUMBER
TAD K2525 /IOT 6133, CLAB
JMS I XIOTG /CAF OR CLEAR THE WORLD
6007 /AC TO 0001
CLA CLL IAC /GET ENABLES
TAD K3020 /IOT 6132, CLOE
JMS I XIOTF1 /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR FLAG
JMP -1 /AC TO 7777
CLA CLL CMA /IOT 6136, CLBA
JMS I XIOTJ /CHECK SEND AND RECEV REGISTERS
JMS I XSDRV /CHECK NON-ERROR HANDLER
JMS I NERRR /ERROR: COUNTER TO BUFFER FAILED
JMS I ERROR
4414 7340
4415 3040
4416 1016
4417 4427
4420 6027
4421 7301
4422 1120
4423 4426
4424 4424
4425 5224
4426 7340
4427 4432
4432 4456
4431 4472
4432 4473

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4433 3636 /TST236 ERROR MESSAGE
4434 4414 /SCOPE LOOP

/DOES INPUT 4,2,1 TRANSFER COUNTER TO BUFFER ?
/
TST237, CLA CLL CMA /AC TO 7777
DCA REGA /GET AC NUMBER
TAD K5252 /IOT 6133, CLAB
JMS I X10TG /CAF OR CLEAR THE WORLD
6007 /AC TO 0001
CLA CLL IAC /GET ENABLES
TAD K3000 /IOT 6132, CLOE
JMS I X10TF1 /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR FLAG
JMP -1 /AC TO 7777
CLA CLL CMA /IOT 6136, CLBA
JMS I XIOTJ /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV /CHECK NON-ERROR HANDLER
JMS I NERRR /ERROR: COUNTER TO BUFFER FAILED
JMS I ERROR /TST237 ERROR MESSAGE
3637 /SCOPE LOOP
TST237

/DOES INPUT 4,2,1 GENERATE CLR CNT ?
/
MODE 2, RATE 0
/
TST240, CLA CLL CMA /AC TO 7777
DCA REGA /GET AC NUMBER
TAD K2525 /IOT 6133, CLAB
JMS I X10TG /CAF OR CLEAR THE WORLD
6007 /AC TO 0004
CLA CLL IAC RTL /GET ENABLES
TAD K2000 /IOT 6132, CLOE
JMS I X10TF1 /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR FLAG
JMP -1 /AC TO 7777
CLA CLL CMA /IOT 6137, CLCA
JMS I XIOTK /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV /CHECK NON-ERROR MESSAGE
JMS I NERRR /ERROR: CLR CNT FAILED, MODE 2
JMS I ERROR /TST240 ERROR MESSAGE
4240 /SCOPE LOOP
TST240

/DOES INPUT 4,2,1 CAUSE CLR CNT ?
/
MODE 2, RATE 0
/
TST241, CLA CLL CMA
DCA REGA /GET AC NUMBER
TAD K5252 /IOT 6133, CLAB
JMS I X10TG /CAF OR CLEAR THE WORLD
6007 /AC TO 0002
CLA CLL IAC RAL /GET ENABLES
TAD K2000

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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
6227
CLA CLL IAC RTL
TAD K2020
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
6227
CLA CLL IAC RAL
TAD K2020
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 2 ?

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4562 7340 TST244, CLA CLL CMA /GET AC NUMBER
4563 3040 DCA REGA /IOT 6133, CLAB
4564 1016 TAD K2525 /CAF OR CLEAR THE WORLD
4565 4427 JMS I XIOTG /AC TO 0004
4566 6007 6007 /IOT 6132, CLOE
4567 7307 CLA CLL IAC RTL /IOT 6131, CLSK
4570 4426 JMS I XIOTF1 /WAIT FOR FLAG
4571 4424 JMS I XIOTE /AC TO 7777
4572 5371 JMP -1 /IOT 6137, CLCA
4573 7340 CLA CLL CMA /CHECK SEND AND RECEV REGISTERS
4574 4433 JMS I XIOTK /CHECK NON-ERROR HANDLER
4575 4436 JMS I XSNDRV /ERROR: MODE 0 FAILED
4576 4472 JMS I NERRR /TST 244 ERROR MESSAGE
4577 4473 JMS I ERROR /SCOPE LOOP
4600 4244 4244
4601 4562 TST244

/DOES INPUT 4,2,1 AFFECT MODE 0 ?
/
TST245, CLA CLL CMA /AC TO 7777
DCA REGA /GET AC NUMBER
TAD K2525 /IOT 6133, CLAB
JMS I XIOTG /AC TO 0001
CLA CLL IAC /IOT 6132, CLOE
JMS I XIOTF1 /IOT 6131, CLSK
JMS I XIOTE /WAIT FOR FLAG
JMP -1 /AC TO 7777
CLA CLL CMA /IOT 6136, CLBA
JMS I XIOTJ /CHECK SEND RECEV REGISTERS
JMS I XSNDRV /CHECK NON-ERROR HANDLER
JMS I NERRR /ERROR: MODE 0 FAILED
JMS I ERROR /TST245 ERROR MESSAGE
3645 /SCOPE LOOP
TST245

/DOES INPUT 4,2,1 AFFECT MODE 1 ?
/
TST246, CLA CLL CMA /AC TO 7777
DCA REGA /GET AC NUMBER
TAD K2525 /IOT 6133, CLAB
JMS I XIOTG /CAF OR CLEAR THE WORLD
6007 /SAVE OUTPUT FOR ERROR PRINTER
DCA SEND /AC TO 0001
CLA CLL IAC /GET ENABLES
TAD K1000 /IOT 6132, CLOE
JMS I XIOTF1 /IOT 6131, CLOE
JMS I XIOTE /WAIT FOR FLAG
JMP -1 /AC TO 7777
CLA CLL CMA /IOT 6136, CLBA
JMS I XIOTJ /WAS BUFFER STILL ALL 0'S ?
SNA CLA /CHECK NON-ERROR HANDLER
JMS I NERRR /ERROR: MODE 1 FAILED
JMS I ERROR /TST246 ERROR MESSAGE
4246 /SCOPE LOOP
TST246

4621 7340
4622 3040
4623 1016
4624 4427
4625 6007
4626 3070
4627 7301
4630 1144
4631 4426
4632 4424
4633 5232
4634 7340
4635 4432
4636 7650
4637 4472
4640 4473
4641 4246
4642 4621

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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 /AC TO 7777
TAD K100
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 K007
JMS I XIOTF1 /GET ENABLES
NOP /IOT 6132, CLOE
ISZ REG8
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 K007
JMS I XIOTF /GET ENABLES
NOP /IOT 6132, CLOE
ISZ REG8
JMP -2 /WAIT FOR FLAGS
JMS I XIOTE /IOT 6131, CLSK
JMP -1
CLA CLL CMA /AC TO 7777
JMS I XIOTI /IOT 6135, CLSA

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PAL10	V14:	9-00T-71	15:44	PAGE 1-57
4721	4426	JMS I XSNDRV		/CHECK SEND AND RECEV REGISTERS
4722	4472	JMS I NERRR		/CHECK NON-ERROR HANDLER
4723	4473	JMS I ERROR		/ERROR: CLSA OR STATUS REGISTER
4724	5251	5251		/TSY251 ERROR MESSAGE
4725	4726	TSY251		/SCOPE LOOP
4726	7320	CLL CLL		
4727	2077	ISZ LOOP		/DO TEST 4096 TIMES
4730	5464	JMP I XMITT		/TYPE PASS COMPLETE
4731	4572	JMS I XPASS		/CONTINUE TESTING
4732	5465	JMP I XMITT1		
		/NON-ERROR HANDLER FOR PROGRAM		
		/		
	5023	*5023		
		/		
		NERRR,		/CAF OR CLEAR THE WORLD
5020	2022	2022		
5001	6027	6027		
5022	2200	ISZ NERRR		
5023	2200	ISZ NERRR		
5024	2040	ISZ REGA		
5025	5215	JMP OUT		
5026	4462	JMS I XCLREG		/CLEAR ALL REGISTERS
5027	7624	LAS		
5030	2137	AND K0040		/IS IT LOOP ON NON-
5031	7640	SZA CLA		/FAILING TEST.
5032	5215	JMP OUT		
5033	2222	ISZ NERRR		/TO NEXT TEST
5034	5622	JMP I NERRR		
		OUT,		
5015	1622	TAD I NERRR		
5016	3222	DCA ERRR		
5017	5622	JMP I ERRR		
		/ERROR HANDLER FOR PROGRAM		
		/		
5020	0020	ERRR,		/CAF OR CLEAR THE WORLD
5021	6007	6007		
5022	7624	LAS		
5023	7026	RYL CLA		
5024	7720	SMA CLA		/CHECK SWR2 FOR INH. PRINT
5025	4503	JMS I XSORT		/GET ERROR MESSAGE
5026	4510	JMS I XBELL		/RING BELL
5027	4460	JMS I XCLREG		
5030	2222	ISZ ERRR		
5031	7624	LAS		
5032	0015	AND K0220		/CHECK SWR4 FOR INH. FLT
5033	7650	SVA CLA		/MONITOR ERROR HALT, READ TYPEDOUT
5034	7422	HLT		/AND REFERENCE LISTING.
		EMLT1,		
		/		
5035	7624	LAS		
5036	0013	AND K0122		
5037	7640	SZA CLA		/CHECK SWR5 FOR SCOPE LOOP
5040	5243	JMP IN		
5041	2220	ISZ ERRR		

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5042	5620		JMP I ERRO	/ENTER SCOPE LOOP
5043	1620	/	TAD I ERRO	
5044	3220	IN,	DCA NERRO	
5045	5620	/	JMP I NERRO	
5046	0020	BELL,	0032	
5047	7624		LAS	
5050	2116		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	2020	TYPE,	0002	
5057	6046		TLS	
5060	6041		TSF	
5061	5260		JMP -1	
5062	7200		CLA	
5063	6042		TCF	
5064	5656	/	JMP I TYPE	
5065	0020	CLRREG,	0002	/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	2117		AND K6000	
5076	7650		SNA CLA	
5077	7340		CLA CLL CMA	
5100	3240		DCA REGA	
5101	5665	/	JMP I CLRREG	
5102	2200	IOTA,	0020	/FIELD SERVICE CHANGE
5103	6131		6131	
5104	5702		JMP I IOTA	
5105	2302		ISZ IOTA	
5106	5702	/	JMP I IOTA	
5107	0020	IOTB,	0002	/FIELD SERVICE CHANGE
5110	6132		6132	
5111	5707		JMP I IOTB	
5112	2307		ISZ IOTB	
5113	5707	/	JMP I IOTB	
5114	0020	IOTC,	0020	/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	/FIELD SERVICE CHANGE
5124	6130		JMP I IOTD	
5125	5721		HLT	/SKIP TRAP, CLZE
5126	7422	EHLT2,		
		/		
5127	0000	IOTE,	0000	/FIELD SERVICE CHANGE
5130	6131		6131	
5131	5727		JMP I IOTE	
5132	2327		ISZ IOTE	
5133	5727		JMP I IOTE	
		/		
5134	0000	IOTF,	0000	/SAVE OUTPUT FOR ERROR PRINTER
5135	3070		DCA SEND	
5136	1070		TAD SEND	/FIELD SERVICE CHANGE
5137	6132		6132	
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	/FIELD SERVICE CHANGE
5151	6133		6133	
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	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 107J		
5207	0000	/		/FIELD SERVICE CHNGE
5210	6137	10TK, 0000		
5211	7410	6137		
5212	7402	SKP		/SKIP TRAP, CLCA
5213	3071	EHLT11, HLT		/SAVE OUTPUT FOR ERROR PRINTER
5214	1071	DCA RECEV		
5215	5607	TAD RECEV		
		JMP I 10TK		
5216	0000	/		
5217	7041	SNDRV, 0000		
5220	1072	CIA		/WAS SEND AND RECEV THE SAME ?
5221	7640	TAD SEND		
5222	2216	SZA CLA		
5223	5616	ISZ SNDRV		
		JMP I SNDRV		
5224	0000	/		
5225	1044	RANDOM, 0000		
5226	7004	TAD REGE		/CLEAR THE AC AND LINK
5227	7430	RAL		/SET FOR PI RETURN
5230	1410	SZL I 10		/CLEAR THE AC AND LINK
5231	3044	TAD REGE		/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 CLL		
5242	1076	CLA KREGC		
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	2254	JMP .-7		
5252	6002	ISZ PIG05		
5253	5634	PIRET5, IOF		/DISABLE PROGRAM INTERRUPT
		JMP I PIG05		
5254	5252	/		
		PIRET5, PIRET5		
5255	0000	/		
5256	7300	PIG01, 0000		/CLEAR THE AC AND LINK
5257	1267	CLA CLL		/SET FOR PI RETURN
5260	3002	TAD PRET1		/ENABLE PROGRAM INTERRUPT
5261	6001	DCA 2		
5262	4434	ION		
5263	7410	JMS I XISZ		
5264	2255	SKP		
5265	6002	PIRET1, ISZ PIG01		/DISABLE PROGRAM INTERRUPT
5266	5655	IOF		
		JMP I PIG01		

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5267	5264	/	PIRET1, PIRET1	
5270	0000	/	PIG02, 0000	/CLEAR THE AC AND LINK
5271	7300		CLA CLL	
5272	1301		TAD PRET2	/SET FOR PI RETURN
5273	3002		DCA 2	
5274	0001		ION	/WAIT
5275	4454		JMS I XISZ	
5276	2270		ISZ PIG02	
5277	6002		PIRET2, IOF	
5300	5670		JMP I PIG02	
5301	5277	/	PIRET2, 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 KTICPS	
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	/CLEAR THE AC AND LINK
5324	7300		CLA CLL	
5325	1335		TAD PRETC	
5326	3002		DCA 2	
5327	0001		ION	
5330	7000		NOP	
5331	7410		SKP	
5332	2323		ISZ PIG03	
5333	6002		IOF	
5334	5723		JMP I PIG03	
5335	5332	/	PRETC, RETC	
5336	0000	/	PIG04, 0000	/CLEAR THE AC AND LINK
5337	7300		CLA CLL	
5340	1347		TAD PRETD	
5341	3002		DCA 2	
5342	0001		ION	
5343	7000		NOP	
5344	2336		ISZ PIG04	
5345	6002		RETD, IOF	

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5346 5736      JMP I PIG04
5347 5345      PRETD, RETD
5350 0000      IOTS,
5351 6132      0002
5352 6134      6132
5353 6132      6134
5354 6134      6132
5355 6132      6134
5356 6134      6132
5357 5750      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      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      JMP I IOTS2
5400      *5400
5401 6134      IOTS3,
5402 7040      0000
5403 6130      CMA
5404 7040      CMA
5405 6134      6130
5406 7040      CMA
5407 6130      6134
5408 7040      CMA
5409 6134      6130
5410 6134      CMA
5411 5600      JMP I IOTS3
5412      CLOCK,
5413 0000      0000
5414 7604      LAS
5415 0007      AND K0007
5416 3075      DCA CLOCKS
5417 5613      JMP I CLOCK
5420 2000      /ROUTINE TO TYPE OCTAL NUMBERS
                    /ENTER WITH NUMBER IN AC AND LINK 0
                    /OCTEL. 0000

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

```

5421 7006      RTL
5422 7006      RTL
5423 3041      DCA REG8
5424 1130      TAD K7774
5425 3042      DCA REGC
5426 1041      TAD REG8
5427 0007      AND K0007
5430 1123      TAD K0260
5431 4507      JMS I XTYPE
5432 1041      TAD REG8
5433 7006      RTL
5434 7024      RAL
5435 3041      DCA REG8
5436 2042      ISZ REGC
5437 5226      JMP *-11
5440 5620      JMP I OCTEL

/ROUTINE FOR CRLF
/
CRLF, 0000      /CLEAR THE AC AND LINK
          CLA CLL
          TAD K0215
          JMS I XTYPE
          TAD K0212
          JMS I XTYPE
          JMP I CRLF

/ROUTINE TO TYPE CLOCK
/
POPR, 0000      /CLEAR THE AC AND LINK
          CLA CLL
          TAD KTADCK
          TAD CLOCKS
          DCA *-1
          TAD KTADCK
          JMS I XOCTEL
          JMS I XPRINT
          FMES
          JMP I POPR

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

/ROUTINE TO SORT ERROR MESSAGES
/
SORT, 0000      /CLEAR THE AC AND LINK
          CLA CLL
          JMS I XCRLF
          TAD I ERROR
          DCA REGE
5471 0000
5472 7300
5473 4501
5474 1473
5475 3044

```

PAL10	V141	9-OCT-71	15144	PAGE 1-64	
5476	4505	JMS I XMESS		/GO PRINT TEST + ADDRESS	
5477	1444	TAD I REGE			
5500	7012	RTR			
5501	7012	RTR			
5502	7012	RTR			
5503	7012	RTR			
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	4501	JMS I XCRLF		/CRLF	
5515	4506	JMS I XPRINT		/PRINT MESSAGE	
5516	0000	0000		/MODIFIED MESSAGE POINTER	
5517	7320	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	6127	KTMX,			
5530	6131	MES1			
5531	6152	MES2			
5532	6202	MES3			
5533	6231	MES4			
5534	6256	MES5			
5535	6303	MES6			
5536	6324	MES7			
5537	6353	MES8			
5540	6402	MES9			
5541	6431	MES10			
		MES11			
		/ROUTINE TO PRINT TEST + ADDRESS			
		/			
5542	0000	MESS,			
5543	7320	CLA CLL		/CLEAR THE AC AND LINK	
5544	4501	JMS I XCRLF		/CRLF	
5545	4506	JMS I XPRINT		/GO PRINT TEST	
5546	6046	TMS			
5547	1473	TAD I ERROR		/GET ERROR MESSAGE	
5550	3043	DCA REGD		/STORE MESSAGE POINTER	
5551	1443	TAD I REGD			
5552	0136	AND K0377		/MASK 4-11	
5553	4504	JMS I XOCTEL		/GO PRINT NUMBER	
5554	2043	IS2 REGD		/UPDATE POINTER	
5555	4506	JMS I XPRINT		/GO PRINT STARTING ADDRESS	
5556	6051	AMES			
5557	1443	TAD I REGD			

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5560	4524	JMS I XOCTEL	/GO PRINT NUMBER
5561	7300	CLA CLL	/CLEAR THE AC AND LINK
5562	5742	JMP I MESS	

/ROUTINE TO PRINT AC			
/			
PREG.	0000		/CRLF
5563	0000	JMS I XCRLF	/GO PRINT MESSAGE
5564	4521	JMS I XPRINT	
5565	4526	GMS	
5566	6067	TAD SEND	/GET GOOD AC
5567	1070	JMS I XOCTEL	/PRINT IT
5570	4524	JMS I XPRINT	/PRINT BAD AC
5571	4526	BMS	
5572	6077	TAD RECEV	/GET BAD AC
5573	1071	JMS I XOCTEL	/PRINT IT
5574	4524	CLA CLL	/CLEAR THE AC AND LINK
5575	7300	JMP I PREG	
5576	5763		

/	*5600		
/			
SETO.	0000		/GET JMP I 2
5600	0000	TAD JMP12	/SET FOR PI RETURN
5601	1120	DCA 1	
5602	3021	JMP I SETO	
5603	5620		

/ROUTINE TO TYPE LISTING			
/ENTER WITH JMS +1 EQUAL TO START OF LIST			
/			
PRINT.	0000		/CLEAR THE AC AND LINK
5604	0000	CLA CLL	
5605	7320	TAD I PRINT	/SET FOR RETURN +1
5606	1624	ISE PRINT	/SAVE THE POINTER
5607	2204	DCA REG8	/GET THE CHARACTER
5610	3041	TAD I REG8	/MASK BITS 0-5
5611	1441	AND K7200	/END OF MESSAGE
5612	0012	SNA	/YES, EXIT
5613	7420	JMP EXIT	/IS AC MINUS
5614	5240	SMA	/NO, SET THE LINK
5615	7500	CHL	
5616	7020	IAC	
5617	7021	RTR	
5620	7012	RTR	
5621	7012	RTR	
5622	7012	JMS I XTYPE	/PRINT THE CHARACTER
5623	4507	TAD I REG8	/GET THE WORD
5624	1441	AND K0077	/MASK BITS 6-11
5625	0133	SNA	/END OF MESSAGE
5626	7490	JMP EXIT	/YES, EXIT
5627	5240	TAD K3740	/NO, ADD A CONSTANT
5630	1125	SMA	
5631	7500	TAD K4120	
5632	1124	TAD K0240	
5633	1126	JMS I XTYPE	/TYPE THE CHARACTER
5634	4527	ISE REG8	/UPDATE WORD LIST
5635	2041		

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5636	7320	CLA CLL		/CLEAR THE AC AND LINK	
5637	5211	JMP PRINT*5			
5640	7320	CLA CLL		/CLEAR THE AC AND LINK	
5641	5624	JMP I PRINT		/YES EXIT	
		/ROUTINE TO WAIT FOR OVERFLOWS			
5642	0020	XWAIT, 0020		/SAVE THE AC	
5643	3011	DCA SAVAC			
5644	7344	CLA CLL CMA RAL			
5645	1242	TAD XWAIT		/SET FOR RETURN ADDRESS	
5646	3242	DCA XWAIT			
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		/UPDATE FOR ERROR RETURN	
5655	3242	DCA XWAIT			
5656	1011	RETURN, TAD SAVAC			
5657	5642	JMP I XWAIT			
5660	0020	/ SWLAS, 0020			
5661	7624	LAS		/CHECK FOR EXTERNAL CLOCK SCOPE LOOP	
5662	0142	AND K0010		/ENTER SCOPE LOOP	
5663	7642	SZA CLA			
5664	5625	JMP CLKIN		/CHECK FOR EXTERNAL PULSE SCOPE LOOP	
5665	7624	LAS			
5666	0140	AND K0020			
5667	7640	SZA CLA		/ENTER SCOPE LOOP	
5670	5313	JMP EXTER		/AC TO 7777	
5671	7340	CLA CLL CMA			
5672	3113	DCA KT1CPS			
5673	7624	LAS			
5674	0114	AND K6027			
5675	7640	SZA CLA			
5676	5321	JMP *3		/GET HIS SWITCHES	
5677	1111	TAD KPRMTI		/GET BIT 1	
5700	3113	DCA KT1CPS			
5701	7624	LAS		/TEST SCHMITT	
5702	7024	RAL		/GET HIS SWITCHES	
5703	7710	SPA CLA			
5704	5660	JMP I SWLAS		/TEST DK8-EP	
5705	2260	ISZ SWLAS		/TEST DK8-EA OR DK8-EC	
5706	7624	LAS			
5727	7710	SPA CLA			
5710	5660	JMP I SWLAS			
5711	2260	ISZ SWLAS			
5712	5660	JMP I SWLAS			
5713	7340	/ EXTER, CLA CLL CMA		/IOT 6133, CLAB	
5714	4427	JMS I X10TG			
5715	7322	CLA CLL			
5716	1137	TAD K0040			

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5717	1147		TAD 40600	/GET ENABLES
5720	4425		JMS I XIOTF	/IOT 6132, CLCE
5721	4424		JMS I XIOTE	/IOT 6131, CLSK
5722	5321		JMP .-1	/WAIT FOR OVERFLOW
5723	6027		6027	/CAF OR CLEAR THE WORLD
5724	5313		JMP EXTER	/CONTINUE WITH SCOPE LOOP
5725	7340	/	CLA CLL CMA	/AC TO 7777
5726	4427	CLKIN.	JMS I XIOTG	/IOT 6133, CLAB
5727	7320		CLA CLL	/GET ENABLES
5730	1013		TAD K2100	/IOT 6132, CLCE
5731	4426		JMS I XIOTF1	/IOT 6131, CLSK
5732	4424		JMS I XIOTE	/WAIT FOR OPERATOR
5733	5332		JMP .-1	/CAF OR CLEAR THE WORLD
5734	6027		6027	/TTY SIGNAL
5735	1026		TAD 42227	/LOOP
5736	4527		JMS I XTYPE	
5737	5325		JMP CLKIN	
5740	2020	/	PASS.	
5741	4521		JMS I XCRLF	/CRLF
5742	4526		JMS I XPRINT	/PRINT MESSAGE
5743	6014		PMES	
5744	6027		6027	
5745	5740		JMP I PASS	
5746	0020	/	GTAD.	
5747	1075		TAD CLOCKS	/GET SELECTED CLOCK
5750	1354		TAD CLTAD	
5751	3746		DCA I GTAD	
5752	2346		ISE GTAD	
5753	5746		JMP I GTAD	
5754	5755	/	CLTAD.	
5755	6022		CLTAD +1	
5756	1612		6022	
5757	4776		1612	
5760	5367		4776	
5761	7326		5367	
5762	7747		7306	
5763	4000		7747	
5764	1527		4002	
5765	4552		1527	
5766	5217		4552	
5767	7276		5217	
5770	7741		7276	
			7741	
5771	0020	/	TIMCLK. 0020	
5772	7624		LAS	
5773	0114		AND M6027	
5774	7650		SVA CLA	
5775	1166		TAD PATCH	
5776	1012		TAD M722	
5777	5771		JMP I TIMCLK	

6020 0413
6001 7005
6002 4003
6003 1417
6004 0313
6005 2340
6006 0411
6007 0107
6010 1617
6011 2324
6012 1103
6013 0000
6014 0413
6015 7025
6016 4020
6017 0123
6020 2340
6021 0317
6022 1520
6023 1425
6024 2425
6025 0000
6026 4023
6027 2023
6030 4023
6031 1417
6032 0313
6033 4023
6034 0514
6035 0503
6036 2425
6037 0440
6040 0251
6041 4017
6042 2025
6043 2201
6044 2417
6045 2200
6046 2405
6047 2324
6050 4000
6051 4026
6052 0111
6053 1425
6054 0454
6055 4023
6056 2401
6057 2224
6060 1116
6061 0740
6062 0104
6063 2422
6064 0523
6065 2340
6066 0000

OKMES, TEXT ?OKME CLOCKS DIAGNOSTIC?

PMES, TEXT ?OKME PASS COMPLETE?

PMES, TEXT ? CPS CLOCK SELECTED BY OPERATOR?

TMES, TEXT ?TEST ?

AMES, TEXT ? FAILED, STARTING ADDRESS ?

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GMES, TEXT ?TME GOOD AC = ?

BMES, TEXT ? AND BAD AC = ?

WES1, TEXT ?CLOCK SKIP FAILED, NO SKIP EXPECTED?

WES2, TEXT ?CLOCK SKIP FAILED, SKIP EXPECTED?

WES3, TEXT ?PROGRAM INTERRUPT FAILED, NO INTERRUPT EXPECTED?

PAL12 V141

6067 2410
6070 2540
6071 2717
6072 1704
6073 4001
6074 0340
6075 7540
6076 0000
6077 4001
6100 1024
6101 4002
6102 2104
6103 4001
6124 2342
6125 7540
6126 0000
6127 0314
6110 1703
6111 1340
6112 2313
6113 1120
6114 4006
6115 0111
6116 1425
6117 0454
6120 4016
6121 1742
6122 2313
6123 1120
6124 4005
6125 3222
6126 2503
6127 2425
6130 2400
6131 0314
6132 1703
6133 1340
6134 2313
6135 1120
6136 4006
6137 0111
6140 1425
6141 0454
6142 4023
6143 1311
6144 2040
6145 0530
6146 2025
6147 0324
6150 0524
6151 2200
6152 2022
6153 1707
6154 2201
6155 1540

6156 1116
6157 2405
6160 2222
6161 2520
6162 2440
6163 0601
6164 1114
6165 0504
6166 5440
6167 1617
6170 4011
6171 1624
6172 0522
6173 2225
6174 2224
6175 4005
6176 3220
6177 0503
6200 2405
6201 2400
6202 2022
6203 1707
6204 2201
6205 1540
6206 1116
6207 2405
6210 2222
6211 2520
6212 2440
6213 0601
6214 1114
6215 0504
6216 5440
6217 1116
6220 2405
6221 2222
6222 2520
6223 2440
6224 0500
6225 2025
6226 0524
6227 0504
6230 0000
6231 0314
6232 1703
6233 1340
6234 1725
6235 2420
6236 2524
6237 4006
6240 0111
6241 1405
6242 0454
6243 4003
6244 1417

YES4, TEXT PROGRAM INTERRUPT FAILED, INTERRUPT EXPECTED?

YES5, TEXT CLOCK OUTPUT FAILED, CLOCK FREQUENCY FAST?

PAL12 VI41

6245 2313
 6246 4006
 6247 2205
 6250 2125
 6251 0516
 6252 0331
 6253 4006
 6254 0123
 6255 2400
 6256 0314
 6257 1703
 6260 1340
 6261 1725
 6262 2420
 6263 2524
 6264 4006
 6265 0111
 6266 1405
 6267 2454
 6270 4023
 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 0103
 6306 4027
 6307 0123
 6310 4003
 6311 1001
 6312 1607
 6313 0504
 6314 4002
 6315 3142
 6316 0140
 6317 0314
 6320 1703
 6321 1342
 6322 1117
 6323 2400
 6324 0314
 6325 1723
 6326 1340
 6327 0225
 6330 0626
 6331 0522
 6332 4022
 6333 0507

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 2425
 6336 2240
 6337 0116
 6340 0440
 6341 0123
 6342 4024
 6343 2221
 6344 1623
 6345 0625
 6346 2240
 6347 0621
 6350 1114
 6351 0524
 6352 0020
 6353 0314
 6354 1723
 6355 1340
 6356 0317
 6357 2516
 6360 2425
 6361 2240
 6362 2225
 6363 0711
 6364 2324
 6365 0522
 6366 4021
 6367 1624
 6370 4021
 6371 0340
 6372 2422
 6373 0116
 6374 2326
 6375 0522
 6376 4026
 6377 0111
 6400 1425
 6401 0420
 6402 0314
 6403 1723
 6404 1340
 6405 0516
 6406 0122
 6407 1425
 6410 4022
 6411 0527
 6412 1123
 6413 2425
 6414 2240
 6415 0116
 6416 0440
 6417 0123
 6420 4024
 6421 2221
 6422 1623

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

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

PAL10	V141	
6423	2625	
6424	2240	
6425	2621	
6426	1114	
6427	0524	
6430	0020	
6431	2314	
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	2221	
6451	1623	
6452	0625	
6453	2240	
6454	0621	
6455	1114	
6456	0524	
6457	0020	

MES11, TEXT 3CLOCK STATUS REGISTER AND AC TRANSFER FAILED?

[illegible]

PAL10	V141	9-OCT-71	15144	PAGE 1-76	SETC	5602
AMES	6051	K0017	0127	LOOP	SETC	5602
AUTO10	0010	K0020	0140	MES1	SKPAAT	0046
BEGIN	0200	K0040	0137	MES10	SDRV	5216
BELL	5046	K0077	0133	MES11	SOPT	5471
BGNEAC	0215	K0100	0013	MES2	SWLAS	5660
BMES	6077	K0200	0015	MES3	SYNC	5302
CLKIN	5725	K0207	0006	MES4	T113A	1655
CLKNO	5463	K0212	0135	MES5	T113B	1646
CLOCK	5413	K0215	0134	MES6	T114A	1673
CLOCKS	0075	K0240	0126	MES7	T114B	1664
CLRREG	5065	K0260	0123	MES8	T11A	0354
CLTAD	5754	K0300	0145	MES9	T120A	1751
CRLF	5441	K0377	0136	MESS	T121A	1766
DKMES	6000	K0400	0116	NERR0	T122A	2014
EHLT1	5034	K0500	0146	NERROR	T122B	1775
EHLT10	5203	K0600	0147	OUT	T123A	2043
EHLT11	5212	K0700	0150	OUT	T123B	2024
EHLT2	5166	K1000	0144	OVER2	T124A	2072
EHLT3	5141	K2000	0143	OVER2A	T124B	2053
EHLT4	5145	K2525	0016	PASS	T125A	2120
EHLT5	5153	K3000	0120	PATCH	T125B	2102
EHLT6	5157	K3740	0125	P1001	T126A	2147
EHLT7	5166	K4000	0014	P1002	T126B	2125
ERR0	5020	K4100	0124	P1003	T127A	2202
ERR0R	0073	K5000	0121	P1004	T12A	0366
EXIT	5640	K5252	0017	P1005	T130A	2220
EXIT	5713	K6000	0117	PIRET1	T133A	2306
FMES	6026	K6007	0114	PIRET2	T133B	2273
GMES	6067	K7000	0141	PIRET5	T147A	2555
GTAD	5746	K7400	0112	PMES	T147B	2537
IN	5043	K7700	0012	POPR	T150A	2603
IOTA	5102	K7770	0122	PREG	T150B	2565
IOTB	5107	K7772	0132	PRET1	T151A	2631
IOTC	5114	K7773	0131	PRET2	T151B	2613
IOTD	5121	K7774	0130	PRET5	T152A	2657
IOTE	5127	KPRMT1	0111	PRETC	T152B	2641
IOTF	5134	KREGC	0076	PRETD	T153A	2705
IOTF1	5142	KT1CPS	0113	PRINT	T153B	2667
IOTG	5146	KTA	0151	RANDOM	T154A	2733
IOTH	5154	KTA1	0152	RANDY	T154B	2715
IOTI	5163	KTADCK	5462	RECEV	T172A	3254
IOTJ	5200	KTADM	5526	REGA	T172B	3257
IOTK	5207	KT8	0153	REGB	T172C	3244
IOTS	5350	KT81	0154	REGC	T173A	3240
IOTS1	5360	KTC	0155	REGD	T173B	3303
IOTS2	5370	KTC1	0156	REGF	T173C	3306
IOTS3	5400	KTC2	0157	REGG	T173D	3273
ISZLOP	5310	KTD	0160	RETC	T173E	3267
JMP12	0100	KTD1	0161	RETD	T174A	3336
K0006	0115	KTE	0162	RETURN	T174B	3341
K0007	0007	KTE1	0163	SAVAC	T174C	3326
K0010	0142	KTMX	5527	SEND	T174D	3323

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TST76 1435
TST77 1451
TYPE 5056
XBELL 0110
XCLOCK 0074
XCOREG 0060
XCRLF 0101
XCRS1 0171
XCRS2 0172
XCRS3 0173
XCRS4 0174
XCRS5 0175
XCRS6 0063
XCRS7 0167
XGETM 0067
XGTAD 0020
XIOTA 0021
XIOTB 0022
XIOTC 0023
XIOTD 0024
XIOTE 0025
XIOTF 0026
XIOTF1 0027
XIOTG 0030
XIOTH 0031
XIOTI 0032
XIOTJ 0033
XIOTK 0034
XIOTS 0035
XIOTS1 0036
XIOTS2 0037
XIOTS3 0054
XIS2 0066
XLAS 0125
XMESS 0064
XMITT 0065
XMITT1 0104
XOCIEL 0165
XOPR 0170
XPASS 0047
XPIC01 0050
XPIC02 0051
XPIC03 0052
XPIC04 0053
XPIC05 0102
XPRINT 0164
XREG 0056
XSETO 0103
XSNDRV 0057
XSORT 0107
XSYNC 5642
XTYPE
XWAIT

ERRORS DETECTED: 2
LINKS GENERATED: 2
RUN-TIME: 39 SECONDS
3K CORE USED