

IDENTIFICATION

PRODUCT CODE: MAINDEC-8E-D8AC-D

PRODUCT NAME: DK8E CLOCKS DIAGNOSTIC

DATE CREATED: OCTOBER 8, 1971

MAINTAINER: DIAGNOSTIC PROGRAMMING GROUP

AUTHOR: JOHN VROBEL

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1. ABSTRACT

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

2. REQUIREMENTS

2.1 EQUIPMENT

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

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

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

2.2 STORAGE

THE PROGRAM OCCUPIES LOCATIONS 0000-6600.

2.3 PRELIMINARY PROGRAMS

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

3. LOADING PROCEDURE

3.1 METHOD

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

4. STARTING PROCEDURE

4.1 CONTROL SWITCH SETTINGS

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

SWR8#1

FOR DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST

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

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

4.2 STARTING ADDRESS

THE STARTING ADDRESS IS 0200 OCTAL.

4.3 OPERATOR ACTION

4.3.1 DK8-EA/DK8-EC TEST

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

SET THE SWITCH REGISTER TO 0000.

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

PRESS CLEAR AND THEN PRESS CONTINUE.

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

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

4.3.2 DK8-EP/DK8-ES REGISTER TEST

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

SET SWITCH REGISTER TO 0000.

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

PRESS CLEAR AND THEN PRESS CONTINUE.

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

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

4.3.3 DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST

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

SET SWITCH REGISTER TO 0000.

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

PRESS CLEAR AND THEN CONTINUE.

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

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

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

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

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE EXTERNAL PULSE SCOPE LOOP TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

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

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

4.3.5 DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST

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

SET SWITCH REGISTER TO 0000.

SET SWITCH REGISTER TO INDICATE EXTERNAL CLOCK SCOPE LOOP TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

GROUND CLOCK IN ON DK8-ES CLOCK FRONT PANEL.

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

5. OPERATING PROCEDURE

5.1 OPERATIONAL SWITCH SETTINGS

NONE

5.2 SUBROUTINE ABSTRACTS

NONE

5.3 OPERATOR TEST SELECTION

5.3.1 DK8-EA OR DK8-EC CLOCK OPTION

INSTALL DK8-EA OR DK8-EC CLOCK OPTION

RUN DK8-EA/DK8-EC TEST 4.3.1.

5.3.2 DK8-EP CLOCK OPTION

INSTALL DK8-EP CLOCK OPTION.

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

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

5.3.3. DK8-ES CLOCK OPTION

INSTALL DK8-ES CLOCK OPTION.

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

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

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

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

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

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

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

6. ERRORS

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

6.1 ERRORS AND DISCRIPTION

6.1.1 ERROR HALTS

ERROR HALTS IN PROGRAM ARE AS FOLLOWS:

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

EHLT2: SKIP TRAP, CLZE

EHLT3: SKIP TRAP, CLOE

EHLT4: SKIP TRAP, CLOE

EHLT5: SKIP TRAP, CLAB

EHLT6: SKIP TRAP, CLEN

EHLT7: SKIP TRAP, CLSA

EHLT10: SKIP TRAP, CLBA

EHLT11: SKIP TRAP, CLCA

6.1.2 ERROR TYPECUTS

ERROR TYPECUTS IN PROGRAM ARE AS FOLLOWS:

TEST XXXX FAILED, STARTING ADDRESS XXXX

THE GOOD AC = XXXX AND BAD AC = XXXX

CLOCK BUFFER REGISTER AND AC TRANSFER FAILED

CLOCK COUNTER REGISTER AND AC TRANSFER FAILED

CLOCK ENABLE REGISTER AND AC TRANSFER FAILED

THE AC WAS CHANGED BY A CLOCK IOT

PROGRAM INTERRUPT FAILED, NO INTERRUPT EXPECTED

PROGRAM INTERRUPT FAILED, INTERRUPT EXPECTED

CLOCK SKIP FAILED, NO SKIP EXPECTED

CLOCK SKIP FAILED, SKIP EXPECTED

CLOCK OUTPUT FAILED, CLOCK FREQUENCY FAST

CLOCK OUTPUT FAILED, CLOCK FREQUENCY SLOW

6.2 ERROR RECOVERY

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

FURTHER INFORMATION,

6.2.1 SCOPE LOOPS

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

SET SWR4=1 TO INDICATE INHIBIT ERROR HALT.

SET SWR5=1 TO INDICATE ENTER SCOPE LOOP.

SET SWR6=1 TO INDICATE LOOP ON THIS TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

SET SWR2=1 TO INHIBIT ERROR TYPEOUT.

SET SWR3=1 TO INHIBIT ERROR BELL.

7. RESTRICTIONS

7.1 STARTING RESTRICTIONS

NONE

7.2 OPERATING RESTRICTIONS

THE PROGRAM MUST RESIDE IN BANK 0 .

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

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

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

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

8. MISCELLANECUS

8.1 SPECIFICATIONS

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

8.2 EXECUTION TIME

DK8-EA/DK8-EC TEST, APPROXIMATIVELY 2.5 MINUTES PER PASS.

DK8-EP/DK8-ES REGISTER TEST, APPROXIMATIVELY 3.5 MINUTES PER PASS.

DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST, APPROXIMATIVELY 2 MINUTES PER PASS.

9. PROGRAM DISCRPTION

9.1 DK8-EA OR DK8-EC CLOCK

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

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

OCTAL CODE: 6133

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

ENABLE CLOCK INTERRUPT (CLEI)

OCTAL CODE: 6131

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

DISABLE CLOCK INTERRUPT (CLED)

OCTAL CODE: 6132

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

9.2 DK8-EP/DK8-ES CLOCK

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

CLEAR THE CLOCK ENABLE REGISTER PER AC (CLZE)

OCTAL CODE: 6130

OPERATION: CLEARS THE BITS IN THE CLOCK ENABLE REGISTER CORRESPONDING TO THOSE BITS SET IN THE AC. THE AC IS NOT AFFECTED.

SKIP ON A CLOCK INTERRUPT (CLSK)

OCTAL CODE: 6131

OPERATION: SENSES FOR INTERRUPT CONDITIONS, IF THE CONDITIONS ARE PRESENT THE NEXT SEQUENTIAL INSTRUCTION IS SKIPPED. THE CONDITIONS ARE AS FOLLOWS:

- A. ENABLE EVENT INTERRUPT 1 AND INPUT 4
- B. ENABLE EVENT INTERRUPT 2 AND INPUT 2
- C. ENABLE EVENT INTERRUPT 3 AND INPUT 1
- D. ENABLE OVERFLOW INTERRUPT AND OVERFLOW

AC TO CLOCK ENABLE REGISTER (CLOE)

OCTEL CODE:

6132

OPERATION:

CAUSES THE CONTENTS OF THE AC TO BE LOADED INTO THE CLOCK ENABLE REGISTER CORRESPONDING TO THOSE BITS SET IN THE AC, THE AC IS NOT AFFECTED. CLOCK ENABLE REGISTER FUNCTIONS ARE AS FOLLOWS.

AC BIT

FUNCTION

0

ENABLE CLOCK OVERFLOW

1 & 2

MODE CONTROL

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

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

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

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

3, 4 & 5

COUNT RATE

000 STOP

001 EXTERNAL CLOCK SOURCE

010 100 CPS

011 1000 CPS

100 10000 CPS

101 100000 CPS

110 1000000 CPS

111 STOP

6

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

- 7 WHEN SET TO A 1, THE CLOCK COUNTER IS INHIBITED FROM COUNTING.
- 8 WHEN SET TO A 1, ENABLES EXTERNAL SCHMITT TRIGGER SIGNALS AND THE OVERFLOW FLOP TO CAUSE AN INTERRUPT REQUEST IF THEY ARE ENABLED.
- 9,10 & 11 ENABLE SCHMITT TRIGGER EVENTS

100 INPUT 4
 010 INPUT 2
 001 INPUT 1

AC TO CLOCK BUFFER REGISTER (CLAB)

OCTAL CODE: 6133
 OPERATION: CAUSES THE CONTENTS OF THE AC TO BE 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

OPERATION:

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

10. LISTING

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

0000	0000
0001	0000
0002	5001
0003	0002
0004	0003
0005	0000
0006	0207
0007	0007
0010	0000
0011	AUTO10,
0012	SAVAC, 0000
0013	K7700, 7700
0014	K0100, 0100
0015	K4000, 4000
0016	K0200, 0200
0017	K2525, 2525
0020	K5252, 5252
0021	XI0TA, I0TA
0022	XI0TB, I0TB
0023	XI0TC, I0TC
0024	XI0TD, I0TD
0025	XI0TE, I0TE
0026	XI0TF, I0TF
0027	XI0TF1, I0TF1
0030	XI0TG, I0TG
0031	XI0TH, I0TH
0032	XI0TI, I0TI
0033	XI0TJ, I0TJ
0034	XI0TK, I0TK
0035	XI0TS, I0TS
0036	XI0TS1, I0TS1
0037	XI0TS2, I0TS2
0040	XI0TS3, I0TS3
0041	REGA, 0000
0042	REGB, 0000
0043	REGC, 0000
0044	REGD, 0000
0045	REGE, 0000
0046	REGF, 0000
0047	SKPMAT, XWAIT
0050	XPIG01, PIG01
0051	XPIG02, PIG02
0052	XPIG03, PIG03
0053	XPIG04, PIG04
0054	XPIG05, PIG05

0034	XISE,	ISELOP
0035	RANDY,	RANDOM
0036	XSNDRV,	SNDRV
0037	XSYNC,	SYNC
0060	XCLREG,	CLREG
0061	OVER2,	BCNEAC +2
0062	OVER2A,	BCNEAC +2
0063	XDK8EP,	TST30
0064	XMITT,	TST202
0065	XMITT1,	TST202 -3
0066	XLAS,	SWLAS
0067	XGTAD,	GTAD
0070	SEND,	0000
0071	RECEV,	0000
0072	NERROR,	NERROR
0073	ERROR,	EMRO
0074	XCLOCK,	CLOCK
0075	CLOCKS,	0000
0076	KREGC,	0000
0077	LOOP,	0000
0100	JMP12,	JMP I 2
0101	XCLRF,	CRLF
0102	XREG,	PREG
0103	XSORT,	SORT
0104	XOCTEL,	OCTEL
0105	XMESS,	MESS
0106	XPRINT,	PRINT
0107	XTYPE,	TYPE
0110	XBELL,	BELL
0111	KPRMT1,	7730
0112	K7400,	7400
0113	KT1CPS,	0000
0114	K6007,	6007
0115	K0006,	0006
0116	K0400,	0400
0117	K6000,	6000
0120	K3000,	3000
0121	K5000,	5000
0122	K7770,	7770
0123	K0260,	0260
0124	K4100,	4100
0125	K3740,	3740
0126	K0240,	0240
0127	K0017,	0017
0130	K7774,	7774
0131	K7773,	7773
0132	K7772,	7772
0133	K0077,	0077
0134	K0215,	0215
0135	K0212,	0212
0136	K0377,	0377
0137	K0040,	0040
0140	K0020,	0020
0141	K7000,	7000
0142	K0010,	0010

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0143 2000  K2000, 2000
0144 1000  K1000, 1000
0145 0300  K0300, 0300
0146 0500  K0500, 0500
0147 0600  K0600, 0600
0150 0700  K0700, 0700
0151 2725  KTA, 2725
0152 2650  KTA1, 2650
0153 7425  KTB, 7425
0154 7350  KTB1, 7350
0155 7753  KTC, 7753
0156 0225  KTC1, 0225
0157 0150  KTC2, 0150
0160 1450  KTD, 1450
0161 1425  KTD1, 1425
0162 6575  KTE, 6575
0163 6525  KTE1, 6525
0164 5600  XSETO, SETO
0165 5450  XOPR, POPR
0166 0070  PATCH, 0070
0167 5771  XGETM, TIMCLK
0170 5740  XPASS, PASS
0171 1775  XCRS1, T1228
0172 2220  XCRS2, T127A
0173 2623  XCRS3, T150A
0174 2595  XCRS4, T150B
0175 4023  XCRS5, T215A
/
0220
/
0200 7300  CLA CLL
0201 6027  6007
0202 4521  JMS I XCRLF
0203 4526  JMS I XPRINT
0204 6000  DKMES
0205 4521  JMS I XCRLE
0206 4460  JMS I XCLREG
0207 4564  JMS I XSETO
0210 4466  JMS I XLAS
0211 5465  JMP I XMITT1
0212 5463  JMP I XDK8EP
0213 4474  JMS I XCLOCKS
0214 4565  JMS I XOPR
0215 4567  JMS I XGETM
0216 3077  DCA LOOP
0217 4460  JMS I XCLREG
0220 3040  DCA REGA
/
/DOES IOT CLEI CHANGE AC ?
/CHECK ALL COMBINATIONS
/
TST0, TAD REGA
0221 1040  DCA SEND
0222 3070  TAD SEND
0223 1070  JMS I XIOTA
0224 4420  JMS I XIOTA
/
/CLEAR THE AC AND LINK
/CAF OR CLEAR THE WORLD
/CRLF
/PRINT DK8E CLOCKS DIAGNOSTIC
/MESSAGE POINTER
/CRLF
/CLEAR ALL MY REGISTERS
/SET UP FOR PI RETURN
/GET HIS SWITCHES
/TEST SCHMITT
/TEST DK8EP CLOCK
/TEST DK8EA OR DK8EC
/TEST AND PRINT FREQ. SELECTFD
/GET TIME LENGTH
/SET LOOP COUNTER
/CLEAR ALL REGISTERS
/
/DOES IOT CLEI CHANGE AC ?
/CHECK ALL COMBINATIONS
/
TST0, TAD REGA
0221 1040  DCA SEND
0222 3070  TAD SEND
0223 1070  JMS I XIOTA
0224 4420  JMS I XIOTA
/

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

/DOES IOT CLED CHANGE AC ?
 /CHECK ALL COMBINATIONS

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

/DOES IOT CLSK CHANGE AC ?
 /CHECK ALL COMBINATIONS

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

/TEST FOR NO INTERRUPT ROST.

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

/DOES CLSK SKIP ON A CLOCK FLAG

TST4,
 0273 1113 TAD KT1CPS /SET UP TIMER
 0274 3045 DCA REGF /IOT 6133, CLSK
 0275 4422 JMS I XIOTC


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0276 7020 NOP
0277 4422 JMS I XIOTC /IOT 6133, CLSK
0300 4446 JMS I SKPWAT /GO WAIT FOR FLAG
0301 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
0302 4473 JMS I ERROR /ERROR: CLSK OR FLAG FAILED
0303 0424 0404 /TST4 ERROR MESSAGE
0304 0273 TST4 /SCOPE LOOP

/DOES CLSK CLEAR THE FLAG ?
/
TST5, TAD K1ICPS /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 NERRR /IOT 6133, CLSK
JMS I ERROR /CHECK NON-ERROR HANDLER
0005 /ERROR: CLSK CLEAR THE FLAG FAILED
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 NERRR /CHECK NON-ERROR HANDLER,
JMS I ERROR /ERROR: DID CLEI ENABLE CLOCK INTERRUPT ?
1406 /TST6 ERROR MESSAGE
TST6 /SCOPE LOOP.

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

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

/DOES CLEI ENABLE CLOCK INTERRUPT ?
/

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PAL10  V141
0346  4420  JMS I XIOTA          /IOT 6131, CLEI
0347  4447  JMS I XPIG01         /GO TO PI, PI EXPECTED
0350  5354  JMP T11A
0351  4420  JMS I XIOTA          /IOT 6131, CLEI
0352  4450  JMS I XPIG02         /GO TO PI, PI EXPECTED
0353  4472  JMS I NERROR        /CHECK NON-ERROR HANDLER,
0354  4473  JMS I ERROR         /ERROR: CLEI AND CLED FAST TOGGLE
0355  1411  TST11
0356  0346  TST11
/DOES CLED DISABLE CLOCK INTERRUPT ?
/
TST12,  JMS I XIOTA          /IOT 6131, CLEI
0360  4421  JMS I XIOTB         /IOT 6132, CLED
0361  4450  JMS I XPIG02         /GO TO PI, NO PI EXPECTED
0362  5366  JMP T12A
0363  4421  JMS I XIOTB         /IOT 6132, CLED
0364  4447  JMS I XPIG01         /GO TO PI, NO PI EXPECTED
0365  4472  JMS I NERROR        /CHECK NON-ERROR HANDLER,
0366  4473  JMS I ERROR         /ERROR: CLEI AND CLED FAST TOGGLE
0367  1012  TST12
0370  0357  TST12
/TEST DECODER FOR 6135, NOT CLEI
/
TST13,  JMS I XIOTB         /IOT 6132, CLED
0371  4421  JMS I XIOTI         /IOT 6135, NOT AN IOT 6131
0372  4431  JMS I XPIG01         /GO TO PI, NO PI EXPECTED
0373  4447  JMS I NERROR        /CHECK NON-ERROR HANDLER,
0374  4472  JMS I NERROR        /ERROR: DID DECODER WORK
0375  4473  JMS I ERROR         /TST13 ERROR MESSAGE
0376  1013  TST13
0377  0371  TST13
/TEST DECODER FOR A 6136, NOT CLED
/
TST14,  JMS I XIOTA          /IOT 6131, CLEI
0400  4420  JMS I XIOTJ         /IOT 6136, NOT AN IOT 6132.
0401  4432  JMS I XPIG02         /GO TO PI, PI EXPECTED
0402  4450  JMS I NERROR        /CHECK NON-ERROR HANDLER,
0403  4472  JMS I NERROR        /ERROR: DID DECODER WORK
0404  4473  JMS I ERROR         /TST14 ERROR MESSAGE
0405  1414  TST14
0406  0400  TST14
/TEST DECODER FOR 6137, NOT CLSK
/
TST15,  TAD KT1CPS
0407  1113  DCA REGF
0410  3045  JMS I XIOTC
0411  4422  NOP
0412  7000  JMS I XIOTK
0413  4433  JMS I SKPWAT
0414  4446  JMS I NERROR
0415  7410  JMS I NERROR
0416  4472  JMS I ERROR
0417  4473  JMS I ERROR
0420  0015  TST15
/SET UP TIMER
/IOT 6132, CLED
/IOT 6137, NOT AN IOT 6133
/GO WAIT FOR FLAG
/ERROR, SKIP OCCURRED
/CHECK NON-ERROR HANDLER,
/ERROR: DID DECODER WORK
/TST15 ERROR MESSAGE

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PAL10
0421 0407      TST15      /SCOPE LOOP.
/DOES CLSK ENABLE CLOCK INTERRUPT ?
TST16.      JMS I XIOTC      /IOT 6133, CLSK
NOP
0423 7000      JMS I XPIG01      /GO TO PI, NO PI EXPECTED
0424 4447      JMS I NERROR      /CHECK NON-ERROR HANDLER,
0425 4472      JMS I ERROR      /ERROR: DID CLSK CAUSE INTERRUPT
0426 4473      JMS I ERROR      /TST16 ERROR MESSAGE
0427 1016      I016
0430 0422      TST16      /SCOPE LOOP.
/DOES CLSK DISABLE CLOCK INTERRUPT ?
TST17.      JMS I XIOTA      /IOT 6131, CLEI
0431 4420      JMS I XIOTC      /IOT 6133, CLSK
0432 4422      NOP
0433 7000      JMS I XPIG02      /GO TO PI, PI EXPECTED
0434 4450      JMS I NERROR      /CHECK NON-ERROR HANDLER,
0435 4472      JMS I ERROR      /ERROR: CLSK DISABLED CLOCK INTERRUPT
0436 4473      JMS I ERROR      /TST17 ERROR MESSAGE
0437 1417      I417
0440 0431      TST17      /SCOPE LOOP.
/DOES CLEI CAUSE A SKIP ON FLAG ?
TST20.      TAD KI1CPS
0441 1113      DCA REGF      /SET UP TIMER
0442 3045      JMS I XIOTA      /IOT 6131, CLEI
0443 4420      JMS I SKPWAT      /GO WAIT FOR FLAG
0444 4446      SKP      /ERROR, SKIP OCCURRED
0445 7410      JMS I NERROR      /CHECK NON-ERROR HANDLER,
0446 4472      JMS I ERROR      /ERROR: DID CLEI CAUSE A SKIP
0447 4473      JMS I ERROR      /TST20 ERROR MESSAGE
0450 0020      0020
0451 0441      TST20      /SCOPE LOOP.
/DOES CLED CAUSE A SKIP ON FLAG ?
TST21.      TAD KI1CPS
0452 1113      DCA REGF      /SET UP TIMER
0453 3045      JMS I XIOTB      /IOT 6132, CLED
0454 4421      JMS I SKPWAT      /GO WAIT FOR FLAG
0455 4446      SKP      /ERROR, SKIP OCCURRED
0456 7410      JMS I NERROR      /CHECK NON-ERROR HANDLER,
0457 4472      JMS I ERROR      /ERROR: DID CLED CAUSE A SKIP ON FLAG
0460 4473      JMS I ERROR      /TST21 ERROR MESSAGE
0461 0021      0021
0462 0452      TST21      /SCOPE LOOP.
/DOES INT. RQST STAY DOWN ?
TST22.      JMS I XSYNC      /SYNC WITH CLOCK
0463 4457      JMS I XIOTA      /IOT 6131, CLEI
0464 4420      JMS I XPIG01      /GO TO PI, PI EXPECTED
0465 4447      JMP T22A
0466 5273      ISZ REGB
0467 2041      JMP .-1
0470 5267      /WAIT 15.5 MS

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

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

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

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

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

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

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

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

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

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

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

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0601 1040 TST31, TAD REGA /GET AC NUMBER
0602 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
0603 1070 TAD SEND
0604 4424 JMS I XIOTE /IOT 6131, CLSK
0605 7000 NOP
0606 3071 DCA RECEV /SAVE INPUT FOR ERROR PRINTER
0607 1071 TAD RECEV
0610 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
0611 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
0612 4473 JMS I ERROR /ERROR: CLSK CHANGED AC.

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0613 3031
0614 0601

3031 /TST31 ERROR MESSAGE
TST31 /SCOPE LOOP

/DOES IOT CLOE CHANGE AC?
/CHECK ALL COMBINATIONS

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

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

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

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

/DOES CAF CLEAR BUFFER REGISTER?
/CHECK FOR JAM TO AC, CLBA.

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

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

/DOES CAF CLEAR ENABLE REGISTER?
/CHECK FOR JAM TO AC, CLEN.

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

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

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

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

/DOES AC LOAD BUFFER REGISTER ?
/CHECK ALL 1'S TRANSFER
/CHECK JAM TO AC, CLBA
/
TST40, CLA CLL CMA /AC TO 7777
        0677 7340 /IOT 6133, CLAB
        0700 4427 /CLEAR THE AC AND LINK
        0701 7300 /IOT 6136, CLBA
        0702 4432 /COMPLEMENT THE AC
        0703 7040 /WAS BUFFER ALL 1'S?
        0704 7650 /CHECK NON-ERROR HANDLER
        0705 4472 /ERROR:CLAB OR CLBA FAILED
        0706 4473 /TST40 ERROR MESSAGE
        0707 3440 /SCOPE LOOP
        0710 0677

/DOES BUFFER SURVIVE PATTERN 2525 ?
/
TST41, TAD K2525 /GET AC NUMBER
        0711 1016 /IOT 6133, CLAB
        0712 4427 /COMPLEMENT AC
        0713 7040 /IOT 6136, CLBA
        0714 4432 /CHECK SEND AND RECEV REGISTERS
        0715 4456 /CHECK NON-ERROR HANDLER
        0716 4472 /ERROR: BUFFER OR AC FAILED
        0717 4473 /TST41 ERROR MESSAGE
        0720 3441 /SCOPE LOOP
        0721 0711

/DOES BUFFER SURVIVE PATTERN 5252 ?

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

/DOES CAF REALLY CLEAR BUFFER ?
/TST43, CLA CLA CMA /AC TO ALL 7777
0734 4427 JMS I XIOTG /IOT 6133, CLAB
0735 6007 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 NERRR /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
/TST44, TAD REGA /GET AC NUMBER
0746 1040 JMS I XIOTG /IOT 6133, CLAB
0747 4427 6007 /CAF OR CLEAR THE WORLD
0750 6007 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
0751 3070 CLA CLL CMA
0752 7340 JMS I XIOTJ /IOT 6136, CLBA
0753 4432 SNA CLA /WAS BUFFER ALL 0'S ?
0754 7650 JMS I NERRR /CHECK NON-ERROR HANDLER
0755 4472 JMS I ERROR /ERROR: CAF OR RUFFER FAILED
0756 4473 3444 /TST44 ERROR MESSAGE
0757 3444 TST44 /SCOPE LOOP
0760 0746

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

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

/DOES READING BUFFER CHANGE ITS CONTENTS ?

/AC TO 7777

1000 7340 CLA CLL CMA /GET AC NUMBER
 1001 3040 DCA REGA /IOT 6133, CLAB
 1002 1016 TAD K2525 /COMPLEMENT AC
 1003 4427 JMS I XIOTG /IOT 6136, CLBA
 1004 7040 CMA /CHECK SEND AND RECEV REGISTERS
 1005 4432 JMS I XIOTJ
 1006 4456 JMS I XSNDRV
 1007 7610 SKP CLA

1010 5214 JMP T46A /UPDATE COUNTER
 1011 2041 ISZ REGB /DO 4096 TIMES
 1012 5205 JMP T46B /CHECK NON-ERROR HANDLER
 1013 4472 JMS I NERROR /ERROR: BUFFER FAILED
 1014 4473 JMS I ERROR /TST46 ERROR MESSAGE
 1015 3446 3446 /SCOPE LOOP
 1016 1000 TST46

/DOES READING BUFFER CHANGE ITS CONTENTS ?

/AC TO 7777

1017 7340 CLA CLL CMA /GET AC NUMBER
 1020 3040 DCA REGA /IOT 6133, CLAB
 1021 1017 TAD K5252 /COMPLEMENT AC
 1022 4427 JMS I XIOTG /IOT 6136, CLBA
 1023 7040 CMA /CHECK SEND AND RECEV REGISTERS
 1024 4432 JMS I XIOTJ
 1025 4456 JMS I XSNDRV
 1026 7610 SKP CLA

1027 5233 JMP T47A /UPDATE COUNTER
 1030 2041 ISZ REGB /DO 4096 TIMES
 1031 5224 JMP T47B /CHECK NON-ERROR HANDLER
 1032 4472 JMS I NERROR /ERROR: BUFFER FAILED
 1033 4473 JMS I ERROR /TST47 ERROR MESSAGE
 1034 3447 3447 /SCOPELOOP
 1035 1017 TST47

/DOES BUFFER SURVIVE RANDOM PATTERNS ?

/AC TO 7777

1036 7340 CLA CLL CMA /GET RANDOM NUMBER
 1037 3040 DCA REGA /IOT 6133, CLAB
 1040 4455 JMS I RANDY /COMPLEMENT AC
 1041 4427 JMS I XIOTG /IOT 6136, CLBA
 1042 7040 CMA /CHECK SEND AND RECEV REGISTERS
 1043 4432 JMS I XIOTJ
 1044 4456 JMS I XSNDRV
 1045 7610 SKP CLA

1046 5252 JMP T50A /UPDATE COUNTER
 1047 2041 ISZ REGB /DO 4096 TIMES
 1050 5240 JMP T50B

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

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

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

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

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

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

/DOES CAF REALLY CLEAR ENABLE REGISTER ?
/DO ALL COMBINATIONS
/
TST55,  TAD REGA      /GET AC NUMBER
1130    1040      /IOT 6132, CLOE
1131    4426      /CAF OR CLEAR THE WORLD
1132    6007      /AC TO 7777
1133    7340      /IOT 6134, CLEN
1134    4430      /WAS ENABLE REGISTER ALL 0'S ?
1135    7650      /CHECK NON-ERROR HANDLER
1136    4472      /ERROR: ENABLE REGISTER FAILED
1137    4473      /TST55 ERROR MESSAGE
1140    4455      /SCOPE LOOP
1141    1130

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

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

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

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

/DOES ENABLE REGISTER SURVIVE PATTERN 5252 ?

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

/DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?

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

/DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?

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

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

/CHECK ALL COMBINATIONS

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

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

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

/DOES ENABLE REGISTER SURVIVE RANDOM PATTERN ?

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

/DOES ENABLE REGISTER SURVIVE RANDOM COMPLEMENT PATTERN ?

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

/DOES READING ENABLE REGISTER CHANGE ITS CONTENTS ?

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1316 7340  CLA CLL CMA      /AC TO 7777
1317 3040  DCA REGA
1320 1016  TAD K2525  /GET AC NUMBER
1321 4425  JMS I XIOTF /IOT 6132, CLOE
1322 7340  CLA CLL CMA      /AC TO 7777
1323 4430  JMS I XIOTH  /IOT 6134, CLEN
1324 4436  JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
1325 7610  SKP CLA
1326 5332  JMP T70A
1327 2041  ISZ REGB
1330 5422  JMP T70B
1331 4472  JMS I NERROR /CHECK NON-ERROR HANDLER
1332 4473  JMS I ERROR  /ERROR: ENABLE REGISTER FAILED
1333 4470  4470         /TST70 ERROR MESSAGE
1334 1316  TST70      /SCOPE LOOP

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/DOES READING ENABLE REGISTER CHANGE TIS CONTENTS ?

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1335 7340  CLA CLL CMA      /AC TO 7777
1336 3040  DCA REGA
1337 1017  TAD K2522  /GET AC NUMBER
1340 4425  JMS I XIOTF /IOT 6132, CLOE
1341 7300  CLA CLL      /CLEAR THE AC AND LINK
1342 4430  JMS I XIOTH  /IOT 6134, CLEN
1343 4436  JMS I XSNDRV /CHECK SEND RECEV REGISTERS
1344 7610  SKP CLA
1345 5351  JMP T71A
1346 2041  ISZ REGB
1347 5341  JMP T71B
1350 4472  JMS I NERROR /CHECK NON-ERROR HANDLER
1351 4473  JMS I ERROR  /ERROR: ENABLE REGISTER FAILED
1352 4471  4471         /TST71 ERROR MESSAGE
1353 1335  TST71      /SCOPE LOOP

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/DOES ENABLE REGISTER SURVIVE FAST TOGGLE ?

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1354 1040  TAD REGA
1355 3070  DCA SEND
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 4436  JMS I XSNDRV /CHECK SEND RECEV REGISTERS
1363 4472  JMS I NERROR /CHECK NON-ERROR HANDLER
1364 4473  JMS I ERROR  /ERROR: ENABLE REGISTER FAILED
1365 4472  4472         /TST72 ERROR MESSAGE
1366 1354  TST72      /SCOPE LOOP

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/DOES CLZE CLEAR ENABLE REGISTER?

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1367 7340  CLA CLL CMA      /AC TO 7777
1370 4426  JMS I XIOTF1  /IOT 6132, CLOE
1371 7340  CLA CLL CMA

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1372      4423      JMS I XIOTD      /IOT 6130, CLZE
1373      7300      CLA CLL      /CLEAR THE AC AND LINK
1374      3070      DCA SEND      /SAVE OUTPUT FOR ERROR PRINTER
1375      7340      CLA CLL CMA      /AC TO 7777
1376      4430      JMS I XIOTH      /IOT 6134, CLEN
1377      7650      SNA CLA      /WAS REGISTER ALL 0'S
1400      4472      JMS I NERROR      /CHECK NON-ERROR HANDLER
1401      4473      JMS I ERROR      /ERROR:CLZE OR CLEN FAILED.
1402      4473      4473      /TST73 ERROR MESSAGE
1403      1367      TST73      /SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?
/
TST74,      CLA CLL CMA      /AC TO 7777
1405      4425      JMS I XIOTF      /IOT 6132, CLOE
1406      7300      CLA CLL
1407      4423      JMS I XIOTD      /IOT 6130, CLZE
1410      7340      CLA CLL CMA      /AC TO 7777
1411      3070      DCA SEND      /SAVE OUTPUT ERROR PRINTER
1412      4430      JMS I XIOTH      /IOT 6134, CLEN
1413      7040      CMA CLA      /COMPLEMENT AC
1414      7650      SNA CLA      /WAS REGISTER ALL 0'S?
1415      4472      JMS I NERROR      /CHECK NON-ERROR HANDLER
1416      4473      JMS I ERROR      /ERROR:CLZE OR CLEN FAILED.
1417      4474      4474
1420      1424      TST74      /TST74 ERROR MESSAGE
/SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?
/
TST75,      TAD K2525
1421      1016      JMS I XIOTF      /IOT 6132,CLOE
1422      4425      CMA      /COMPLEMENT THE AC
1423      7040      JMS I XIOTD      /IOT 6130, CLZE
1424      4423      CMA      /COMPLEMENT AC
1425      7040      DCA SEND      /SAVE OUTPUT FOR ERROR PRINTER
1426      3070      JMS I XIOTH      /IOT 6134, CLEN
1427      4430      JMS I XIOTH      /CHECK SEND AND RECEV REGISTERS
1430      4496      JMS I XSNDRV      /CHECK NON-ERROR HANDLER
1431      4472      JMS I NERROR      /ERROR:CLZE,CLOE, OR CLEN FAILED
1432      4473      JMS I ERROR      /TST75 ERROR MESSAGE
1433      4475      4475
1434      1421      TST75      /SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER ?
/
TST76,      TAD K5252
1435      1017      JMS I XIOTF      /GET AC NUMBER
1436      4425      CMA      /IOT 6132, CLOE
1437      7040      JMS I XIOTD      /COMPLEMENT AC
1440      4423      CMA      /IOT 6130, CLZE
1441      3070      DCA SEND      /COMPLEMENT AC
1442      7040      JMS I XIOTH      /SAVE OUTPUT FOR ERROR PRINTER
1443      4430      JMS I XIOTH      /IOT 6134, CLEN
1444      4456      JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1445      4472      JMS I NERROR      /CHECKL NON-ERROR HANDLER
1446      4473      JMS I ERROR      /ERROR: ENABLE REGISTER FAILED
1447      4476      4476      /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, CLOE
JMS I XIOTD /IOT 6130, CLZE
CLA CLL /CLEAR THE AC AND LINK
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
CLA CLL CMA /AC TO ALL 1'S
JMS I XIOTH /IOT 6134, CLEN
SNA CLA /WAS REGISTER ALL 1'S?
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR:CLZE,CLOE, OR CLEN FAILED
4477 /TST77 ERROR MESSAGE
1464 1451 TST77 /SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?
/DO ALL COMBINATIONS
TST100, TAD REGA /GET AC NUMBER
JMS I XIOTF /IOT 6132, CLOE
CMA /COMPLEMENT THE AC
JMS I XIOTD /IOT 6130, CLZE
CMA /COMPLEMENT THE AC
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
JMS I XIOTH /IOT 6134, CLEN
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR:CLZE, CLOE, OR CLEN FAILED
4500 /TST100 ERROR MESSAGE
1500 1465 TST100 /SCOPE LOOP

/DOES CLZE SURVIVE RANDOM PATTERN ?
TST101, JMS I RANDY /GET RANDOM NUMBER
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTD /IOT 6130, CLZE
CLA CLL /CLEAR THE AC AND LINK
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
JMS I XIOTH /IOT 6134, CLEN
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: ENABLE REGISTER FAILED
4501 /TST101 ERROR MESSAGE
1513 1521 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
1516 1515 7040

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PAL10  V141      1517  4423      JMS I XIOTD      /IOT 6130, CLCA
1520  7040      CMA          /COMPLEMENT AC
1521  3070      DCA SEND    /SAVE OUTPUT FOR ERROR PRINTER
1522  4430      JMS I XIOTH   /IOT 6134, CLEN
1523  4456      JMS I XSNDRV  /CHECK SEND AND RECEV REGISTERS
1524  4472      JMS I NERROR  /CHECK NON-ERROR HANDLER
1525  4473      JMS I ERROR   /ERROR: ENABLE REGISTER FAILED
1526  4502      4502          /TST102 ERROR MESSAGE
1527  1514      TST102        /SCOPE LOOP

/DOES CLZE SURVIVE FAST TOGGLE ?
/
TST103, TAD REGA      /GET AC NUMBER
1530  1040      JMS I XIOTF    /IOT 6132, CLOE
1531  4425      JMS I XIOTS3  /IOT'S 6130 AND 6134
1532  4437      DCA RECEV    /SAVE INPUT FOR ERROR PRINTER
1533  3071      TAD RECEV
1534  1071      JMS I XSNDRV  /CHECK SEND RECEV REGISTERS
1535  4456      JMS I NERROR  /CHECK NON-ERROR HANDLER
1536  4472      JMS I ERROR   /ERROR: ENABLE REGISTER FAILED
1537  4473      4503          /TST103 ERROR MESSAGE
1540  4503      TST103        /SCOPE LOOP
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 I'S
1543  7340      JMS I XIOTK   /IOT 6137, CLCA
1544  4433      SNA CLA     /WAS COUNTER ALL 0'S?
1545  7650      JMS I NERROR  /CHECK NON-ERROR HANDLER
1546  4472      JMS I ERROR   /ERROR: CLAB OR CLCA FAILED
1547  4473      4104          /TST104 ERROR MESSAGE
1550  4104      TST104        /SCOPE LOOP
1551  1542

/DOES AC TRANSFER TO BUFFER THEN TO COUNTER?
/
TST105, CLA CLL CMA   /IOT 6133, CLAB
1552  7340      JMS I XIOTG   /IOT 6137, CLCA
1553  4427      JMS I XIOTK   /COMPLEMENT THE AC
1554  4433      CMA          /WAS COUNTER ALL 1'S?
1555  7040      SNA CLA     /CHECK NON-ERROR HANDLER
1556  7650      JMS I NERROR  /ERROR: CLAB OR CLCA FAILED
1557  4472      JMS I ERROR   /TST105 ERROR MESSAGE
1560  4473      4105          /SCOPE LOOP
1561  4105      TST105        /SCOPE LOOP
1562  1552

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

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

/DOES COUNTER SURVIVE FAST TOGGLE?
TST111, TAD REGA      /GET AC NUMBER
DCA SEND      /SAVE OUTPUT FOR ERROR PRINTFM
TAD SEND      /IOT 6133 AND 6137
JMS I XIOT52      /SAVE INPUT FOR ERROR PRINTFM
DCA RECEV      /CHECK SEND AND RECEV REGISTERS
TAD RECEV      /CHECK NON-ERROR HANDLER
JMS I XSNDRV      /ERROR:CLAB OR CLCA FAILED
JMS I NERROR      /TST111 ERROR MESSAGE
JMS I ERROR      /SCOPE LOOP
4111      /SCOPE LOOP
TST111      /SCOPE LOOP

/DOES CAF AFFECT COUNTER ?
TST112, TAD REGA      /GET AC NUMBER
JMS I XIOTG      /IOT 6133, CLAB
6007      /CAF OR CLEAR THE WORLD
JMS I XIOTK      /IOT 6137, CLCA
JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
JMS I NERROR      /CHECK NON-ERROR HANDLER
JMS I ERROR      /ERROR: CLAB OR CLCA FAILED
4112      /TST112 ERROR MESSAGE
TST112      /TST112 ERROR MESSAGE
1631      1040
1632      4427
1633      6007
1634      4433
1635      4426
1636      4472
1637      4473
1640      4112

1605      1040      TST110, TAD REGA      /IOT 6133, CLAB
1606      4427      JMS I XIOTG      /COMPLEMENT THE AC
1607      7040      CMA      /IOT 6137, CLCA
1610      4433      JMS I XIOTK      /CHECK SEND AND RECEV REGISTERS
1611      4496      JMS I XSNDRV      /CHECK NON-ERROR HANDLER
1612      4472      JMS I NERROR      /ERROR: CLAB OR CLCA FAILED
1613      4473      JMS I ERROR      /TST110 ERROR MESSAGE
1614      4110      4110      /SCOPE LOOP
1615      1605      TST110      /SCOPE LOOP

1616      1040      TST111, TAD REGA      /GET AC NUMBER
1617      3070      DCA SEND      /SAVE OUTPUT FOR ERROR PRINTFM
1620      1070      TAD SEND      /IOT 6133 AND 6137
1621      4436      JMS I XIOT52      /SAVE INPUT FOR ERROR PRINTFM
1622      3071      DCA RECEV      /CHECK SEND AND RECEV REGISTERS
1623      1071      TAD RECEV      /CHECK NON-ERROR HANDLER
1624      4426      JMS I XSNDRV      /ERROR:CLAB OR CLCA FAILED
1625      4472      JMS I NERROR      /TST111 ERROR MESSAGE
1626      4473      JMS I ERROR      /SCOPE LOOP
1627      4111      4111      /SCOPE LOOP
1630      1616      TST111      /SCOPE LOOP

1631      1040      TST112, TAD REGA      /GET AC NUMBER
1632      4427      JMS I XIOTG      /IOT 6133, CLAB
1633      6007      6007      /CAF OR CLEAR THE WORLD
1634      4433      JMS I XIOTK      /IOT 6137, CLCA
1635      4426      JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1636      4472      JMS I NERROR      /CHECK NON-ERROR HANDLER
1637      4473      JMS I ERROR      /ERROR: CLAB OR CLCA FAILED
1640      4112      4112      /TST112 ERROR MESSAGE
TST112      /TST112 ERROR MESSAGE

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1641 1631

TST112

/SCOPE LOOP

/DOES READING COUNTER CHANGE ITS CONTENTS?
/PATTERN 2525.

1642 7340 TST113, CLA CLL CMA /AC TO 7777
 1643 3040 DCA REGA
 1644 1016 TAD K2525 /IOT 6133, CLAB
 1645 4427 JMS I XIOTG /IOT 6137, CLCA
 1646 4433 JMS I XIOTK /CHECK SEND AND RECEV REGISTERS
 1647 4456 JMS I XSNDRV
 1650 7410 SKP
 1651 5255 JMP T113A
 1652 2041 ISZ REGB
 1653 5246 JMP T113B
 1654 4472 JMS I NERRR /CHECK NON-ERROR
 1655 4473 JMS I ERROR /ERROR: CLAR OR CLCA FAILED
 1656 4113 TST113 /TST113 ERROR MESSAGE
 1657 1642 TST113 /SCOPE LOOP

/DOES READING COUNTER CHANGE ITS CONTENTS?
/PATTERN 5252

1660 7340 TST114, CLA CLL CMA /AC TO 7777
 1661 3040 DCA REGA
 1662 1017 TAD K2525 /IOT 6133, CLAB
 1663 4427 JMS I XIOTG /IOT 6137, CLCA
 1664 4433 JMS I XIOTK /CHECK SEND AND RECEV REGISTERS
 1665 4456 JMS I XSNDRV
 1666 7410 SKP
 1667 5273 JMP T114A
 1670 2041 ISZ REGB
 1671 5264 JMP T114B
 1672 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
 1673 4473 JMS I ERROR /ERROR: COUNTER FAILED
 1674 4114 TST114 /TST114 ERROR MESSAGE
 1675 1660 TST114 /SCOPE LOOP

/DOES COUNTER SURVIVE RANDOM PATTERN ?

1676 4455 TST115, JMS I RANDY /GET RANDOM NUMBER
 1677 4427 JMS I XIOTG /IOT 6133, CLAB
 1700 7340 CLA CLL CMA
 1701 4433 JMS I XIOTK /IOT 6137, CLCA
 1702 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
 1703 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
 1704 4473 JMS I ERROR /ERROR: COUNTER FAILED
 1705 4115 TST115 /TST115 ERROR MESSAGE
 1706 1676 TST115 /SCOPE LOOP

/TEST FOR NO INT. ROST.

1707 7340

TST116, CLA CLL CMA

/AC TO 7777

PAL10 V141 1710 4427
1711 3040
1712 1142
1713 1147
1714 4425
1715 4447
1716 4472
1717 4473
1720 1116
1721 1707

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JMS I XIOTG /IOT 6133, CLAB
DCA REGA
TAD K0010
JMS I XIOTF /GET ENABLES
JMS I XPIG01 /IOT 6132, CLOE
JMS I NERROR /GO TO PI, NO PI EXPECTED
JMS I ERROR /CHECK NON-ERROR HANDLER
1116 /ERROR: INT. ROST. FAILED
TST116 /TST116. ERROR MESSAGE
/SCOPE LOOP

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

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

TST117, CLA CLL CMA /AC TO 7777
JMS I XIOTG /IOT 6133, CLAB
CLA CLL /CLEAR THE AC AND LINK
TAD K0600 /GET RATE 6
JMS I XIOTF /IOT 6132, CLOE
JMS I XIOTE /IOT 6131, CLSK
SKP /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: CLSK OR OVERFLOW FAILED
JMS I ERROR /TST117 ERROR MESSAGE
0517 /SCOPE LOOP
TST117

/DOES OVERFLOW REMAIN SET ?

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

TST120, CLA CLL CMA /IOT 6133, CLAB
JMS I XIOTG /GET ENABLES
DCA REGA /IOT 6132, CLOE
TAD K0600 /IOT 6131, CLSK
JMS I XIOTF
JMS I XIOTE
JMP T120A
ISZ REGB
JMP --1 /WAIT ABOUT 15 MS
JMS I XIOTE /IOT 6131, CLSK
SKP /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR: CLSK OR OVERFLOW FAILED
JMS I ERROR /TST120 ERROR MESSAGE
0520 /SCOPE LOOP
TST120

/DOES CAF CLEAR THAT FLAG ?

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

TST121, CLA CLL CMA /IOT 6133, CLAB
JMS I XIOTG /GET ENABLES
DCA REGA /IOT 6132, CLOE
TAD K0600 /IOT 6131, CLSK
JMS I XIOTF
JMS I XIOTE
JMP --1 /CAF OR CLEAR THE WORLD
6007 /IOT 6131, CLSK
JMS I XIOTE

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

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

1771 1131 TAD K7773
 1772 3041 DCA REGB
 1773 1015 TAD K0200
 1774 3044 DCA REGE
 1775 7340 CLA CLL CMA
 1776 4427 JMS I XIOTG /AC TO 7777
 1777 3040 DCA REGA /IOT 6133, CLAB
 2000 1044 TAD REGE /GET ENABLES
 2001 4425 JMS I XIOTF /IOT 6132, CLOE
 2002 2043 ISZ REGD
 2003 5202 JMP '-'1 /WAIT
 2004 4424 JMS I XIOTE /IOT 6131, CLSK
 2005 5214 JMP T122A /NO OVERFLOW FOUND
 2006 1013 TAD K0100
 2007 3044 DCA REGE /UPDATE CLOCK RATE
 2010 0007 6007 /CAF OR CLEAR THE WORLD
 2011 2041 ISZ REGB
 2012 5571 JMP I XCRS1
 2013 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
 2014 4473 JMS I ERROR /ERROR: CLSK OR OVERFLOW FAILED
 2015 0522 0522 /TST122 ERROR MESSAGE
 2016 1771 TST122 /SCOPE LOOP

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

2017 1131 TAD K7773
 2020 3041 DCA REGB
 2021 1144 TAD K1000
 2022 1015 TAD K0200
 2023 3044 DCA REGE
 2024 7340 CLA CLL CMA /AC TO 7777
 2025 4427 JMS I XIOTG /IOT 6133, CLAB
 2026 3040 DCA REGA /GET ENABLES
 2027 1044 TAD REGE /IOT 6132, CLOE
 2030 4425 JMS I XIOTF
 2031 2043 ISZ REGD
 2032 5231 JMP '-'1 /WAIT
 2033 4424 JMS I XIOTE /IOT 6131, CLSK
 2034 5243 JMP T123A /NO OVERFLOW FOUND
 2035 1013 TAD K0100
 2036 3044 DCA REGE /UPDATE CLCOK RATE
 2037 0007 6007 /CAF OR CLEAR THE WORLD
 2040 2041 ISZ REGB
 2041 5224 JMP T123B /DO RATES 2-6
 2042 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
 2043 4473 JMS I ERROR /ERROR: CLSK OR OVERFLOW FAILED

2044 0523
2045 2017

0523 /TST123 ERROR MESSAGE
TST123 /SCOPE LOOP

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

2046 1131
2047 3041
2090 1143
2091 1015
2092 3044
2093 7340
2094 4427
2095 3040
2096 1044
2097 4425
2098 2043
2061 5260
2062 4424
2063 5272
2064 1013
2065 3044
2066 0007
2067 2041
2070 5253
2071 4472
2072 4473
2073 0524
2074 2046

TST124, TAD K7773
DCA REGB
TAD K0200
DCA REGE
T124B, CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD REGE
JMS I XIOTF
ISE REGD
JMP I -1
JMS I XIOTE
JMP T124A
TAD K0100
DCA REGE
6007
ISE REGB
JMP T124B
JMS I NERRR
JMS I ERROR
T124A, 0524
TST124
/CAF OR CLEAR THE WORLD
/DO RATES 2-6
/CHECK NON-ERROR HANDLER
/ERROR! CLSK OR OVERFLOW FAILED
/TST124 ERROR MESSAGE
/SCOPE LOOP

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

2075 1131
2076 3041
2077 1120
2100 1015
2101 3044
2102 7340
2103 4427
2104 3040
2105 1044
2106 4425
2107 2043
2110 5307
2111 4424
2112 5320
2113 1013
2114 3044
2115 2041
2116 5302
2117 4472
2120 4473
2121 0525
2122 2075

TST125, TAD K7773
DCA REGB
TAD K3000
TAD K0200
DCA REGE
T125B, CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD REGE
JMS I XIOTF
ISE REGD
JMP I -1
JMS I XIOTE
JMP T125A
TAD K0100
DCA REGE
ISE REGB
JMP T125B
JMS I NERRR
JMS I ERROR
T125A, 0525
TST125
/MAKE ENABLES
/SAVE ENABLES
/IOT 6133, CLAB
/GET ENABLES
/IOT 6132, CLOE
/WAIT ABOUT 15 MS
/IOT 6131, CLSK
/UPDATE RATE
/DO RATES 2-6
/CHECK NON-ERROR HANDLER
/ERROR! CLSK OR OVERFLOW FAILED
/TST125 ERROR MESSAGE
/SCOPE LOOP

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

2123 1122
 2124 3043
 2125 7340
 2126 4427
 2127 3040
 2130 1140
 2131 1041
 2132 4425
 2133 2042
 2134 5333
 2135 4424
 2136 7410
 2137 5347
 2140 0150
 2141 1013
 2142 3041
 2143 6007
 2144 2043
 2145 5325
 2146 4472
 2147 4473
 2150 0126
 2151 2123

TST126, TAD K7770
 DCA REGD
 CLA CLL CMA
 JMS I XIOTG /AC TO 7777
 /IOT 6133, CLAB
 DCA REGA
 TAD K0020
 TAD REGB
 JMS I XIOTF /GET ENABLES
 /IOT 6132, CLOE
 ISE REGC
 JMP :-1
 JMS I XIOTE /WAIT
 /IOT 6131, CLSK
 SKP /OVERFLOW FOUND
 JMP T126A /MASK BITS 3-5
 AND K0700
 TAD K0100
 DCA REGB /UPDATE RATE
 6007 /CAF OR CLEAR THE WORLD
 ISE REGD /DO RATES 0-7
 JMP T126B /CHECK NON-ERROR HANDLER
 JMS I NERRR /ERROR: CLSK OR OVERFLOW FAILED
 JMS I ERROR /TST126 ERROR MESSAGE
 0126 /SCOPE LOOP
 TST126

/DOES CLSK SKIP ON OVERFLOW ?
 /NO SKIP EXPECTED, RATE 0,1,7 MODE 0

2152 7340
 2153 4427
 2154 3040
 2155 4425
 2156 2041
 2157 5356
 2160 4424
 2161 7410
 2162 5572
 2163 1013
 2164 4426
 2165 2042
 2166 5365
 2167 4424
 2170 7410
 2171 5572
 2172 1147
 2173 4426
 2174 2043
 2175 5374
 2176 4424
 2177 4472
 2200 4473
 2201 0127

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

2202 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 XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR! CLSI OR OVERFLOW FAILED
5130 /TST130 ERROR MESSAGE
TST130 /SCOPE LOOP

```

T130A, 5130

/DOES CLSA CLEAR OVERFLOW FLOP ?

```

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

```

/DOES CLSA READ OVERFLOW BIT ?

```

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

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

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

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

TST133, CLA CLL CMA /IOT 6133, CLAB
 2264 7340 JMS I XIOTG /AC TO 4000
 2265 4427 DCA REGA
 2266 3040 CLA CLL IAC RTR
 2267 7313 TAD K0400
 2270 1116 TAD K1000
 2271 1144 JMS I XIOTF1
 2272 4426 JMS I XIOTE
 2273 4424 JMP .-1
 2274 5273 CLA CLL
 2275 7300 JMS I XIOTE
 2276 4433 CMA
 2277 7040 SEA
 2300 7440 JMP T133A
 2301 5306 JMS I XIOTI
 2302 4431 ISZ REGB
 2303 2041 JMP T133B
 2304 5273 JMS I NERROR
 2305 4472 JMS I ERROR
 2306 4473 4133
 2307 4133 TST133
 2310 2264

/GET ENABLES
 /IOT 6132, CLOE
 /IOT 6131, CLSK
 /WAIT FOR FLAG
 /CLEAR THE AC AND LINK
 /IOT 6137, CLCA
 /FOR TESTING
 /WAS COUNTER ALL 1'S ?
 /IOT 6135, CLSA
 /DO TEST 4096 TIMES
 /CHECK NON-ERROR HANDLER
 /ERROR: COUNTER FAILED
 /TST133 ERROR MESSAGE
 /SCOPE LOOP

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

TST134, TAD K5252 /GET AC NUMBER
 2311 1017 JMS I XIOTG /IOT 6133, CLAB
 2312 4427 CLA CLL CMA /AC TO 7777
 2313 7340 DCA REGA
 2314 3040 TAD K1000
 2315 1144 TAD K0400
 2316 1116 JMS I XIOTF1
 2317 4426 JMS I XIOTE
 2320 4424 JMP .-1
 2321 5320 CLA CLL CMA
 2322 7340 JMS I XIOTK
 2323 4433 JMS I XSNDRV
 2324 4456 JMS I NERROR
 2325 4472 JMS I ERROR
 2326 4473 4134
 2327 4134 TST134
 2330 2311

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

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

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

```

2333 7340  CLA  CLL CMA
2334 3040  DCA  REGA
2335 1144  TAD  K1000
2336 1116  TAD  K0400
2337 4426  JMS  I X10YF1
2340 4424  JMS  I X10YE
2341 5340  JMP  :-1
2342 4433  JMS  I X10YK
2343 4456  JMS  I XSNDRV
2344 4472  JMS  I NERROR
2345 4473  JMS  I ERROR
2346 4135  4135
2347 2331  TST135

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

TST136,  CLA  CLL CMA
2350 7340  JMS  I X10TG
2351 4427  DCA  REGA
2352 3040  DCA  SEND
2353 3070  TAD  K0400
2354 1116  TAD  K2000
2355 1143  JMS  I X10YF1
2356 4426  JMS  I X10YE
2357 4424  JMP  :-1
2360 5357  JMS  I X10YK
2361 4433  SNA  CLA
2362 7650  JMS  I NERROR
2363 4472  JMS  I ERROR
2364 4473  4136
2365 4136  TST136
2366 2350

/DOES BUFFER TO COUNTER ON OVERFLOW ?
/AC TO 7777
/10T 6133, CLAB
/SAVE OUTPUT FOR ERROR PRINTER

/GET ENABLES
/10T 6132, CLOE
/10T 6131, CLSK
/WAIT FOR FLAG
/10T 6137, CLCA
/WAS COUNTER ALL 0'S ?
/CHECK NON-ERROR HANDLER
/ERROR: COUNTER FAILED
/TST136 ERROR MESSAGE
/SCOPE LOOP

/DOES BUFFER TO COUNTER ON OVERFLOW ?
/AC TO 7777
/10T 6133, CLAB
/SAVE OUTPUT FOR ERROR PRINTER

/GET ENABLES
/10T 6132, CLOE
/10T 6131, CLSK
/WAIT FOR OVERFLOW
/10T 6137, CLCA
/CHECK SEND AND RECEV REGISTERS
/CHECK NON-ERROR HANDLER
/ERROR: COUNTER FAILED
/TST135 ERROR MESSAGE
/SCOPE LOOP

TST137,  CLA  CLL CMA
2367 7340  JMS  I X10TG
2370 4427  DCA  REGA
2371 3040  DCA  SEND
2372 3070  TAD  K0400
2373 1116  TAD  K3000
2374 1120  JMS  I X10YF1
2375 4426  JMS  I X10YE
2376 4424  JMP  :-1
2377 5376  JMS  I X10YK
2400 7340  CLA  CLL CMA
2401 4433  JMS  I X10YK
2402 7650  SNA  CLA
2403 4472  JMS  I NERROR
2404 4473  JMS  I ERROR
2405 4137  4137
2406 2367  TST137

/DOES INT. WITHOUT BIT 8 ?

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

/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 NERRR
2434  4473  JMS I ERROR
2435  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 NERRR
2447  4473  JMS I ERROR
2450  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
/
TST144, CLA CLL CMA
2466      7340      DCA REGA
2467      3040      JMS I X10TG
2470      4427      TAD K5000
2471      1121      TAD K0010
2472      1142      TAD K0600
2473      1147      JMS I X10TF
2474      4425      JMS I XPIG02
2475      4450      JMS I NERROR
2476      4472      JMS I ERROR
2477      4473      1544
2500      1544      TST144
2501      2466

/DOES COUNTER COUNT ?
/RATE 6, MODE 2
/
TST145, CLA CLL CMA
2502      7340      DCA REGA
2503      3040      JMS I X10TG
2504      4427      TAD K6000
2505      1117      TAD K0010
2506      1142      TAD K0600
2507      1147      JMS I X10TF
2510      4425      JMS I XPIG02
2511      4450      JMS I NERROR
2512      4472      JMS I ERROR
2513      4473      1545
2514      1545      TST145
2515      2502

/DOES COUNTER COUNT ?
/RATE 6, MODE 3
/
TST146, CLA CLL CMA
2516      7340      DCA REGA
2517      3040      JMS I X10TG
2520      4427      TAD K7000
2521      1141      TAD K0010
2522      1142      TAD K0600
2523      1147      JMS I X10TF
2524      4425      JMS I XPIG02
2525      4450      JMS I NERROR
2526      4472      JMS I ERROR
2527      4473      1546
2530      1546      TST146
2531      2516

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

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

```

```

/SET UP ENABLES
/AC TO 7777
/IOT 6133, CLAB
/GET ENABLES
/IOT 6132, CLOE
/GO TO PI, PI EXPECTED
/CAF OR CLEAR THE WORLD
/DO RATES 2-6
/CHECK NON-ERROR HANDLER
/ERROR: OVERFLOW OR MODE FAILED
/TST147 ERROR MESSAGE
/SCOPE LOOP
/MAKE ENABLES
/AC TO 7777
/IOT 6133, CLAB
/GET ENABLES
/IOT 6132, CLOE
/GO TO PI, PI EXPECTED
/CAF OR CLEAR THE WORLD
/CHECK NON-ERROR HANDLER
/ERROR: OVERFLOW OR MODE FAILED
/TST150 ERROR MESSAGE
/SCOPE LOOP

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2610 1117
 2611 1142
 2612 1015
 2613 3044
 2614 7340
 2615 4427
 2616 3040
 2617 1044
 2620 4425
 2621 4447
 2622 5231
 2623 6007
 2624 1013
 2625 1044
 2626 2041
 2627 5213
 2630 4472
 2631 4473
 2632 1551
 2633 2606

T151B,

TAD K0000
 TAD K0010
 TAD K0200
 DCA REGE
 CLA CLL CMA
 JMS I XIOTG
 DCA REGA
 TAD REGE
 JMS I XIOTF
 JMS I XPI001
 JMP T151A
 6007
 TAD K0100
 TAD REGE
 ISZ REGB
 JMP T151B
 JMS I NERRR
 JMS I ERROR
 1551
 TST151

/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
 /TST151 ERROR MESSAGE
 /SCOPE LOOP

/DOES OVERFLOW CAUSE ROST. ?

/RATE 2-6, MODE 3

TST152,

2634 1131
 2635 3041
 2636 1141
 2637 1142
 2640 1015
 2641 3044
 2642 7340
 2643 4427
 2644 3040
 2645 1044
 2646 4425
 2647 4447
 2650 5257
 2651 6007
 2652 1013
 2653 1044
 2654 2041
 2655 5241
 2656 4472
 2657 4473
 2660 1552
 2661 2634

T152B,

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 XPI001
 JMP T152A
 6007
 TAD K0100
 TAD REGE
 ISZ REGB
 JMP T152B
 JMS I NERRR
 JMS I ERROR
 1552
 TST152

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

T152A,

/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,

2662 1142
 2663 3041
 2664 1141
 2665 1142
 2666 1140

TAD K7770
 DCA REGB
 TAD K5000
 TAD K0010
 TAD K0020

2667 3044
 2670 7340
 2671 4427
 2672 3040
 2673 1044
 2674 4425
 2675 4450
 2676 5305
 2677 6027
 2700 1013
 2701 1044
 2702 2041
 2703 5267
 2704 4472
 2705 4473
 2706 1153
 2707 2662

T153B, DCA REGE /MAKE ENABLES
 CLA CLL CMA /AC TO 7777
 JMS I XIOTG /IOT 6133, CLAB
 DCA REGA /GET ENABLES
 TAD REGE /IOT 6132, CLOE
 JMS I XIOTF /GO TO PI, NO PI EXPECTED
 JMS I XPIG02 /CAF OR CLEAR THE WORLD
 JMP T153A
 6007
 TAD K0100
 TAD REGE
 ISZ REGB
 JMP T153B /DO RATE 0-7
 JMS I NERRR /CHECK NON-ERROR HANDLER
 JMS I ERROR /ERROR: OVERFLOW OR CLK ENA FAILED
 1153 /TST153 ERROR MESSAGE
 TST153 /SCOPE LOOP

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

2710 1122
 2711 3041
 2712 1117
 2713 1142
 2714 1140
 2715 3044
 2716 7340
 2717 4427
 2720 3040
 2721 1044
 2722 4425
 2723 4450
 2724 5333
 2725 6027
 2726 1013
 2727 1044
 2730 2041
 2731 5315
 2732 4472
 2733 4473
 2734 1154
 2735 2710

TST154, TAD K7770
 DCA REGB
 TAD K6000
 TAD K0010
 TAD K0020
 DCA REGE /MAKE ENABLES
 CLA CLL CMA /AC TO 7777
 JMS I XIOTG /IOT 6133, CLAH
 DCA REGA /GET ENABLES
 TAD REGE /IOT 6132, CLOE
 JMS I XIOTF /GO TO PI, NO PI EXPECTED
 JMS I XPIG02 /CAF OR CLEAR THE WORLD
 JMP T154A
 6007
 TAD K0100
 TAD REGE
 ISZ REGB /DO RATE 0-7
 JMP T154B /CHECK NON-ERROR HANDLER
 JMS I NERRR /ERROR: OVERFLOW OR CLK ENA FAILED
 JMS I ERROR /TST154 ERROR MESSAGE
 1154 /SCOPE LOOP
 TST154

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

2736 7340
 2737 4427
 2740 7330
 2741 1147
 2742 1142
 2743 4425
 2744 4452
 2745 4427

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

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

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

TST156,  CLA CLL CMA      /AC TO 7777
2751      7340      JMS I XIOTG      /IOT 6133, CLAB
2752      4427      CLA CLL CML RAR
2753      7330      TAD K0010
2754      1142      TAD K0600
2755      1147      JMS I XIOTF      /MAKE ENABLES
2756      4425      JMS I XIOTE      /IOT 6132, CLOE
2757      4424      JMP .-1          /IOT 6131, CLSK
2760      5357      JMS I XPIG04     /WAIT FOR OVERFLOW
2761      4452      JMS I NERR0R     /GO TO PI, PI EXPECTED
2762      4472      JMS I NERR0R     /CHECK NON-ERROR HANDLER
2763      4473      JMS I ERROR      /ERROR: CLSK ON PI FAILED
2764      1556      1556
2765      2751      TST156          /TST156 ERROR MESSAGE
                          /SCOPE LOOP

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

TST157,  CLA CLL CMA      /AC TO 7777
2766      7340      JMS I XIOTG      /IOT 6133, CLAB
2767      4427      CLA CLL CML RAR  /AC TO 4000
2770      7330      TAD K0600
2771      1147      TAD K0010
2772      1142      JMS I XIOTF      /IOT 6132, CLOE
2773      4425      JMS I XIOTE      /IOT 6131, CLSK
2774      4424      JMP .-1          /WAIT FOR OVERFLOW
2775      5374      JMS I XIOTI      /IOT 6135, CLSA
2776      4431      JMS I XPIG03     /GO TO PI, NO PI EXPECTED
2777      4451      JMS I NERR0R     /CHECK NON-ERROR HANDLER
3000      4472      JMS I ERROR      /ERROR: INT, ROST, FAILED
3001      4473      1157
3002      1197      TST157          /TST157 ERROR MESSAGE
3003      2766      /SCOPE LOOP

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

TST160,  CLA CLL CMA      /AC TO 7777
3004      7340      DCA REGA
3005      3040      TAD KTA
3006      1151      DCA KREGC
3007      3076      JMS I XIOTG      /IOT 6133, CLAB
3010      4427      TAD K4000
3011      1014      TAD K0010
3012      1142      TAD K0200
3013      1015      JMS I XIOTF      /MAKE ENABLES
3014      4425      JMS I XPIG05     /IOT 6132, CLOE
3015      4453      SKP CLA
3016      7610      JMS I NERR0R     /CHECK NON-ERROR HANDLER
3017      4472      JMS I ERROR      /ERROR: CLOCK FREQUENCY FAST
3020      4473

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

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3074 2563 /TST163 ERROR MESSAGE
3075 3060 /SCOPE LOOP

2563 /DOES CLOCK FREQUENCY TIME OUT ?
TST163 /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
3105 1014 TAD K4000

3106 1142 TAD K0010
3107 1116 TAD K0400
3110 4425 JMS I XIOTF

3111 4453 JMS I XPIG05
3112 7610 SKP CLA
3113 4472 JMS I NERRR

3114 4473 JMS I ERROR
3115 2164 2164
3116 3076 TST164

3117 7340 /DOES CLOCK FREQUENCY TIME OUT ?
3120 3040 /RATE 4, MODE 0

3121 1155 /TST165, CLA CLL CMA /AC TO 7777
3122 3076 DCA REGA

3123 1157 TAD KTC
3124 3043 DCA KREGC
3125 4427 TAD KTC2

3126 1014 DCA REGD
3127 1142 JMS I XIOTG
3130 1116 TAD K4000

3131 4425 TAD K0010
3132 4453 TAD K0400
3133 4472 JMS I XIOTF

3134 4473 JMS I NERRR
3135 2565 JMS I ERROR
3136 3117 2565 TST165

3137 7340 /DOES CLOCK FREQUENCY TIME OUT ?
3140 3040 /RATE 5, MODE 0

3141 7350 /TST166, CLA CLL CMA /AC TO 7777
3142 4427 DCA REGA

3143 7300 CLA CLL CMA RAR
3144 1160 JMS I XIOTG
3145 3043 CLA CLL

3146 1014 TAD KTO
DCA REGD
TAD K4000

3145 3043 /SET TIMER FOR 10000 CPS CLOCK
3146 1014 /CLEAR THE AC AND LINK

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3147 1142
3150 1146
3151 4425
3152 4447
3153 4472
3154 4473
3155 2166
3156 3137

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TAD K0010
TAD K0500
JMS I XIOTF
JMS I XPIG01
JMS I NERROR
JMS I ERROR
2166
TST166

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/MAKE ENABLES
/IOT 6132, CLOE
/CHECK NON-ERROR HANDLER
/ERROR: CLOCK FREQUENCY FAST
/TST166 ERROR MESSAGE
/SCOPE LOOP

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

3157 7340
3160 3040
3161 7350
3162 4427
3163 7300
3164 1161
3165 3043
3166 1014
3167 1142
3170 1146
3171 4425
3172 4450
3173 4472
3174 4473
3175 2567
3176 3157

TST167, CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL CMA RAR
JMS I XIOTG
CLA CLL
TAD KTD1
DCA REGD
TAD K4000
TAD K0010
TAD K0500
JMS I XIOTF
JMS I XPIG02
JMS I NERROR
JMS I ERROR
2567
TST167
/MAKE ENABLES
/IOT 6132, CLOE
/CHECK NON-ERROR HANDLER
/ERROR: CLOCK FREQUENCY SLOW
/TST167 ERROR MESSAGE
/SCOPE LOOP
/SET TIMER FOR 100000 CPS CLOCK

3177 7340
3200 3040
3201 1162
3202 3043
3203 4427
3204 1014
3205 1142
3206 1147
3207 4425
3210 4447
3211 4472
3212 4473
3213 2170
3214 3177

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 6, MODE 0
TST170, CLA CLL CMA /AC TO 7777
DCA REGA
TAD KTE
DCA REGO
JMS I XIOTG
TAD K4000
TAD K0010
TAD K0600
JMS I XIOTF
JMS I XPIG01
JMS I NERROR
JMS I ERROR
2170
TST170
/MAKE ENABLES
/IOT 6132, CLOE
/CHECK NON-ERROR HANDLER
/ERROR: CLOCK FREQUENCY FAST
/TST170 ERROR MESSAGE
/SCOPE LOOP
/SET TIMER FOR 1000000 CPS CLOCK
/IOT 6133, CLAB

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

3215 7340
3216 3040
3217 1163
3220 3043
3221 4427

TST171, CLA CLL CMA /AC TO 7777
DCA REGA
TAD KTE1
DCA REGD
JMS I XIOTG
/SET TIMER FOR 1000000 CPS CLOCK
/IOT 6133, CLAB

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

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

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

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

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

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

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

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

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

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

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

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

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

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3360 DCA SEND
3361 JMS I XIOTK
3362 CIA
3363 TAD REGB
3364 SNA CLA
3365 JMP T175A
3366 ISZ REGC
3367 JMP T175B
3370 JMP T175A1
3371 ISZ REGB
3372 JMP T175B1
3373 JMS I NERRR
3374 JMS I ERROR
3375 4175
3376 TST175

/DOES COUNTER REALLY COUNT ?
/RATE 2, MODE 2
/
TST176, CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD K0200
TAD K2000
JMS I XIOTF1
CLA CLL
DCA REGC
TAD REGB
DCA SEND
JMS I XIOTK
CIA
TAD REGB
SNA CLA
JMP T176A
ISZ REGC
JMP T176B
JMP T176A1
ISZ REGB
JMP T176B1
JMS I NERRR
JMS I ERROR
4176
TST176

/DOES COUNTER REALLY COUNT ?
/RATE 4, MODE 2
/
TST177, CLA CLL CMA
JMS I XIOTG
DCA REGA
TAD K0400
TAD K2000
JMS I XIOTF1
CLA CLL
DCA REGC
3427 7340
3430 4427
3431 3040
3432 1116
3433 1143
3434 4426
3435 7320
3436 3042

3377 7340
3400 4427
3401 3040
3402 1015
3403 1143
3404 4426
3405 7300
3406 3042
3407 1041
3410 3070
3411 4433
3412 7041
3413 1041
3414 7650
3415 9221
3416 2042
3417 5211
3420 5224
3421 2041
3422 5205
3423 4472
3424 4473
3425 4176
3426 3377

3427 7340
3430 4427
3431 3040
3432 1116
3433 1143
3434 4426
3435 7320
3436 3042

/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
/TST175 ERROR MESSAGE
/SCOPE LOOP

/AC TO 7777
/IOT 6133, CLAB
/GET RATE * MODE
/IOT 6132, CLOE
/CLEAR THE AC AND LINK
/SAVE OUTPUT FOR ERROR PRINTER
/IOT 6137, CLCA
/COMPARE TO THIS REGISTER
/ARE THEY THE SAME YET ?
/YES, TEST NEXT NUMBER
/WAIT ABOUT 15 MS FOR REGISTER
/NUMBER NOT FOUND
/UPDATE COMPARE REGISTER
/TEST FOR NEXT COUNTER PULSE
/CHECK NON-ERROR HANDLER
/ERROR: COUNTER FAILED
/TST176 ERROR MESSAGE
/SCOPE LOOP

/AC TO 7777
/IOT 6133, CLAB
/GET RATE * MODE
/IOT 6132, CLOE
/CLEAR THE AC AND LINK

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3437 1041 TAD REG8
3440 3070 DCA SEND
3441 4433 JMS I X10TK
3442 7041 CIA
3443 1041 TAD REG8
3444 7650 SNA CLA
3445 5251 JMP T177A
3446 2042 ISZ REGC
3447 5241 JMP T177B
3450 5254 JMP T177A1
3451 2041 ISZ REG8
3452 5235 JMP T177B1
3453 4472 JMS I NERRR
3454 4473 JMS I ERROR
3455 4177 TST177
3456 3427 TST177

/DOES COUNTER REALLY COUNT ?
/RATE 4, MODE 3
/
TST200, CLA CLL CMA /AC TO 7777
JMS I X10TG /IOT 6133, CLAR
DCA REGA
TAD K0200
TAD K3000
JMS I X10TF1
T200B1, CLA CLL /GET RATE + MODE
DCA REGC /IOT 6132, CLJE
TAD REG8 /CLEAR THE AC AND LINK
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
JMS I X10TK /IOT 6137, CLCA
CIA /COMPARE TO THIS REGISTER
TAD REG8 /ARE THEY THE SAME YET ?
SNA CLA /YES, TEST NEXT NUMBER
JMP T200A
ISZ REGC
JMP T200B
JMP T200A1
ISZ REG8
JMP T200R1
JMS I NERRR
JMS I ERROR
T200A1, 4200 /WAIT ABOUT 15 MS FOR REGISTR
TST200 /NUMBER NOT FOUND
/SCOPE LOOP

/DO IOT'S AFFECT AC ?
/
TST201, CLA CLL CMA /AC TO 7777
JMS I X10TG /IOT 6133, CLAR
DCA REGA /PASS COUNT 1
6007 /CAF OR CLEAR THE WORLD
TAD K1000
TAD K0200
JMS I X10TF1
JMS I XIOTE /GET ENABLES
/IOT 6132, CLJE
/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 REG8
3525 4432 JMS I XIOTJ
3526 7640 SZA CLA
3527 5351 JMP T201A
3530 1041 TAD REG8
3531 4433 JMS I XIOTK
3532 7640 SZA CLA
3533 5351 JMP T201A
3534 1041 TAD REG8
3535 4430 JMS I XIOTH
3536 7640 SZA CLA
3537 5351 JMP T201A
3540 1041 TAD REG8
3541 4431 JMS I XIOTT
3542 7640 SZA CLA
3543 5351 JMP T201A
3544 4424 JMS I XIOTE
3545 5344 JMP --1
3546 2041 ISZ REG8
3547 5322 JMP T201R
3550 4472 JMS I NERROR
3551 4473 JMS I ERROR
3552 3201 TST201
3553 3527 TST201

3554 4570 JMS I XPASS
3555 5463 JMP I XDK8EP

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

3556 7300 CLA CLL
3557 1112 TAD K7400
3560 3077 DCA LOOP
3561 7340 CLA CLL CMA
3562 3040 DCA REGA
3563 7307 CLA CLL IAC RTL
3564 1142 TAD K0010
3565 4425 JMS I XIOTF
3566 4420 JMS I XIOTG
3567 4472 JMS I NERROR
3570 4473 JMS I ERROR
3571 1602 TST202
3572 3561 TST202

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

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

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

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

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

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

/TYPE PASS COMPLETE
/CONTINUE TESTING

/LOAD LOOP COUNTER
/AC TO 7777

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

/AC TO 7777
/GET ENABLES

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

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

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

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

/DOES INPUT 1 RQST. LAST ?
/
3617  7340  JMS I XIOTF          /IOT 6132, CLOE
3620  3040  JMS I XPIG02         /GO TO PI, PI EXPECTED
3621  7307  JMS I NERROR        /CHECK NON-ERROR HANDLER
3622  1142  JMS I ERROR         /ERROR: INPUT 2 FAILED
3623  4425  TST203          /TST203 ERROR MESSAGE
3624  4447  TST20J           /SCOPE LOOP
3625  5252  TST204          /TST204 ERROR MESSAGE
3626  2041  TST205            /SCOPE LOOP
3627  5226  TST206            /SCOPE LOOP
3630  4450  TST207            /SCOPE LOOP
3631  4472  TST208            /SCOPE LOOP
3632  4473  TST209            /SCOPE LOOP
3633  1605  TST20A          /TST20A ERROR MESSAGE
3634  1617  TST20B          /TST20B ERROR MESSAGE

3635  7340  JMS I XIOTF          /IOT 6132, CLOE
3636  3040  JMS I XPIG02         /GO TO PI, PI EXPECTED
3637  7305  JMS I NERROR        /CHECK NON-ERROR HANDLER
3640  1142  JMS I ERROR         /ERROR: INPUT 2 FAILED
3641  4425  TST203          /TST203 ERROR MESSAGE
3642  4447  TST20J           /SCOPE LOOP
3643  5250  TST204          /TST204 ERROR MESSAGE
3644  2041  TST205            /SCOPE LOOP
3645  5244  TST206            /SCOPE LOOP
3646  4450  TST207            /SCOPE LOOP
3647  4472  TST208            /SCOPE LOOP
3650  4473  TST209            /SCOPE LOOP
3651  1606  TST20A          /TST20A ERROR MESSAGE
3652  1635  TST20B          /TST20B ERROR MESSAGE

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3653 7340 /
3654 3040 /TST207, CLA CLL CMA /AC TO 7777
3655 7324 DCA REGA /AC TO 0001
3656 1142 TAD K0010 /GET ENABLES
3657 4425 JMS I XIOTF /IOT 6132, CLOE
3660 4447 JMS I XPIG01 /GO TO PI, PI EXPECTED
3661 5266 JMS T207A /NO RQST. FOUND
3662 2041 ISZ REG8 /UPDATE COUNTER
3663 5262 JMP *-1 /WAIT 15 MS
3664 4450 JMS I XPIG02 /GO TO PI, PI EXPECTED
3665 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
3666 4473 JMS I ERROR /ERROR: INPUT 1 FAILED
3667 1607 T207A, 1607 /TST207 ERROR MESSAGE
3670 3653 TST207 /SCOPE LOOP

/DOES INPUTS 4,2,1 WITHOUT BIT 8 ?
/
3671 7340 /TST210, CLA CLL CMA /AC TO 7777
3672 3040 DCA REGA /AC TO 7777
3673 7313 CLA CLL IAC RTR /AC TO 4000
3674 1007 TAD K0007
3675 1147 TAD K0600
3676 4425 JMS I XIOTF /IOT 6132, CLOE
3677 4447 JMS I XPIG01 /GO TO PI, NO PI EXPECTED
3700 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
3701 4473 JMS I ERROR /ERROR:ENABLE BIT 8 FAILED
3702 1210 1210 /TST210 ERROR MESSAGE
3703 3671 TST210 /SCOPE LOOP

/DOES INPUT 4 CAUSE SKIP ?
/
3704 7340 /TST211, CLA CLL CMA /AC TO 7777
3705 3040 DCA REGA /AC TO 7777
3706 1113 TAD K11CPS
3707 3045 DCA REGF
3710 7307 CLA CLL IAC RTL /AC TO 0004
3711 4425 JMS I XIOTF /IOT 6132, CLOE
3712 4424 JMS I XIOTE /IOT 6131, CLSK
3713 4446 JMS I SKPWAT /LET'S WAIT FOR A FLAG
3714 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
3715 4473 JMS I ERROR /ERROR: INPUT 4 OR SKIP FAILED
3716 0611 0611 /TST211 ERROR MESSAGE
3717 3704 TST211 /SCOPE LOOP

/DOES INPUT 2 CAUSE SKIP ?
/
3720 7340 /TST212, CLA CLL CMA /AC TO 7777
3721 3040 DCA REGA /AC TO 7777
3722 1113 TAD K11CPS
3723 3045 DCA REGF
3724 7326 CLA CLL CML RTL /AC TO 0002
3725 4425 JMS I XIOTF /IOT 6132, CLOE
3726 4424 JMS I XIOTE /IOT 6131, CLSK
3727 4446 JMS I SKPWAT /LET'S WAIT FOR A FLAG

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

/DOES INPUT 1 CAUSE SKIP ?

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

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

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

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

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

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

4025 7340
4026 3040
4027 7307
4030 4425
4031 4424
4032 5211
4033 6007
4034 7307
4035 4425
4036 4424
4037 5216
4040 6007
4041 7307
4042 4425
4043 4424
4044 4472
4045 4473
4046 0217
4047 4025

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

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

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

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

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

/DOES CAF CLEAR INTPUT 3 ROST, ?
 /

4073 TST221, CLA CLL CMA /AC TO 7777
 3040 DCA REGA
 7301 CLA CLL IAC /AC TO 0001
 4425 JMS I XIOTF /IOT 6132, CLOE
 4424 JMS I XIOTE /IOT 6131, CLSK
 5277 JMP .-1 /WAIT FOR FIRST FLAG
 6007 /CAF OR CLEAR THE WORLD
 7301 CLA CLL IAC /AC TO 0001
 4425 JMS I XIOTF /IOT 6132, CLOE
 4424 JMS I XIOTE /IOT 6131, CLSK
 5304 JMP .-1 /WAIT FOR SECONED FLAG
 6007 /CAF OR CLEAR THE WORLD
 7301 CLA CLL IAC /IOT 6132, CLOE
 4425 JMS I XIOTF /IOT 6131, CLSK
 4424 JMS I XIOTE /CHECK NON-ERROR HANDLER
 4472 JMS I NERRR /ERROR: INPUT 1 SKIP OR ROST, FAILED
 4473 JMS I ERROR /TST221 ERROR MESSAGE
 0221 /SCOPE LOOP
 4114 TST221
 4073

/DOES CLSA READ ROST, INPUT 4 ?
 /

4116 TST222, CLA CLL CMA /AC TO 7777
 3040 DCA REGA
 7307 CLA CLL IAC RTL /AC TO 0004
 4425 JMS I XIOTF /IOT 6132, CLOE
 4424 JMS I XIOTE /IOT 6131, CLSK
 5322 JMP .-1 /WAIT FOR FLAG
 7040 CMA /AC TO 7773
 4431 JMS I XIOTI /IOT 6135, CLSA
 4436 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
 4472 JMS I NERRR /CHECK NON-ERROR HANDLER
 4473 JMS I ERROR /ERROR: CLSA OR INPUT 4 FAILED
 5222 /TST222 ERROR MESSAGE
 4131 TST222 /SCOPE LOOP
 4116

/DOES CLSA READ ROST, INPUT 2 ?
 /

4133 TST223, CLA CLL CMA /AC TO 7777
 3040 DCA REGA
 7305 CLA CLL IAC RAL /AC TO 0002
 4425 JMS I XIOTF /IOT 6132, CLOE
 4424 JMS I XIOTE /IOT 6131, CLSK
 5337 JMP .-1 /WAIT FOR FLAG
 7040 CMA /AC TO 7775

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4142 4931 JMS I XIOTI /IOT 6135, CLSA
4143 4496 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4144 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
4145 4473 JMS I ERROR /ERROR: CLSA OR INPUT 2 FAILED
4146 9223 5223 /TST223 ERROR MESSAGE
4147 4133 TST223 /SCOPE LOOP

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

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

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

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PAL10  V141
4220  4473      JMS I ERROR      /ERROR: CLSA OR INPUT 2 FAILED
4221  0226      0226          /TST226 ERROR MESSAGE
4222  4204      TST226          /SCOPE LOOP
/
/DOES CLSA CLEAR INPUT 4 ROST. ?
/
TST227,  CLA CLL CMA      /AC TO 7777
DCA REGA
CLA CLL IAC
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 NERROR    /CHECK NON-ERROR HANDLER
JMS I ERROR     /ERROR: CLSA OR INPUT 1 FAILED
0227
TST227          /TST227 ERROR MESSAGE
/SCOPE LOOP
/
/DOES CLSA READ INPUT 4,2,1 ?
/
TST230,  CLA CLL CMA      /AC TO 7777
DCA REGA
TAD K0007
JMS I XIOTF      /GET ENABLES
NOP
ISE REGB
JMP -2
JMS I XIOTE      /WAIT FOR ALL
JMS I XIOTE      /IOT 6131, CLOE
JMP -1          /WAIT FOR FLAGS
CLA CLL CMA
JMS I XIOTI      /IOT 6135, CLSA
JMS I XSNDRV
SKP CLA
JMP T230A
DCA SEND
CLA CLL CMA
JMS I XIOTI      /IOT 6135, CLSA
SNA CLA
JMS I NERROR    /WAS STATUS ALL 0'S ?
JMS I ERROR     /CHECK NON-ERROR HANDLER
JMS I ERROR     /ERROR: CLSA OR INPUTS 1,2,3 FAILED
5230
TST230          /TST230 ERROR MESSAGE
/SCOPE LOOP
/
/DOES INPUT 4 CLEAR BIT 7 ?
/
TST231,  CLA CLL CMA
DCA REGA
CLA CLL IAC RTL /AC TO 0004
DCA SEND
TAD SEND
TAD K0020
GET ENABLES

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

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/DOES INPUT 2 CLEAR BIT 7 ?

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

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/DOES INPUT 1 CLEAR BIT 7 ?

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

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

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

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4353 4427 JMS I XIOTG /IOT 6133, CLAB
4354 7307 CLA CLL IAC RTL /AC TO 0004
4355 1100 TAD K3000 /GET ENABLES
4356 4426 JMS I XIOTF1 /IOT 6132, CLOE
4357 4424 JMS I XIOTE /IOT 6131, CLSK
4360 5357 JMP --1 /WAIT FOR FLAG
4361 7300 CLA CLL /SAVE OUTPUT FOR ERROR PRINTER
4362 3070 DCA SEND /AC TO 7777
4363 7340 CLA CLL CMA /IOT 6137, CLCA
4364 4433 JMS I XIOTK /WAS COUNTER ALL 0'S ?
4365 7650 SNA CLA /CHECK NON-ERROR HANDLER
4366 4472 JMS I NERROR /ERROR: CLR CNT FAILED
4367 4473 JMS I ERROR /TST234 ERROR MESSAGE
4370 4234 4234 /SCOPE LOOP
4371 4350 TST234

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

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4372 7340 CLA CLL CMA /AC TO 7777
4373 3040 DCA REGA
4374 1017 TAD K252
4375 4427 JMS I XIOTG /GET AC NUMBER
4376 7305 CLA CLL IAC RAL /IOT 6133, CLAB
4377 1100 TAD K3000 /AC TO 0002
4400 4426 JMS I XIOTF1 /GET ENABLES
4401 4424 JMS I XIOTE /IOT 6132, CLOE
4402 5201 JMP --1 /IOT 6131, CLSK
4403 7300 CLA CLL /WAIT FOR FLAG
4404 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
4405 7340 CLA CLL CMA /AC TO 7777
4406 4433 JMS I XIOTK /IOT 6137, CLCA
4407 7650 SNA CLA /WAS COUNTER ALL 0'S ?
4410 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
4411 4473 JMS I ERROR /ERROR: CLR CNT FAILED ?
4412 4235 4235 /TST235 ERROR MESSAGE
4413 4372 TST235 /SCOPE LOOP

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

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4414 7340 CLA CLL CMA /AC TO 7777
4415 3040 DCA REGA
4416 1016 TAD K2525 /GET AC NUMBER
4417 4427 JMS I XIOTG /IOT 6133, CLAB
4420 6007 6007 /CAF OR CLEAR THE WORLD
4421 7301 CLA CLL IAC /AC TO 0001
4422 1100 TAD K3000 /GET ENABLES
4423 4426 JMS I XIOTF1 /IOT 6132, CLOE
4424 4424 JMS I XIOTE /IOT 6131, CLSK
4425 5224 JMP --1 /WAIT FOR FLAG
4426 7340 CLA CLL CMA /AC TO 7777
4427 4432 JMS I XIOTJ /IOT 6136, CLBA
4430 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4431 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
4432 4473 JMS I ERROR /ERROR: COUNTER TO BUFFER FAILED

```

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9-OCT-71      15:44      PAGE 1-53
PAL10  V141      4433 3636      /TST236 ERROR MESSAGE
          4434 4414      /SCOPE LOOP
          3636
          TST236
/DOES INPUT 4,2,1 TRANSFER COUNTER TO BUFFER ?
/
TST237, CLA CLL CMA      /AC TO 7777
DCA REGA
/GET AC NUMBER
TAD K252      /IOT 6133, CLAB
JMS I XIOTG      /CAF OR CLEAR THE WORLD
6007      /AC TO 0001
CLA CLL IAC      /GET ENABLES
TAD K300      /IOT 6132, CLOE
JMS I XIOTF1      /IOT 6131, CLSK
JMS I XIOTE      /WAIT FOR FLAG
JMP -1      /AC TO 7777
CLA CLL CMA      /IOT 6136, CLBA
JMS I XIOTJ      /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV      /CHECK NON-ERROR HANDLER
JMS I NERROR      /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 XIOTG      /CAF OR CLEAR THE WORLD
6007      /AC TO 0004
CLA CLL IAC RTL      /GET ENABLES
TAD K2000      /IOT 6132, CLOE
JMS I XIOTF1      /IOT 6131, CLSK
JMS I XIOTE      /WAIT FOR FLAG
JMP -1      /AC TO 7777
CLA CLL CMA      /IOT 6137, CLCA
JMS I XIOTK      /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV      /CHECK NON-ERROR MESSAGE
JMS I NERROR      /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 K252      /IOT 6133, CLAB
JMS I XIOTG      /CAF OR CLEAR THE WORLD
6007      /AC TO 0002
CLA CLL IAC RAL      /GET ENABLES
TAD K2000

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

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

4477 7340
4500 3040
4501 1017
4502 4427
4503 6027
4504 7305
4505 1143

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PAL10      V141      4506      JMS I XIOTF1      /IOT 6132, CLOE
          4507      4426      JMS I XIOTE      /IOT 6131, CLSK
          4510      4424      JMP --1          /WAIT FOR FLAG
          4511      5307      CLA CLL CMA     /AC TO 7777
          4512      7340      JMS I XIOTK    /IOT 6137, CLCA
          4513      4433      JMS I XSNDRV  /CHECK SEND AND RECEV REGISTERS
          4514      4436      JMS I NERROR  /CHECK NON-ERROR HANDLER
          4515      4472      JMS I NERROR  /ERROR: CLR CNT FAILED, MODE 2
          4516      4473      JMS I NERROR  /TST241 ERROR MESSAGE
          4517      4241      TST241        /SCOPE LOOP
          4517      4477

/DOES COUNTER TRANSFER TO BUFFER ?
/MODE 2, RATE 0
/
TST242, CLA CLL CMA      /AC TO 7777
DCA REGA
TAD K2525
JMS I XIOTG
6007
CLA CLL IAC RTL
TAD K200E
JMS I XIOTF1
JMS I XIOTE
JMP --1
CLA CLL CMA
JMS I XIOTJ
JMS I XSNDRV
JMS I NERROR
JMS I NERROR
3642
TST242
/DOES COUNTER TRANSFER TO BUFFER ?
/MODE 2, RATE 0
/
TST243, CLA CLL CMA      /AC TO 7777
DCA REGA
TAD K2525
JMS I XIOTG
6007
CLA CLL IAC RAL
TAD K2000
JMS I XIOTF1
JMS I XIOTE
JMP --1
CLA CLL CMA
JMS I XIOTJ
JMS I XSNDRV
JMS I NERROR
JMS I NERROR
3643
TST243
/DOES INPUT 4,2,1 AFFECT MODE 0 ?
/
          4520      7340      JMS I XIOTG    /IOT 6132, CLOE
          4521      3040      JMS I XIOTE    /IOT 6131, CLSK
          4522      1016      JMP --1        /WAIT FOR FLAG
          4523      4427      CLA CLL CMA     /AC TO 7777
          4524      6007      JMS I XIOTK    /IOT 6137, CLCA
          4525      7307      JMS I XSNDRV  /CHECK SEND AND RECEV REGISTERS
          4526      1143      JMS I NERROR  /CHECK NON-ERROR HANDLER
          4527      4426      JMS I NERROR  /ERROR: CLR CNT FAILED, MODE 2
          4530      4424      JMS I NERROR  /TST241 ERROR MESSAGE
          4531      5330      TST241        /SCOPE LOOP
          4532      7340      JMS I XIOTG    /IOT 6132, CLOE
          4533      4432      JMS I XIOTE    /IOT 6131, CLSK
          4534      4436      JMP --1        /WAIT FOR FLAG
          4535      4472      CLA CLL CMA     /AC TO 7777
          4536      4473      JMS I XIOTK    /IOT 6137, CLCA
          4537      3642      JMS I XSNDRV  /CHECK SEND AND RECEV REGISTERS
          4540      4520      JMS I NERROR  /CHECK NON-ERROR HANDLER
          4541      7340      JMS I NERROR  /ERROR: COUNTER TO BUFFER FAILED
          4542      3040      TST242        /SCOPE LOOP
          4543      1017      JMS I XIOTG    /IOT 6132, CLOE
          4544      4427      JMS I XIOTE    /IOT 6131, CLSK
          4545      6007      JMP --1        /WAIT FOR FLAG
          4546      7305      CLA CLL IAC RAL /AC TO 0002
          4547      1143      TAD K2000      /GET ENABLES
          4550      4426      JMS I XIOTF1  /IOT 6132, CLOE
          4551      4424      JMS I XIOTE    /IOT 6131, CLSK
          4552      5351      JMS I XSNDRV  /CHECK SEND AND RECEV REGISTERS
          4553      7340      JMS I NERROR  /CHECK NON-ERROR HANDLER
          4554      4432      JMS I NERROR  /ERROR: COUNTER TO BUFFER FAILED
          4555      4436      JMS I NERROR  /TST243 ERROR MESSAGE
          4556      4472      TST243        /SCOPE LOOP
          4557      4473      JMS I NERROR
          4560      3643
          4561      4541

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

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```

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

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```

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

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```

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

```

```

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

```

```

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

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

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

```

```

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

/DOES INPUT 4,2,1 AFFECT MODE 1 ?
/
TST247, CLA CLL CMA /AC TO 7777
DCA REGA
TAD K0252 /GET AC NUMBER
JMS I XIOTG /IOT 6133, CLAB
CLA CLL IAC RTL /AC TO 0004
TAD K1000
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, CL9A
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: MODE 1 FAILED
3647 /TST247 ERROR MESSAGE
TST247 /SCOPE LOOP

/DOES CLSA READ INPUTS 4,2,1 ?
/
TST250, CLA CLL CMA /AC TO 7777
DCA REGA
TAD K0007 /GET ENABLES
JMS I XIOTF1 /IOT 6132, CLOE
NOP
ISZ REGB
JMP .-2 /WAIT FOR ALL
JMS I XIOTE /IOT 6131, CLSK
JMP .-1
JMS I XIOTD /IOT 6130, CL9E
CLA CLL /CLEAR THE AC AND LINK
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
CLA CLL CMA /AC TO 7777
JMS I XIOTI /IOT 6135, CLSA
SNA CLA /WAS STATUS ALL 0'S ?
JMS I NERRR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR: INPUT 4,2,1 OR STATUS FAILED
5250 /TEST250 ERROR MESSAGE
TST250 /SCOPE LOOP

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

```

```

4706 7340
4707 3040
4710 1007
4711 4425
4712 7000
4713 2041
4714 5312
4715 4424
4716 5315
4717 7340
4720 4431

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4721  4426  JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4722  4472  JMS I NERROR /CHECK NON-ERROR HANDLER
4723  4473  JMS I ERROR /ERROR: CLSA OK STATUS REGISTER
4724  5251  TST251 /TST251 ERROR MESSAGE
4725  4706  TST251 /SCOPE LOOP
/
4726  7300  CLA CLL
4727  2077  ISZ LOOP
4730  5464  JMP I XMITT /DO TEST 4096 TIMES
4731  4570  JMS I XPASS /TYPE PASS COMPLETE
4732  5465  JMP I XMITT1 /CONTINUE TESTING
/
/NON-ERROR HANDLER FOR PROGRAM
/
*5000
5000  NERROR, 0000 /CAF OR CLEAR THE WORLD
5001  6027  ISZ NERROR
5002  2200  ISZ NERROR
5003  2200  ISZ REGA
5004  2040  JMP OUT /CLEAR ALL REGISTERS
5005  5215  JMS I XCLREG
5006  4460  LAS /IS IT LOOP ON NON-
5007  7624  AND K0040 /FAILING TEST.
5010  0137  SZA CLA
5011  7640  JMP OUT
5012  5215  ISZ NERROR
5013  2200  JMP I NERROR /TO NEXT TEST
5014  5620
/
OUT,
5015  1620  TAD I NERROR
5016  3220  DCA ERRO
5017  5620  JMP I ERRO
/
/ERROR HANDLER FOR PROGRAM
/
ERRO, 0020 /CAF OR CLEAR THE WORLD
5021  6027  6007 /CHECK SWR2 FOR INH. PRINT
5022  7624  LAS /GET ERROR MESSAGE
5023  7026  RTL /RING BELL
5024  7720  SNA CLA
5025  4523  JMS I XSORT
5026  4510  JMS I XBELL
5027  4460  JMS I XCLREG
5030  2220  ISZ ERRO
5031  7624  LAS
5032  0015  AND K0200
5033  7650  SNA CLA
5034  7482  HLT
EHLT1,
/
5035  7624  LAS
5036  0013  AND K0100
5037  7640  SZA CLA
5040  5243  JMP IN
5041  2220  ISZ ERRO
/
/CHECK SWR4 FOR INH. HLT
/MONITOR ERROR HALT, READ TYPEOUT
/AND REFERENCE LISTING.
/
/CHECK SWR5 FOR SCOPE LOOP

```

```

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

```

/CLEAR THE AC AND LINK

/FIELD SERVICE CHANGE

/FIELD SERVICE CHANGE

/FIELD SERVICE CHANGE

5121	0000	IOTD,	0000	
5122	3070		DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER
5123	1070		TAD SEND	
5124	6130		6130	/FIELD SERVICE CHANGE
5125	5721		JMP I IOTD	
5126	7402	EHLT2,	HLT	/SKIP TRAP, CL4E
5127	0000	/		
5130	6131	IOTE,	0000	/FIELD SERVICE CHANGE
5131	5727		6131	
5132	2027		JMP I IOTE	
5133	5727		ISZ IOTE	
			JMP I IOTE	
5134	0000	/		
5135	3070	IOTF,	0000	/SAVE OUTPUT FOR ERROR PRINTER
5136	1070		DCA SEND	
5137	6132		TAD SEND	/FIELD SERVICE CHANGE
5140	5734		6132	
5141	7402	EHLT3,	JMP I IOTF	/SKIP TRAP, CL0E
		/	HLT	
5142	0000	IOTF1,	0000	/FIELD SERVICE CHANGE
5143	6132		6132	
5144	5742		JMP I IOTF1	
5145	7402	EHLT4,	HLT	/SKIP TRAP, CL0E
		/		
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	7402	EHLT5,	HLT	/SKIP TRAP, CL4B
		/		
5154	0000	IOTH,	0000	/FIELD SERVICE CHANGE
5155	6134		6134	
5156	7410		SKP	
5157	7402		HLT	/SKIP TRAP, CL0N
5160	3071	EHLT6,	DCA RECEV	/SAVE OUTPUT FOR ERROR PRINTER
5161	1071		TAD RECEV	
5162	5754		JMP I IOTH	
5163	0000	/		
5164	6135	IOTI,	0000	/FIELD SERVICE CHANGE
5165	7410		6135	
5166	7402		SKP	
5167	3071	EHLT7,	HLT	/SKIP TRAP, CL5A
5170	1071		DCA RECEV	/SAVE OUTPUT FOR ERROR PRINTER
5171	5763		TAD RECEV	
			JMP I IOTI	
5200	0000	/		
5201	6136	*5200		/FIELD SERVICE CHANGE
5202	7410	/		
5203	7402	IOTJ,	0000	/SKIP TRAP, CLBA
5204	3071		6136	/SAVE OUTPUT FOR ERROR PRINTER
			SKP	
			HLT	
			DCA RECEV	


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PAL10 V141 5205 1071 TAD RECEV
5206 5600 JMP I IOTJ

/ IOTK, 0000 /FIELD SERVICE CHENGE
5207 0000
5210 6137 SKP
5211 7410 EHLT11, HLT
5212 7402 DCA RECEV /SKIP TRAP, CLCA
5213 3071 TAD RECEV /SAVE OUTPUT FOR ERROR PRINTER
5214 1071 JMP I IOTK
5215 5607

/ SNDRV, 0000
5216 0000
5217 7041 CIA
5220 1070 TAD SEND
5221 7640 SZA CLA /WAS SEND AND RECEV THE SAME ?
5222 2216 ISZ SNDRV
5223 5616 JMP I SNDRV

/ RANDOM, 0000
5224 0000
5225 1044 TAD REGE
5226 7004 RAL
5227 7430 SFL
5230 1410 TAD I 10
5231 3044 DCA REGE
5232 1044 TAD REGE
5233 5624 JMP I RANDOM
5234 0000
5235 7300 PIG05,

5236 1254 CLA CLL /CLEAR THE AC AND LINK
5237 3002 TAD PRET5 /SET FOR PI RETURN
5240 6001 ION
5241 7300 CLA CLL /CLEAR THE AC AND LINK
5242 1076 TAD KREGC
5243 3042 DCA REGC
5244 4433 JMS I XIOTK
5245 2042 ISZ REGC
5246 5245 JMP .-1
5247 2043 ISZ REGD
5250 5241 JMP .-7
5251 2254 ISZ PIG05
5252 6002 PIRET5, IOF /DISABLE PROGRAM INTERRUPT
5253 5634 JMP I PIG05

/ PIRET5, PIRET5
5254 5252

/ PIG01, 0000
5255 0000 CLA CLL /CLEAR THE AC AND LINK
5256 7300 TAD PRET1
5257 1267 DCA 2 /SET FOR PI RETURN
5260 3002 ION /ENABLE PROGRAM INTERRUPT
5261 6001 JMS I XISE
5262 4454 SKP
5263 7410 PIRET1, ISZ PIG01
5264 2255 IOF PIG01 /DISABLE PROGRAM INTERRUPT
5265 6002 JMP I PIG01
5266 5655

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5267 5264 / PRET1, 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 6001 ION
5275 4454 JMS I XISZ /WAIT
5276 2270 ISZ PIG02
5300 5670 PIRET2, IOF I PIG02

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

5310 0000 / ISZLOP, 0000
5311 7300 CLA CLL
5312 1113 TAD KTI1CPS
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 6001 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 6001 ION
5343 7000 NOP
5344 2336 ISZ PIG04
5345 6002 RETD, IOF

```

JMP I PIG04

PRETD, RETD

IOTS,

5346 5736

0000

6132

5350 0000

6134

6132

5351 6132

6134

6132

5352 6134

6132

6134

5353 6132

6132

6134

5354 6134

6134

6132

5355 6132

JMP I IOTS

6134

5356 6134

JMP I IOTS

5750

5357 5750

IOTS1,

0000

5360 0000

6133

6136

5361 6133

6133

6136

5362 6136

6136

6133

5363 6133

6136

6133

5364 6136

6133

6136

5365 6133

6136

JMP I IOTS1

5366 6136

JMP I IOTS1

5760

5367 5760

IOTS2,

0000

5370 0000

6137

6137

5371 6133

6137

6133

5372 6137

6137

6137

5373 6133

6133

6137

5374 6137

6133

6137

5375 6133

JMP I IOTS2

6137

5376 6137

JMP I IOTS2

5770

5377 5770

*5400

IOTS3,

5400

0000

6134

5400 0000

CMA

6130

5401 6134

CMA

6134

5402 7040

CMA

6130

5403 6130

CMA

6134

5404 7040

CMA

6130

5405 6134

CMA

6130

5406 7040

CMA

6134

5407 6130

CMA

6134

5410 7040

JMP I IOTS3

5620

5412 5620

CLOCK,

0000

5413 0000

LAS

K0007

5414 7604

DCA

CLOCKS

5415 0007

JMP I CLOCK

5613

5416 3075

JMP I CLOCK

5613

5417 5613

/ROUTINE TO TYPE OCTAL NUMBERS

/ENTER WITH NUMBER IN AC AND LINK 0

5420 0000

OCTEL,

0000

5420 0000

```

5421 7006 RTL
5422 7006 RTL
5423 3041 DCA REGB
5424 1130 TAD K7774
5425 3042 DCA REGC
5426 1041 TAD REGB
5427 0007 AND K0007
5430 1143 TAD K0260
5431 4507 JMS I XTYPE
5432 1041 TAD REGB
5433 7006 RTL
5434 7004 RAL REGB
5435 3041 DCA REGC
5436 2042 ISZ REGC
5437 5226 JMP I-11
5440 5620 JMP I OCTEL

```

```

/ROUTINE FOR CRLF
CRLF, 0000

```

```

5441 0000 CLA CLL
5442 7300 TAD K0215
5443 1134 JMS I XTYPE
5444 4507 TAD K0212
5445 1135 JMS I XTYPE
5446 4507 JMP I CRLF
5447 5641

```

```

/ROUTINE TO TYPE CLOCK
POPR, 0000

```

```

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

```

```

/ KTADCK, TAD CLKNO
CLKNO, 0001

```

```

5463 0001 0050
5464 0050 0100
5465 0100 0120
5466 0120 0500
5467 0500 5000
5470 5000

```

```

/ROUTINE TO SORT ERROR MESSAGES
SORT, 0000

```

```

5471 0000 CLA CLL
5472 7300 JMS I XCRLF
5473 4501 TAD I ERROR
5474 1473 DCA REGE
5475 3044

```

```

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

```

PAL10	V141	9-OCT-71	15144	PAGE 1-64	
5476	4525	JMS I XMESS		/GO PRINT TEST + ADDRESS	
5477	1444	TAD I REGE			
5500	7012	RTR			
5501	7012	RTR			
5502	7012	RTR			
5503	7012	RTR			
5504	0127	AND K0017		/MOVE IT TO BITS 8-11	
5505	3044	DCA REGE		/MASK 0-11	
5506	7300	CLA CLL		/SAVE POINTER	
5507	1044	TAD REGE		/CLEAR THE AC AND LINK	
5510	1326	TAD KTADM		/GET POINTER	
5511	3312	DCA +1			
5512	1326	TAD KTADM		/MODIFIED BY TEST	
5513	3316	DCA +3		/STORE MESSAGE POINTER	
5514	4521	JMS I XCRLF		/CRLF	
5515	4526	JMS I XPRINT		/PRINT MESSAGE	
5516	0000	0000		/MODIFIED MESSAGE POINTER	
5517	7300	CLA CLL			
5520	1044	TAD REGE		/GET MESSAGE POINTER	
5521	1132	TAD K7772		/IS IT GREATER THAN	
5522	7620	SNL CLA			
5523	5671	JMP I SORT			
5524	4502	JMS I XREG			
5525	5671	JMP I SORT			
5526	1327	KTADM, TAD KTMX			
5527	6107	KTMX,			
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	0020	MESS,			
5543	7320	CLA CLL		/CLEAR THE AC AND LINK	
5544	4521	JMS I XCRLF		/CRLF	
5545	4526	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	4524	JMS I XOCYEL		/GO PRINT NUMBER	
5554	2043	ISZ REGD		/UPDATE POINTER	
5555	4526	JMS I XPRINT		/GO PRINT STARTING ADDRESS	
5556	6051	AMES			
5557	1443	TAD I REGD			

```

/
PAL10 V141 9-OCT-71 15144 PAGE 1-65
5560 4524 JMS I XOCTEL /GO PRINT NUMBER
5561 7300 CLA CLL /CLEAR THE AC AND LINK
5562 5742 JMP I MESS
/ROUTINE TO PRINT AC
/
5563 0000 /REG, 0000
5564 4521 JMS I XCRLF /CRLF
5565 4526 JMS I XPRINT /GO PRINT MESSAGE
5566 6067 CMES
5567 1070 TAD SEND /GET GOOD AC
5570 4524 JMS I XOCTEL /PRINT IT
5571 4526 JMS I XPRINT /PRINT BAD AC
5572 6077 BMES
5573 1071 TAD RECEV /GET BAD AC
5574 4524 JMS I XOCTEL /PRINT IT
5575 7300 CLA CLL /CLEAR THE AC AND LINK
5576 5763 JMP I PREG
/
*5600
/
5600 0000 /SETO,
5601 1100 TAD JMP12 /GET JMP I 2
5602 3001 DCA I /SET FOR PI RETURN
5603 5600 JMP I SETO
/ROUTINE TO TYPE LISTING
/ENTER WITH JMS +1 EQUAL TO START OF LIST
/
5604 0000 /PRINT, 0000
5605 7300 CLA CLL /CLEAR THE AC AND LINK
5606 1624 TAD I PRINT
5607 2224 ISZ PRINT /SET FOR RETURN +1
5610 3041 DCA REGB /SAVE THE POINTER
5611 1441 TAD I REGB /GET THE CHARACTER
5612 0012 AND K7700 /MASK BITS 0-5
5613 7450 SNA REGB /END OF MESSAGE
5614 5240 JMP EXIT /YES, EXIT
5615 7500 SMA /IS AC MINUS
5616 7020 CML /NO, SET THE LINK
5617 7001 IAC
5620 7012 RTR
5621 7012 RTR
5622 7012 RTR
5623 4507 JMS I XTYPE /PRINT THE CHARACTER
5624 1441 TAD I REGB /GET THE WORD
5625 0133 AND K0077 /MASK BITS 6-11
5626 7450 SNA REGB /END OF MESSAGE
5627 5240 JMP EXIT /YES EXIT
5630 1125 TAD K3740 /NO, ADD A CONSTANT
5631 7500 SMA
5632 1124 TAD K4100
5633 1126 TAD K0240
5634 4527 JMS I XTYPE /TYPE THE CHARACTER
5635 2041 ISZ REGB /UPDATE WORD LIST

```

```

/
PAL10      V141      9-OCT-71      15144      PAGE 1-66
5636      7300      CLA CLL      /CLEAR THE AC AND LINK
5637      5211      JMP PRINT*5
/
5640      7300      CLA CLL      /CLEAR THE AC AND LINK
5641      5624      JMP I PRINT /YES EXIT
/ROUTINE TO WAIT FOR OVERFLOWS
/
XWAIT,      0000      DCA SAVAC /SAVE THE AC
5643      3011      CLA CLL CMA RAL
5644      7314      TAD XWAIT
5645      1242      DCA XWAIT /SET FOR RETURN ADDRESS
5646      3242      ISE REGB
5647      2041      JMP RETURN
5650      5256      ISE REGF
5651      2045      JMP RETURN
5652      5256      CLA CLL CML IAC RAL
5653      7325      TAD XWAIT
5654      1242      DCA XWAIT /UPDATE FOR ERROR RETURN
5655      3242      RETURN, TAD SAVAC
5656      1011      JMP I XWAIT
5657      5642
/
5660      0000      SWLAS,
5661      7624      LAS
5662      0142      AND K0010
5663      7640      SEA CLA
5664      5225      JMP CLKIN
5665      7624      LAS
5666      0140      AND K0020
5667      7640      SEA CLA
5670      5313      JMP EXTER
5671      7340      CLA CLL CMA
5672      3113      DCA K1ICPS
5673      7624      LAS
5674      0114      AND K6007
5675      7640      SEA CLA
5676      5301      JMP *3
5677      1111      TAD KPRHTI
5700      3113      DCA K1ICPS
5701      7624      LAS
5702      7024      RAL CLA
5703      7710      SPA CLA
5704      5660      JMP I SWLAS
5705      2260      ISE SWLAS
5706      7624      LAS
5707      7710      SPA CLA
5710      5660      JMP I SWLAS
5711      2260      ISE SWLAS
5712      5660      JMP I SWLAS
/
5713      7340      EXTER, CLA CLL CMA
5714      4427      JMS I XIOTG /IOT 6133, CLAB
5715      7300      CLA CLL
5716      1137      TAD K0040

```

```

/CHECK FOR EXTERNAL CLOCK SCOPE LOOP
/ENTER SCOPE LOOP
/CHECK FOR EXTERNAL PULSE SCOPE LOOP
/ENTER SCOPE LOOP
/AC TO 7777
/GET HIS SWITCHES
/GET BIT 1
/TEST SCHMITT
/GET HIS SWITCHES
/TEST DK8-EP
/TEST DK8-EA OR DK9-EC

```

```

5717 1147 TAD K0600 /GET ENABLES
5720 4425 JMS I XIOTF /IOT 6132, CLOE
5721 4424 JMS I XIOTE /IOT 6131, CLSK
5722 5321 JMP .-1 /WAIT FOR OVERFLOW
5723 6007 /CAF OR CLEAR THE WORLD
5724 5313 JMP EXTER /CONTINUE WITH SCOPE LOOP

/
5725 7340 CLA CLL CMA /AC TO 7777
5726 4427 JMS I XIOTG /IOT 6133, CLAB
5727 7300 CLA CLL
5730 1013 TAD K0100 /GET ENABLES
5731 4426 JMS I XIOTF1 /IOT 6132, CLOE
5732 4424 JMS I XIOTE /IOT 6131, CLSK
5733 5332 JMP .-1 /WAIT FOR OPERATOR
5734 6007 /CAF OR CLEAR THE WORLD

5735 1006 TAD K0207 /TTY SIGNAL
5736 4507 JMS I XTYPE /LOOP
5737 5325 JMP CLKIN

/
5740 0000 PASS,
5741 4501 JMS I XCRLF /CRLF
5742 4506 JMS I XPRINT /PRINT MESSAGE
5743 6014 PMES
5744 6007 6007
5745 5740 JMP I PASS

/
5746 0000 GTAD,
5747 1075 TAD CLOCKS /GET SELECTED CLOCK
5750 1354 TAD CLTAD
5751 3746 DCA I GTAD
5752 2346 ISZ GTAD
5753 5746 JMP I GTAD

/
5754 5755 CLTAD +1
5755 6000 6000
5756 1612 1612
5757 4776 4776
5760 5367 5367
5761 7306 7306
5762 7747 7747
5763 4000 4000
5764 1527 1527
5765 4552 4552
5766 5217 5217
5767 7276 7276
5770 7741 7741

/
5771 0000 TIMCLK, 0000
5772 7604 LAS
5773 0114 AND K6007
5774 7650 SNA CLA
5775 1166 TAD PATCH
5776 1012 TAD K700
5777 5771 JMP I TIMCLK

```


DKMES, TEXT ?DK8E CLOCKS DIAGNOSTIC?

6000 0413
6001 7005
6002 4003
6003 1417
6004 0313
6005 2340
6006 0411
6007 0107
6010 1617
6011 2524
6012 1103
6013 0000
6014 0413
6015 7005
6016 4020
6017 0143
6020 2340
6021 0317
6022 1520
6023 1405
6024 2405
6025 0000
6026 4003
6027 2023
6030 4003
6031 1417
6032 0313
6033 4023
6034 0514
6035 0503
6036 2405
6037 0440
6040 0231
6041 4017
6042 2005
6043 2201
6044 2417
6045 2200
6046 2405
6047 2324
6050 4000
6051 4006
6052 0111
6053 1405
6054 0454
6055 4023
6056 2401
6057 2224
6060 1116
6061 0740
6062 0104
6063 0422
6064 0523
6065 2340
6066 0000

PMES, TEXT ?DK8E PASS COMPLETE?

FMES, TEXT ? CPS CLOCK SELECTED BY OPERATOR?

TMES, TEXT ?TEST ?

AMES, TEXT ? FAILED, STARTING ADDRESS ?

GMES, TEXT ?THE GOOD AC = ?

6067 2410
6070 0540
6071 0717
6072 1704
6073 4001
6074 0340
6075 7540
6076 0000
6077 4001
6100 1604
6101 4002
6102 0104
6103 4001
6104 0340
6105 7540
6106 0000
6107 0314
6110 1703
6111 1340
6112 2313
6113 1120
6114 4006
6115 0111
6116 1405
6117 0454
6120 4016
6121 1740
6122 2313
6123 1120
6124 4005
6125 3020
6126 0503
6127 2405
6130 0400
6131 0314
6132 1703
6133 1340
6134 2313
6135 1120
6136 4006
6137 0111
6140 1405
6141 0454
6142 4023
6143 1311
6144 2040
6145 0530
6146 2005
6147 0324
6150 0504
6151 0000
6152 2022
6153 1707
6154 2201
6155 1540

BMES, TEXT ? AND BAD AC = ?

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

MES2, TEXT ?CLOCK SKIP FAILED, SKIP EXPECTED?

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

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

MES4, TEXT ?PROGRAM INTERRUPT FAILED, INTERRUPT EXPECTED?

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

6245 0313
 6246 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 0454
 6270 4003
 6271 1417
 6272 0313
 6273 4006
 6274 2205
 6275 2125
 6276 0516
 6277 0331
 6300 4023
 6301 1417
 6302 2700
 6303 2410
 6304 0540
 6305 0103
 6306 4027
 6307 0123
 6310 4003
 6311 1001
 6312 1607
 6313 0504
 6314 4002
 6315 3140
 6316 0140
 6317 0314
 6320 1703
 6321 1340
 6322 1117
 6323 2400
 6324 0314
 6325 1703
 6326 1340
 6327 0225
 6330 0606
 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?

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6334 1123
 6335 2405
 6336 2240
 6337 0116
 6340 0440
 6341 0123
 6342 4024
 6343 2201
 6344 1623
 6345 0605
 6346 2240
 6347 0601
 6350 1114
 6351 0504
 6352 0000
 6353 0314
 6354 1703
 6355 1340
 6356 0317
 6357 2516
 6360 2405
 6361 2240
 6362 2205
 6363 0711
 6364 2324
 6365 0522
 6366 4001
 6367 1604
 6370 4001
 6371 0340
 6372 2422
 6373 0116
 6374 2306
 6375 0522
 6376 4006
 6377 0111
 6400 1405
 6401 0400
 6402 0314
 6403 1703
 6404 1340
 6405 0516
 6406 0102
 6407 1405
 6410 4022
 6411 0507
 6412 1123
 6413 2405
 6414 2240
 6415 0116
 6416 0440
 6417 0123
 6420 4024
 6421 2201
 6422 1623

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

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

6423	0605
6424	2240
6425	0601
6426	1114
6427	0504
6430	0000
6431	0314
6432	1703
6433	1340
6434	2324
6435	0124
6436	2523
6437	4022
6440	0507
6441	1123
6442	2405
6443	2240
6444	0116
6445	0440
6446	0103
6447	4024
6450	2201
6451	1623
6452	0605
6453	2240
6454	0601
6455	1114
6456	0504
6457	0000

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

PAL10	V141	9-OCT-71	15144	PAGE 1-76	SETO	5600
AMES	6051	K0017	0127	LOOP	SETO	5600
AUTO10	0010	K0020	0140	MES1	SKPWAT	0046
BEGIN	0200	K0040	0137	MES10	SNDRV	5216
BELL	5046	K0077	0133	MES11	SORT	5471
BGNAC	0215	K0100	0013	MES2	SWLAS	5660
BMS	6077	K0200	0015	MES3	SYNC	5302
CLKIN	5725	K0207	0006	MES4	T113A	1655
CLKNO	5463	K0212	0135	MES5	T113H	1646
CLOCK	5413	K0215	0134	MES6	T114A	1673
CLOCKS	0075	K0240	0126	MES7	T114F	1664
CLRREG	5065	K0260	0123	MES8	T11A	0354
CLYAD	5754	K0300	0145	MES9	T120A	1751
CLRF	5441	K0377	0136	MESS	T121A	1766
CKMES	6000	K0400	0116	NERR0	T122A	2014
EHLT1	5034	K0500	0146	NERROR	T122H	1775
EHLT10	5203	K0600	0147	OCTEL	T123A	2043
EHLT11	5212	K0700	0150	OUT	T123H	2024
EHLT2	5166	K1000	0144	OVER2	T124A	2072
EHLT3	5141	K2000	0143	OVER2A	T124P	2053
EHLT4	5145	K2525	0016	PASS	T125A	2120
EHLT5	5153	K3000	0120	PATCH	T125P	2102
EHLT6	5157	K3740	0125	PIG01	T126A	2147
EHLT7	5166	K4000	0014	PIG02	T126P	2125
ERRO	5020	K4100	0124	PIG03	T127A	2200
ERROR	0073	K5000	0121	PIG04	T12A	0366
EXIT	5640	K5252	0017	PIG05	T130A	2220
FMS	6026	K6000	0117	PIRET1	T133A	2306
GMES	6067	K6007	0114	PIRET2	T133E	2273
GTAD	5746	K7000	0141	PIRET5	T147A	2555
IN	5043	K7400	0112	PMES	T147B	2537
IOTA	5102	K7700	0012	POPR	T150A	2603
IOTB	5107	K7770	0132	PREG	T150P	2565
IOTC	5114	K7772	0131	PRET1	T151A	2631
IOTE	5147	K7773	0130	PRET2	T151P	2613
IOTF	5134	K7774	0111	PRET5	T152A	2657
IOTF1	5142	KPRNT1	0076	PRETC	T152P	2641
IOTG	5146	KREGC	0113	PRETD	T153A	2705
IOTH	5154	KTIOPS	0151	PRINT	T153E	2667
IOTJ	5163	KTA	0152	RANDOM	T154A	2733
IOTK	5207	KTA1	0152	RANDY	T154B	2715
IOTS	5350	KTADCK	5462	RECEV	T172A	3254
IOTS1	5360	KTADM	5526	REGA	T172A1	3257
IOTS2	5370	KT8	0153	REGB	T172B	3244
IOTS3	5400	KT81	0154	REGC	T172P1	3240
ISELOP	5310	KTC	0155	REGD	T173A	3303
JMPI2	0100	KTC1	0156	REGE	T173A1	3306
K0006	0115	KTC2	0157	REGF	T173B	3273
K0007	0007	KTD	0160	RETC	T173B1	3267
K0010	0142	KTD1	0161	RETD	T174A	3336
		KTE	0162	RETURN	T174A1	3341
		KTE1	0163	SAVAC	T174B	3326
		KTMX	5527	SEND	T174B1	3323

T175A	3371	TST110	1605	TST167	3157	TST244	4562
T175A1	3374	TST111	1616	TST17	0431	TST245	4602
T175B	3361	TST112	1631	TST170	3177	TST246	4621
T175B1	3356	TST113	1642	TST171	3215	TST247	4643
T176A	3421	TST114	1660	TST172	3233	TST25	0520
T176A1	3424	TST115	1676	TST173	3262	TST250	4663
T176B	3411	TST116	1707	TST174	3311	TST251	4706
T176B1	3405	TST117	1722	TST175	3344	TST26	0534
T177A	3451	TST12	0357	TST176	3377	TST27	0547
T177A1	3454	TST120	1735	TST177	3427	TST3	0265
T177B	3441	TST121	1754	TST2	0251	TST30	0570
T177B1	3435	TST122	1771	TST20	0441	TST31	0601
T200A	3521	TST123	2017	TST200	3457	TST32	0615
T200A1	3504	TST124	2046	TST201	3507	TST33	0626
T200B	3471	TST125	2075	TST202	3561	TST34	0637
T200B1	3465	TST126	2123	TST203	3573	TST35	0647
T201A	3551	TST127	2152	TST204	3605	TST36	0657
T201B	3522	TST13	0371	TST205	3617	TST37	0667
T205A	3632	TST130	2203	TST206	3635	TST4	0273
T206A	3650	TST131	2223	TST207	3653	TST40	0677
T207A	3666	TST132	2245	TST21	0452	TST41	0711
T214A	3764	TST133	2264	TST210	3671	TST42	0722
T215A	4003	TST134	2311	TST211	3704	TST43	0733
T216A	4022	TST135	2331	TST212	3720	TST44	0746
T22A	0473	TST136	2350	TST213	3734	TST45	0761
T230A	4265	TST137	2367	TST214	3750	TST46	1000
T43A	0775	TST14	0400	TST215	3767	TST47	1017
T45B	0763	TST140	2407	TST216	4006	TST5	0305
T46A	1014	TST141	2423	TST217	4025	TST50	1036
T46B	1005	TST142	2437	TST22	0463	TST51	1055
T47A	1033	TST143	2452	TST220	4050	TST52	1070
T47B	1024	TST144	2466	TST221	4073	TST53	1102
T50A	1052	TST145	2502	TST222	4116	TST54	1115
T50B	1040	TST146	2516	TST223	4133	TST55	1130
T70A	1332	TST147	2532	TST224	4150	TST56	1142
T70B	1322	TST15	0407	TST225	4165	TST57	1153
T71A	1351	TST150	2560	TST226	4204	TST6	0322
T71B	1341	TST151	2606	TST227	4223	TST60	1164
TIMCLK	5771	TST152	2634	TST23	0476	TST61	1177
TMES	6046	TST153	2662	TST230	4242	TST62	1212
TST0	0221	TST154	2710	TST231	4270	TST63	1227
TST1	0235	TST155	2736	TST232	4310	TST64	1244
TST10	0337	TST156	2751	TST233	4330	TST65	1255
TST100	1465	TST157	2766	TST234	4350	TST66	1271
TST101	1501	TST16	0422	TST235	4372	TST67	1302
TST102	1514	TST160	3004	TST236	4414	TST7	0330
TST103	1530	TST161	3023	TST237	4435	TST70	1316
TST104	1542	TST162	3041	TST24	0505	TST71	1335
TST105	1552	TST163	3060	TST240	4456	TST72	1354
TST106	1563	TST164	3076	TST241	4477	TST73	1367
TST107	1574	TST165	3117	TST242	4520	TST74	1404
TST11	0346	TST166	3137	TST243	4541	TST75	1421

TST76	1435
TST77	1451
TYPE	5056
XBELL	0110
XCLOCK	0074
XCLREG	0060
XCLRF	0101
XCRS1	0171
XCRS2	0172
XCRS3	0173
XCRS4	0174
XCRS5	0175
XDK8EP	0063
XGETM	0167
XGTAD	0067
XIOTA	0020
XIOTB	0021
XIOTC	0022
XIOTD	0023
XIOTE	0024
XIOTF	0025
XIOTF1	0026
XIOTG	0027
XIOTH	0030
XIOTI	0031
XIOTJ	0032
XIOTK	0033
XIOTS	0034
XIOTS1	0035
XIOTS2	0036
XIOTS3	0037
XISZ	0054
XLAS	0066
XMESS	0105
XMITT	0064
XMITT1	0065
XCTEL	0104
XOPR	0105
XPASS	0170
XPIG01	0047
XPIG02	0050
XPIG03	0051
XPIG04	0052
XPIG05	0053
XPRINT	0106
XREG	0102
XSETO	0164
XSNDRV	0056
XSORT	0103
XSYNC	0057
XTYPE	0107
XWAIT	5642

ERRORS DETECTED: 0

LINKS GENERATED: 0

RUN-TIME: 39 SECONDS

3K CORE USED