

IDENTIFICATION

PRODUCT CODE: MAINDEC=08=DJDKA-B-D
PRODUCT NAME: DKC8-AA OPTION TEST #1
DATE CREATED: JULY 15, 1975
MAINTAINER: DIAGNOSTIC ENGINEERING
AUTHOR: BRUCE HANSEN
SUPERCEDES: MAINDEC=08=DJDKA-A

COPYRIGHT (C) 1974, 1975
DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASS.,

THIS SOFTWARE IS FURNISHED UNDER A LICENSE FOR USE ONLY
ON A SINGLE COMPUTER SYSTEM AND MAY BE COPIED ONLY WITH
THE INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS
SOFTWARE, OR ANY OTHER COPIES THEREOF, MAY NOT BE PRO-
VIDED OR OTHERWISE MADE AVAILABLE TO ANY OTHER PERSON
EXCEPT FOR USE ON SUCH SYSTEM AND TO ONE WHO AGREES TO
THESE LICENSE TERMS. TITLE TO AND OWNERSHIP OF THE
SOFTWARE SHALL AT ALL TIMES REMAIN TO DEC.

THE INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE
WITHOUT NOTICE AND SHOULD NOT BE CONSTRUED AS A COM-
MITMENT BY DIGITAL EQUIPMENT CORPORATION.

DEC ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY
OF ITS SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY
DEC.



TABLE OF CONTENTS

1,0	ABSTRACT
2,0	REQUIREMENTS
2,1	HARDWARE
2,2	STORAGE
2,3	PREREQUISITE SOFTWARE
3,0	RESTRICTIONS
4,0	STANDARD TEST PROCEDURE
4,1	OPERATOR INTERVENTION FRONT PANEL TEST
4,2	LOADING THE PROGRAM
4,2,1	LOADING THE PROGRAM VIA HIGH SPEED READER OR TELETYPE
4,3,1	SETTING THE M8316 MODULE UP FOR TEST
4,3,2	SETTING THE M8316 MODULE UP FOR TEST WITHOUT OPTION 1 & 2 TEST MODULE
4,3,2	SETTING THE M8316 MODULE UP FOR TEST WITH THE OPTION 1 & 2 TEST MODULE
4,4	PROGRAM INITIALIZATION
4,5	RUN DKC8-AA OPTION TEST 1
4,6	RUN REAL TIME CLOCK TIMING TEST
4,7	RUN SERIAL LINE UNIT TIMING TEST
4,8	PDP-8A XOR TESTING
5,0	ERRORS
5,1	DKC8-AA OPTION TEST 1 ERRORS
5,1,1	DKC8-AA OPTION TEST 1 ERROR RECOVERY
5,2	REAL TIME CLOCK AND SERIAL LINE UNIT TIMING TEST ERRORS
5,2,1	REAL TIME CLOCK AND SERIAL LINE UNIT TIMING TEST ERROR RECOVERY
6,0	SWITCH REGISTER SETTINGS
6,1	NORMAL OPERATING SWITCHES
6,2	ERROR SWITCHES
7,0	REVISIONS
8,0	PROGRAM DESCRIPTION
8,1	DKC8-AA OPTION TEST 1
8,2	REAL TIME CLOCK TIMING TEST
8,3	SERIAL LINE UNIT TIMING TEST
9,0	FLOW CHARTS
10,0	PROGRAM LISTING

1.0

ABSTRACT

THE BK68-AA OPTION TEST #1 PROGRAM IS DESIGNED TO TEST ALL THE LOGIC ON THE PDP-8A OPTION BOARD #1 MODULE (M8316) THAT IS TESTABLE BY PROGRAM INSTRUCTIONS. THE DEVICES TESTED BY THE PROGRAM ARE THE REAL TIME CLOCK, THE 12 BIT PARALLEL I/O, AND THE SERIAL LINE UNIT. THE 12 BIT PARALLEL I/O AND THE SERIAL LINE UNIT ARE TESTED IN LOOP BACK MODE BY CONNECTING THE 12 BIT PARALLEL I/O OUT TO 12 BIT PARALLEL I/O IN, EIA OUT TO EIA IN, OR 20MA CURRENT OUT TO 20MA CURRENT IN FOR THE SERIAL LINE UNIT. A OPERATOR INTERVENTION TEST HAS BEEN PROVIDED IN THE DOCUMENT TO TEST THE FRONT PANEL LOGIC, IF A FRONT PANEL IS CONNECTED TO THE PDP-8A OPTION BOARD #1, THIS PROGRAM WILL RUN IN ANY FIELD.

THE PROGRAM WILL RUN WITH THE PDP-8A OPTION 1 & 2 TEST MODULE (G5041) IF AVAILABLE. THE PROGRAM USES THE OPTION 1 & 2 TEST MODULE TO TEST LOGIC THAT THE PROGRAM NORMALLY CAN NOT TEST USING PROGRAM INSTRUCTIONS. ALSO THE PROGRAM USES THE OPTION 1 & 2 TEST MODULE TO PERFORM TIMING TESTS ON THE REAL TIME CLOCK AND THE SERIAL LINE UNIT, AND TO ALLEVIATE OPERATOR INTERVENTION.

THE 4K VERSION OF THE PROGRAM ONLY, IS STRUCTURED SO THAT IT MAY BE RUN ON THE PDP-8A XOR TESTER. TO RUN THE PROGRAM ON THE PDP-8A XOR TESTER, A OPTION 1 & 2 TEST MODULE IS REQUIRED FOR THE "KGH" AND THE "MUT" SIDE.

THE PROGRAM IS STRUCTURED SO THAT IT MAY RUN ON OR OFF THE PDP-8A APT TEST LINE. IT CAN RUN WITH OR WITHOUT THE OPTION 1 & 2 TEST MODULE, OR IT CAN RUN WITH ANY COMBINATION OF THE ABOVE WITH THE PDP-8A OPTION BOARD #1.

THE PROGRAM IS A 4K PROGRAM BUT IT IS ALSO SUPPLIED IN FOUR 1K SEGMENTS FOR USE ON COMPUTERS WITH LESS THAN 4K OF MEMORY.

2.0

REQUIREMENTS

2.1

HARDWARE

PROCESSOR

PDP-8A

MEMORY

1. MINIMUM OF 4K OF MEMORY FOR COMPLETE PROGRAM
2. MINIMUM OF 1K OF MEMORY FOR SEGMENTED 1K VERSIONS OF THE 4K PROGRAM

OPTIONS

IF OPTION BOARD #1 IS TO BE TESTED ALONE WITHOUT THE OPTION 1 & 2 TEST MODULE, THE FOLLOWING HARDWARE IS REQUIRED, OTHERWISE, SEE THE HARDWARE REQUIRED UNDER THE NEXT SECTION LABELED SPECIAL

1. PDP-8A OPTION BOARD #1 (M8316)
2. ONE BC06R-01 CABLE
3. ONE EIA BERG CONNECTOR
4. THREE TERMIP-POINT JUMPERS
5. ONE QUAD EXTENDER,

SPECIAL

A. THE FOLLOWING HARDWARE IS REQUIRED TO RUN THE PROGRAM WITH THE OPTION 1 & 2 TEST MODULE:

1. PDP-8A OPTION BOARD #1 (M8316)
2. OPTION 1 & 2 TEST MODULE (G5041)
3. ONE BERG INTERFACE CABLE (PN=7010274)
4. ONE IC SOCKET CONNECTOR CABLE (PN=7008612)
5. ONE QUAD EXTENDER

B. THE FOLLOWING HARDWARE IS REQUIRED TO RUN THE PROGRAM ON THE PDP-8A XOR TESTER,

1. TWO PDP-8A OPTION BOARD #1'S (ONE MODIFIED FOR "KGM" SIDE)
2. TWO OPTION 1 & 2 TEST MODULES (G5041/S)
3. TWO BERG INTERFACE CABLES (PN=7010274)
4. THREE I,C SOCKET CONNECTOR CABLES (PN=7008612)

2.2 STORAGE

THE 4K VERSION OF DKC8-AA OPTION TEST 1 CAN BE LOADED INTO ANY FIELD. THE PROGRAM OCCUPIES LOCATIONS 0000 TO 5777 IN THE FIELD THAT IT WAS LOADED INTO AND ADDRESSES 0000 TO 0012 IN FIELD 0;

THE 1K SEGMENTS OF THE 4K PROGRAM CAN BE LOADED INTO ANY FIELD. THE PROGRAM OCCUPIES LOCATIONS 0000 TO 1777 IN THE FIELD THAT IT WAS LOADED INTO AND LOCATIONS 0000 TO 0012 IN FIELD 0;

2.3 PREREQUISITE SOFTWARE

PDP-8A CPU TEST
PDP-8A MEMORY TESTS
IF 1K OF MEMORY = 1K TO 32K RANDOM MEMORY REFERENCE INSTRUCTION EXERCISER
IF 2K OF MEMORY = 2K TO 32K PDP-8A PROCESSOR EXERCISER

3.0 RESTRICTIONS

1. DO NOT LOAD THE PROGRAM UNTIL PARAGRAPH 4.0 (STANDARD TEST PROCEDURE) IS FOLLOWED EXPLICITLY.
2. IF THE OPTION 1 & 2 TEST MODULE IS TO BE USED, SET ALL SWITCHES ON THE M8316 (OPTION BOARD #1) TO OFF.
3. THE 4K VERSION OF THE PROGRAM IS THE ONLY VERSION OF THE PROGRAM THAT WILL RUN ON THE PDP-8A XOR TESTER.
4. TO RUN THE PROGRAM ON THE PDP-8A XOR TESTER, A OPTION 1 & 2 TEST MODULE IS REQUIRED FOR THE "KGM" AND "MUT" SIDES OF THE TESTER, AND THE PROGRAM MUST BE "INITIALIZED" CORRECTLY.

4.0 STANDARD TEST PROCEDURE

IF A FRONT PANEL IS CONNECTED TO THE M8316 MODULE, DO THE OPERATOR INTERVENTION FRONT PANEL TEST, PARAGRAPH 4.1.

IF THE PROGRAM IS TO BE RUN ON THE PDP-8A XOR TESTER, GO TO PARAGRAPH 4.8 (PDP-8A XOR TESTING) FOR LOADING AND INITIALIZING THE PROGRAM AND FOR THE TEST SETUP.

THE FOLLOWING PARAGRAPHS MUST BE FOLLOWED EXPLICITLY TO SETUP THE HARDWARE, LOAD THE PROGRAM, SETUP THE MODULE FOR TEST, AND TO INITIALIZE THE PROGRAM,

4.2 LOADING THE PROGRAM

4.2.1 LOADING THE PROGRAM VIA HIGH SPEED READER OR TELETYPE

4.3 SETTING THE M8316 MODULE UP FOR TEST

4.3.1 SETTING THE M8316 UP FOR TEST WITHOUT OPTION 1 + 2 TEST MODULE

4.3.2 SETTING THE M8316 UP FOR TEST WITH OPTION 1 + 2 TEST MODULE

4.4 PROGRAM INITIALIZATION

THE PROGRAM IS DIVIDED INTO THREE SECTIONS AND EACH SECTION MUST BE RUN SEPARATELY UNLESS A OPTION 1 + 2 TEST MODULE IS UTILIZED WITH THE PROGRAM. IF THE OPTION 1 + 2 TEST MODULE IS USED, RUN DKC8-AA OPTION TEST 1 (4.5) WHICH WILL INCLUDE THE REAL TIME CLOCK AND SERIAL LINE UNIT TIMING TEST. IF THE OPTION 1 + 2 TEST MODULE IS NOT USED DO THE FOLLOWING TESTS

RUN DKC8-AA OPTION TEST 1 PARAGRAPH 4.5

RUN REAL TIME CLOCK TIMING TEST PARAGRAPH 4.6

RUN SERIAL LINE UNIT TIMING TEST PARAGRAPH 4.7

4.1 OPERATOR INTERVENTION FRONT PANEL TEST

ANY ERRORS DURING THIS TEST, REFER TO THE CIRCUIT SCHEMATICS OF THE MB316 MODULE (OPTION BOARD #1) OR TO THE CIRCUIT SCHEMATICS OF THE FRONT PANEL.

1. TURN THE COMPUTER OFF AND THEN ON
2. CHECK FOR A NUMBER LIT IN EACH DIGIT OF THE ADDRESS AND CONTENT REGISTER,
3. PRESS THE NUMBER 0,
4. CHECK CONTENT REGISTER TO BE 0 AND THE AC, MO, BUS, STATUS, SR, RUN, STATE, AND MD LIGHTS TO BE OFF,
5. PRESS DISP AND CHECK THAT THE AC LIGHT IS THE ONLY LIGHT THAT IS LIT,
6. PRESS THE NUMBER 1
7. CHECK CONTENT TO BE 0001 AND ALL OTHER LIGHTS TO BE OFF
8. PRESS DISP AND CHECK MO LIGHT TO BE THE ONLY LIGHT LIT
9. PRESS THE NUMBER 2
10. CHECK THAT CONTENT EQUALS 0002 AND ALL OTHER LIGHTS ARE OFF
11. PRESS DISP AND CHECK BUS TO BE THE ONLY LIGHT ON,
12. PRESS THE NUMBER 3
13. CHECK THAT CONTENT EQUALS 0003 AND ALL OTHER LIGHTS ARE OFF
14. PRESS DISP AND CHECK STATUS TO BE THE ONLY LIGHT ON,
15. PRESS THE NUMBER 4
16. CHECK THAT CONTENT EQUALS 0004 AND ALL OTHER LIGHTS ARE OFF
17. PRESS DISP AND CHECK SR TO BE THE ONLY LIGHT ON
18. PRESS THE NUMBER 5
19. CHECK THAT CONTENT EQUALS 0005 AND ALL OTHER LIGHTS ARE OFF
20. PRESS DISP AND CHECK STATE TO BE THE ONLY LIGHT ON
21. PRESS THE NUMBER 6
22. CHECK THAT CONTENT EQUALS 0006 AND ALL OTHER LIGHTS ARE OFF
23. PRESS DISP AND CHECK MD TO BE THE ONLY LIGHT ON,
24. PRESS THE NUMBER 7
25. CHECK THAT CONTENT EQUALS 0007 AND ALL OTHER LIGHTS ARE OFF
26. PRESS DISP AND CHECK CONTENT TO BE 7777 AND ALL THE OTHER LIGHTS TO BE OFF
27. TURN THE COMPUTER OFF AND THEN ON
28. PRESS THE NUMBER 4 AND THEN DISP
29. CHECK CONTENT TO BE 0 AND SR TO BE ONLY LIGHT ON
30. PRESS THE NUMBER 5 AND CHECK CONTENT TO BE 0205 AND THAT NO LIGHTS ARE ON
31. PRESS THE NUMBER 2 AND CHECK CONTENT TO BE 0052
32. PRESS THE NUMBER 5 AND CHECK CONTENT TO BE 0525
33. PRESS THE NUMBER 2 AND CHECK CONTENT TO BE 5252
34. PRESS LA - CHECK THAT CONTENT 5252 WENT TO ADDRESS AS 05252 AND CONTENT WENT TO ZERO AND CHECK THAT SR IS THE ONLY LIGHT ON,
35. PRESS THE NUMBERS 2525 CONSECUTIVELY AND CHECK CONTENT TO CONTAIN 2525, AND THAT NO LIGHTS ARE ON
36. PRESS LA - CHECK ADDRESS TO BE 02525, CONTENT TO BE 0000, AND SR TO BE ONLY LIGHT ON
37. LOAD ADDRESS TO 0200
38. PRESS THE NUMBER 6 AND THEN DISP
39. CHECK THE MD LIGHT TO BE THE ONLY LIGHT ON
40. PRESS THE NUMBERS 7402 AND CHECK CONTENT TO EQUAL THIS NUMBER
41. PRESS D THIS
42. CHECK ADDRESS EQUAL 0200 AND CONTENT EQUAL 7402
43. PRESS THE NUMBERS 7604 - CHECK CONTENT TO EQUAL THIS NUMBER

44; PRESS D NEXT
45; CHECK ADDRESS EQUAL 0201 AND CONTENT EQUAL 7604
46; PRESS THE NUMBERS 7421 AND CHECK CONTENT TO EQUAL 7421
47; PRESS D NEXT
48; CHECK ADDRESS TO EQUAL 0202 AND CONTENT EQUAL 7421
49; PRESS THE NUMBERS 1201 AND CHECK CONTENT TO EQUAL 1201
50; PRESS D NEXT
51; CHECK ADDRESS TO EQUAL 0203 AND CONTENT EQUAL TO 1201
52; PRESS NUMBERS 7402 AND CHECK CONTENT TO EQUAL 7402
53; PRESS D NEXT
54; CHECK ADDRESS TO EQUAL 0204 AND CONTENT TO EQUAL 7402
55; PRESS NUMBERS 7001 AND CHECK CONTENT TO EQUAL THIS NUMBER
56; PRESS D NEXT
57; CHECK ADDRESS TO EQUAL 0205 AND CONTENT TO EQUAL 7001
58; PRESS NUMBERS 5204 AND CHECK CONTENT TO EQUAL THIS NUMBER
59; PRESS D NEXT
60; CHECK ADDRESS TO EQUAL 0206 AND CONTENT TO EQUAL 5204
61; LOAD ADDRESS TO 0200
62; PRESS E THIS
63; CHECK ADDRESS EQUAL TO 0200 AND CONTENT EQUAL 7604
64; PRESS E NEXT
65; CHECK ADDRESS EQUAL TO 0201 AND CONTENT EQUAL 7604
66; PRESS E NEXT
67; CHECK ADDRESS EQUAL TO 0202 AND CONTENT EQUAL TO 7421
68; PRESS E NEXT
69; CHECK ADDRESS EQUAL TO 0203 AND CONTENT EQUAL TO 1201
70; PRESS E NEXT
71; CHECK ADDRESS EQUAL TO 0204 AND CONTENT EQUAL TO 7402
72; PRESS E NEXT
73; CHECK ADDRESS TO EQUAL 0205 AND CONTENT TO EQUAL 7001
74; PRESS E NEXT
75; CHECK ADDRESS TO EQUAL 0206 AND CONTENT TO EQUAL 5204
76; PRESS NUMBERS 5252
77; CHECK ADDRESS TO EQUAL 0206, CONTENT TO EQUAL 5252 AND
NO LIGHTS ON
78; PRESS LSR
79; CHECK ADDRESS TO EQUAL 0206, CONTENT TO EQUAL 5204 AND
MD LIGHT TO BE ONLY LIGHT LIT
80; PRESS THE NUMBER 4 AND DISPLAY
81; CHECK ADDRESS TO BE 206 AND CONTENT TO BE 5252 AND
THE SR LIGHT TO BE ONLY LIGHT LIT
82; LOAD ADDRESS TO 0200 & PRESS INIT AND THEN RUN
83; CHECK THAT MA EQUALS 0204, CONTENT EQUALS 5252 AND
SR LIGHT TO BE ONLY LIGHT LIT
84; PRESS THE NUMBER 6 AND THEN DISP
85; CHECK ADDRESS TO BE 0204 AND CONTENT TO BE 7402 AND
THAT THE MD LIGHT IS THE ONLY LIGHT LIT
86; PRESS THE NUMBER 1 AND THEN DISP
87; CHECK ADDRESS TO BE 0204 AND CONTENT TO BE 5252 AND
THAT THE MQ LIGHT IS THE ONLY LIGHT LIT
88; PRESS THE NUMBER 0 AND THEN DISP
89; CHECK ADDRESS TO BE 0204, CONTENT TO BE 7421 AND
AC LIGHT TO BE ONLY LIGHT LIT
90; PRESS INIT
91; CHECK ADDRESS TO BE 0204, CONTENT TO BE 0 AND AC
LIGHT TO BE ONLY LIGHT LIT
92; PRESS HLT/SS
93; CHECK ADDRESS TO BE 0205, CHECK CONTENT TO EQUAL 1
AND AC LIGHT TO BE ONLY LIGHT LIT
94; PRESS HLT/SS

95, CHECK ADDRESS TO BE 0204, CONTENT TO BE 0001 AND AC
LIGHT TO BE ONLY LIGHT LIT.
96, PRESS RUN
97, CHECK RUN AND AC LIGHTS TO BE ONLY LIGHT LIT
98, PRESS HLT/SS
99, CHECK RUN LIGHT TO GO OUT AND AC LIGHT TO BE ONLY
LIGHT ON
100, PRESS RUN
101, CHECK RUN LIGHT AND AC LIGHT TO BE ON.
102, SET PANEL LOCK SWITCH TO PANEL LOCK POSITION
103, PRESS E THIS, E NEXT, D THIS, D NEXT, BOOT, DISP, LSR
LA, LXA, INIT, RUN, AND HLT/SS
104, CHECK THAT RUN LIGHT AND AC LIGHT REMAIN ON
105, SET PANEL LOCK SWITCH TO OFF AND THEN PRESS HLT/SS
106, CHECK THAT RUN LIGHT GOES OFF AND THAT AC LIGHT
IS THE ONLY LIGHT LIT
107, PRESS THE NUMBER 6 AND THEN DISP
108, CHECK THAT THE MD LIGHT IS LIT
109, LOAD ADDRESS TO 0400 AND DEPOSIT THE FOLLOWING
NUMBER INTO 400 TO 412 BY PRESSING D NEXT AFTER
EACH NUMBER: 7000, 3000, 1000, 0000, 2000, 4200, 0000,
5210, 6002, 3603, 5200
110, LOAD ADDRESS TO 0400 AND CHECK THAT THOSE NUMBERS WERE
DEPOSITED CORRECTLY BY PRESSING E NEXT,
111, LOAD ADDRESS TO 0400
112, PRESS THE NUMBER 5 AND DISP
113, CHECK THAT THE STATUS LIGHT IS THE ONLY LIGHT ON
114, PRESS HLT/SS
115, CHECK ADDRESS TO BE 0401 AND CONTENT TO BE 4740
IF THE NUMBER IS 4750 PRESS THE BOOT SWITCH ONCE
116, PRESS HLT/SS
117, CHECK ADDRESS TO BE 0000 AND CONTENT TO BE 1340
118, PRESS HLT/SS
119, CHECK ADDRESS TO BE 0402 AND CONTENT TO BE 4300
120, PRESS HLT/SS
121, CHECK ADDRESS TO BE 0000 AND CONTENT TO BE 1140
122, PRESS HLT/SS
123, CHECK ADDRESS TO BE 0403 AND CONTENT TO BE 4100
124, PRESS HLT/SS
125, CHECK ADDRESS TO BE 0000 AND CONTENT TO BE 1040
126, PRESS HLT/SS
127, CHECK ADDRESS TO BE 0404 AND CONTENT TO BE 4000
130, PRESS HLT/SS
131, CHECK ADDRESS TO BE 0000 AND CONTENT TO BE 1240
132, PRESS HLT/SS
133, CHECK ADDRESS TO BE 0405 AND CONTENT TO BE 4200
134, PRESS HLT/SS
135, CHECK ADDRESS TO BE 0406 AND CONTENT TO BE 1440
136, PRESS HLT/SS
137, CHECK ADDRESS TO BE 0407 AND CONTENT TO BE 4400
138, PRESS HLT/SS
139, CHECK ADDRESS TO BE 0410 AND CONTENT TO BE 4540
140, PRESS HLT/SS
141, CHECK ADDRESS TO BE 0411 AND CONTENT TO BE 4640
142, PRESS HLT/SS
143, CHECK ADDRESS TO BE 0403 AND CONTENT TO BE 2340
144, PRESS HLT/SS
145, CHECK ADDRESS TO BE 0000 AND CONTENT TO BE 1300
146, PRESS HLT/SS
147, CHECK ADDRESS TO BE 0412 AND CONTENT TO BE 4300

150, PRESS HLT/SS
151, CHECK ADDRESS TO BE 0400 AND CONTENT TO BE 4540
152, PRESS HLT/SS
153, CHECK ADDRESS TO BE 0401 AND CONTENT TO BE 4740
154, PRESS BOOT SWITCH
155, CHECK ADDRESS TO BE 0401 AND CONTENT TO BE 4750
156, PRESS BOOT SWITCH
157, CHECK ADDRESS TO BE 0401 AND CONTENT TO BE 4740
158, LOAD ADDRESS TO 0200 AND DEPOSIT IN TO 0200 TO
0206 THE FOLLOWING NUMBERS USING THE D NEXT FUNCTION:
6007, 7020, 6001, 7100, 6002, 5200
159, LOAD ADDRESS TO 0200 AND CHECK THAT THE NUMBERS
WERE DEPOSITED CORRECTLY USING THE E NEXT FUNCTION,
160, LOAD ADDRESS TO 0200
161, PRESS NUMBER 3 AND THEN DISP
162, PRESS HLT/SS
163, CHECK ADDRESS TO BE 0201 AND CONTENTS TO BE 0000
164, PRESS HLT/SS
165, CHECK ADDRESS TO BE 0202 AND CONTENTS TO BE 4000
166, PRESS HLT/SS
167, CHECK ADDRESS TO BE 0203 AND CONTENTS TO BE 4200
168, PRESS HLT/SS
169, CHECK ADDRESS TO BE 0204 AND CONTENTS TO BE 0200
170, PRESS HLT/SS
171, CHECK ADDRESS TO BE 0205 AND CONTENTS TO BE 0000
172, LOAD ADDRESS TO 0200 AND DEPOSIT INTO 200 AND 201
USING THE D NEXT FUNCTION THE NUMBER 7604
AND 5200
173, LOAD ADDRESS TO 0200 PRESS INIT THEN RUN
174, PRESS NUMBER 0 AND DISP
175, PRESS NUMBER 5252 AND THEN LSR
176, CHECK CONTENT TO BE 5252
177, PRESS NUMBER 2525 AND THEN LSR
178, CHECK CONTENT TO BE 2525
179, DONE GO TO PARAGRAPH 4,2

4.2 LOADING THE PROGRAM

BEFORE LOADING THE PROGRAM, THE FOLLOWING STEPS
MUST BE DONE.

- A. POWER THE COMPUTER DOWN
- B. UNPLUG THE M8316 MODULE FROM THE COMPUTER
- C. PLUG THE QUAD EXTENDER INTO THE SLOT THE M8316 OCCUPIED
- D. PLUG THE M8316 MODULE INTO THE QUAD EXTENDER.
- E. IF THE OPTION 1 + 2 TEST MODULE IS TO BE USED DO THE
FOLLOWING, IF NOT GO TO STEP F:
 1. PLUG ONE END OF THE IC SOCKET CONNECTOR CABLE (PN=7008612)
INTO TS-3, 1ST SOCKET ABOVE E63, ON THE G5041 MODULE,
 2. TAKE THE END OF THE BERG CONNECTOR CABLE (PN=7010274)
WHICH HAS ONLY ONE BERG CONNECTOR ON IT AND PLUG IT INTO
BERG SOCKET J1 ON THE G5041 MODULE;
 3. PLUG THE TEST MODULE (G5041) INTO THE COMPUTER.
- F. POWER THE COMPUTER BACK UP
- G. TO LOAD THE PROGRAM VIA HIGH SPEED READER
OR TELETYPE, GO TO PARAGRAPH 4.2.1;

4.2.1 LOADING THE PROGRAM VIA HIGH SPEED READER OR TELETYPE

- A. IF THE PROGRAM IS TO BE LOADED VIA HIGH SPEED READER
GO TO STEP B, OTHERWISE DO THE FOLLOWING THREE
STEPS TO SETUP THE M8316 MODULE TO LOAD THE PROGRAM
VIA TELETYPE.
 1. WITH POWER ON, SET THE FOLLOWING SWITCHES ON
THE M8316 MODULE TO THE OFF POSITION: S1=1, S1=2,
S1=3, AND S1=7;
 2. WITH POWER ON, SET THE FOLLOWING SWITCHES ON THE
M8316 MODULE TO THE ON POSITION: S1=5, S1=6,
AND S1=8;
 3. PLUG THE TELETYPE CABLE INTO THE J3 BERG CONNECTOR
ON THE M8316 MODULE. THE MODULE IS NOW READY
TO LOAD THE PROGRAM, GO TO STEP B;
- B. IF THE COMPUTER CONTAINS 4K OF MEMORY OR MORE, DO
STEP C IN THIS SECTION, OTHERWISE DO STEP D FOR THOSE
COMPUTERS WITH LESS THAN 4K OF MEMORY.
- C. LOAD THE BINARY TAPE, MAINDEC-08-DJDKA-B-PB1; USING
THE STANDARD BINARY LOADER TECHNIQUE, AFTER TAPE HAS
BEEN SUCCESSFULLY LOADED, GO TO PARAGRAPH 4.3,
SETTING THE M8316 MODULE UP FOR TEST.
- D. COMPUTERS WITH LESS THAN 4K OF MEMORY ARE SUPPLIED
WITH FOUR 1K SEGMENTS OF DKCB-AA OPTION TEST 1'. THESE
1K SEGMENTS ARE IN RIM FORMAT AND EACH TAPE SHOULD BE
RUN CONSECUTIVELY. THE TAPES ARE LABELED AS
MAINDEC-08-DJDKA-B-PM1, -PM2, -PM3 AND -PM4. TO LOAD
THESE PROGRAMS, DEPOSIT INTO LOCATIONS LISTED BELOW
THE APPROPRIATE RIM LOADER FOR THE LOADING
DEVICE TO BE USED.

HIGH SPEED READER

ADDRESS	CONTENT
0156	6014
0157	6011
0160	5357
0161	6016
0162	7106
0163	7006
0164	7510
0165	5374
0166	7006
0167	6011
0170	5367
0171	6016
0172	7420
0173	3776
0174	3376
0175	5357

LOW SPEED READER

ADDRESS	CONTENT
0156	6032
0157	6031
0160	5357
0161	6036
0162	7106
0163	7006
0164	7510
0165	5357
0166	7006
0167	6031
0170	5367
0171	6034
0172	7420
0173	3776
0174	3376
0175	5356

PLACE THE APPROPRIATE 1K SEGMENT INTO THE READER,
"LOAD ADDRESS" TO 0156, PRESS "INIT" AND THEN "RUN".

WHEN THE TAPE HAS BEEN LOADED, STOP THE COMPUTER, GO
TO PARAGRAPH 4;3, SETTING THE M8316 MODULE UP FOR TEST.

4;3 SETTING THE M8316 MODULE UP FOR TEST

DO NOT TURN THE COMPUTER OFF IF RAM MEMORY IS BEING USED.

UNPLUG THE TELETYPE CABLE FROM THE J3 BERG SOCKET
ON THE M8316 MODULE IF CONNECTED. IF OPTION 1 + 2 TEST
MODULE IS TO BE USED, GO TO PARAGRAPH 4;3;2.

4;3;1 SETTING THE M8316 MODULE UP FOR TEST WITHOUT OPTION 1 + 2 TEST MODULE

A. SET THE SWITCHES ON THE M8316 MODULE TO THE
DESIRED BAUD RATE LISTED BELOW

S1=1	S1=2	S1=3	BAUD RATE
OFF	OFF	OFF	110 BAUD
OFF	OFF	ON	150 BAUD
OFF	ON	OFF	300 BAUD
OFF	ON	ON	600 BAUD
ON	OFF	OFF	1200 BAUD
ON	OFF	ON	2400 BAUD
ON	ON	OFF	4800 BAUD
ON	ON	ON	9600 BAUD

- B. SET SWITCHES S1=5 AND S1=6 TO THE ON POSITION TO ENABLE THE REAL TIME CLOCK AND THE TEST SWITCH;
 - C. SET SWITCH S1=7 TO ONE OF THE FOLLOWING POSITIONS:
S1=7 IN THE ON POSITION = ONE STOP BIT ON THE SERIAL LINE UNIT
S1=7 IN THE OFF POSITION = TWO STOP BITS ON THE SERIAL LINE UNIT
 - D. SET SWITCH S1=8 TO THE ON POSITION IF THE MODULE IS SETUP FOR 110 BAUD, OTHERWISE, ALWAYS SET THE SWITCH TO THE OFF POSITION.
 - E. CONNECT BERG SOCKETS J4 AND J5 ON THE M8316 MODULE IN PARALLEL USING THE BC08R-01 CABLE. THIS CONNECTS THE 12 BIT PARALLEL I/O OUTPUTS TO ITS INPUTS. BE SURE THAT THE CABLE IS INSTALLED CORRECTLY, I.E., ONE END OF THE CABLE HAS TO BE PLUGGED IN WITH THE LETTERING FACING DOWNWARDS (UPSIDE DOWN).
 - F. DO STEP 1 BELOW TO CONNECT THE SERIAL LINE UNIT UP FOR EIA LOOP BACK OR DO STEP 2 BELOW FOR 20MA LOOP BACK.
 - 1. USING THE TERMII-POINT JUMPERS, CONNECT PIN F TO PIN J AND PIN E TO PIN M ON THE J3 BERG SOCKET ON THE M8316 MODULE OR PLUG THE EIA TEST BERG INTO THE J3 BERG SOCKET; GO TO PARAGRAPH 4,4, PROGRAM INITIALIZATION.
 - 2. USING THE TERMII-POINT JUMPERS, CONNECT PIN E TO PIN H, PIN K TO PIN KK, AND PIN S TO PIN AA ON THE J3 BERG SOCKET ON THE M8316 MODULE; GO TO PARAGRAPH 4,4, PROGRAM INITIALIZATION.
- 4.3.2 SETTING THE M8316 MODULE UP FOR TEST WITH THE OPTION 1 + 2 TEST MODULE
-
- A. SET ALL THE SWITCHES ON THE M8316 MODULE TO THE OFF POSITION.
 - B. PLUG THE OTHER END OF THE IC SOCKET CONNECTOR CABLE, WHICH WAS PLUGGED IN, IN PARAGRAPH 4,2 STEP E, INTO THE TEST SOCKET ON THE M8316 MODULE (PIN 1 TO PIN 1).
 - C. NOW TAKE THE OTHER END OF THE BERG CONNECTOR CABLE, AND PLUG THE BERG CONNECTORS INTO J3, J4, AND J5 BERG SOCKETS ON THE M8316 MODULE.

4.4 PROGRAM INITIALIZATION

THE PROGRAM WHEN LOADED IS INITIALIZED TO RUN WITHOUT THE HARDWARE FRONT PANEL SWITCH REGISTER, WITHOUT THE OPTION 1 + 2 TEST MODULE, WITHOUT XOR TESTING, AND THE AMOUNT OF MEMORY REQUIRED TO RUN THE PROGRAM (4K FOR THE COMPLETE PROGRAM AND 1K FOR THE SEGMENTED 1K VERSIONS OF THE PROGRAM); IF IT IS DESIRED TO CHANGE THE HARDWARE CONFIGURATION, LOAD ADDRESS TO 0021 AND DEPOSIT INTO THIS LOCATION THE APPROPRIATE HARDWARE CONFIGURATION FROM THE BITS LISTED BELOW.

BIT 0 = 0 THE PROGRAM WILL USE LOCATION 0020 AS A PSEUDO SWITCH REGISTER,
BIT 0 = 1 THE PROGRAM WILL USE THE HARDWARE FRONT PANEL SWITCH REGISTER,

BIT 1 = 1 HAS A M8316 OPTION 1 MODULE - N/A TO THE PROGRAM

BIT 4 = 0 THE PROGRAM WILL NOT USE THE OPTION 1 + 2 TEST MODULE TO TEST THE M8316

BIT 4 = 1 THE PROGRAM WILL USE THE OPTION 1 + 2 TEST MODULE TO TEST THE M8316

BIT 5 = 0 NOT RUNNING ON THE PDP-8A XOR TESTER

BIT 5 = 1 RUNNING ON THE PDP-8A XOR TESTER - BIT 4 MUST BE SET AND THE OPTION 1 & 2 TEST MODULES MUST BE USED,

BITS 7 = 11 SPECIFIES THE PDP-8A'S MEMORY SIZE; ALL ZEROES INDICATES 1K OF MEMORY, AN ADDITION OF 1 TO THE NUMBER OF BITS IN 7 = 11 INCREASES MEMORY SIZE BY 1K.

GO TO PARAGRAPH 4.5, DKCB-AA OPTION TEST 1

4.5 RUN DKCB-AA OPTION TEST 1

A. IF THE COMPUTER CONTAINS 4K OF MEMORY, THE MAIN TAPE (DJDKA-B-PB1) IS USED FOR THIS SECTION, OTHERWISE, EACH ONE OF THE FOUR 1K SEGMENTED TAPES SHOULD BE LOADED AND RUN; THEY SHOULD BE LOADED AND RUN IN THE FOLLOWING ORDER, 1K PART 1, 1K PART 2, 1K PART 3, AND 1K PART 4.

B. TO THOROUGHLY CHECKOUT THE SERIAL LINE UNIT WITHOUT THE OPTION 1 + 2 TEST MODULE, THE MAIN PROGRAM, OR THE 1K VERSIONS PART 2, PART 3 AND PART 4 SHOULD BE RUN 3 TIMES WITH THE FOLLOWING CONFIGURATIONS,

- 1: 110 BAUD -2 STOP BITS- 20 MA LOOP BACK
- 2: 150 BAUD -1 STOP BIT- EIA LOOP BACK
- 3: 9600 BAUD -1 STOP BIT- EIA LOOP BACK

REFER TO PARAGRAPH 4.3.1 FOR SETTING UP SWITCHES ON THE M8316 MODULE AND FOR EIA OR 20 MA LOOP BACK CONNECTIONS,

- C. THE 4K PROGRAM AND ALL THE 1K SEGMENTED VERSIONS OF THE PROGRAM START AT ADDRESS 0200;
- D. TO RUN THE PROGRAM, LOAD ADDRESS TO 0200, SET THE SWITCH REGISTER TO 0000, PRESS "INIT" AND THEN "RUN";
- E. SETTING THE SWITCH REGISETER TO 0400, OR IF THE PSEUDO SWITCH REGISTER WAS SET TO 0400 DEPENDING ON WHICH ONE WAS SELECTED BY THE OPERATOR, THE COMPUTER WILL HALT AT THE COMPLETION OF A PROGRAM PASS;
- F. THE PROGRAM WILL NOW RUN UNTIL AN ERROR IS ENCOUNTERED OR THE PROGRAM IS STOPPED BY THE OPERATOR OR SR3=1;

4.6 RUN REAL TIME CLOCK TIMING TEST

- A. THE TEST IS A 30 SECOND STOP WATCH TIMING TEST
- B. LOAD ADDRESS TO 4000 FOR TAPE MAINDEC=08=DJDKA=B=PB1 OR TO 1200 FOR TAPE MAINDEC=08=DJDKA=B=PM4, 1K VERSION PART 4, AND THEN PRESS "INIT";
- C. CHECK STOP WATCH AND PRESS "RUN".
- D. THE PROGRAM SHOULD HALT IN APPROXIMATELY 30 SECONDS AT LOCATION 4021 FOR TAPE MAINDEC=08=DJDKA=B=PB1 OR 1221 FOR TAPE MAINDEC=08=DJDKA=B=PM4,

4.7 RUN SERIAL LINE UNIT TIMING TEST

THIS TEST SHOULD BE RUN FOR THE FOLLOWING CONDITIONS;
1) 110 BAUD=2 STOP BITS, AND 2) 150 BAUD=1 STOP BIT;
REFER TO PARAGRAPH 4.3.1 FOR BAUD RATE AND STOP BIT
SWITCH SETTINGS.

- A. THIS TEST IS A 30 SECOND STOP WATCH TIMING TEST,
- B. LOAD ADDRESS TO 4023 FOR TAPE MAINDEC=08=DJDKA=B=PB1 OR TO 1223 FOR TAPE MAINDEC=08=DJDKA=B=PM4, PRESS "INIT" AND THEN "RUN".
- C. THE COMPUTER WILL HALT AT ADDRESS 4026 OR 1226 FOR TAPES LISTED IN STEP B ABOVE,

- D. SET BITS 8-11 FROM THE TABLE LISTED BELOW IN THE SWITCH REGISTER OR PSEUDO SWITCH REGISTER DEPENDING ON WHICH ONE WAS SELECTED BY OPERATOR, TO THE CONFIGURATION OF THE M8316 MODULE.

SR8 ---	SR9 ---	SR10 ---	SR11 ---	
0	0	0	0	110 BAUD ■ 1 STOP BIT
1	0	0	0	110 BAUD ■ 2 STOP BITS
0	0	0	1	150 BAUD ■ 1 STOP BIT
1	0	0	1	150 BAUD ■ 2 STOP BITS
0	0	1	0	300 BAUD ■ 1 STOP BIT
1	0	1	0	300 BAUD ■ 2 STOP BITS
0	0	1	1	600 BAUD ■ 1 STOP BIT
1	0	1	1	600 BAUD ■ 2 STOP BITS
0	1	0	0	1200 BAUD ■ 1 STOP BIT
1	1	0	0	1200 BAUD ■ 2 STOP BITS
0	1	0	1	2400 BAUD ■ 1 STOP BIT
1	1	0	1	2400 BAUD ■ 2 STOP BITS
0	1	1	0	4800 BAUD ■ 1 STOP BIT
1	1	1	0	4800 BAUD ■ 2 STOP BITS
0	1	1	1	9600 BAUD ■ 1 STOP BIT
1	1	1	1	9600 BAUD ■ 2 STOP BITS

- E. CHECK STOP WATCH AND PRESS "INIT" AND THEN "RUN".

- F. THE PROGRAM SHOULD HALT IN APPROXIMATELY 30 SECONDS AT LOCATION 4102 FOR TAPE MAINDEC=08=DJDKA=B=PB1 OR AT LOCATION 1302 FOR TAPE MAINDEC=08=DJDKA=B=PM4,

4.8 PDP-8A XOR TESTING

DO THE FOLLOWING STEPS TO LOAD AND INITIALIZE THE PROGRAM, TO SETUP THE HARDWARE, AND TO START THE XOR TEST.

- A. LOAD THE BINARY PAPER TAPE, MAINDEC=08=DJDKA=B=PB1, USING THE STANDARD BINARY LOADER TECHNIQUE.

- B. POWER THE PDP-8A XOR DOWN AND DO THE FOLLOWING:

1. UNPLUG ANY TELETYPE MODULE THAT MAY BE PLUGGED INTO THE XOR TESTER.
2. PLUG A PDP-8A OPTION 1 & 2 TEST MODULE INTO THE "KGM" AND "MUT" SIDES OF THE XOR TESTER.
3. PLUG A BUSS LOADS MODULE UNDER EACH OPTION 1 & 2 TEST MODULE.
4. TAKE ONE OF THE I.C. SOCKET CONNECTOR CABLES AND PLUG IT INTO TS-3, 1ST SOCKET ABOVE E63, ON THE OPTION 1 & 2 TEST MODULE ON THE "KGM" SIDE, AND THEN

DO THE SAME ON THE "MUT" SIDE.

5. TAKE THE END OF THE BERG CONNECTOR CABLE WHICH HAS ONLY ONE BERG CONNECTOR ON IT, AND PLUG IT INTO THE BERG SOCKET ON THE TEST MODULE ON THE "KGM" SIDE, NOW DO THE SAME FOR THE "MUT" SIDE.
6. NOW TAKE THE OTHER I.C. SOCKET CONNECTOR CABLE AND PLUG IT INTO TS-4, 1ST SOCKET ABOVE E2, ON THE OPTION TEST MODULE ON THE "KGM" SIDE, NOW PLUG THE OTHER END OF THIS I.C. SOCKET CABLE INTO TS-5, 1ST SOCKET ABOVE E69, ON THE OPTION TEST MODULE ON THE "MUT" SIDE.
7. NOW USING THE MODIFIED PDP-8A OPTION BOARD #1, PLUG THE THREE BERG CONNECTORS FROM THE TEST MODULE ON THE "KGM" SIDE INTO BERG SOCKETS J3, J4, AND J5 ON THE PDP-8A OPTION BOARD #1; NOW PLUG THIS MODULE INTO THE "KGM" SIDE OF THE XOR ABOVE THE OPTION 1 & 2 TEST MODULE.
8. MAKE THE SAME CONNECTIONS AS IN STEP 7 ABOVE ON THE MODULE TO BE TESTED AND PLUG IT INTO THE "MUT" SIDE, ABOVE THE OPTION 1 & 2 TEST MODULE.
9. NOW PLUG THE OTHER END OF THE I.C. SOCKET CONNECTOR CABLE FROM EACH TEST MODULE INTO THE TEST SOCKET ON EACH OF THE PDP-8A OPTION BOARD #1'S.
10. SET ALL SWITCHES ON EACH OF THE PDP-8A OPTION BOARD #1'S TO THE OFF POSITION, AND POWER THE XOR BACK UP.
11. LOAD ADDRESS TO 0021 IN FIELD 0 AND DEPOSIT 6303 INTO THIS LOCATION.
12. SET THE TIME OUT SWITCH ON THE PDP-8A XOR TESTER TO THE SECOND POSITION; SET THE DEVICE CODE SWITCHES ON THE XOR TESTER TO 88 WHEN RUNNING THIS TEST; SET BOARD SELECT TO OTHERS;
13. LOAD ADDRESS TO 0200 AND PRESS "CLEAR" AND THEN "CONTINUE".
- C. THE PROGRAM SHOULD NOW RUN UNTIL AN XOR ERROR IS ENCOUNTERED, AT WHICH TIME THE PROGRAM WILL HANG IN A SCOPE LOOP, LOOPING ON THE TEST THE ERROR WAS ENCOUNTERED IN.
- D. THE AREAS OF LOGIC WHICH THE PROGRAM CAN NOT TEST ARE THE BAUD RATE MULTIPLEXER SECTION AND FRONT PANEL SECTION; IF THE BAUD RATE ON THE "MUT" SIDE IS A LOT HIGHER THAN ON THE "KGM" SIDE, A ERROR WILL NOT BE DETECTED, IF THE BAUD RATE ON THE "MUT" SIDE IS SLOWER THEN ON THE "KGM" SIDE A ERROR WILL BE DETECTED.

5.0 ERRORS
=====

5.1 DKC8-AA OPTION TEST 1 ERRORS
=====

ALL ERRORS DETECTED BY THE PROGRAM WILL RESULT IN AN ERROR HALT, REFER TO THE APPROPRIATE PROGRAM LISTING FOR THE CAUSE OF THE ERROR.

5,1,1 DKC8-AA OPTION TEST 1 ERROR RECOVERY

SET SWITCH REGISTER 0, 1 AND 2 TO A 1 AND PRESS "INIT" AND THEN "RUN". THERE MAY BE 1 OR MORE ERROR HALTS, IF THE ERROR WAS A DATA ERROR OR THE OPTION 1 + 2 TEST MODULE WAS BEING USED, THE PROGRAM IS NOW IN A SCOPE LOOP.

5,2 REAL TIME CLOCK AND SERIAL LINE UNIT TIMING TEST ERRORS

THE OPERATOR MUST DETECT ANY ERRORS IN THE REAL TIME CLOCK TIMING TEST OR THE SERIAL LINE UNIT TIMING TEST, ONCE THE PROGRAM IS STARTED, IT SHOULD HALT IN APPROXIMATELY 30 SECONDS, ANY DEVIATIONS OF MORE THAN A 1/2 SECOND IS AN ERROR,

5,2,1 REAL TIME CLOCK AND SERIAL LINE UNIT TIMING TEST ERROR RECOVERY

AFTER CHECKING THE MODULE TO BE SETUP CORRECTLY, PRESS "RUN" OR RESTART THE TEST, IF THE ERROR STILL EXISTS, CHECK THE REAL TIME CLOCK FREQUENCY OR THE SERIAL LINE UNITS FREQUENCY, DEPENDING ON THE TEST BEING RUN, WITH A SCOPE.

6,0 SWITCH REGISTER SETTINGS

6,1 NORMAL OPERATING SWITCHES

SR3 = 1 (0400) HALT PROGRAM AT COMPLETION OF A PROGRAM PASS

6,2 ERROR SWITCHES

SR0 = 1 (4000) INHIBIT ERROR HALT

SR1 = 1 (2000) LOOP ON ERROR

SR2 = 1 (1000) LOOP ON TEST SUCH AS TEST 1, TEST 2, ETC.,,

7,0 REVISIONS

SUPERCEDES MAINDEC-08-DJOKA-A

8,0 PROGRAM DESCRIPTION

8,1 DKC8-AA OPTION TEST 1

*****THIS IS THE BEGINNING OF THE FIRST SEGMENTED 1K VERSION OF THE PROGRAM IF MEMORY SIZE IS LESS THAN 4K,

TEST 1 - CHECKS THAT INITIALIZE WILL CLEAR ALL FLAGS, ANY ERROR MAYBE DUE TO A FLAG STUCK ON OR THE IOT SKIPPED, THE 12 BIT PARALLEL I/O BUFFER IS CHECKED TO CONTAIN ZEROES, HOWEVER, THE READ COMMAND (DBRD) MAY NOT WORK, THE TESTS WAITS FOR THE RTC FLAG TO SET AND CHECKS THE FLAG TO SKIP, NO INTERRUPTS SHOULD OCCUR.

TEST 2 - IS THE FIRST SECTION OF THE REAL TIME CLOCK DIAGNOSTIC. THIS TEST CHECKS THAT THE REAL TIME CLOCK (RTC) FLAG WILL SET AND THAT CAF WILL CLEAR IT, PROGRAM IS CHECKED NOT TO INTERRUPT,

TEST 3 - CHECKS THE RTC FLAG TO SET AND THAT IT CAN BE CLEARED BY CLCL, THE RTC FLAG IS CHECKED NOT TO CAUSE AN INTERRUPT,

TEST 4 - CHECKS THAT RTC CLOCK INTERRUPT ENABLE CAN BE SET AND CLEARED BY DATA BIT 11 AND CLLE USING THE RTC FLAG TO INTERRUPT ON,

TEST 5 - CHECKS THAT RTC CLOCK INTERRUPT ENABLE CAN BE SET AND THAT CAF WILL CLEAR IT USING THE RTC FLAG TO INTERRUPT ON,

TEST 6 - CHECKS THAT THE THREE RTC IOT'S, CLLE, CLCL, AND CLSK DON'T EFFECT THE AC,

TEST 7 - IS THE FIRST SECTION OF THE 12 BIT PARALLEL I/O, THIS TEST CHECKS THAT DATA ACCEPTED AND DATA READY F/F'S TO BE ZERO FOLLOWING A CAF, THE PROGRAM ISSUES THE IOT DBCF TO CLEAR THE DATA READY FLAG AND TO SET THE DATA ACCEPTED F/F, THE IOT DBST IS THEN ISSUED TO CHECK THAT IT WILL SKIP ON DATA ACCEPTED F/F AND THEN REISSUED TO CHECK THAT THE FIRST DBST CLEARED DATA ACCEPTED,

TEST 8 - CHECKS THAT THE DATA READY FLAG CAN BE SET AND CLEARED, TO SET THE DATA READY FLAG, THE PROGRAM ISSUES THE IOT DBTD TO TRANSMIT AND SET DATA AVAILABLE F/F, THE SETTING OF DATA AVAILABLE F/F IN LOOP BACK MODE SETS THE DATA READY F/F, THE IOT DBSK IS THEN ISSUED TO CHECK THAT THE FLAG IS SET AND THAT THE IOT WILL SKIP, THE PROGRAM THEN CLEARS THE DATA READY FLAG WITH DBCF WHICH ALSO SETS DATA ACCEPTED F/F, THE DATA READY FLAG IS CHECKED TO BE CLEARED BY ISSUING A DBSK AND DATA ACCEPTED F/F IS CHECKED TO BE SET BY ISSUING A DBST, THE DATA ACCEPTED F/F IS CHECKED AGAIN TO BE CLEARED BY ISSUING ANOTHER DBST

TEST 9 - CHECKS THAT CAF WILL CLEAR THE DATA READY FLAG AND THE DATA ACCEPTED FLAG

TEST 10 - CHECKS THAT PARALLEL I/O INTERRUPT ENABLE CAN BE SET AND CLEARED BY DBSE AND DBCE USING THE DATA READY FLAG TO SKIP AND INTERRUPT ON,

TEST 11 - CHECKS THAT INITIALIZE WILL CLEAR THE PARALLEL I/O INTERRUPT ENABLE F/F USING THE DATA READY FLAG TO SKIP AND INTERRUPT ON,

TEST 12 - CHECKS THAT DATA ACCEPTED CAN CAUSE A INTERRUPT, USING

DBCF TO SET DATA ACCEPTED, AND DBSE TO SET INTERRUPT ENABLE,

TEST 13 = CHECKS THE EFFECT OF THE 12 BIT PARALLEL I/O
IOT'S ON THE AC. DBRD SHOULD BE THE ONLY IOT TO CHANGE
THE AC;

TEST 14 = CHECKS THAT ALL ONE'S CAN BE TRANSMITTED AND
READ BACK ON THE 12 BIT PARALLEL I/O; IT ALSO CHECKS THAT
CAF WILL CLEAR THE XMIT BUFFERS. INTERRUPTS ARE ALSO CHECKED;

TEST 15 = CHECKS FOR A COMPLEMENTING DATA PATTERN OF ONE'S
AND ZEROES ON THE 12 BIT PARALLEL I/O AND THAT CAF WILL
CLEAR THE DATA BUFFERS; THE PROGRAM IS CHECKED TO INTERRUPT;

TEST 16 = CHECKS FOR A COMPLEMENTING DATA PATTERN OF
5252 + 2525 AND CHECKS THAT CAF WILL CLEAR THE DATA
BUFFERS; THE PROGRAM IS CHECKED TO INTERRUPT;

*****THIS IS THE BEGINNING OF THE SECOND 1K VERSION OF THE PROGRAM
IF MEMORY SIZE IS LESS THAN 4K;

TEST 17 = CHECKS FOR AN INCREMENTING DATA PATTERN ON THE
12 BIT PARALLEL I/O WITH INTERRUPT ENABLE ENABLED;

TEST 18 = CHECKS FOR AN INCREMENTING DATA PATTERN ON THE
12 BIT PARALLEL I/O WITH INTERRUPT ENABLE DISABLED; THIS
ALLOWS FOR FASTER TRANSMITTING AND READING DUE TO THE
ABSENCE OF A SKIP CHAIN.

TEST 19 = IS TESTED ONLY IF A OPTION 1 + 2 TEST MODULE IS
BEING USED WITH THE PROGRAM, IF NO OPTION 1 + 2 TEST
MODULE IS USED, GO TO TEST 23. TEST 19 CHECKS THAT THE
STROBE F/F CAN BE SET BY DBSS AND TP3 AND THAT TIME
STATE 1 CAN CLEAR IT.

TEST 20 = USES THE OPTION 1 + 2 TEST MODULE TO CHECK THAT
DATA AVAILABLE CAN BE SET BY DBTD AND CLEARED BY CAF.

TEST 21 = USES THE OPTION 1 + 2 TEST MODULE TO CHECK THAT
DBTD WILL SET DATA AVAILABLE AND THAT DBST WILL CLEAR IT.

TEST 22 = USES THE OPTION 1 + 2 TEST MODULE TO CHECK THAT
DATA AVAILABLE CAN BE SET BY DBTD AND CLEARED BY "TS1".

TEST 23 = IS THE FIRST SECTION OF THE SERIAL LINE UNIT (SLU) DIAGNOSTIC.
THIS TEST TRIES TO CLEAR THE SLU INTERRUPT ENABLE BY ISSUING A
KIE COMMAND. THE PROGRAM THEN TESTS THE SLU XMIT FLAG TO
SET BY TFL AND CLEAR BY TCF. THE FLAG IS CHECKED WITH
TSF AND SPI. IF AN INTERRUPT OCCURED, IT MAY BE DUE
TO SLU INTERRUPT ENABLE NOT BEING CLEARED BY KIE AND DATA
BIT 11 EQUAL TO 0;

TEST 24 = CHECKS THAT CAF WILL CLEAR THE SLU XMIT FLAG;
THE PROGRAM CHECKS THAT NO INTERRUPTS OCCURED.

TEST 25 = CHECKS THAT CAF WILL SET SLU INT ENABLE AND THAT
KIE AND DATA 11 ON A 0 WILL CLEAR IT USING THE SLU XMIT
FLAG TO INTERRUPT ON. SPI IS CHECKED TO SKIP AND NOT
TO SKIP.

TEST 26 - CHECKS THAT SLU INTERRUPT ENABLE CAN BE SET AND CLEARED BY KIE AND DATA BIT 11 USING THE XMIT FLAG TO INTERRUPT ON.

TEST 27 - CHECKS THAT TLS WILL CLEAR SLU XMIT FLAG AND THEN SET IT WITH XMIT BUFF MT H; THE PROGRAM THEN CLEARS THE XMIT FLAG AND WAITS FOR RCV DATA AVAILABLE H TO SET RECEIVE FLAG; THE RECEIVE FLAG IS CHECKED TO SKIP AND INTERRUPT AND THEN TO CLEAR BY KCF.

TEST 28 - CHECKS THAT TPC WILL NOT CLEAR SLU XMIT FLAG AND THAT IT WILL RESET IT. THIS TEST ALSO CHECKS THAT THE SLU RECEIVE FLAG WILL SET AND THAT IT CAN BE CLEARED BY KCC.

*****THIS IS THE BEGINNING OF THE THIRD 1K VERSION OF THE PROGRAM IF MEMORY SIZE IS LESS THAN 4K;

TEST 29 - CHECKS THAT KRB WILL CLEAR THE SLU RECEIVE FLAG. THE RECEIVE FLAG IS SET BY ISSUING A TLS.

TEST 30 - CHECKS THAT CAF WILL CLEAR THE SLU RECEIVE FLAG.

TEST 31 - CHECKS THE EFFECT OF THE SERIAL LINE UNITS IOT'S UPON THE AC.

TEST 32 - CHECKS THAT ALL ZEROES CAN BE TRANSMITTED AND READ BACK ON THE SERIAL LINE UNIT.

TEST 33 - CHECKS THAT ALL ONES CAN BE TRANSMITTED OR READ BACK ON THE SERIAL LINE UNIT.

TEST 34 - CHECKS THAT A COMPLEMENTING DATA PATTERN (000-377) CAN BE TRANSMITTED AND READ BACK IN THE SERIAL LINE UNIT.

TEST 35 - CHECKS THAT A COMPLEMENTING DATA PATTERN (252-125) CAN BE TRANSMITTED AND READ BACK ON THE SERIAL LINE UNIT.

TEST 36 - CHECK FOR LOADING AND READING A BINARY COUNT PATTERN ON THE SERIAL LINE UNIT WITH INTERRUPT ENABLED.

TEST 37 - CHECKS FOR LOADING AND READING A BINARY COUNT PATTERN WITHOUT SLU INTERRUPT ENABLE SET TO SAVE TIME IN SKIP-CHAIN SO THAT THE WORD CAN BE READ FASTER.

IF NO OPTION 1 + 2 MODULE, GO TO TEST 42

TEST 38 - USES THE SIMULATOR TO CHECK THAT READER RUN CAN BE SET BY KCC AND KRB AND CLEARED BY INITIALIZE.

TEST 39 - USES THE SIMULATOR TO CHECK THAT READER RUN WILL CLEAR AFTER A WORD HAS BEEN TRANSMITTED AND LOOPS BACK INTO THE RECEIVE BUFFERS USING THE 20 MA CURRENT LOOP FOR 110 BAUD TO 9600 BAUD.

*****THIS IS THE BEGINNING OF THE FOURTH AND LAST SEGMENTED 1K VERSION OF THE PROGRAM IF MEMORY SIZE IS LESS THAN 4K;

IF THE OPTION 1 + 2 TEST MODULE IS NOT USED, GO TO TEST 42.

TEST 40 = USES THE OPTION 1 + 2 TEST MODULE TO TEST
THE REAL TIME CLOCK FREQUENCY, NOT APPLICABLE FOR XOR TESTING

TEST 41 = USES THE OPTION 1 + 2 TEST MODULE TO TEST
THE SERIAL LINE UNITS FREQUENCY FOR BOTH 20 MA
AND EIA LOOP BACKS FROM 110 BAUD TO 9600 BAUD; NOT APPLICABLE FOR XOR TESTING,

TEST 42 = IS AN INTERACTION TEST, THE TEST CHECKS THAT
THE REAL TIME CLOCK, THE SERIAL LINE UNIT AND THE
12 BIT PARALLEL I/O CAN RUN TOGETHER. THE AC AND LINK
ARE LOADED WITH SOME RANDOM DATA BEFORE THE INTERRUPT
IS TURNED ON. THE PROGRAM CHECKS THAT AC AND LINK
DON'T CHANGE AND THAT THE DATA CAN BE TRANSMITTED
AND READ BACK CORRECTLY, NOT APPLICABLE FOR XOR TESTING.

8.2 REAL TIME CLOCK TIMING TEST

IF THE COMPUTER CONSISTS OF LESS THAN 4K OF MEMORY, THIS
TEST (RTCTIM) IS LOCATED IN 1K SEGMENTED VERSION PART 4.

REAL TIME CLOCK TIMING TEST IS A STOP WATCH TIMING TEST, ONCE
THIS TEST HAS BEEN STARTED, THE PROGRAM TURNS THE INTERRUPT ON, AND
COUNTS A CALCULATED NUMBER OF CLOCK FLAGS, WHEN THE PROGRAM
HAS RECEIVED THE CALCULATED NUMBER OF CLOCK FLAGS IT HALTS
THE COMPUTER. THE TIME FROM START TO FINISH SHOULD BE 30 SECONDS +/- HALF A SECOND.

8.3 SERIAL LINE UNIT TIMING TEST

IF THE COMPUTER CONSISTS OF LESS THAN 4K OF MEMORY, THIS TEST
(SLUTIM) IS LOCATED IN 1K SEGMENTED VERSION PART 4.

SERIAL LINE UNIT TIMING TEST IS ALSO A STOP WATCH TIMING TEST;
ONCE THIS TEST HAS BEEN STARTED, THE PROGRAM TURNS THE INTERRUPT
ON AND TRANSMITS A CALCULATED NUMBER OF CHARACTERS (DETERMINED
FROM THE BAUD RATE AND NUMBER OF STOP BITS), THE PROGRAM
SHOULD HALT IN 30 SECONDS +/- HALF A SECOND.

9.0 FLOW CHARTS

NOT APPLICABLE

10.0 PROGRAM LISTINGS

ATTACHED

/DKC8-AA OPTION TEST 1 MAINDEC=08-DJOKA=B=L 4K PAL10 V142A 16-JUN-75 0158 PAGE 1

/DKC8-AA OPTION TEST 1 MAJINDEC=08=DJDKA=B=L 4K

/COPYRIGHT (C) 1974, 1973 DIGITAL EQUIPMENT CORPORATION

1990 CHAMBERS, BRUCE HANSEN

1

/THE FOLLOWING LISTING WILL CORRESPOND TO THE PAPER TAPE LABELED
/MAINDEC-08-DJDKA-B-PB1. THIS PAPER TAPE AND LISTING WILL BE USED WITH
/COMPUTERS WITH 4K OF MEMORY OR MORE. THERE ARE FOUR 1K SEGMENTED
/LISTINGS ATTACHED TO THE END OF THIS LISTING FOR COMPUTERS WITH LESS
/THAN 4K OF MEMORY. REFER TO THE APPROPRIATE 1K LISTING FOR ANY ERRORS
/WHICH MAY HAVE OCCURED WHILE RUNNING THE 1K SEGMENTED PROGRAMS.


```

/DMC8-AA OPTION TEST 1 MAINDEC=0B=OJOKA=B=L 4K
/
/COPYRIGHT (C) 1974, 1975 DIGITAL EQUIPMENT CORPORATION
/
/PROGRAMMED BY BRUCE HANSEN
/
/PROCESSOR INSTRUCTIONS
6007 CAF#6007      /CLEAR ALL FLAGS
6102 SPL#6102      /SKIP ON AC LOW FLIP=FLOP
6103 CAL#6103      /CLEAR AC LOW FLIP=FLOP
6121 SBE#6101      /SKIP ON BATTERY EMPTY
7402 HLT#7402
6244 RMF#6244
6005 RTF#6005
6004 GTF#6004      /RESTORE MEMORY FIELD

/OPTION BOARD NUMBER 1 IOT'S
//SERIAL LINE UNIT
/RECEIVER IOTS
6030 KCF#6030      /CLEAR RECEIVE FLAG; DON'T SET READER RUN
6031 KSF#6031      /SKIP ON RECEIVE FLAG
6032 KCC#6032      /CLEAR RECEIVE FLAG AND AC, SET READER RUN
6034 KRS#6034      /READ RECEIVE BUFFER
6035 KIE#6035      /AC 11#1 SET INTERRUPT ENABLE
6036 KRB#6036      /AC 11#0 CLEAR INTERRUPT ENABLE
/KR#6036          /CLEAR RECEIVE FLAG AND AC, SET READER RUN AND READ
/KR#6036          /RECEIVE BUFFER

/TRANSMIT IOTS
6040 TFL#6040      /SET TRANSMIT FLAG
6041 TSF#6041      /SKIP ON TRANSMIT FLAG
6042 TCF#6042      /CLEAR THE TRANSMIT FLAG
6044 TPC#6044      /LOAD TRANSMIT BUFFER AND TRANSMIT
6045 SPI#6045      /SKIP IF TRANSMIT OR RECEIVE FLAG SET AND INT ENA SET TO A 1
6046 TLS#6046      /LOAD TRANSMIT BUFFER, TRANSMIT AND CLEAR TRANSMIT FLAG

/REAL TIME CRYSTAL CLOCK
6135 CLE#6135      /AC 11#1 SET INTERRUPT ENABLE
6136 CLCL#6136      /AC 11#0 CLEAR INTERRUPT ENABLE
6137 CLK#6137      /CLEAR CLOCK FLAG
6137 CLK#6137      /SKIP ON CLOCK FLAG

/12 BIT PARALLEL I/O
6570 DBT#6570      /SKIP ON DATA ACCEPTED,CLEAR DATA ACCEPTED AND DATA AVAILABLE
6571 DBSk#6571      /SKIP ON DATA READY FLAG
6572 DBRD#6572      /READ DATA INTO AC 0-11
6573 DBCF#6573      /CLEAR DATA READY FLAG, ISSUE DATA ACCEPTED OUT
6574 DBTO#6574      /LOAD AC 0#11 INTO BUFFER AND TRANSMIT DATA OUT
6575 DBSE#6575      /SET INTERRUPT ENABLE TO A 1
6576 DBCE#6576      /SET INTERRUPT ENABLE TO A 0

```

```

6577 DBSS#6577      /ISSUE A STROBE PULSE

/SWITCH REGISTER SETTINGS
/SR0#1 = INHIBIT ERROR HALT
/SR1#1 = LOOP ON ERROR
/SR2#1 = LOOP ON TEST
/SR3#1 = HALT AT COMPLETION OF A PROGRAM PASS

/OPTION BOARD 1 SIMULATOR IOT'S
6150 CLRSIM#6150      /CLEAR SIMULATOR CONTROL REGISTERS
6151 LOADSH#6151      /LOAD SIMULATOR CONTROL WORD 1
6156 CLRDETE#6156      /CLEAR READER RUN, STROBE, AND DATA AVAILABLE CATCHER F/F'S
6157 SKRDR#6157      /SKIP ON READER RUN CATCHER F/F SET
6160 SIMCLR#6160      /CLEAR CONTROL REGISTERS AND MOST OF LOGIC ON SIMULATOR
6161 STFRQ#6161      /START FREQUENCY CHECK (SLU OR RTC)
6162 SKFRQ#6162      /SKIP ON FREQUENCY CHECK IN PROGRESS
6163 LODFRQ#6163      /READ FREQUENCY COUNT INTO AC
6165 SKPDAV#6165      /SKIP ON DATA AVAILABLE CATCHER F/F SET
6167 SKPSTH#6167      /SKIP ON STROBE CATCHER F/F SET

/OPTION BOARD 1 SIMULATOR CONTROL WORD BIT ASSIGNMENTS
/BIT 0    COUNTER RESET      1=ACTIVATE
/                   0=NO ACTION
/BIT 1    PARALLEL I/O CLEAR DATA      1=RTS1
/                   AVAILABLE SELECT      0=DATA ACCEPTED IN
/BIT 2    NOT USED
/BIT 3    NOT USED
/BIT 4    NOT USED
/BIT 5    RTC FREQUENCY OR      1=RTC
/                   SLU FREQUENCY CHECK      0=SLU BAUD RATES
/BIT 6    REAL TIME CLOCK      1=OFF
/                   0=ON
/BIT 7    SLU EIA/20MA SELECT      1=EIA RECEIVE DATA
/                   0=20 MA RECEIVE DATA
/BIT 8    STOP BIT SELECT      1=1 STOP BITS
/                   0=2 STOP BIT
/BIT 9    BAUD RATE SELECT      BIT 9, 10, 11 ALL 0'S
/BIT 10   BAUD RATE SELECT      EQUALS 110 BAUD, EACH
/BIT 11   BAUD RATE SELECT      INCREASING BIT SELECTS,
/                   NEXT HIGHEST BAUD RATE;

```

```

6170 XRON=6170
6171 SKXRN=6171 /SKIP IF ERROR 1 FLOP SET
6172 XRCI=6172 /CLEAR INTERRUPT ENABLE
6173 STIP=6173 /SKIP IF NOT POWER AND 1ST XRON
6174 XRSI=6174 /SET INT ENABLE
6175 SXRCG=6175 /SKIP IF ERROR 2 AND CLEAR IT
6176 XRTD=6176 /SET TIME OUT

2000 *0
0002 0302 302 /PROGRAM REVISION LETTER=MAINDEC=08=DJOKA=B
0001 6244 RMF /RESTORE MEMORY FIELDS
0002 5403 JMP I 3 /RETURN TO INTERRUPT SERVICE ROUTINE
0003 3244 SIMINT/SKPCHN/SIMCHK/RTCINT/SLUINT /INTERRUPT SERVICE ROUTINES

2020 *20
0020 0000 SWITCH, 0
0021 2003 OPSEL, 2003
        /BIT 0=0 USE LOCATION 29 AS A PSEUDO SWITCH REGISTER
        /BIT 0=1 USE HARDWARE FRONT PANEL SWITCH REGISTER
        /BIT 1=1 HAS OPTION 1
        /BIT 2=1 HAS OPTION 2
        /BIT 3=1 HAS 8A CPU SIMULATOR
        /BIT 4=1 HAS 8A OPTION 1+2 SIMULATOR
        /BIT 5=1 PROGRAM ON PDP-8A XOR (REQUIRES BIT 4 SET ALSO)
        /BIT 6=1 HAS PDP-8E TYPE CPU
        /BIT 7=11 MEMORY SIZE = 0=8K, 37=32K; MEMORY
        /SIZE CAN BE INCREASED IN 1K INCREMENTS BY ADDING
        /ONE TO THE NUMBER IN BITS 7 = 11
        /BIT 0 IS SET FOR THE ACT LINE

0022 0000 OP2SEL, 0
        LOOPPC=JMS I,
0023 3200 PCLOOP
        DONLOOP=JMS I,
0024 3221 LOPDON
        CLSKWT=JMS I,
0025 3392 HTCLSK
        PIDDAT=JMS I,
0026 3600 DATPIO
        ERROR=JMS I,
0027 4427 AERROR
        PIDDERE=JMS I,
0028 3711 DERRIO
        TSFWAT=JMS I,
0029 3327 WATTSF
        KSFWAT=JMS I,
0030 3341 WATKSF
        SLUDAT=JMS I,
0031 3693 DATSLU
        SLUDER=JMS I,
0032 3434 DERSLU
        SWHCHK=JMS I,
0033 3407 CHKSWH

```

```

4436 SIMCHK=JMS I,
0036 3761 CHKSIM
4437 LODSIM=JMS I,
0037 3214 SIMLOD
4146 RTCENA=JMS ENARTC

0040 PRGEND=JMP I,
0043 3400 ENDPAS

/LOCATIONS USED BY THE PROGRAM

0041 0000 INTFLG, 0
0042 0000 CLKFLG, 0
0043 0000 CNT, 0
0044 0000 CNTI, 0
0045 0000 TEST, 0
0046 0000 TSTLDP, 0
0047 0000 TSTCNT, 0
0050 0000 SAVCNT, 0
0051 0000 PIOXT, 0
0052 0000 PIOREC, 0
0053 0000 SLUXHT, 0
0054 0000 SLUREC, 0
0055 0000 CONTWD, 0
0056 2377 K377, 377
0057 0200 K200, 200
0060 0252 K252, 252
0061 1125 K125, 125
0062 5252 K5252, 5252
0063 2525 K2525, 2525
0064 0007 K7, 7
0065 7774 44, -4
0066 7770 10, -10
0067 2000 SIMONT, 0

0070 4160 DELAYR, DELAY
0071 0000 EXPACD, 0
0072 0000 LINK, 0
0073 0000 XMFLLG, 0
0074 0000 RECFLG, 0
0075 0000 RTCFLG, 0
0076 0000 PNDINT, 0
0077 0000 INACTV, 0
0100 6520 BADPAS, 6520 /ACT LINE ERROR RETURN TO FIELD 7
0101 6500 GOODPS, 6500 /ACT LINE GOOD RETURN TO FIELD 7
0102 7634 ACTCNT, =144
0103 7634 M144, =144


```

/ROUTINE TO SETUP FIELD 0 TO HANDLE INTERRUPTS FROM ANOTHER FIELD

```

0104 0000 PATCH, 0
0105 1504 TAD I PATCH /GET THE INTERRUPT SERVICE ADDRESS

```

/DKC8-AA OPTION TEST 1 MAINDEG=08=DJOKA=B=L 4K PAL10 V142A 16-JUN-75 8156 PAGE 2-4

0106	3124	DCA SAVADD	/SAVE INTERRUPT ADDRESS
0107	6201	CDF	/CHANGE DATA FIELD TO FIELD 2
0110	1131	TAD KRMF	/GET THE INSTRUCTION RNF
0111	3525	DCA I K1	/PUT IT IN LOCATION 1 OF FIELD 0
0112	1130	TAD KJMP	/GET THE INSTRUCTION JMP I 3
0113	3526	DCA I K2	/PUT IT IN LOCATION 2 OF FIELD 0
0114	1124	TAD SAVADD	/GET THE INTERRUPT SERVICE ADDRESS
0115	3527	DCA I K3	/PUT IT IN LOCATION 3 OF FIELD 0
0116	6224	RIF	/GET THE PROGRAM FIELD INTO THE AC
0117	1132	TAD KCDF	/AND IT TO THE CDF INSTRUCTION
0120	3121	DCA +1	/PUT IT IN THE NEXT LOCATION
0121	7402	HLT/CDF	/EXECUTE IT
0122	2104	ISZ PATCH	/ADD 1 TO THE ENTRANCE
0123	5504	JMP I PATCH	/RETURN
0124	3000	SAVADD, 0	
0125	2001	K1, 1	
0126	3002	K2, 2	
0127	3003	K3, 3	
0130	5403	KJMP, JMP I 3	
0131	6244	KRMP, 6244	
0132	6201	KCDF, CDF	
0133	6005	KRTF, RTF	
0134	0000	ACTFLG, 0	
0135	0000	CLKSNC, 0	

/THIS ROUTINE USED WHEN RUNNING ON THE ACT LINE TO SIGNIFY THAT NO ERRORS HAVE BEEN ENCOUNTERED

0136	0000	TSTGOD, 0	
0137	1022	TAD OP2SEL	/GET THE HARDWARE FLAG
0140	7700	SMA CLA	/ARE WE ON THE ACT LINE?
0141	5536	JMP I TSTGOD	/NO, RETURN TO THE PROGRAM
0142	6002	IOF	/TURN THE INTERRUPT OFF
0143	6272	CIF 70	/CHANGE THE INSTRUCTION TO FIELD 7
0144	4501	JMS I GOODPS	/GO TO PROH
0145	5536	JMP I TSTGOD	/RETURN TO THE PROGRAM

0146	0000	ENARTC, 0	
0147	1922	TAD OP2SEL	/CHECK TO SEE IF ON ACT LINE
0150	7710	K7710, SPA CLA	/IF NOT CLEAR RTC INT ENA
0151	7301	CLA CLL IAC	/SET AC BIT 11
0152	6135	CLLE	/LOAD BIT \$1 INTO CLOCK INT ENA
0153	7200	CLA	
0154	5546	JMP I ENARTC	
0200	#200		

/INITIALIZATION TEST
/TEST 1 = CHECKS THAT INITIALIZE WILL CLEAR ALL FLAGS. ANY ERROR MAYBE DUE TO A

/DKC8-AA OPTION TEST 1 MAINDEG=08=DJOKA=B=L 4K PAL10 V142A 16-JUN-75 8156 PAGE 2-5

/FLAG STUCK ON OR THE IOT SKIPPED, THE PARALLEL I/O BUFFER IS CHECKED TO CONTAIN ZEROES, HOWEVER, THE READ COMMAND (6572) MAY NOT WORK, THE TEST WAITS FOR THE RTC FLAG TO SET AND CHECKS THE FLAG TO SKIP, NO INTERRUPTS SHOULD OCCUR, /NOTE! INITIALIZE SETS THE SERIAL LINE UNIT'S INTERRUPT ENABLE,

0202	6160	TEST1, SIMCLR	
0201	4104	JMS PATCH	/SETUP INTERRUPT SERVICE
0202	3244	SIMINT	
0203	4423	LOOPPC	/STORE THE LOOPING PC AND SETUP TEST COUNT
0204	7777	=1	/SETUP SIMULATOR ITERATION COUNTER
0205	4436	SIMCHK	/CHECK FOR SIMULATOR
0206	4000	4000	/CONTROL WORD FOR SIMULATOR
0207	4437	LOOSIM	/LOAD SIMULATOR-TEST LOOP USING SIMULATOR
0210	3041	DGA INTFLG	/CLEAR PROGRAM INTERRUPT FLAG
0211	6007	CAF	/INITIALIZE THE MODULE = CAF SETS INT ENA ON SLU
0212	6001	ION	/TURN THE INTERRUPT ON
0213	6931	KSF	
0214	7410	SKP	/SKIP ON RECEIVE FLAG
0215	4427	ERROR	/RECEIVE FLAG SET OR KSF SKIPPED
0216	6041	TSF	/SKIP ON TRANSMIT FLAG
0217	7410	SKP	
0220	4427	FRROR	/TRANSMIT FLAG SET OR TSF SKIPPED
0221	6945	SPI	/SKIP ON XMIT/RECEIVE + INT ENA
0222	7410	SKP	
0223	4427	ERROR	/0 SIDE OF XMIT/RECEIVE WLD LOW OR SPI SKIPPED
0224	6571	DBSK	/SKIP ON DATA READY FLAG
0225	7410	SKP	
0226	4427	ERROR	/DATA READY FLAG SET OR DBSK SKIPPED
0227	6570	DBST	/SKIP ON DATA ACCEPTED 0 IT AND DATA AVAILABLE
0230	7410	SKP	
0231	4427	ERROR	/DBST SKIPPED OR DATA ACCEPTED SET
0232	7240	CLA CMA	/SET THE AC TO ALL ONES
0233	6572	DBRD	/READ THE 12 BIT PARALLEL I/O BUFFER
0234	7410	SKP	
0235	4427	ERROR	/DBRD SKIPPED
0236	7640	SEA CLA	
0237	4427	ERROR	/CAF FAILED TO CLEAR XMIT BUFFER OR DBRD FAILED,
0240	4425	CLSKWT	/WAIT FOR REAL TIME CLOCK FLAG TO SET
0241	4427	ERROR	/CLOCK FLAG FAILED TO SET WITHIN A ISE LOOP
0242	1041	TAD INTFLG	/DID THE PROGRAM INTERRUPT
0243	7640	SZA CLA	
0244	4427	ERROR	/PROGRAM INTERRUPTED = ALL FLAGS ZERO EXCEPT CLK FLG
0245	4424	DONLOP	/CHECK TO SEE IF DONE, OR LOOP ON TEST IF SR2=1

//FIRST SECTION OF THE REAL TIME CLOCK DIAGNOSTIC
/TEST 2 = CHECKS THAT KLRK TICK WILL SET CLK FLAG AND THAT CAF WILL CLEAR IT, THE PROGRAM IS CHECKED NOT TO INTERRUPT,

0246	4104	TEST2, JMS PATCH	/SETUP INTERRUPT SERVICE
0247	3252	SKPCHN	
0250	7240	CLA CMA	
0251	3042	DCA CLKFLG	/SET INTERRUPT CHAIN TO ACKNOWLEDGE CLOCK INTERRUPTS,

```

0252 4423    LOOPPC    /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0253 7777    =1        /SIMULATOR ITERATION COUNTER
0254 4436    SIMCHK   /CHECK TO SEE IF SIMULATOR IS SELECTED
0255 4000    4000    /CONTROL WORD FOR THE SIMULATOR
0256 4437    LOOSIM   /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                      /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                      /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
0257 7344    CLA CLL CMA RAL /SETUP A PROGRAM LOOP TO LOOK AT 2 CLOCK FLAGS
0258 3135    DCA CLKNSNC /TO SYNC THE REAL TIME CLOCK
0259 3041    DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
0260 6007    CAF      /CLEAR ALL FLAGS BUT SET INT ENA ON SLU
0261 6001    ION      /TURN THE INTERRUPT ON
0262 6007    CLSKWT   /WAIT FOR THE CLOCK FLAG TO SET
0263 6001    ERROR    /CLK FLAG FAILED TO SET OR NO KLKL TICK PULSE
0264 4429    TAD INTFLG /GET THE PROGRAM INTERRUPT FLAG
0265 1041    SEA CLA   /DID IT INTERRUPT?
0266 7648    ERROR    /PROGRAM INTERRUPTED WITHOUT CLK INT ENA
0267 4427    ISE CLKNSNC /2ND FLAG SET?
0268 9261    JMP ,=11   /NO, GO AND TRY TO CLEAR CLK FLAG WITH CAF
0269 6007    CAP      /CLEAR ALL FLAGS BUT SET SLU'S INT ENA
0270 6001    ION      /TURN THE INTERRUPT BACK ON
0271 2135    CLSK     /SKIP ON THE CLOCK FLAG
0272 6001    SKP CLA   /CAF FAILED TO CLEAR CLK FLAG OR CLSK SKIPPED,
0273 6137    ERROR    /GET THE PROGRAM INTERRUPT FLAG
0274 7618    TAD INTFLG /PROGRAM INTERRUPTED WITHOUT CLK INT ENA +
0275 1041    SEA CLA   /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1
0276 7648    ERROR    /PROGRAM INTERRUPTED WITHOUT CLK INT ENA + CLK FLAG
0277 4427    TAD INTFLG /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1
0278 1041    SEA CLA   /GET THE PROGRAM INTERRUPT FLAG
0279 7648    ERROR    /PROGRAM INTERRUPTED WITHOUT CLK INT ENA +
0280 4427    TAD INTFLG /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1
0281 6001    SEA CLA   /GET THE PROGRAM INTERRUPT FLAG
0282 6137    CLSK     /PROGRAM INTERRUPTED WITHOUT CLK INT ENA +
0283 4424    DONLOP   /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1

```

```

/***** TEST 3 - CHECKS THAT KLKL TICK WILL SET CLK FLAG AND THAT IT CAN BE CLEARED BY CLCL.
/THE CLK FLAG IS CHECKED NOT TO CAUSE AN INTERRUPT;
/*****

```

```

0304 4423    TEST3,  LOOPPC    /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0305 7777    =1        /SIMULATOR ITERATION COUNTER
0306 4436    SIMCHK   /CHECK TO SEE IF SIMULATOR IS SELECTED
0307 4000    4000    /CONTROL WORD FOR THE SIMULATOR
0308 4437    LOOSIM   /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                      /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                      /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
0309 7344    CLA CLL CMA RAL /SETUP A PROGRAM LOOP TO LOOK AT 2 CLK FLAGS TO
0310 3135    DCA CLKNSNC /SYNC THE REAL TIME CLOCK
0311 3041    DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
0312 6007    CAF      /CLEAR ALL FLAGS BUT SET INT ENA ON SLU
0313 6001    ION      /TURN INTERRUPT ON
0314 6007    CLSKWT   /WAIT FOR CLK FLAG
0315 6001    ERROR    /CLK FLAG FAILED TO SET
0316 4429    TAD INTFLG /GET THE PROGRAM INTERRUPT FLAG
0317 4427    SEA CLA   /DID IT INTERRUPT?
0318 1041    ERROR    /PROGRAM INTERRUPTED WITH CLK INT ENA,
0319 7648    ISE CLKNSNC /2ND FLAG SET?
0320 5313    JMP ,=11   /NO, GO CLEAR THE FLAG WITH CAF AND WAIT FOR NEXT ONE
0321 6136    CLCL     /CLEAR THE CLK FLAG
0322 7618    SKP CLA   /CLEAR THE CLK FLAG

```

```

0327 4427    ERROR    /CLCL SKIPPED
0328 6137    CLSK     /SKIP ON CLOCK FLAG
0329 7618    SKP CLA   /CLCL FAILED TO CLEAR CLK FLAG
0330 4427    ERROR    /GET THE PROGRAM INTERRUPT FLAG
0331 1041    TAD INTFLG /DID THE PROGRAM INTERRUPT?
0332 7648    SEA CLA   /PROGRAM INTERRUPTED, COULD BE CLCL SHORTED TO CLLE
0333 4427    ERROR    /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1
0334 4424    DONLOP   /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1

```

```

/***** TEST 4 - CHECK THAT CLK INT ENA CAN BE SET AND CLEARED BY DATA BIT 11
/AND CLLE USING THE CLK FLAG TO INTERRUPT ON
/*****

```

```

0337 4423    TEST4,  LOOPPC    /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0338 7777    =1        /SIMULATOR ITERATION COUNTER
0339 4436    SIMCHK   /CHECK TO SEE IF SIMULATOR IS SELECTED
0340 4000    4000    /CONTROL WORD FOR THE SIMULATOR
0341 4437    LOOSIM   /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                      /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                      /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
0342 7344    CLA CLL CMA RAL /SETUP A PROGRAM LOOP TO LOOK AT 2 CLK FLAGS
0343 3135    DCA CLKNSNC /TO SYNC UP THE REAL TIME CLOCK
0344 3041    DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
0345 6007    CAF      /CLEAR ALL FLAGS BUT SET INT ENA ON SLU
0346 6001    ION      /TURN THE INTERRUPT ON
0347 6007    CLSKWT   /WAIT FOR THE CLK FLAG
0348 6001    ERROR    /CLK FLAG FAILED TO SET
0349 4429    TAD INTFLG /GET THE PROGRAM INTERRUPT FLAG
0350 7648    SEA CLA   /DID THE PROGRAM INTERRUPT?
0351 4427    CLLE     /FLAG INTERRUPTED WITHOUT CLK INT ENA
0352 4427    TAD INTFLG /2ND FLAG SET?
0353 1041    ISE CLKNSNC /NO, GO CLEAR FLAG WITH CAF AND WAIT FOR NEXT FLAG
0354 7648    JMP ,=11   /CLEAR THE CLOCK FLAG
0355 4427    CLSK     /CLEAR THE CLOCK FLAG
0356 6136    CLCL     /SKIP ON CLOCK FLAG
0357 6137    CLSK     /CLCL FAILED TO CLEAR CLK FLAG
0358 7618    CLLE     /SET DATA BIT 11 TO A ONE
0359 4427    CLLE     /TRY AND SET CLK INT ENA
0360 6136    CLLE     /CLLE SKIPPED,
0361 6137    CLSK     /GET THE PROGRAM INTERRUPT FLAG
0362 7618    CLLE     /PROGRAM INTERRUPTED WITHOUT CLK FLAG SET
0363 4427    CLLE     /WAIT FOR NEXT CLK FLAG
0364 7301    CLA CLL IAC /CLK FLAG FAILED TO SET
0365 6135    CLLE     /DID THE PROGRAM INTERRUPT?
0366 7618    CLLE     /CLLE FAILED TO SET CLK INT ENA OR FAILED TO INT
0367 4427    CLLE     /CLEAR THE PROGRAM INTERRUPT FLAG
0368 1041    CLLE     /CLEAR CLK INT ENA
0369 7648    CLSK     /TURN THE INTERRUPT ON
0370 7648    CLLE     /
0371 7648    CLLE     /GET THE PROGRAM INTERRUPT FLAG
0372 4427    CLLE     /DID IT INTERRUPT?
0373 4425    XORENA,  CLSKWT   /YES, CLLE FAILED TO CLEAR CLK INT ENA
0374 4427    CLLE     /
0375 2041    ISE INTFLG /GET THE PROGRAM INTERRUPT FLAG
0376 4427    CLLE     /DID IT INTERRUPT?
0377 3041    DCA INTFLG /YES, CLLE FAILED TO CLEAR CLK INT ENA
0378 6135    CLLE     /
0379 6001    ION      /TURN THE INTERRUPT ON
0380 7300    CLA CLL   /
0381 1041    TAD INTFLG /GET THE PROGRAM INTERRUPT FLAG
0382 7648    SEA CLA   /DID IT INTERRUPT?
0383 4427    CLLE     /YES, CLLE FAILED TO CLEAR CLK INT ENA

```

/DKC8-AA OPTION TEST 1 MAINDEC=0B=DJOKA=R=L 4K PAL10 V142A 16-JUN-75 8158 PAGE 2-8

0406	6136	CLCL	/CLEAR THE CLOCK FLAG
0407	6137	CLKS	/SKIP ON CLOCK FLAG
0410	7610	SKP CLA	
0411	4427	ERROR	/ERROR CLCL FAILED TO CLEAR CLOCK FLAG
0412	4424	DONLDP	/REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2#1

/TEST 5 = CHECKS THAT CLK INT ENA CAN BE SET AND THAT CAF WILL CLEAR IT
/USING THE CLK FLAG TO INTERRUPT ON,

0413	4423	TEST5,	LOOPPC	/SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0414	7777		=1	/SIMULATOR ITERATION COUNTER
0415	4436		SIMCHK	/CHECK TO SEE IF SIMULATOR IS SELECTED
0416	4000		4000	/CONTROL WORD FOR THE SIMULATOR
0417	4437		LOADSIM	/LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
				/LOOP = THIS ADDRESS IF SIMULATOR SELECTED
				/OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
0420	7344		CLA CLL CMA RAL	/SETUP A PROGRAM LOOP TO LOOP AT 2 CLOCK FLAGS
0421	3135		DCA CLKNSC	/TO SYNC UP THE REAL TIME CLOCK
0422	3041		DCA INTFLG	/CLEAR PROGRAM INTERRUPT FLAG
0423	6007		CAF	/CLEAR ALL FLAGS AND SET INT ENA ON SLU
0424	6001		ION	/TURN THE INTERRUPT ON
0425	4425		CLSKWT	/WAIT FOR THE CLOCK FLAG
0426	4427		ERROR	/CLK FLAG FAILED TO SET
0427	1041		TAD INTFLG	/GET THE PROGRAM INTERRUPT FLAG
0430	7640		SEA CLA	
0431	4427		ERROR	/PROGRAM INTERRUPTED WITHOUT CLK INT ENA
0432	2135		ISZ CLKNSC	/2ND FLAG SET?
0433	5222		JMP ,=11	/NO, GO CLEAR FLAG AND WAIT FOR NEXT
0434	7301		CLA CLL IAC	
0435	6135		CLLE	/SET INTERRUPT INABLE TO A ONE
0436	7300		CLA CLL	/SHOULD INTERRUPT HERE
0437	2041		ISZ INTFLG	/DID THE PROGRAM INTERRUPT
0440	4427		ERROR	/PROGRAM FAILED TO INTERRUPT WITH CLK FLAG + CLK INT ENA
0441	6007		CAF	/CLEAR ALL FLAGS
0442	6001		ION	
0443	4425		CLSKWT	/WAIT FOR CLK FLAG
0444	4427		ERROR	/CLK FLAG FAILED TO RESET
0445	1041		TAD INTFLG	/GET THE PROGRAM INTERRUPT FLAG
0446	7640		SEA CLA	/DID IT INTERRUPT
0447	4427		ERROR	/CAF FAILED TO CLEAR CLK INT ENA
0450	6136		CLCL	/CLEAR THE CLOCK FLAG
0451	4424		DONLDP	/REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2#1

/TEST 6 = CHECKS THAT THE THREE RTC IOT'S DON'T EFFECT THE AC

0452	4423	TEST6,	LOOPPC	/STORE THE TEST LOOPING PC
0453	7777		=1	/SIMULATOR ITERATION COUNTER
0454	4436		SIMCHK	/CHECK TO SEE IF SIMULATOR IS SELECTED
0455	4000		4000	/CONTROL WORD FOR THE SIMULATOR
0456	4437		LOADSIM	/LOAD SIMULATOR IF SELECTED ALSO SET SCOPE

/DKC8-AA OPTION TEST 1 MAINDEC=0B=DJOKA=B=L 4K PAL10 V142A 16-JUN-75 8158 PAGE 2-9

				/LOOP = THIS ADDRESS IF SIMULATOR SELECTED
				/OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
0457	6007		CAF	
0460	6001		ION	
0461	7344		CLA CLL CMA RAL	
0462	6135		CLLE	/CLEAR CLK INT ENABLE
0463	1126		TAD K2	
0464	7640		SEA CLA	
0465	4427		ERROR	/CLIE CHANGED THE AC
0466	7240		CLA CMA	
0467	6136		CLCL	/CLEAR CLOCK FLAG
0470	7001		IAC	
0471	7640		SEA CLA	
0472	4427		ERROR	/CLCL CHANGED THE AC
0473	7240		CLA CMA	
0474	6137		CLSK	/SKIP ON CLOCK FLAG
0475	7000		VOP	
0476	7001		IAC	
0477	7640		SEA CLA	
0503	4427		ERROR	/CLSK CHANGED THE AC
0501	4424		DONLDP	/CHECK TO SEE IF DONE OR LOOP ON TEST;
0502	4136		JMS TSTGOD	/GO CHECK FOR THE ACT LINE

/FIRST SECTION OF THE 12 BIT PARALLEL I/O DIAGNOSTIC TESTS
/THE PARALLEL I/O MUST BE CONNECTED IN LOOP BACK MODE (12 BIT DATA OUT
/TO 12 BIT DATA IN, DATA AVAILABLE TO SET DATA READY, AND DATA ACCEPTED
/OUT TO DATA ACCEPTED IN), THE SWITCH FOR TS1 TO CLEAR DATA AVAILABLE SHOULD
/BE LEFT OFF TO RUN THIS SECTION OF THE PROGRAM.

				/TEST 7 = CHECKS THE DATA ACCEPTED AND THE DATA READY FLIP-FLOPS TO BE /ZERO FOLLOWING A CAF, THE PROGRAM ISSUES THE IOT DBCF TO CLEAR THE DATA /READY FLAG AND TO SET THE DATA ACCEPTED F/F, THE IOT DBST IS THEN /ISSUED TO CHECK THAT IT WILL SKIP ON DATA ACCEPTED F/F, AND THEN RE- /ISSUED TO CHECK THAT THE FIRST DBST CLEARED DATA ACCEPTED; *****
0503	4104	TEST7,	JMS PATCH	
0504	3252		SKPCHN	
0505	4420		LOOPPC	/SETUP TEST COUNT AND TEST LOOPING ADDRESS
0506	7777		=1	/SIMULATOR ITERATION COUNTER
0507	4436		SIMCHK	/CHECK TO SEE IF SIMULATOR IS SELECTED
0510	4000		4000	/SIMULATOR CONTROL WORD
0511	4437		LOADSIM	/LOAD SIMULATOR IF SELECTED ALSO SET SCOPE LOOP
				/EQUAL THIS ADDRESS IF SELECTED OTHERWISE
				/SET IT TO THE NEXT ADDRESS
0512	6007		CAF	/CLEAR ALL FLAGS
0513	4146		RTCENA	/SET REAL TIME CLOCK INT ENA
0514	3041		DCA INTFLG	/CLEAR PROGRAM INTERRUPT FLAG
0515	3042		DCA CLKFLG	/SET INTERRUPT SERVICE TO IGNORE CLOCK FLAG
0516	6001		ION	/TURN THE INTERRUPT ON
0517	4571		DBSK	/SKIP ON THE DATA READY FLAG
0520	7640		SEA CLA	/CHECK THAT DBSK DIDN'T READ ANYTHING INTO AC

/DKC8-AA OPTION TEST 1 MAINDEQ=0B=DJOKA=B=L 4K PAL10 V142A 16-JUN-75 8:58 PAGE 2-10

0521	4427	ERROR		/INIT FAILED TO 0 DATA READY, DBSK SKIPPED OR
0522	6570	DBST		/READ SOMETHING INTO THE AC
0523	7640	SZA	CLA	/SKIP ON DATA ACCEPTED, 0 DATA ACCEPTED AND DATA AVAILABLE
0524	4427	ERROR		/INIT FAILED TO 0 DATA ACCEPTED, DBST SKIPPED OR
0525	1841	TAD	INTFLG	/DBST READ SOMETHING INTO THE AC
0526	7640	SZA	CLA	/GET THE PROGRAM INTERRUPT FLAG
0527	4427	ERROR		/PROGRAM INTERRUPTED WITHOUT INT ENA AND FLAG SET
0530	6573	DBCF		/CLEAR DATA READY SET DATA ACCEPTED
0531	7640	SZA	CLA	
0532	4427	ERROR		/DBCF SKIPPED OR READ SOMETHING INTO AC
0533	6571	DBSK		/SKIP ON DATA READY
0534	7610	SKP	CLA	
0535	4427	ERROR		/DATA READY FLAG GOT SET BY DBST OR DBCF
0536	6570	DBST		/SKIP ON DATA ACCEPTED AND CLEAR IT
0537	4427	ERROR		/DATA ACCEPTED NOT SET OR DBST FAILED TO SKIP
0540	6570	DBST		/SKIP ON DATA ACCEPTED TO CHECK THAT IT CLEARED
0541	7610	SKP	CLA	/DBST AND TP4 FAILED TO CLEAR DATA ACCEPTED F/F
0542	4427	ERROR		/GET THE PROGRAM INTERRUPT FLAG
0543	1841	TAD	INTFLG	/PROGRAM INTERRUPTED WITHOUT INT ENA SET
0544	7640	SZA	CLA	
0545	4427	ERROR		/REPEAT TEST IF SR EQUAL TO 1000
0546	4424	DONLDP		

```
=====
/TEST 8 = CHECKS THAT THE DATA READY FLAG CAN BE SET AND CLEARED, TO
/SET THE DATA READY FLAG; THE PROGRAM ISSUES THE IOT DBTD TO TRANSMIT
/AND SET DATA AVAILABLE F/F. THE SETTING OF DATA AVAILABLE F/F IN LOOP
/BACK MODE SETS THE DATA READY F/F; THE IOT DBSK IS THEN ISSUED TO
/CHECK THAT THE FLAG IS SET AND THAT THE IOT WILL SKIP; THE PROGRAM
/THEN CLEARS THE DATA READY FLAG WITH DBCF WHICH ALSO SETS DATA ACCEPTED.
/THE DATA READY FLAG IS CHECKED TO BE CLEARED BY ISSUING A DBSK AND
/DATA ACCEPTED F/F IS CHECKED TO BE SET BY ISSUING A DBST; THE DATA
/ACCEPT F/F IS CHECKED AGAIN TO BE CLEARED BY ISSUING ANOTHER DBST;
=====
```

0547	4423	TEST8:	LOOPPC	/SETUP TEST COUNT AND TEST LOOPING ADDRESS
0550	7777		=1	/SIMULATOR ITERATION COUNTER
0551	4436		SIMCHK	/CHECK TO SEE IF THE SIMULATOR IS SELECTED
0552	4000		4000	/SIMULATOR CONTROL WORD
0553	4437		LOOSIM	/LOAD SIMULATOR IF SELECTED, ALSO SET SCOPE
				/LOOP # THIS ADDRESS IF SELECTED OTHERWISE
				/SCOPE LOOP WILL BE NEXT ADDRESS;
0554	6007		CAF	/CLEAR ALL FLAGS
0555	4146		RTCENA	/SET REAL TIME CLOCK INT ENA
0556	3041		DCA	/CLEAR PROGRAM INTERRUPT FLAG
0557	6501		ION	/TURN THE INTERRUPT ON
0560	6571		DBSK	/SKIP ON DATA READY FLAG
0561	7610		SKP	
0562	4427		ERROR	/DATA READY FLAG SET OR DBSK SKIPPED
0563	6570		DBST	/SKIP ON DATA ACCEPTED, 0 DATA ACCEPTED AND DATA AVAILABLE
0564	7610		SKP	
0565	4427		ERROR	/DATA ACCEPTED SET OR DBST SKIPPED
0566	6574		DBTD	/TRANSMIT AND SET DATA AVAILABLE AND DATA READY

/DKC8-AA OPTION TEST 1 MAINDEQ=0B=DJOKA=B=L 4K PAL10 V142A 16-JUN-75 8:58 PAGE 2-11

0567	7640	SZA	CLA	/CHECK THAT DBTD DIDN'T READ ANYTHING INTO AC
0570	4427	ERROR		/DBTD SKIPPED
0571	6571	DBSK		/SKIP ON DATA READY FLAG
0572	4427	ERROR		/DBTD FAILED TO SET DATA READY FLAG
0573	6570	DBST		/SKIP ON DATA ACCEPTED, 0 DATA AVAILABLE AND DATA ACCEPTED
0574	7610	SKP	CLA	
0575	4427	ERROR		/DATA ACCEPTED SET BEFORE DBCF WAS ISSUED
0576	6571	DBSK		/SKIP ON DATA READY
0577	4427	ERROR		/DATA READY FLAG CLEARED
0600	1841	TAD	INTFLG	/GET THE PROGRAM INTERRUPT FLAG
0601	7640	SZA	CLA	
0602	4427	ERROR		/PROGRAM INTERRUPTED WITHOUT SETTING INT ENA
0603	6573	DBCF		/CLEAR DATA READY SET DATA ACCEPTED
0604	6571	DBSK		/SKIP ON DATA READY
0605	7410	SKP		
0606	4427	ERROR		/DBCF FAILED TO CLEAR DATA READY
0607	6570	DBST		/SKIP ON DATA ACCEPTED AND CLEAR IT AND DATA AVAIL.
0610	4427	ERROR		/DBCF FAILED TO SET DATA ACCEPTED OR DBST FAILED TO SKIP
0611	6570	DBST		/SKIP ON DATA ACCEPTED
0612	7410	SKP		
0613	4427	ERROR		/THE FIRST DBST FAILED TO CLEAR DATA ACCEPTED
0614	1841	TAD	INTFLG	/GET THE PROGRAM INTERRUPT FLAG
0615	7640	SZA	CLA	
0616	4427	ERROR		/PROGRAM INTERRUPTED WITHOUT INT ENA SET
0617	4424	DONLDP		/REPEAT TEST IF SR = 1000

```
=====
/TEST 9 = CHECKS THAT CAF WILL CLEAR THE DATA READY FLAG AND THE
/DATA ACCEPTED FLAG,
=====
```

0620	4423	TEST9:	LOOPPC	/SETUP TEST COUNT AND TEST LOOPING ADDRESS
0621	7777		=1	/SIMULATOR ITERATION COUNTER
0622	4436		SIMCHK	/CHECK TO SEE IF SIMULATOR IS SELECTED
0623	4000		4000	/SIMULATOR CONTROL WORD
0624	4437		LOOSIM	/LOAD SIMULATOR IF SELECTED, ALSO SET SCOPE
				/LOOP EQUAL THIS ADDRESS IF SIMULATOR SELECTED
				/OTHERWISE SCOPE LOOP WILL BE NEXT ADDRESS
0625	6007	CAF		/CLEAR ALL FLAGS
0626	4146	RTCENA		/SET REAL TIME CLOCK INT ENA
0627	3041	DCA	INTFLG	/CLEAR PROGRAM INTERRUPT FLAG
0630	6501	ION		/TURN THE INTERRUPT ON
0631	6574	DBTD		/TRANSMIT AND SET DATA READY FLAG
0632	6571	DBSK		/SKIP ON DATA READY FLAG
0633	4427	ERROR		/DBTD FAILED TO SET DATA READY
0634	6570	DBST		/SKIP ON DATA ACCEPTED AND CLEAR IT
0635	7410	SKP		
0636	4427	ERROR		/DATA ACCEPTED GOT SET BEFORE A DBCF WAS ISSUED
0637	1841	TAD	INTFLG	/GET THE PROGRAM INTERRUPT FLAG
0640	7640	SZA	CLA	
0641	4427	ERROR		/PROGRAM INTERRUPTED WITHOUT INT ENA SET
0642	6507	CAF		/CLEAR DATA READY FLAG
0643	4146	RTCENA		/SET REAL TIME CLOCK INT ENA
0644	6571	DBSK		/SKIP ON DATA READY FLAG
0645	7610	SKP	CLA	

```

0646 4427   ERROR    /INIT FAILED TO CLEAR DATA READY FLAG
0647 6001   ION      /TURN THE INTERRUPT BACK ON
0650 6573   DBCF    /CLEAR DATA READY SET DATA ACCEPTED
                     /*THE PROGRAM ASSUMES THAT DBCF SET DATA ACCEPTED
0651 6007   CAF      /CLEAR DATA ACCEPTED
0652 4146   RTCENA  /SET REAL TIME CLOCK INT ENA
0653 6001   ION      /TURN THE INTERRUPT ON
0654 6570   DBST    /SKIP ON DATA ACCEPTED
0655 7640   SZA     CLA
0656 4427   ERROR    /INIT FAILED TO CLEAR DATA ACCEPTED
0657 1041   TAD      INTFLG /GET THE PROGRAM INTERRUPT FLAG
0660 7640   SZA     CLA
0661 4427   ERROR    /PROGRAM INTERRUPTED WITHOUT INT ENA SET
0662 4424   DONLOP  /REPEAT TEST IF SR = 1000

/******TEST 10*****TEST 10 *****TEST 10 *****
/TEST 10 = CHECKS THAT INT ENA CAN BE SET AND CLEARED USING THE
/DATA READY FLAG TO SKIP AND INTERRUPT ON,
*****TEST 10*****TEST 10 *****TEST 10 *****
0663 4423   TEST10, LOOPPC /SETUP TEST COUNT AND TEST LOOPING ADDRESS
0664 7777   =1           /SIMULATOR ITERATION COUNTER
0665 4436   SIMCHK  /CHECK TO SEE IF SIMULATOR SELECTED
0666 4000   4000   /SIMULATOR CONTROL WORD
0667 4437   LOOSIM   /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                     /LOOP # THIS ADDRESS IF SIMULATOR SELECTED
                     /OTHERWISE SCOPE LOOP IS NEXT ADDRESS
0670 6007   CAF      /CLEAR ALL FLAGS
0671 4146   RTCENA  /SET REAL TIME CLOCK INT ENA
0672 3041   DCA      INTFLG /CLEAR PROGRAM INTERRUPT FLAG
0673 6001   ION      /TURN THE INTERRUPT ON
0674 6571   DBSK    /SKIP ON DATA READY FLAG
0675 7610   SKP     CLA
0676 4427   ERROR    /DATA READY FLAGS SET FOLLOWING INIT
0677 6570   DBST    /SKIP ON DATA ACCEPTED
0700 7610   SKP     CLA
0701 4427   ERROR    /DATA ACCEPTED SET FOLLOWING INIT
0702 1041   TAD      INTFLG /CHECK THAT THE PROGRAM DID NOT INTERRUPT
0703 7640   SZA     CLA
0704 4427   ERROR    /PROGRAM INTERRUPTED WITHOUT FLAGS AND INT ENA SET
0705 6575   DBSE    /SET INTERRUPT ENABLE TO A 1
0706 7640   SZA     CLA /CHECK THAT DBSE DIDN'T CHANGE THE AC
0707 4427   ERROR    /DBSE SKIPPED OR READ SOMETHING INTO AC
0710 1041   TAD      INTFLG /GET THE PROGRAM INTERRUPT FLAG
0711 7640   SZA     CLA
0712 4427   ERROR    /PROGRAM INTERRUPTED WITHOUT FLAG SET
0713 6574   DBTD    /TRANSMIT AND SET DATA READY
0714 6571   DBSK    /SKIP ON DATA READY FLAG
0715 4427   ERROR    /DBTD FAILED TO SET DATA READY
0716 2041   ISE      INTFLG /DID THE PROGRAM INTERRUPT?
0717 4427   ERROR    /PROGRAM FAILED TO INTERRUPT OR INT ENA NOT SET
0720 6576   DBCE    /CLEAR INTERRUPT ENABLE
0721 7640   SZA     CLA /CHECK THAT DBCE DIDN'T CHANGE THE AC
0722 4427   ERROR    /DBCE SKIPPED OR CHANGED THE AC
0723 6001   ION      /TURN THE INTERRUPT ON

```

```

0724 6571   DESK    /SKIP ON DATA READY
0725 4427   ERROR    /DATA READY FLAG GOT CLEARED
0727 7640   SZA     CLA /GET THE PROGRAM INTERRUPT FLAG
0730 4427   ERROR    /PROGRAM INTERRUPTED, DBCE FAILED TO 0 INT ENA
0731 6007   CAF      /CLEAR ALL FLAGS
0732 4424   DONLOP  /REPEAT TEST IF SR = 1000

/******TEST 11*****TEST 11 *****TEST 11 *****
/TEST 11 = CHECKS THAT INITIALIZE WILL CLEAR INT ENA F/F USING THE
/DATA READY FLAG TO SKIP AND INTERRUPT ON,
*****TEST 11*****TEST 11 *****TEST 11 *****
0733 4423   TEST11, LOOPPC /SETUP TEST COUNT AND TEST LOOPING ADDRESS
0734 7777   =1           /SIMULATOR ITERATION COUNTER
0735 4436   SIMCHK  /CHECK TO SEE IF SIMULATOR SELECTED
0736 4000   4000   /SIMULATOR CONTROL WORD
0737 4437   LOOSIM   /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                     /LOOP # THIS ADDRESS IF SIMULATOR SELECTED
                     /OTHERWISE SCOPE LOOP IS NEXT ADDRESS
0740 6007   CAF      /CLEAR ALL FLAGS
0741 4146   RTCENA  /SET REAL TIME CLOCK INT ENA
0742 3041   DCA      INTFLG /CLEAR PROGRAM INTERRUPT FLAG
0743 6001   ION      /TURN THE INTERRUPT ON
0744 6574   DBTD    /TRANSMIT AND SET DATA READY
0745 6571   DBSK    /SKIP ON DATA READY FLAG
0746 4427   ERROR    /DBTD FAILED TO SET DATA READY
0747 6575   DBSE    /SET INTERRUPT ENABLE
0750 7000   NOP      /PROGRAM SHOULD INTERRUPT HERE
0751 2041   ISE      INTFLG /DID THE PROGRAM INTERRUPT
0752 4427   ERROR    /NO, PROGRAM FAILED TO INTERRUPT
0753 6007   CAF      /CLEAR ALL FLAGS
0754 4146   RTCENA  /SET REAL TIME CLOCK INT ENA
0755 6001   ION      /TURN THE INTERRUPT BACK ON
0756 6571   DBSK    /SKIP ON DATA READY FLAG
0757 7410   SKP      /INIT FAILED TO CLEAR DATA READY
0760 4427   ERROR    /TRANSMIT AND SET DATA READY
0761 6574   DBTD    /SKIP ON DATA READY FLAG
0762 6571   DBSK    /DBTD FAILED TO SET DATA READY FLAG
0763 4427   ERROR    /TAD      INTFLG /GET THE PROGRAM INTERRUPT FLAG
0764 1041   TAD      INTFLG /INIT FAILED TO CLEAR DATA READY
0765 7640   SZA     CLA
0766 4427   ERROR    /PROGRAM INTERRUPTED, INIT FAILED TO
                     /CLEAR INTERRUPT ENABLE F/F
0767 6007   CAF      /CLEAR DATA READY FLAG
0770 6571   DBSK    /SKIP ON DATA READY FLAG
0771 7410   SKP      /INIT FAILED TO CLEAR DATA READY
0772 4427   ERROR    /DONLOP  /REPEAT TEST IF SR = 1000

/******TEST 12*****TEST 12 *****TEST 12 *****
/TEST 12 = CHECKS THAT DATA ACCEPTED CAN CAUSE A INTERRUPT
*****TEST 12*****TEST 12 *****TEST 12 *****

```

```

0774 4423 TEST12, LOOPPC      /SETUP TEST COUNT AND TEST LOOPING ADDRESS
0775 7777          =1           /SIMULATOR ITERATION COUNTER
0776 4436          SIMCHK      /CHECK TO SEE IF SIMULATOR IS SELECTED
0777 4000          4000         /SIMULATOR CONTROL WORD
1000 4437          LOOSIM      /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                                /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                                /OTHERWISE SCOPE LOOP IS NEXT ADDRESS
1001 6007          CAF          /CLEAR ALL FLAGS
1002 4146          RTCENA      /SET REAL TIME CLOCK INT ENA
1003 3041          DCA          INFLG   /CLEAR PROGRAM INTERRUPT FLAG
1004 6001          ION          /TURN THE INTERRUPT ON
1005 6573          DBCF         /CLEAR DATA READY SET DATA ACCEPTED
1006 7000          NOP          /SHOULDN'T INTERRUPT HERE
1007 1843          TAD          INFLG   /GET THE PROGRAM INTERRUPT FLAG
1010 7040          SZA          CLA     /PROGRAM INTERRUPTED WITHOUT INT ENA SET
1011 4427          ERROR        /SET INTERRUPT ENABLE
1012 6575          DBSE         /SHOULD INTERRUPT HERE WITH INT ENA AND FLAG SET
1013 7000          NOP          /NO FAILED TO INTERRUPT WITH INT ENA AND DATA ACCEPTED SET
1014 2041          ISE          INFLG   /DID THE PROGRAM INTERRUPT
1015 4427          ERROR        /NO FAILED TO INTERRUPT WITH INT ENA AND DATA ACCEPTED SET
1016 6001          ION          /TURN THE INTERRUPT BACK ON
1017 6570          DBST         /CHECK THAT DATA ACCEPTED GOT CLEARED BY 1ST DBST IN SKIP CHAIN
1020 7010          SKP          CLA     /GET THE PROGRAM INTERRUPT FLAG
1021 4427          ERROR        /DATA ACCEPTED DIDN'T CLEAR IN INTERRUPT SKIP CHAIN
1022 1841          TAD          INFLG   /CLEAR INTERRUPT ENABLE
1023 7040          SZA          CLA     /GET THE PROGRAM INTERRUPT FLAG
1024 4427          ERROR        /PROGRAM INTERRUPTED WITH DATA ACCEPTED CLEARED
1025 6576          DBCE         /CLEAR INTERRUPT ENABLE
1026 4424          DONL0P      /REPEAT TEST IF SR = 1000

*****TEST 13*****
/TEST 13 = CHECKS THE EFFECT OF THE IOT ON THE AC; DBRD SHOULD BE THE ONLY
/IOT TO CHANGE THE AC
*****TEST 13*****

1027 4423 TEST13, LOOPPC      /STORE THE TEST LOOPING ADDRESS AND SETUP TEST COUNT
1030 7777          =1           /SIMULATOR ITERATION COUNTER
1031 4436          SIMCHK      /CHECK TO SEE IF SIMULATOR IS SELECTED
1032 4000          4000         /CONTROL WORD FOR THE SIMULATOR
1033 4437          LOOSIM      /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                                /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                                /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
1034 3041          DCA          INFLG   /CLEAR PROGRAM INTERRUPT FLAG
1035 6007          CAF          /CLEAR ALL FLAGS
1036 4146          RTCENA      /SET REAL TIME CLOCK INT ENA
1037 6001          ION          /TURN INTERRUPT ON
1040 7240          CLA CMA     /SET THE AC TO ALL ONES
1041 6574          DBTD         /TRANSMIT DATA
1042 7001          IAC          /DBTD CHANGED THE AC
1043 7040          SZA CLA     /CLEAR ALL
1044 4427          ERROR        /DBTD CHANGED THE AC
1045 6007          CAF          /CLEAR ALL
1046 4146          RTCENA      /SET REAL TIME CLOCK INT ENA
1047 6001          ION          /TURN INTERRUPT BACK OR
1050 7240          CLA CMA     /SET THE AC TO ALL ONES

```

```

1051 6572          DBRD         /READ THE 12 BIT PARALLEL I/O
1052 7040          SZA CLA     /DBRD FAILED TO READ OR CAF FAILED TO CLEAR XMIT BUFFERS
1053 4427          ERROR        /SET AC TO ALL ONES
1054 7240          CLA CMA     /SKIP ON DATA READY
1055 6571          DBSK         /DBSK CHANGED THE AC
1056 7001          IAC          /DBSK CHANGED THE AC
1057 7040          SZA CLA     /DBCF CHANGED THE AC
1058 4427          ERROR        /DBCF CHANGED THE AC
1059 6002          IOT          /CLEAR ALL FLAGS
1060 7240          CLA CMA     /SET THE AC TO ALL ONES
1061 6573          DBCF         /CLEAR DATA READY FLAG SET DATA ACCEPT FLAG
1062 7001          IAC          /DBCF CHANGED THE AC
1063 6573          DBCF         /CLEAR ALL FLAGS
1064 7001          IAC          /SET REAL TIME CLOCK INT ENA
1065 7040          SZA CLA     /SET INTERRUPT ENABLE
1066 4427          ERROR        /DBCF CHANGED THE AC
1067 6007          CAF          /SKIP AND CLEAR DATA ACCEPTED AND DATA AVAILABLE
1070 4146          RTCENA      /DBCF CHANGED THE AC
1071 6001          ION          /CLEAR ALL FLAGS
1072 7240          CLA CMA     /SET INTERRUPT ENABLE
1073 6570          DBST         /DBST SKIPPED OR CHANGED THE AC
1074 7001          IAC          /DBST SKIPPED OR CHANGED THE AC
1075 7040          SZA CLA     /DBST SKIPPED OR CHANGED THE AC
1076 4427          ERROR        /DBCF CHANGED THE AC
1077 7240          CLA CMA     /DBCF CHANGED THE AC
1078 6575          DBSE         /SET PARALLEL INTERRUPT ENABLE
1079 7001          IAC          /DBSE CHANGED THE AC
1080 7040          SZA CLA     /DBSE CHANGED THE AC
1081 6576          DBCE         /CLEAR INTERRUPT ENABLE
1082 7001          IAC          /DBCE CHANGED THE AC
1083 4427          ERROR        /DBCE CHANGED THE AC
1084 7240          CLA CMA     /SET THE AC TO ALL ONES
1085 6576          DBCE         /ISSUE A STROBE PULSE
1086 7001          SKP          /DBSS CHANGED THE AC
1087 7040          SZA CLA     /DBSS CHANGED THE AC
1088 4427          ERROR        /DBSS CHANGED THE AC
1089 7240          CLA CMA     /DID THE PROGRAM INTERRUPT
1090 6577          DBSS         /CLEAR INTERRUPT ENABLE
1091 7410          SZA CLA     /PROGRAM INTERRUPTED
1092 4427          ERROR        /CHECK TO SEE IF DONE OR LOOP ON TEST
1093 4424          DONL0P      /REPEAT TEST IF SR = 1000

*****TEST 14*****
/TEST 14 = CHECKS THAT ALL ONES CAN BE TRANSMITTED AND READ BACK; IT ALSO CHECKS THAT
/CAF CAN CLEAR THE XMIT BUFFERS, INTERRUPTS ARE ALSO CHECKED
*****TEST 14*****
```

```

1124 4423 TEST14, LOOPPC      /SETUP SCOPE LOOP ADDRESS AND SETUP TEST COUNT
1125 7777          =1           /SIMULATOR ITERATION COUNTER
1126 4436          SIMCHK      /CHECK TO SEE IF SIMULATOR IS SELECTED
1127 4000          4000         /CONTROL WORD FOR THE SIMULATOR
1128 1841          TAD INFLG   /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
1129 7040          SZA CLA     /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
1130 4437          LOOSIM      /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE

```

```

/DKCS8=AA OPTION TEST 1 MAINDEQ=0B=DJOKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2=16

1131 3041      DCA INTFLG   /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
1132 7240      CLA CMA    /CLEAR PROGRAM INTERRUPT FLAG
1133 3051      DCA PIOXMT  /SET THE WORD TO BE TRANSMITTED TO ALL ONES
1134 4426      PIODAT    /GO TRANSMIT AND COMPARE THE WORD
1135 4430      PIODER    /DATA ERROR = WORD DIDN'T COMPARE IN ROUTINE PIODAT
1136 4424      DONLOP    /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1

/*****TEST 15*****
/TEST 15 = CHECKS FOR A COMPLEMENTING DATA PATTERN OF 7777 THEN 0000 AND CHECKS THAT CAF
/WILL CLEAR THE DATA BUFFER, THE PROGRAM IS CHECKED TO INTERRUPT
/*****TEST 15*****
1137 4423      TEST15, LOOPPC  /SETUP TEST SCOPE LOOP AND TEST COUNT
1143 7777      =1          /SIMULATOR ITERATION COUNTER
1141 4436      SIMCHK    /CHECK TO SEE IF SIMULATOR IS SELECTED
1142 4000      4000        /CONTROL WORD FOR THE SIMULATOR
1143 4437      LODSIM    /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
1144 3041      DCA INTFLG   /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
1145 7240      CLA CMA    /CLEAR PROGRAM INTERRUPT FLAG
1146 3051      DCA PIOXMT  /SET THE FIRST WORD TO ALL ONES
1147 4426      PIODAT    /SAVE IT
1150 4430      PIODER    /GO TRANSMIT AND COMPARE THE WORD
1151 3051      DCA PIOXMT  /DATA ERROR = WORD DIDN'T COMPARE IN ROUTINE PIODAT
1152 4426      PIODAT    /SET THE WORD TO 0
1153 4430      PIODER    /GO TRANSMIT AND COMPARE THE WORD
1154 4424      DONLOP    /DATA ERROR = FAILED TO READ ZEROES BACK
1155 4424      /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1

/*****TEST 16*****
/TEST 16 = CHECKS FOR A COMPLEMENTING DATA PATTERN OF 5252 = 2525 AND CHECKS
/THAT CAF WILL CLEAR THE XMIT BUFFERS, THE PROGRAM IS CHECKED TO INTERRUPT
/*****TEST 16*****
1155 4423      TEST16, LOOPPC  /SETUP TEST LOOP AND TEST COUNT
1156 7777      =1          /SIMULATOR ITERATION COUNTER
1157 4436      SIMCHK    /CHECK TO SEE IF SIMULATOR IS SELECTED
1158 4000      4000        /CONTROL WORD FOR THE SIMULATOR
1161 4437      LODSIM    /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
1162 3041      DCA INTFLG   /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
1163 1662      TAD K2525  /CLEAR PROGRAM INTERRUPT FLAG
1164 3051      DCA PIOXMT  /SET THE FIRST WORD TO TRANSMIT = 5252
1165 4426      PIODAT    /GO TRANSMIT AND COMPARE THE DATA WORD
1166 4430      PIODER    /DATA ERROR = WORD DIDN'T COMPARE
1167 1663      TAD K2525
1170 3051      DCA PIOXMT  /SET THE SECOND WORD TO TRANSMIT = 2525
1171 4426      PIODAT    /GO TRANSMIT AND COMPARE THE WORD
1172 4430      PIODER    /DATA ERROR = THE WORD DIDN'T COMPARE
1173 4424      DONLOP    /REPEAT THE TEST IF NOT DONE OR LOOP ON TEST IF SR2=1

1174 5777'     JMP       TEST17 /DO NEXT TEST
1177 1200

```

```

/DKCB=AA OPTION TEST 1 MAINDEG=0B=DJOKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2/17

1200 IFDEF OP13K <PAGE>

*****TEST 17 - CHECKS FOR AN INCREMENTING DATA PATTERN*****
*****TEST 18 - CHECKS FOR AN INCREMENTING DATA PATTERN WITH THE INTERRUPT
*****ENABLED WHICH ALLOWS FOR FASTER READING BECAUSE OF NO SKIP CHAIN*****

1200 4423 TEST17, LOOPPC      /SET UP TEST LOOPING ADDRESS
1201 7777      #1           /SIMULATOR ITERATION COUNTER
1202 4104 JMS PATCH        /GO SET UP FOR INTERRUPT RETURN
1203 3292 SKPCHN
1204 3042 DGA CLKFLG        /SET INTERRUPT TO IGNORE RTC FLAGS
1205 7300 CLA CLL
1206 3050 DCA SAVCNT       /CLEAR PROGRAM TEST COUNTER
1207 3047 DCA TSTCNT       /CHECK FOR SIMULATOR
1208 4436 SIMCHK          /SIMULATOR CONTROL WORD
1209 4000 4000             /LOAD SIMULATOR IF SELECTED
1210 4437 LODSIM           /CLEAR PROGRAM INTERRUPT FLAG
1211 3041 DCA INTFLG        /GET TEST COUNTER
1212 1047 TAO TSTCNT       /SET THE WORD TO BE TRANSMITTED = TO IT
1213 3051 DCA PIOXMT        /GO TRANSMIT AND COMPARE THE WORD
1214 4426 PIDDAT           /DATA ERROR
1215 4430 PIDDER           /DONE OR LOOP ON TEST IF SR2=1
1200 4424 DONLOP

*****TEST 18 - CHECKS FOR AN INCREMENTING DATA PATTERN WITH THE INTERRUPT
*****ENABLED WHICH ALLOWS FOR FASTER READING BECAUSE OF NO SKIP CHAIN*****

1221 4423 TEST18, LOOPPC      /SETUP TEST COUNT AND TEST LOOP ADDRESS
1222 7777      #1           /SIMULATOR ITERATION COUNTER
1223 7300 CLA CLL
1224 3050 DCA SAVCNT       /CHECK FOR THE SIMULATOR
1225 3047 DCA TSTCNT       /SIMULATOR CONTROL WORD
1226 4436 SIMCHK          /LOAD SIMULATOR IF SELECTED
1227 4000 4000             /CLEAR ALL FLAGS
1228 4437 LODSIM           /SET REAL TIME CLOCK INT ENA
1229 6007 CAF              /TURN THE INTERRUPT ON
1230 4146 RTCENA          /CLEAR PROGRAM INTERRUPT FLAG
1231 6001 ION              /GET THE TEST COUNTER
1232 3041 DGA INTFLG        /PUT IT IN THE WORD TO TRANSMIT
1233 1047 TAO TSTCNT       /GET THE WORD
1234 3051 DCA PIOXMT        /TRANSMIT IT
1235 1051 DCA PIOXMT        /SKIP ON DATA READY
1236 6574 DBTD             /DATA READY FLAG FAILED TO SET
1237 6571 DBSK             /SET THE AC TO ALL ONE'S
1238 4427 ERROR            /READ THE DATA BUFFER
1239 7240 CLA CMA           /SAVE THE WORD READ
1240 6572 DBRD             /CLEAR THE DATA READY FLAG
1241 3052 DGA PIDREC        /SKIP AND CLEAR DATA ACCEPTED AND DATA AVAIL.
1242 6573 DBCF             /DBSF FAILED TO SET DATA ACCEPTED
1243 6570 DBST             /CHECK THAT DATA ACCEPTED CLEARED
1244 6572 DBRD
1245 3052 DGA PIDREC
1246 6573 DBCF
1247 6570 DBST
1248 4427 ERROR
1249 6570 DBST

```

/DKC8=AA OPTION TEST 1 MAINDEC=88=DJOKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2=18

1292 7410 SKP
1253 4427 ERROR /DATA ACCEPTED STILL SET
1254 1051 TAD PIOXMT /COMPARE THE WORD TRANSMITTED WITH THE WORD READ
1255 7041 CIA
1256 1052 TAD PIOREC
1257 7640 SZA CLA
1260 4430 P1DIER /PARALLEL I/O DATA ERROR
1261 6007 CAF /CLEAR ALL INCLUDING THE TRANSMIT BUFFER
1262 4146 RTCENA /SET REAL TIME CLOCK INT ENA
1263 6001 ION /TURN THE INTERRUPT BACK ON
1264 6572 DBRD /READ THE BUFFER
1265 7640 SZA CLA /DID INIT CLEAR THE BUFFER?
1266 4427 ERROR /NO, INIT FAILED TO CLEAR BUFFER
1267 1041 TAD INTFLG /GET THE PROGRAM INTERRUPT FLAG
1272 7640 SZA CLA
1271 4427 ERROR /PROGRAM INTERRUPTED WITHOUT INT ENA SET
1272 4424 DONLDP /DONE OR REPEAT TEST IF SR2=1

/TEST 19 = IS ONLY TESTED WHEN THE SIMULATOR IS SELECTED; THE TEST
/CHECKS THAT STROBE CAN BE SET BY DBSS AND TP3 AND THAT TIME STATE 1
/CAN CLEAR IT,

1273 4423 TEST19, LOOPPC /SETUP TEST COUNT AND TEST LOOP ADDRESS
1274 7777 =1 /SIMULATOR ITERATION COUNTER
1275 4436 SIMCHK /CHECK TO SEE IF SIMULATOR IS SELECTED
1276 4000 4000 /SIMULATOR CONTROL WORD
1277 4437 LODSIM /LOAD THE CONTROL WORD
1302 1021 TAD OP1SEL /RECHECK THE SIMULATOR BIT
1301 0057 AND K200 /MASK OUT FOR SIMULATOR BIT
1302 7640 SZA CLA /IS IT SET?
1303 5306 JMP ,+3 /YES GO CHECK THAT STROBE SETS AND CLEARS
1304 5725 JMP I ,+1 /GO TO NEXT TEST
1305 1527 TEST23 /ADDRESS OF THE NEXT TEST
1306 6007 CAF /CLEAR ALL FLAGS
1307 4146 RTCENA /SET REAL TIME CLOCK INT ENA
1310 3041 DCA INTFLG /CLEAR THE PROGRAM INTERRUPT FLAG
1311 6001 ION /TURN THE INTERRUPT ON
1312 6156 CLRDET /CLEAR SIMULATOR DETECTOR F/F'S
1313 6167 SKPSTR /SKIP ON STROBE DETECTOR F/F SET
1314 7610 SKP CLA /STROBE IS SET TO A ONE
1315 4427 ERROR /ISSUE A STROBE PULSE
1316 6577 DBSS
1317 7440 SZA
1320 4427 ERROR /DBSS SKIPPED OR READ SOMETHING INTO THE AC
1321 6167 SKPSTR /SKIP ON STROBE DETECTOR F/F SET
1322 4427 ERROR /DBSS FAILED TO SET STROBE OR SIMULATOR DETECTOR F/F
1323 6156 CLRDET /CLEAR READER RUN AND STROBE DETECTOR F/F
1324 6167 SKPSTR /SKIP ON STROBE DETECTOR F/F SET
1325 7410 SKP
1326 4427 ERROR /STROBE STILL SET OR DETECTOR F/F DIDN'T CLEAR
1327 6577 DBSS /ISSUE ANOTHER STROBE PULSE
1330 6167 SKPSTR /SKIP ON STROBE DETECTOR F/F SET

/DKC8=AA OPTION TEST 1 MAINDEC=88=DJOKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2=19

1331 4427 ERROR /DBSS FAILED TO SET STROBE OR DETECTOR F/F
1332 6156 CLRDET /CLEAR READER RUN AND STROBE DETECTOR F/F
1333 6167 SKPSTR /SKIP ON STROBE DETECTOR F/F SET
1334 7410 SKP
1335 4427 ERROR /STROBE STILL SET OR DETECTOR F/F DIDN'T CLEAR
1336 1041 TAD INTFLG /CHECK THAT THE PROGRAM DIDN'T INTERRUPT
1337 7640 SZA CLA /PROGRAM INTERRUPTED
1340 4427 ERROR /TURN THE INTERRUPT OFF
1341 6002 IOF /REPEAT TEST IF SR = 1000
1342 4424 DONLDP

/TEST 20 = IS ONLY TESTED WHEN SIMULATOR IS SELECTED; THE TESTS CHECKS
/THAT DATA AVAILABLE CAN BE SET BY DBTD AND CLEARED BY CAF,

1343 4423 TEST20, LOOPPC /SETUP TEST COUNT AND TEST LOOP ADDRESS
1344 7777 =1 /SIMULATOR ITERATION COUNTER
1345 4436 SIMCHK /CHECK TO SEE IF SIMULATOR IS SELECTED
1346 4000 4000 /SIMULATOR CONTROL WORD
1347 4437 LODSIM /LOAD THE CONTROL WORD
1350 6007 CAF /CLEAR ALL FLAGS
1351 4146 RTCENA /SET REAL TIME CLOCK INT ENA
1352 3041 DCA INTFLG /CLEAR THE PROGRAM INTERRUPT FLAG
1353 6001 ION /TURN THE INTERRUPT ON
1354 6156 CLRDET /CLEAR SIMULATOR DETECTOR F/F'S
1355 6165 SKPDAV /SKIP ON DATA AVAILABLE DETECTOR F/F
1356 7610 SKP CLA /CAF FAILED TO CLEAR DATA AVAIL, OR IT IS STUCK ON
1357 4427 DBTD /TRANSMIT AND SET DATA READY AND DATA AVAILABLE
1360 6574 DBSK /SKIP ON DATA READY
1361 6571 DBTD
1362 4427 ERROR /DBTD FAILED TO SET DATA READY
1363 6165 SKPDAV /SKIP ON DATA AVAILABLE DETECTOR F/F
1364 4427 ERROR /DATA AVAILABLE FAILED TO SET
1365 6156 CLRDET /CLEAR DETECTOR F/F'S
1366 6165 SKPDAV /SKIP ON DATA AVAILABLE DETECTOR F/F
1367 4427 ERROR /DATA AVAILABLE GOT CLEARED
1370 6007 CAF /CLEAR ALL FLAGS
1371 4146 RTCENA /SET REAL TIME CLOCK INT ENA
1372 6001 ION /TURN THE INTERRUPT ON
1373 6156 CLRDET /CLEAR THE SIMULATOR DETECTOR F/F'S
1374 6165 SKPDAV /SKIP ON DATA AVAILABLE DETECTOR F/F
1375 7610 SKP CLA /INIT FAILED TO CLEAR DATA AVAILABLE
1376 4427 DBSK /SKIP ON DATA READY
1377 6571 DBTD
1400 7610 SKP CLA /INIT FAILED TO CLEAR DATA READY
1401 4427 TAD INTFLG /GET THE PROGRAM INTERRUPT FLAG
1402 1041 SZA CLA
1403 7640 SZA CLA /ERROR, PROGRAM INTERRUPTED
1404 4427 ERROR /DONE, OR REPEAT TEST IF SR=1000
1405 4424 DONLDP

/TEST 21 = IS ONLY TESTED WHEN THE SIMULATOR IS SELECTED; THE TEST CHECKS

/THAT DBTD WILL SET DATA AVAILABLE AND THAT DBST WILL CLEAR IT;
 =====

1406	4423	TEST21, LOOPPC	/SETUP TEST COUNT AND TEST LOOP ADDRESS
1407	7777	=1	/SIMULATOR ITERATION COUNTER
1410	4436	SIMCHK	/CHECK TO SEE IF THE SIMULATOR IS SELECTED
1411	4000	4000	/SIMULATOR CONTROL WORD
1412	4437	LOOSIM	/LOAD THE SIMULATOR CONTROL WORD
1413	6007	CAF	/CLEAR ALL FLAGS
1414	4146	RTCENA	/SET REAL TIME CLOCK INT ENA
1415	3041	DCA INTFLG	/CLEAR PROGRAM INTERRUPT FLAG
1416	6001	ION	/TURN THE INTERRUPT ON
1417	6156	CLRDET	/CLEAR SIMULATOR DETECTOR F/F'S
1420	6165	SKPDAV	/SKIP ON SIMULATOR DATA AVAIL; DETECTOR F/F
1421	7610	SKP CLA	
1422	4427	ERROR	/DATA AVAILABLE SET AFTER INITIALIZE
1423	6574	DBTD	/TRANSMIT+SET DATA AVAILABLE AND DATA READY
1424	6571	DBSK	/SKIP ON DATA READY
1425	4427	ERROR	/DATA READY FLAG NOT SET
1426	6165	SKPDAV	/SKIP ON DATA AVAILABLE DETECTOR F/F
1427	4427	ERROR	/DBTD FAILED TO SET DATA AVAILABLE
1430	6156	CLRDET	/CLEAR SIMULATOR DETECTOR F/F'S
1431	6165	SKPDAV	/SKIP ON DATA AVAILABLE DETECTOR F/F
1432	4427	ERROR	/DATA AVAILABLE GOT CLEARED
1433	6573	DBCDF	/CLEAR DATA READY FLAG SET DATA ACCEPTED
1434	6571	DBSK	/SKIP ON DATA READY FLAG
1435	7610	SKP CLA	
1436	4427	ERROR	/DBCDF FAILED TO CLEAR DATA READY
1437	6156	CLRDET	/CLEAR SIMULATOR DETECTOR F/F'S
1440	6165	SKPDAV	/SKIP ON SIMULATOR DETECTOR F/F
1441	4427	ERROR	/DATA AVAILABLE GOT CLEARED
1442	6570	DBST	/SKIP ON DATA ACCEPTED, ? DATA AVAILABLE
1443	4427	ERROR	/DBCDF FAILED TO SET DATA ACCEPTED
1444	6156	CLRDET	/CLEAR SIMULATOR DETECTOR F/F'S
1445	6165	SKPDAV	/SKIP ON DATA AVAILABLE SIMULATOR DETECTOR F/F
1446	7610	SKP CLA	
1447	4427	ERROR	/DBST FAILED TO CLEAR DATA AVAILABLE
1450	6570	DBST	/SKIP ON DATA ACCEPTED
1451	7610	SKP CLA	
1452	4427	ERROR	/1ST DBST FAILED TO CLEAR DATA ACCEPTED
1453	1041	TAD INTFLG	/GET THE PROGRAM INTERRUPT FLAG
1454	7640	SZA CLA	
1455	4427	ERROR	/PROGRAM INTERRUPTED
1456	4424	DONLDP	/DONE OR REPEAT TEST IF SR = 1203

/*****
 /TEST 22 = IS ONLY TESTED WHEN SIMULATOR IS SELECTED, THE TEST CHECKS
 /THAT DATA AVAILABLE CAN BE SET BY DBTD AND CLEARED BY "TS1"!
 =====

1457	4423	TEST22, LOOPPC	/SETUP TEST COUNT AND TEST LOOP ADDRESS
1460	7777	=1	/SIMULATOR ITERATION COUNTER
1461	4436	SIMCHK	/CHECK FOR SIMULATOR
1462	6000	4000	/SIMULATOR CONTROL WORD
1463	4437	LOOSIM	/LOAD THE CONTROL WORD

1464	6007	CAF	/CLEAR ALL FLAGS
1465	4146	RTCENA	/SET REAL TIME CLOCK INT ENA
1466	6001	ION	/TURN THE INTERRUPT ON
1467	3041	DCA INTFLG	/CLEAR PROGRAM INTERRUPT FLAG
1470	6156	CLRDET	/CLEAR SIMULATOR DETECTOR F/F'S
1471	6165	SKPDAV	/SKIP ON DATA AVAILABLE DETECTOR F/F
1472	7610	SKP CLA	
1473	4427	ERROR	/DATA AVAILABLE SET AFTER INITIALIZE
1474	6574	DBTD	/TRANSMIT + SET DATA READY AND DATA AVAILABLE
1475	6571	DBSK	/SKIP ON DATA READY
1476	4427	ERROR	/DBTD FAILED TO SET DATA READY
1477	6165	SKPDAV	/SKIP ON DATA AVAILABLE
1500	4427	ERROR	/DBTD FAILED TO SET DATA AVAILABLE
1501	6156	CLRDET	/CLEAR SIMULATOR DETECTOR F/F'S
1502	6165	SKPDAV	/SKIP ON DATA AVAILABLE DETECTOR F/F
1503	7610	SKP CLA	
1504	4427	ERROR	/TS1 FAILED TO CLEAR DATA AVAILABLE
1505	6007	CAF	/CLEAR ALL FLAGS
1506	4146	RTCENA	/SET REAL TIME CLOCK INT ENA
1507	6001	ION	/TURN THE INTERRUPT BACK ON
1510	6571	DBSK	/SKIP ON DATA READY
1511	7610	SKP CLA	
1512	4427	ERROR	/INIT FAILED TO CLEAR DATA READY
1513	6574	DBTD	/TRANSMIT + SET DATA READY AND DATA AVAILABLE
1514	6165	SKPDAV	/SKIP ON DATA AVAILABLE DETECTOR F/F
1515	4427	ERROR	/DATA AVAILABLE FAILED TO SET
1516	6156	CLRDET	/CLEAR SIMULATOR DETECTOR F/F'S
1517	6165	SKPDAV	/SKIP ON DATA AVAILABLE DETECTOR F/F
1520	7610	SKP CLA	
1521	4427	ERROR	/TS1 FAILED TO CLEAR DATA AVAILABLE
1522	6007	CAF	/CLEAR ALL FLAGS
1523	6571	DBSK	/SKIP ON DATA READY
1524	7610	SKP CLA	
1525	4427	ERROR	/INIT FAILED TO CLEAR DATA READY
1526	4424	DONLDP	/DONE OR REPEAT TEST IF SR = 1203

/*****
 //FIRST SECTION OF SERIAL LINE UNIT DIAGNOSTIC
 //TEST 23 = TRY TO CLEAR SLU INT ENA BY ISSUING A KIE COMMAND, THEN TEST THE SLU XMIT
 //FLAG TO SET BY TFL AND CLEAR BY TCF, THE FLAG IS CHECKED WITH TSF AND SPI, IF AN
 //INTERRUPT OCCURRED, IT MAY BE DUE TO INT ENA NOT BEING CLEARED BY KIE AND DATA BIT 11 ON A Z.
 =====

1527	4134	TEST23, JMS PATCH	
1530	3252	SKPCHN	
1531	4423	LOOPPC	/SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
1532	7777	=1	/SIMULATOR ITERATION COUNTER
1533	4436	SIMCHK	/CHECK TO SEE IF SIMULATOR IS SELECTED
1534	4000	4000	/CONTROL WORD FOR THE SIMULATOR
1535	4437	LOOSIM	/LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
			/LOOP # THIS ADDRESS IF SIMULATOR SELECTED /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
1536	3041	DCA INTFLG	/CLEAR PROGRAM INTERRUPT FLAG
1537	6007	CAF	/CLEAR ALL FLAGS + SET SLU INT ENA
1540	4146	RTCENA	/SET REAL TIME CLOCK INT ENA

/DKC8-AA OPTION TEST 1 MAINDEQ=08=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 8158 PAGE 2-22

```

1541 6001 ION
1542 6031 KSF
1543 7410 SKP CLA
1544 4427 ERROR
1545 6035 KIE
1546 7410 SKP CLA
1547 4427 ERROR
1550 1041 TAD INTFLG
1551 7640 SZA CLA
1552 4427 ERROR
1553 6040 TFL
1554 7410 SKP
1555 4427 ERROR
1556 6041 TSF
1557 4427 FRROR
1560 6045 SPI
1561 7410 SKP
1562 4427 ERROR
1563 6031 KSF
1564 7410 SKP
1565 4427 ERROR
1566 1041 TAD INTFLG
1567 7640 SZA CLA
1570 4427 ERROR
1571 6042 TCF
1572 7410 SKP
1573 4427 ERROR
1574 6041 TSF
1575 7410 SKP
1576 4427 ERROR
1577 6045 SPI
1580 7610 SKP CLA
1581 4427 ERROR
1582 6031 KSF
1583 7610 SKP CLA
1584 4427 ERROR
1585 1041 TAD INTFLG
1586 7640 SZA CLA
1587 4427 ERROR
1610 4424 DNLDP

/******TEST 24*****  

/*TEST 24 = CHECKS THAT CAF WILL CLEAR THE TRANSMIT FLAG. THE PROGRAM  

/*CHECKS THAT NO INTERRUPTS OCCURRED,  

/******TEST 24*****  

1611 4423 TEST24, LOOPPC
1612 7777 =1
1613 4436 SIMCHK
1614 4000 4000
1615 4437 LODSIM

1616 3041 DCA INTFLG
1617 6007 CAF

/SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
/SIMULATOR ITERATION COUNTER
/CHECK TO SEE IF SIMULATOR IS SELECTED
/CONTROL WORD FOR THE SIMULATOR
/LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
/LOOP = THIS ADDRESS IF SIMULATOR SELECTED
/OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
/CLEAR PROGRAM INTERRUPT FLAG


```

/DKC8-AA OPTION TEST 1 MAINDEQ=08=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 8158 PAGE 2-23

```

1620 4146 RTCENA
1621 6001 ION
1622 6035 KIE
1623 6040 TFL
1624 6041 TSF
1625 4427 ERROR
1626 6045 SPI
1627 7410 SKP
1630 4427 ERROR
1631 6007 CAF
1632 6041 TSF
1633 7410 SKP
1634 4427 ERROR
1635 1041 TAD INTFLG
1636 7640 SZA CLA
1637 4427 ERROR
1640 6031 KSF
1641 7610 SKP CLA
1642 4427 ERROR
1643 4424 DNLDP

/******TEST 25*****  

/*TEST 25 = CHECK THAT CAF WILL SET SLU INT ENABLE AND THAT KIE  

/*AND DATA 11 ON A 0 WILL CLEAR IT USING XMIT FLAG TO INTERRUPT ON,  

/*SPI IS CHECKED TO SKIP AND NOT TO SKIP,
/******TEST 25*****  

1644 4423 TEST25, LOOPPC
1645 7777 =1
1646 4436 SIMCHK
1647 4000 4000
1650 4437 LODSIM

1651 3041 DCA INTFLG
1652 6007 CAF
1653 4146 RTCENA
1654 6001 ION
1655 6041 TSF
1656 7410 SKP
1657 4427 ERROR
1660 6045 SPI
1661 7410 SKP
1662 4427 ERROR
1663 1041 TAD INTFLG
1664 7640 SZA CLA
1665 4427 ERROR
1666 6040 TFL
1667 6041 TSF
1673 4427 ERROR
1671 6045 SPI
1672 4427 ERROR
1673 2041 ISE INTFLG
1674 4427 ERROR
1675 7200 CLA

/SET REAL TIME CLOCK INT ENA
/TURN THE INTERRUPT ON
/CLEAR SLU INT ENA
/SET THE TRANSMIT FLAG
/SKIP ON THE XMIT FLAG
/TFL AND TSF FAILED TO SET THE XMIT FLAG
/SKIP ON XMIT/RECEIVE + INT ENA
/SPI SKIPPED WITHOUT INT ENA SET OR KIE FAILED
/CLEAR ALL FLAGS
/SKIP ON THE TRANSMIT FLAG
/BBUF INIT HIGH FAILED TO CLEAR XMIT FLAG
/GET THE PROGRAM INTERRUPT FLAG
/PROGRAM INTERRUPTED CHECK INT ENA
/SKIP ON RECEIVE FLAG
/RECEIVE FLAG SET BY ABOVE CODE
/REPEAT TEST IF NOT DONE OR LOOP IF SR2=1

/SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
/SIMULATOR ITERATION COUNTER
/CHECK TO SEE IF SIMULATOR IS SELECTED
/CONTROL WORD FOR THE SIMULATOR
/LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
/LOOP = THIS ADDRESS IF SIMULATOR SELECTED
/OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
/CLEAR PROGRAM INTERRUPT FLAG
/CLEAR ALL FLAGS BUT SET SLU INTERRUPT ENABLE
/SET REAL TIME CLOCK INT ENA
/TURN THE INTERRUPT ON
/SKIP ON XMIT FLAG
/XMIT FLAG SET AFTER A CAF
/SKIP ON XMIT/RECEIVE AND INT ENA ON A 1
/SPI SKIPPED WITH INT ENA SET AND NO FLAG
/GET THE PROGRAM INTERRUPT FLAG
/PROGRAM INTERRUPTED WITHOUT XMIT FLAG
/SET THE TRANSMIT FLAG
/SKIP ON THE TRANSMIT FLAG
/TFL FAILED TO SET THE XMIT FLAG
/SKIP ON XMIT FLAG AND INT ENA ON A 1
/CAF FAILED TO SET SLU INT ENA OR SPI DIDN'T SKIP
/END THE PROGRAM INTERRUPT WITH XMIT + INT ENA
/PROGRAM FAILED TO INTERRUPT WITH XMIT + INT ENA SET
/CLEAR THE ACCUMULATED

```

/DKC8-AA OPTION TEST 1 MAINDEQ=08=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 8:58 PAGE 2-24

1676 6035 KIE /CLEAR INT ENA ON SLU
1677 3041 DCA INFLG /CLEAR PROGRAM INTERRUPT FLAG;
1700 6001 ION /TURN THE INTERRUPT BACK ON
1701 6041 TSF /SKIP ON TRANSMIT FLAG
1702 4427 ERROR /XMIT FLAG GOT CLEARED
1703 6045 SPI /SKIP ON XMIT AND INT ENA ON A 1
1704 7410 SKP
1705 4427 ERROR /KIE AND DATA 11 FAILED TO CLEAR INT ENA
1706 1041 TAD INFLG /GET THE PROGRAM INTERRUPT FLAG
1707 7640 SZA CLA
1710 4427 ERROR /PROGRAM INTERRUPTED WITHOUT INT ENA SET
1711 6042 TCF /CLEAR XMIT FLAG
1712 6041 TSF /SKIP ON TRANSMIT FLAG
1713 7410 SKP
1714 4427 ERROR /TCF FAILED TO CLEAR XMIT FLAG
1715 6031 KSF /SKIP ON RECEIVE FLAG
1716 7410 SKP
1717 4427 ERROR /RECEIVE FLAG GOT SET BY ABOVE CODE
1720 4424 DONLOP /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1

/TEST 26 = CHECKS THAT SLU INT ENA CAN BE SET AND CLEARED BY KIE
/AND DATA BIT 11 USING THE XMIT FLAG TO INTERRUPT ON;

1721 4423 TEST26, LOOPPC /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
1722 7777 #1 /SIMULATOR ITERATION COUNTER
1723 4436 SIMCHK /CHECK TO SEE IF SIMULATOR IS SELECTED
1724 4000 4000 /CONTROL WORD FOR THE SIMULATOR
1725 4437 LODSIM /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
/LOOP #1 THIS ADDRESS IF SIMULATOR SELECTED
/OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
1726 3041 DCA INFLG /CLEAR PROGRAM INTERRUPT FLAG
1727 6007 CAF /CLEAR ALL FLAGS
1730 4146 RTCENA /SET REAL TIME CLOCK INT ENA
1731 6035 KIE /CLEAR SLU INTERRUPT ENABLE
1732 6001 ION /TURN THE INTERRUPT ON
1733 6040 TFL /SET THE TRANSMIT FLAG
1734 6041 TSF /SKIP ON TRANSMIT FLAG
1735 4427 ERROR /TFL FAILED TO SET TRANSMIT FLAG
1736 6045 SPI /SKIP ON XMIT/RECEIVE + INT ENA ON A 1
1737 7610 SKP CLA
1740 4427 ERROR /ERROR, INT ENA SET OR KIE FAILED TO CLEAR INT ENA
1741 1041 TAD INFLG /GET THE PROGRAM INTERRUPT FLAG
1742 7640 SZA CLA
1743 4427 ERROR /PROGRAM INTERRUPTED WITHOUT INT ENA SET
1744 7301 CLA CLL IAC /SET DATA 11 TO A 1
1745 6035 KIE /SET INT ENA
1746 6041 TCF /SKIP ON TRANSMIT FLAG
1747 4427 ERROR /XMIT FLAG GOT CLEARED
1750 6045 SPI /SKIP ON XMIT + INT ENA ON A 1
1751 4427 ERROR /KIE AND DATA 11 ON A 1 FAILED TO SET INT ENA
1752 7200 CLA
1753 2041 ISZ INFLG
1754 4427 ERROR /PROGRAM FAILED TO INTERRUPT WITH INT ENA + XMIT FLAG

/DKC8-AA OPTION TEST 1 MAINDEQ=08=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 8:58 PAGE 2-25

1755 3041 DCA INFLG /CLEAR INTERRUPT ENABLE
1756 6035 KIE /TURN THE INTERRUPT ON
1757 6001 ION /SKIP ON XMIT FLAG
1760 6041 TSF /XMIT FLAG CLEARED
1761 4427 ERROR /SKIP ON XMIT + INT ENA ON A 1
1763 7610 SKP CLA
1764 4427 ERROR /KIE + DATA 11 ON A 0 FAILED TO CLEAR INT ENA
1765 1041 TAD INFLG /GET THE PROGRAM INTERRUPT FLAG
1766 7640 SZA CLA
1767 4427 ERROR /PROGRAM INTERRUPTED WITHOUT INT ENA SET
1770 6042 TCF /CLEAR THE XMIT FLAG
1771 6041 TSF /SKIP ON SLU XMIT FLAG
1773 4427 SKP CLA
1774 6031 KSF
1775 7610 SKP CLA
1776 4427 ERROR /RECEIVE FLAG SET BY ABOVE CODE
1777 4424 DONLOP /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1

/TEST 27 = CHECKS THAT TLS WILL CLEAR THE XMIT FLAG AND THEN SET IT WITH
/XMIT BUFF MT H, THE PROGRAM THEN CLEARS THE XMIT FLAG AND WAITS FOR
/RCV DATA AVAILABLE H TO SET RECEIVE FLAG, THE RECEIVE FLAG IS CHECKED TO
/SKIP AND INTERRUPT AND THEN TO CLEAR BY KCF,

2000 1021 TAD OP1SEL /GET THE HARDWARE CONFIGURATION
2001 0377 AND #100 /MASK OUT THE XOR BIT
2002 7650 SNA CLA /IS IT RUNNING ON THE XOR
2003 5242 JMP TEST27 /NO, GO TO THE NORMAL TEST
2004 4423 LOOPPC /YES, SETUP TEST COUNT AND SCOPE LOOP
2005 7772 #6 /SIMULATOR ITERATION COUNTER
2006 4436 SIMCHK /CHECK TO SEE IF SIMULATOR SELECTED;
2007 4030 4030 /CONTROL WORD FOR SIMULATOR
2010 4437 LODSIM /LOAD SIMULATOR MUST BE SET FOR XOR
2011 5217 JMP TEST27+5 /START TEST
2012 4423 TEST27, LOOPPC /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
2013 7749 #40 /SIMULATOR ITERATION COUNTER
2014 4436 SIMCHK /CHECK TO SEE IF SIMULATOR IS SELECTED
2015 4000 4000 /CONTROL WORD FOR THE SIMULATOR
2016 4437 LODSIM /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
/LOOP #1 THIS ADDRESS IF SIMULATOR SELECTED
/OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
2017 3041 DCA INFLG /CLEAR PROGRAM INTERRUPT FLAG
2020 6007 CAF /CLEAR ALL FLAGS BUT SET SLU INT ENA
2021 4146 RTCENA /SET REAL TIME CLOCK INT ENA
2022 6001 ION /TURN THE INTERRUPT ON
2023 6040 TFL /SET THE TRANSMIT FLAG
2024 6041 TSF /SKIP ON XMIT FLAG
2025 4427 ERROR /TRANSMIT FLAG FAILED TO SET BY TFL
2026 6045 SPI /SKIP ON XMIT FLAG AND INT ENA ON A 1
2027 4427 ERROR /SPI FAILED TO SKIP WITH INT ENA + FLAG SET
2030 2041 ISZ INFLG /DID THE PROGRAM INTERRUPT
2031 4427 ERROR /PROGRAM FAILED TO INTERRUPT WITH XMIT AND INT ENA SET

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 B158 PAGE 2-26

```

2832 6946      TLS          /LOAD TRANSMIT BUFFER, TRANSMIT AND CLEAR XMIT FLAG
2833 7610      SKP CLA    /TLS SKIPPED
2834 4427      ERROR       /TURN THE INTERRUPT ON
2835 6001      ION         /SKIP ON THE TRANSMIT FLAG
2836 6041      TSF
2837 7610      SKP CLA    /TLS FAILED TO CLEAR XMIT FLAG
2840 4427      ERROR       /WAIT FOR TRANSMIT FLAG TO SET
2841 4431      TSFWAT     /XMIT BUFF MT FAILED TO SET XMIT FLAG
2842 4427      ERROR       /DID THE PROGRAM INTERRUPT?
2843 2041      ISE INTFLG /ERROR, NO INTERRUPT WITH XMIT AND INT ENA SET
2844 4427      ERROR       /SKIP ON SLU INTERRUPT (XMIT SIDE)
2845 6045      SPI
2846 4427      ERROR       /FAILED TO SKIP OR INT ENA OR FLAG GOT CLEARED
2847 6042      TCF
2850 6001      ION
2851 4432      KSFHAT     /CLEAN TRANSMIT FLAG
2852 4427      ERROR       /TURN THE INTERRUPT ON
2853 6045      SPI
2854 4427      ERROR       /NO SKIP, OR RECEIVE FLAG NOT SET BY RCD DATA AVAILABLE
2855 2041      ISE INTFLG /SKIP ON RCV FLAG AND INT ENA
2856 4427      ERROR       /NO SIDE OF RCV FLAG NOT LOW OR FAILED TO INTERRUPT
2857 6030      KCF
2858 7610      SKP CLA    /DID RCV AND INT ENA CAUSE AN INTERRUPT?
2861 4427      ERROR       /NO, ERROR
2862 6001      ION
2863 6031      KSF
2864 7610      SKP CLA    /CLEAN RECEIVE FLAG
2865 4427      ERROR       /KCF SKIPPED
2866 1041      TAD INTFLG /TURN THE INTERRUPT ON
2867 7640      S2A CLA    /SKIP ON RECEIVE FLAG
2870 4427      ERROR       /PROGRAM INTERRUPTED WITH RCV FLAG CLEARED
2871 6041      TCF
2872 7610      SKP CLA    /SKIP ON XMIT FLAG
2873 4427      ERROR       /TRANSMIT FLAG GOT RESET BY ABOVE CODE
2874 4424      DONLDP    /REPEAT TEST IF NOT DONE OR SCOPE LOOP IF SR2=1

*****  

/*TEST 28 = CHECKS THAT TPC WILL NOT CLEAR XMIT FLAG AND THAT IT WILL  

PRESET IT, TEST 28 ALSO CHECKS THAT THE RECEIVE FLAG WILL SET AND THAT IT  

CAN BE CLEARED BY KCC;  

*****
```

```

2875 1021      TAD      OP1SEL   /GET THE HARDWARE CONFIGURATION
2876 0377      AND     (100)    /MASK OUT THE XOR BIT
2877 7650      SNA      CLA      /IS THE XOR SELECTED
2878 5307      JMP     TEST28  /NO, DO THE NORMAL TEST
2101 4423      LOOPPC   -6      /YES=SETUP TEST COUNT AND SCOPE LOOP
2102 7772      SIMCHK  SIMCHK  /SIMULATOR ITERATION COUNTER
2103 4436      SIMCHK  SIMCHK  /CHECK TO SEE IF SIMULATOR SELECTED
2104 4010      4010    LODSIM   /CONTROL WORD FOR SIMULATOR
2105 4437      LODSIM   LODSIM   /LOAD SIMULATOR CONTROL WORD
2106 5314      JMP     TEST28+5 /START THE TEST
2107 4423      LOOPPC   -40    /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
2110 7740      LODSIM   LODSIM   /SIMULATOR ITERATION COUNTER
2111 4436      SIMCHK  SIMCHK  /CHECK TO SEE IF SIMULATOR IS SELECTED
```

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 B158 PAGE 2-27

```

2112 4000      4000      /CONTROL WORD FOR THE SIMULATOR
2113 4437      LODSIM   /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
2114 3041      DCA INTFLG /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
2115 6007      CAF      /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
2116 4146      RTCENA  /CLEAR PROGRAM INTERRUPT
2117 6001      ION      /CLEAR ALL FLAGS BUT SET SLU INT ENA
2120 6040      TFL      /SET REAL TIME CLOCK INT ENA
2121 6041      TFL      /TURN THE INTERRUPT ON
2122 4427      ERROR    /SET THE TRANSMIT FLAG
2123 2041      ISE INTFLG /SKIP ON TRANSMIT FLAG
2124 4427      ERROR    /TFL FAILED TO SET XMIT FLAG
2125 6044      TPC      /PROGRAM FAILED TO INTERRUPT
2126 7610      SKP CLA  /LOAD TRANSMIT BUFFER AND TRANSMIT
2127 4427      ERROR    /TPC SKIPPED
2130 6041      TFL      /SKIP ON XMIT FLAG
2131 4427      ERROR    /TPC CLEARED XMIT FLAG
2132 6042      TCF      /CLEAN TRANSMIT FLAG
2133 6001      ION      /TURN THE INTERRUPT BACK ON
2134 4431      TSFWAT  /WAIT FOR XMIT BUFF MT H TO SET XMIT FLAG
2135 4427      ERROR    /TPC FAILED TO SET XMIT FLAG
2136 2041      ISE INTFLG /CHECK TO SEE IF PROGRAM INTERRUPTED
2137 4427      ERROR    /PROGRAM FAILED TO INTERRUPT WITH XMIT FLAG + INT ENA
2140 6042      TCF      /CLEAR THE TRANSMIT FLAG
2141 6001      ION      /TURN THE INTERRUPT ON
2142 4432      KSFHAT  /WAIT FOR RECEIVE FLAG TO SET
2143 4427      ERROR    /RECEIVE FLAG FAILED TO SET BY A TPC COMMAND
2144 6045      SPI      /SKIP ON RCV FLAG AND INT ENA
2145 4427      ERROR    /FAILED TO SKIP
2146 2041      ISE INTFLG /DID THE PROGRAM INTERRUPT
2147 4427      ERROR    /FAILED TO INTERRUPT WITH RCV AND INT ENA SET
2150 6032      KCC      /CLEAN THE RECEIVE FLAG
2151 7610      SKP CLA  /KCC SKIPPED
2152 4427      ERROR    /TURN THE INTERRUPT ON
2153 6001      ION      /SKIP ON RECEIVE FLAG
2154 6031      KSF
2155 7610      SKP CLA  /KCC FAILED TO CLEAR RCV FLAG
2156 4427      ERROR    /GET THE PROGRAM INTERRUPT FLAG
2157 1041      TAD INTFLG /PROGRAM INTERRUPTED WITH RCV FLAG CLEARED
2160 7640      S2A CLA  /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1
2161 4427      ERROR
2162 4424      DONLDP

2163 5776!     JMP     TEST29
```

```

2176 2200
2177 0100
2200 IFDEF OP13K <PAGE>
```

```
*****  

/*TEST 29 = CHECKS THAT KRB WILL CLEAR THE RCV FLAG, THE RCV FLAG  

IS SET BY ISSUING TLS COMMAND,
```

```
***** TEST 29 *****

2200 4423 TEST29, LOOPPC           /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
2201 7775 -3                      /SIMULATOR ITERATION COUNTER
2202 4104 JMS PATCH               /SET UP SKIP CHAIN
2203 3252 SKPCHN
2204 3042 DCA CLKFLG             /SET INTERRUPT TO IGNORE RTC
2205 4436 SIMCHK                /CHECK TO SEE IF SIMULATOR IS SELECTED
2206 4017 4017                 /CONTROL WORD FOR THE SIMULATOR
2207 4437 LOOSIM                 /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                                /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                                /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
2210 3041 DCA INTFLG             /CLEAR PROGRAM INTERRUPT FLAG
2211 6007 CAF                   /CLEAR ALL FLAGS AND SET SLU INT ENA
2212 4146 RTCENA                /SET REAL TIME CLOCK INT ENA
2213 6001 ION                   /TURN THE INTERRUPT ON
2214 6046 TLS                   /TRANSMIT AND CLEAR THE XMIT FLAG
2215 4431 TSFWAT                /WAIT FOR THE XMIT FLAG TO SET
2216 4427 ERROR                 /XMIT FLAG FAILED TO SET BY TLS
2217 2041 ISE INTFLG             /DID THE PROGRAM INTERRUPT
2220 4427 ERROR                 /FAILED TO INTERRUPT WITH INT ENA AND XMIT FLAG
2221 6042 TCF                   /CLEAR XMIT FLAG
2222 6001 ION                   /TURN THE INTERRUPT ON
2223 4432 KSFWAT                /WAIT FOR THE RCV FLAG TO SET
2224 4427 ERROR                 /RECEIVE FLAG FAILED TO SET
2225 6034 KRS                   /READ THE RECEIVE BUFFER
2226 7610 SKP CLA               /KRS SKIPPED
2227 4427 ERROR                 /SKIP ON RECEIVE FLAG
2230 6031 KSF                  /KRS CLEARED THE RCV FLAG
2231 4427 ERROR                 /DID THE PROGRAM INTERRUPT
2232 2041 ISE INTFLG             /FAILED TO INTERRUPT WITH INT ENA + RCV FLAG
2233 4427 ERROR
2234 6036 KRB                  /CLEAR RECEIVE FLAG
2235 7610 SKP CLA               /KRB FAILED TO CLEAR RECEIVE FLAG
2236 4427 ERROR                 /GET THE PROGRAM INTERRUPT FLAG
2237 6001 ION                   /PROGRAM INTERRUPTED WITHOUT RCV FLAG SET
2240 6031 KSF                  /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1
2241 7610 SKP CLA               /TURN THE INTERRUPT BACK ON
2242 4427 ERROR                 /SKIP ON RECEIVE FLAG
2243 1041 TAD INTFLG             /KRB FAILED TO CLEAR RECEIVE FLAG
2244 7640 SZA CLA               /GET THE PROGRAM INTERRUPT FLAG
2245 4427 ERROR
2246 4424 DONLOP                /PROGRAM INTERRUPTED WITHOUT RCV FLAG SET
                                /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1

***** TEST 30 *****

/TEST 30 = CHECKS THAT CAF WILL CLEAR RCV FLAG
***** TEST 30 *****

2247 4423 TEST30, LOOPPC           /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
2250 7775 -3                      /SIMULATOR ITERATION COUNTER
2251 4436 SIMCHK                /CHECK TO SEE IF SIMULATOR IS SELECTED
2252 4017 4017                 /CONTROL WORD FOR THE SIMULATOR
2253 4437 LOOSIM                 /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                                /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                                /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
```

```
***** TEST 30 *****

2254 3041 DCA INTFLG             /CLEAR PROGRAM INTERRUPT FLAG
2255 6007 CAF                   /CLEAR ALL FLAGS
2256 4146 RTCENA                /SET REAL TIME CLOCK INT ENA
2257 6001 ION                   /TURN THE INTERRUPT ON
2258 6046 TLS                   /TRANSMIT AND CLEAR THE XMIT FLAG
2261 4431 TSFWAT                /WAIT FOR XMIT FLAG
2262 4427 ERROR                 /XMIT FLAG FAILED TO SET
2263 2041 ISE INTFLG             /DID THE PROGRAM INTERRUPT?
2264 4427 ERROR                 /PROGRAM FAILED TO INTERRUPT
2265 6042 TCF                   /CLEAR TRANSMIT FLAG
2266 6001 ION
2267 4432 KSFWAT                /WAIT FOR RECEIVE FLAG
2270 4427 ERROR                 /RECEIVE FLAG FAILED TO SET
2271 2041 ISE INTFLG             /DID THE PROGRAM INTERRUPT
2272 4427 ERROR                 /PROGRAM FAILED TO INTERRUPT
2273 6007 CAF                   /CLEAR ALL FLAGS
2274 6001 ION                   /TURN THE INTERRUPT BACK ON
2275 6031 KSF                  /SKIP ON RECEIVE FLAG
2276 7610 SKP CLA               /INITIALIZE FAILED TO CLEAR RECEIVE FLAG
2277 4427 ERROR                 /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1

***** TEST 31 *****

/TEST 31 = CHECKS THE EFFECT OF THE SLU IOT'S UPON THE AC
***** TEST 31 *****

2301 4423 TEST31, LOOPPC           /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
2302 7777 -1                      /SIMULATOR ITERATION COUNTER
2303 4436 SIMCHK                /CHECK TO SEE IF SIMULATOR IS SELECTED
2304 4007 4007                 /CONTROL WORD FOR THE SIMULATOR
2305 4437 LOOSIM                 /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                                /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                                /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
2306 3041 DCA INTFLG             /CLEAR PROGRAM INTERRUPT FLAG
2307 6007 CAF                   /CLEAR ALL FLAGS
2310 4146 RTCENA                /SET REAL TIME CLOCK INT ENA
2311 6001 ION                   /TURN THE INTERRUPT ON
2312 7344 CLA CLL CMA RAL      /SET THE AC TO -2
2313 6035 KIE                   /CLEAR SLU INTERRUPT ENABLE
2314 7050 CMA RAR
2315 7620 SNL CLA
2316 4427 ERROR
2317 7240 CLA CMA
2320 6032 KCC
2321 7640 SZA CLA
2322 4427 ERROR
2323 7240 CLA CMA
2324 6036 KRB
2325 7510 SPA
2326 4427 ERROR
2327 7240 CLA CMA
2330 6034 KRS
2331 7040 CMA
2332 7640 SZA CLA
2333 4427 ERROR
                                /KIE CHANGED THE AC
                                /CLEAR RECEIVE FLAG AND AC
                                /KCC FAILED TO CLEAR THE AC
                                /READ RECEIVE FLAG, CLEAR AC AND READ RECEIVE BUFFER
                                /KRB FAILED TO CLEAR AC
                                /READ RECEIVE BUFFER = INCLUSIVE OR WITH AC
                                /SET THE AC BACK TO -2
                                /KRS CHANGED THE AC
```

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 B158 PAGE 2-30

```

2334 7340 CLA CLL CMA
2335 6031 KSF /SKIP ON RECEIVE FLAG
2336 7040 CMA
2337 7640 SZA CLA
2340 4427 ERROR /KSF CHANGED THE AC
2341 7240 CLA CMA
2342 6030 KCF /CLEAR RECEIVE FLAG
2343 7040 CMA
2344 7640 SZA CLA
2345 4427 ERROR /KSF CHANGED THE AC
2346 7240 CLA CMA
2347 6040 TFL /SET TRANSMIT FLAG
2350 7040 CMA
2351 7640 SZA CLA
2352 4427 ERROR /TFL CHANGED THE AC
2353 7240 CLA CMA
2354 6042 TCF /CLEAR THE TRANSMIT FLAG
2355 7040 CMA
2356 7640 SZA CLA
2357 4427 ERROR /TCF CHANGED THE AC
2358 7240 CLA CMA
2361 6041 TSF /SKIP ON TRANSMIT FLAG
2362 7040 CMA
2363 7640 SZA CLA
2364 4427 ERROR /TSF CHANGED THE AC
2365 7240 CLA CMA
2366 6044 TPC /LOAD TRANSMIT BUFFER AND TRANSMIT
2367 7040 CMA
2370 7640 SZA CLA
2371 4427 ERROR /TPC CHANGED THE AC
2372 4431 TSFWAT /WAIT FOR THE TRANSMIT FLAG
2373 4427 ERROR /TRANSMIT FLAG FAILED TO SET
2374 4432 KSFHAT /WAIT FOR THE RECEIVE FLAG
2375 4427 ERROR /RECEIVE FLAG FAILED TO SET
2376 6042 TCF /CLEAR THE XMIT FLAG
2377 6030 KCF /CLEAR THE RECEIVE FLAG
2400 7240 CLA CMA /SKIP IF XMIT/RCV FLAG SET AND INT ENA SET
2401 6045 SPI
2402 7040 CMA
2403 7640 SZA CLA
2404 4427 ERROR /SPI CHANGED THE AC
2405 7240 CLA CMA
2406 6046 TLS /LOAD TRANSMIT BUFFER, TRANSMIT + CLEAR FLAG
2407 7040 CMA
2410 7640 SZA CLA
2411 4427 ERROR /TLS CHANGED THE AC
2412 4431 TSFWAT /WAIT FOR THE TRANSMIT FLAG
2413 4427 ERROR /TRANSMIT FLAG FAILED TO SET
2414 4432 KSFHAT /WAIT FOR THE RECEIVE FLAG TO SET
2415 4427 ERROR /ERROR RECEIVE FLAG FAILED TO SET
2416 6042 TCF /CLEAR THE TRANSMIT FLAG
2417 6032 KCC /CLEAR AC AND RECEIVE FLAG
2420 1041 TAD INTFLG /DID THE PROGRAM INTERRUPT?
2421 7640 SZA CLA
2422 4427 ERROR /PROGRAM INTERRUPTED WITHOUT INT ENA SET

```

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 B158 PAGE 2-31

```

2423 4424 DONLDP /REPEAT TEST IF NOT DONE OR LOOP IF SR2=1
*****  

//TEST 32 = CHECKS THAT ALL ZEROES CAN BE TRANSMITTED AND READ BACK IN  

*****  

2424 4423 TEST32; LOOPPC /SETUP TEST COUNT AND SCOPE LOOP ADDRESS
2425 7775 .3 /SIMULATOR ITERATION COUNTER
2426 4436 SIMCHK /CHECK TO SEE IF SIMULATOR IS SELECTED
2427 4017 4017 /CONTROL WORD FOR THE SIMULATOR
2430 4437 LODSIM /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
/LOOP = THIS ADDRESS IF SIMULATOR SELECTED
/OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
2431 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
2432 3053 DCA SLUXMT /CLEAR THE WORD TO BE TRANSMITTED
2433 4433 SLUDAT /GO TRANSMIT, READ AND COMPARE THE WORD
2434 4434 SLUDER /DATA ERROR=WORD WAS NON ZERO BEING READ BACK
2435 4424 DONLDP /REPEAT TEST IF NOT DONE OR LOOP IF SR2=1
*****  

//TEST 33 = CHECKS THAT ALL ONES CAN BE TRANSMITTED AND READ BACK
*****  

2436 4423 TEST33; LOOPPC /SETUP TEST COUNT AND SCOPE LOOP ADDRESS
2437 7775 .3 /SIMULATOR ITERATION COUNTER
2440 4436 SIMCHK /CHECK TO SEE IF SIMULATOR IS SELECTED
2441 4017 4017 /CONTROL WORD FOR THE SIMULATOR
2442 4437 LODSIM /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
/LOOP = THIS ADDRESS IF SIMULATOR SELECTED
/OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
2443 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
2444 1056 TAD K377 /SET THE WORD TO BE TRANSMITTED TO ALL ONE'S
2445 3053 DCA SLUXMT /GO TRANSMIT, READ AND COMPARE
2446 4433 SLUDAT /DATA ERROR= WORDS DO NOT COMPARE
2447 4434 SLUDER /REPEAT TEST IF NOT DONE OR LOOP IF SR2=1
2450 4424 DONLDP
*****  

//TEST 34 = CHECKS THAT A COMPLEMENTING PATTERN (000-377) CAN BE  

//TRANSMITTED AND READ BACK;
*****  

2451 4423 TEST34; LOOPPC /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
2452 7775 .3 /SIMULATOR ITERATION COUNTER
2453 4436 SIMCHK /CHECK TO SEE IF SIMULATOR IS SELECTED
2454 4017 4017 /CONTROL WORD FOR THE SIMULATOR
2455 4437 LODSIM /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
/LOOP = THIS ADDRESS IF SIMULATOR SELECTED
/OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
2456 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
2457 3053 DCA SLUXMT /CLEAR THE WORD TO BE TRANSMITTED
2458 4433 SLUDAT /GO TRANSMIT READ AND COMPARE THE WORD
2461 4434 SLUDER /DATA ERROR = TRANSMITTING ZEROES
2462 1056 TAD K377

```

```

/DKCB=AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 4K PAL10 V142A 16-JUN-75 8158 PAGE 2-33
/***** TEST 37 *****
2526 4423 TEST37: LOOPPC
2527 7777 TAD =1
2530 1056 TAD K377
2531 7041 CIA
2532 3058 DCA SAVCNT
2533 1050 TAD SAVCNT
2534 3047 DCA TSTCNT
2535 4436 SIMCHK
2536 4017 4017
2537 4437 LOADSIM
2540 6007 CAP
2541 4146 RTCENA
2542 6001 ION
2543 3041 DCA INTFLG
2544 6035 KIE
2545 1047 TAD TSTCNT
2546 3056 AND K377
2547 3053 DCA SLUXHT
2550 1053 TAD SLUXMT
2551 6046 TLS
2552 4431 TSFWAT
2553 4427 ERROR
2554 6042 TCP
2555 4432 KSFWAT
2556 4427 ERROR
2557 7240 CLA CMA
2560 4936 KRB
2561 3054 DCA SLUREC
2562 1053 TAD SLUXMT
2563 7041 CIA
2564 1054 TAD SLUREC
2565 7640 SZA CLA
2566 4434 SLUDER
2567 1041 TAD INTFLG
2570 7640 SZA CLA
2571 4427 ERROR
2572 4424 DNLDP
2573 7000 NOP
2574 7000 NOP

2575 1021 TAD OPSEL
2576 4057 AND K200
2577 7650 SNA CLA
2602 5002 JMP I ,+2
2601 5203 JMP TEST38
2602 3124 TEST42

/***** TEST 38 *****
/THIS TEST IS ENTERED WHEN SIMULATOR IS SELECTED.
/TEST 38 = CHECKS THAT READER RUN CAN BE SET BY KCC AND KRB AND
/CLEARED BY INITIALE, THE SIMULATOR IS USED TO CHECK THAT READER
/RUN SETS AND CLEARS.

```

```

2603 4423 TEST38, LOOPPC           /SETUP TEST COUNT AND TEST LOOP ADDRESS
2604 7777 =1                         /SIMULATOR ITERATION COUNT
2605 4436 SIMCHK                   /CHECK FOR SIMULATOR
2606 4000 4000                     /SIMULATOR CONTROL WORD
2607 4437 LODSIM                   /LOAD THE SIMULATOR CONTROL WORD
2610 6007 CAF                      /CLEAR ALL
2611 4146 RTCENA                  /SET REAL TIME CLOCK INT ENA
2612 3041 DCA INTFLG                /CLEAR THE PROGRAM INTERRUPT FLAG
2613 4104 JNS PATCH                 /CLEAR THE PROGRAM INTERRUPT FLAG
2614 3252 SKPCHN                  /TURN THE INTERRUPT ON
2615 6001 ION                      /CLEAR READER RUN DETECTOR FLIP-FLOP
2616 6156 CLRDET                  /SKIP ON READER RUN F/F SET
2617 6157 SKPRDR                  /READER RUN IS SET AFTER A INITIALIZE
2618 6157 SKPRDR                  /CLEAR RECEIVE FLAG AND SET READER RUN
2619 6157 SKPRDR                  /SKIP ON READER RUN SET
2620 7610 SKP CLA                  /KCC FAILED TO SET READER RUN
2621 4427 ERROR                    /CLEAR ALL INCLUDING READER RUN F/F
2622 6001 ION                      /SET REAL TIME CLOCK INT ENA
2623 6157 CLRDET                  /TURN THE INTERRUPT BACK ON
2624 4427 SKPRDR                  /CLEAR READER RUN DETECTOR F/F
2625 6007 CAF                      /SKIP ON READER RUN SET
2626 4146 RTCENA                  /INITIALIZE FAILED TO CLEAR READER RUN
2627 6001 ION                      /CLEAR AC AND RECEIVE FLAG AND SET READER RUN
2628 6156 CLRDET                  /SKIP ON READER RUN DETECTOR F/F SET
2629 6157 SKPRDR                  /KRB FAILED TO SET READER RUN
2630 6007 CAF                      /CLEAR ALL INCLUDING READER RUN F/F
2631 4146 RTCENA                  /SET REAL TIME CLOCK INT ENA
2632 7410 SKP                      /TURN THE INTERRUPT ON
2633 4427 ERROR                    /CLEAR READER RUN DETECTOR F/F
2634 6036 KRB                      /SKIP ON READER RUN F/F SET
2635 7300 CLA CLL                  /INITIALIZE FAILED TO CLEAR READER RUN
2636 6157 SKPRDR                  /CLEAR AC AND RECEIVE FLAG AND SET READER RUN
2637 4427 ERROR                    /SKIP ON READER RUN DETECTOR F/F SET
2638 6007 CAF                      /KRB FAILED TO SET READER RUN
2639 4146 RTCENA                  /CLEAR ALL INCLUDING READER RUN F/F
2640 6001 ION                      /SET REAL TIME CLOCK INT ENA
2641 4146 RTCENA                  /TURN THE INTERRUPT ON
2642 6001 ION                      /CLEAR ALL INCLUDING READER RUN F/F
2643 6156 CLRDET                  /SET REAL TIME CLOCK INT ENA
2644 6157 SKPRDR                  /TURN THE INTERRUPT ON
2645 7610 SKP CLA                  /CLEAR READER RUN DETECTOR F/F
2646 4427 ERROR                    /SKIP ON READER RUN F/F SET
2647 1041 TAD INTFLG                /INITIALIZE FAILED TO CLEAR READER RUN
2648 7640 SZA CLA                  /GET THE PROGRAM INTERRUPT FLAG
2649 4427 ERROR                    /PROGRAM INTERRUPTED
2650 4424 DONLDP                  /DONE OR REPEAT TEST IF SR2=1

*****THIS TEST IS ENTERED WHEN SIMULATOR IS SELECTED*****
/TEST 39 * CHECKS THAT READER RUN WILL CLEAR AFTER A WORD HAS BEEN TRANSMITTED
/AND DATA LOOPS BACK INTO THE RECEIVE BUFFERS USING THE 20 MA CURRENT
/LOOP FOR 110 BAUD TO 9600 BAUD;
*****
```

2653 4423	TEST39, LOOPPC	/SETUP TEST COUNT AND TEST LOOP ADDRESS
2654 7771	=7	/SIMULATOR ITERATION COUNTER
2655 4436	SIMCHK	/CHECK FOR SIMULATOR
2656 4000	4000	/SIMULATOR CONTROL WORD

2657 4437	LODSIM	/LOAD THE SIMULATOR
2660 6007	CAF	/CLEAR ALL FLAGS
2661 4146	RTCENA	/SET REAL TIME CLOCK INT ENA
2662 6001	ION	/TURN THE INTERRUPT ON
2663 6035	KIE	/DISABLE SLU INT ENABLE
2664 6156	CLRDET	/CLEAR READER RUN
2665 6157	SKPRDR	/SKIP ON READER DETECTOR F/F SET
2666 7610	SKP CLA	
2667 4427	ERROR	/READER RUN FAILED TO CLEAR BY INIT
2670 6032	KCC	/SET READER RUN
2671 6157	SKPRDR	/SKIP ON READER RUN DETECTOR F/F SET
2672 4427	ERROR	/KCC FAILED TO SET READER RUN
2673 6046	TLS	/TRANSMIT
2674 4431	TSFWAT	/WAIT FOR THE TRANSMIT FLAG
2675 4427	ERROR	/TRANSMIT FLAG FAILED TO SET
2676 6042	TCF	/CLEAR THE TRANSMIT FLAG
2677 4432	KSFWAT	/WAIT FOR THE RECEIVE FLAG
2700 4427	ERROR	/RECEIVE FLAG FAILED TO SET
2701 6156	CLRDET	/CLEAR READER RUN DETECTOR F/F
2702 6157	SKPRDR	/SKIP ON READER RUN DETECTOR F/F SET
2703 7610	SKP CLA	
2704 4427	ERROR	/CLOCK PULSE TO READER RUN FAILED TO CLEAR READER RUN
2705 4424	DONLDP	/REPEAT TEST FOR NEXT BAUD RATE
2706 1021	TAD OP1SEL	/GET THE HARDWARE CONFIGURATION
2707 0377	AND (100	/MASK OUT THE XOR BIT
2710 7650	SNA CLA	/IS THE XOR SELECTED
2711 5776	JMP TEST40	/NO, GO TO THE NEXT TEST
2712 5440	PRGEND	/YES, END THE THE PROGRAM THEN
2776 3000		
2777 0100		
3000 3000	IFDEF OP13K <PAGE>	

```

*****THIS TEST IS ENTERED WHEN SIMULATOR IS SELECTED*****
/TEST 40 * USES THE SIMULATOR TO TEST THE RTC FREQUENCY;
*****
```

3002 4423	TEST40, LOOPPC	/SETUP TEST COUNT AND TEST LOOP ADDRESS
3001 7777	=1	/SIMULATOR ITERATION COUNTER
3002 4104	JMS PATCH	/SETUP INTERRUPT SKIP CHAIN
3003 3252	SKPCHN	
3004 3042	DCA CLKFLG	/SET INTERRUPT TO IGNORE RTC
3005 4436	SIMCHK	/CHECK FOR SIMULATOR
3006 4100	4100	/CONTROL WORD FOR THE SIMULATOR
3007 4437	LODSIM	/LOAD THE SIMULATOR CONTROL WORD
3010 1377	TAD (=20	
3011 3043	DCA CNT	
3012 6007	CAF	/CLEAR ALL
3013 4146	RTCENA	/SET REAL TIME CLOCK INT ENA
3014 6001	ION	/TURN THE INTERRUPT ON
3015 6101	STRFRQ	/START A FREQUENCY COUNT
3016 6162	SKPFRRQ	/SKIP ON FREQUENCY COUNT IN PROGRESS

/DKC8-AA OPTION TEST 1 MAINDEQ=08=DJOKA=B=L 4K PAL10 V142A 16-JUN-75 8158 PAGE 2-36

```

3017 7610      SKP     CLA      /FREQUENCY COUNT ENDED GO READ IT
3020 5216      JMP     ,=2      /WAIT FOR A FREQUENCY COUNT ENDED
3021 6163      LODFRQ   /LOAD THE FREQUENCY COUNT IN TO THE AC
3022 3243      DCA     FRQCNTR /SAVE THE FREQUENCY COUNT READ
3023 1244      TAD     RTCFRQ  /GET THE NEGATIVE VALUE OF MAX TOLERANCE
3024 1243      TAD     FRQCNTR /GET THE COUNT READ
3025 7450      SNA     /ARE THEY EQUAL?
3026 5241      JMP     RTIMOK /YES-CHECK FOR LOOP ON TEST
3027 7001      IAC     /ADD 1 TO THE NUMBER
3030 7450      SNA     /ARE THEY EQUAL?
3031 5241      JMP     RTIMOK /YES-CHECK FOR LOOP ON TEST
3032 2043      ISE     CNT    /NO BACK FOR NEXT ALLOWED NUMBER
3033 5227      JMP     ,=4    /RTC TIMING ERROR PRESS "CONT" FOR
3034 4427      ERROR   /SIMULATOR CONTROL WORD
3035 4435      SWHCHK  /CHECK SR1 TO LOOP ON ERROR
3036 7004      RAL     /PUT IT IN BIT 0
3037 7710      SPA     CLA      /REPEAT TEST
3038 5446      JMP     I TSTLOP /DONE OR REPEAT TEST IF SR2=1
3041 4424      RTIMOK, DONLOP /GO TO NEXT TEST
3042 5245      JMP     TEST41
3043 0000      FRQCNTR, 0
3044 3062      RTCFRQ, =4716 /RTC FREQUENCY COUNT 2500 + OR = 10

```

/THIS TEST IS ENTERED WHEN SIMULATOR IS SELECTED,
/TEST 41 - USES THE SIMULATOR TO CHECK THE TIMING OF THE SERIAL LINE UNIT
/FROM 110 BAUD TO 9600 BAUD USING THE 20MA CURRENT LOOP

```

3045 4423      TEST41, LOOPPC   /SETUP TEST COUNT AND TEST LOOP ADDRESS
3046 7740      =40          /SIMULATOR ITERATION COUNTER
3047 4436      SIMCHK   /CHECK FOR THE SIMULATOR
3050 4000      4000        /SIMULATOR CONTROL WORD
3051 4437      LODSIM    /LOAD THE SIMULATOR CONTROL WORD
3052 1377      TAD     (=20
3053 3043      DCA     CNT    /CLEAR ALL FLAGS
3054 6007      CAF     /SET REAL TIME CLOCK INT ENA
3055 4146      RTCENA   /CLEAR SLU INTERRUPT ENABLE
3056 6035      KIE     /TURN THE INTERRUPT ON
3057 6001      ION     /START A FREQUENCY COUNT
3060 6161      STRFRQ   /SKIP ON FREQUENCY COUNT IN PROGRESS
3061 6162      SKPFRQ   /FREQUENCY COUNT ENDED GO READ IT
3062 7610      SKP     CLA      /WAIT FOR FREQUENCY COUNT ENDED
3063 5261      JMP     ,=2      /LOAD FREQUENCY COUNT INTO AC
3064 6163      LODFRQ   /SAVE THE WORD READ
3065 3243      DCA     FRQCNTR /GET THE CONTROL WORD
3066 1955      TAD     CNTWD  /MASK OUT THE BAUD RATE
3067 0064      AND     K7      /GET THE ADDRESS OF FREQUENCY TABLE
3070 1376      TAD     (=FRQTAB /SAVE THE ADDRESS
3071 3273      DCA     TABFRQ /POINT ADDRESS TO FREQUENCY TABLE
3072 7410      SKP
3073 7402      TABFRQ, HLT

```

/DKC8-AA OPTION TEST 1 MAINDEQ=08=DJOKA=B=L 4K PAL10 V142A 16-JUN-75 8158 PAGE 2-37

```

3074 1673      TAD     I TABFRQ /GET THE NEG MAXIMUM FREQUENCY COUNT
3075 1243      TAD     FRQCNTR /GET THE COUNT READ
3076 7450      SNA     /ARE THEY EQUAL?
3077 5312      JMP     SLUTOK /YES, SLU TIMING IS OK
3103 7001      IAC     /ADD ONE TO THE NUMBER
3101 7450      SNA     /ARE THEY EQUAL?
3102 5312      JMP     SLUTOK /YES SLU TIMING IS OK
3103 2943      ISE     CNT    /BUMP SLU TIMING CHECK COUNTER
3104 5300      JMP     ,=4    /RETURN TO ADD A 1 TO THE NUMBER
3105 4427      ERROR   /SLU TIMING ERROR-PRESS "CONTINUE" FOR
3106 4435      SWHCHK  /SIMULATOR CONTROL WORD
3107 7004      RAL     /CHECK FOR LOOP ON ERROR
3110 7710      SPA     CLA      /LOOP?
3111 5446      JMP     I TSTLOP /YES DO SAME BAUD RATE
3112 4424      SLUTOK, DONLOP /DONE OR REPEAT TEST IF SR2=1
3113 5324      JMP     TEST42 /GO DO THE INTERACTION TEST

```

/FREQUENCY COUNT TABLE FOR SLU SIMULATOR TIMING TEST (MAXIMUM COUNTS)

3114 2335	FROTAB, =5443	/110 BAUD = 2841 + OR = 10
3115 3723	=4055	/150 BAUD = 2883 + OR = 10
3116 3723	=4055	/300 BAUD = 2883 + OR = 10
3117 3723	=4055	/600 BAUD = 2883 + OR = 10
3120 5744	=2034	/1200 BAUD = 1942 + OR = 10
3121 6755	=1023	/2400 BAUD = 0521 + OR = 10
3122 7362	=0416	/4800 BAUD = 0262 + OR = 10
3123 7564	=0214	/9600 BAUD = 0130 + OR = 10

/TEST 42 - IS AN INTERACTION TEST, THE TEST CHECKS THAT THE RTC, THE
/SLU AND THE 12 BIT PARALLEL I/O CAN RUN TOGETHER, THE AC AND LINK
/IS LOADED WITH SOME RANDOM DATA BEFORE THE INTERRUPT IS TURNED ON,
/THE PROGRAM CHECKS THAT THE AC AND LINK DON'T CHANGE AND THAT DATA
/CAN BE TRANSMITTED AND READ BACK CORRECTLY.

```

3124 4423      TEST42, LOOPPC   /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
3125 7777      =1           /SIMULATOR ITERATION COUNTER
3126 4436      SIMCHK   /CHECK TO SEE IF SIMULATOR IS SELECTED
3127 4017      4017        /CONTROL WORD FOR THE SIMULATOR
3130 4437      LODSIM    /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
3131 6002      IOF     /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
3132 4470      JMS     I DELAYR /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
3133 6007      CAF     /TURN THE INTERRUPT OFF
3134 4146      RTCENA  /DELAY FOR APPROXIMATELY 200MS TO
3135 4104      JMS     PATCH /ALLOW FLAGS TO SETTLE
3136 4200      INTSKP  /CLEAR ALL FLAGS BUT SET SLU INT ENA

```

/DKC8-AA OPTION TEST 1 MAINDEG=0B=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 8158 PAGE 2-38

3137	3071	DCA	EXPACD	/CLEAR THE EXPECTED AC DATA
3140	3072	DCA	LINK	/CLEAR THE LINK BIT
3141	3053	DCA	SLUXMT	/SET INITIAL AC DATA TO 0
3142	3051	DCA	PIOXMT	/SET PIO INITIAL DATA TO 0
3143	7240	CLA	CMA	
3144	3073	DCA	XMTFLG	/SET SLU XMT FLAG TO INACTIVE
3145	7240	CLA	CMA	
3146	3074	DCA	RECFLG	/SET SLU RCV FLAG TO INACTIVE
3147	7240	CLA	CMA	
3150	3075	DCA	RTCFLG	/SET RTC FLAG TO INACTIVE
3151	1066	TAD	M10	
3152	3076	DCA	PNCINT	/SETUP A COUNT FOR NO INT'S ON P I/O
3153	1367	TAD	H40	/SET DEVICE INACTIVE COUNTER TO -40
3154	3077	DCA	INACTV	/
3155	7352	CLA CLL	CMA RTR	/SETUP TEST COUNT
3156	3047	DCA	TSTCNT	/SAVE IT
3157	7301	CLA CLL	IAC	/SET DATA BIT 11
3160	6135	CLLE		/SET RTC INT ENA
3161	7200	CLA		
3162	6575	DBSE		/SET 12 BIT PARALLEL I/O INT ENA
3163	6046	TLS		/LOAD AND TRANSMIT ON SLU
3164	6574	DBTD		/TRANSMIT ALL 0's ON P I/O
3165	6001	ION		/TURN THE INTERRUPT ON
3166	5366	JMP	:	/GO BABY GO!!!!

3167 7740 M40, : =40

3176 3114
3177 7760
3200 PAGE

/ROUTINE TO SETUP # OF PASSES/TEST AND TO STORE THE RETURN ADDRESS FOR SCOPE LOOPING

3200	0000	PCLOOP:	0
3201	7340	CLA CLL	CMA
3202	1200	TAD	PCLOOP
3203	3045	DCA	TEST
3204	1600	TAD	I PCLOOP
3205	3067	DCA	SIMCNT
3206	7240	CLA	CMA
3207	3050	DCA	SAVCNT
3210	1050	TAD	SAVCNT
3211	3047	DCA	TSTCNT
3212	2200	ISZ	PCLOOP
3213	5600	JMP	I PCLOOP

/DKC8-AA OPTION TEST 1 MAINDEG=0B=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 8158 PAGE 2-39

3214	0000	SIMLOD:	0	
3215	1055	TAD	CONTWD	/GET THE CONTROL WORD
3216	6151	LOADSH		/LOAD THE SIMULATOR CONTROL WORD
3217	7300	CLA	CLL	
3220	5614	JMP	I SIMLOD	
3221	0000	LOPDON:	0	
3222	4623	JMS	I ,+1	/GO CHECK TO SEE IF XOR ERROR
3223	4626	DNONE		
3224	1821	TAD	OP1SEL	/IS THE SIMULATOR SELECTED
3225	0057	AND	K200	
3226	7650	SNA	CLA	
3227	5237	JMP	LOOPSW	
3230	2967	ISZ	SIMCNT	
3231	7610	SKP	CLA	
3232	5237	JMP	LOOPSW	
3233	2955	ISZ	CONTWD	/NO, CHECK TEST LOOP SWITCH
3234	1050	TAD	SAVCNT	/ADD 1 TO THE CONTROL WORD FOR BAUD RATES
3235	3047	DCA	TSTCNT	/GET THE TEST COUNT
3236	5446	JMP	I TSTLOP	/RESTORE IT FOR A NEW PASS FOR A DIFFERENT BAUD
3237	4435	LOOPSH,	SHWCHK	/RETURN FOR NEW BAUD RATE
3240	7006	RTL		
3241	7700	SNA	CLA	/NO, GO TO NEXT TEST
3242	5621	JMP	I LOPDON	
3243	5445	JMP	I TEST	/YES, LOOP ON THIS TEST

3244	6102	SIMINT,	SPL	/SKIP ON POWER LOW
3245	7410	SKP		
3246	5777'	JMP	POWFAL	/POWER GOING DOWN = GO SAVE EVERYTHING
3247	3251	DCA	AC	/SAVE THE AC
3250	5317	JMP	FLGCK5	/RETURN TO THE PROGRAM

3251 0000 AC,: 0

3252	6102	SKPCHN,	SPL	/SKIP ON POWER LOW
3253	7410	SKP		
3254	5777'	JMP	POWFAL	/POWER GOING DOWN SAVE EVERYTHING
3255	3251	DCA	AC	/SAVE THE AC
3256	1842	TAD	CLKFLG	/HERE WE EXPECTING A CLOCK INTERRUPT?
3257	7650	SNA	CLA	
3262	4776'	JMS	OHKACT	/GO CHECK FOR THE ACT LINE
3261	6137	CLSK		/YES = SKIP ON REAL TIME CLOCK FLAG
3262	7410	SKP		
3263	5303	JMP	FLGCK1	/GO CHECK THE OTHER FLAGS
3264	1134	TAD	ACTFLG	/GET THE ACT FLAG
3265	7440	SZA		/DID THE PROGRAM GO TO THE PROM ?
3266	5276	JMP	ACTCK2	/YES, CHECK PARALLEL I/O DATA ACCEPTED
3267	4775'	JMS	INTXOR	/GO CHECK FOR THE XOR BIT AND TSF FLAG
3272	6031	KSF		/HAS IT A RECEIVE FLAG?
3271	7410	SKP		
3272	5311	JMP	FLGCK3	/YES = GO CHECK THE OTHER FLAGS
3273	6571	DBSK		/HAS THE DATA READY FLAG SET?
3274	7410	SKP		

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2=48

```
3275 5314    JMP FLGCK4      /YES = CHECK DATA ACCEPTED FLAG
3276 6570    ACTOK2, DBST     /HAS DATA ACCEPTED SET IF SO CLEAR IT
3277 7640    SEA CLA
3300 5315    JMP FLGCK5#2   /YES, THE FLAG SHOULD BE CLEAR NOW
3301 4427    ERROR
3302 5315    JMP FLGCK5#2   /ILLEGAL INTERRUPT =
3303 6041    FLGCK1, TSF      /RETURN
3304 7410    SKP
3305 4427    ERROR
3306 6031    FLGCK2, KSF     /XMIT FLAG SET
3307 7410    SKP
3312 4427    ERROR
3311 6571    FLGCK3, DBSK    /RECEIVE FLAG SET
3312 7410    SKP
3313 4427    ERROR
3314 6570    FLGCK4, DBST    /DATA READY FLAG SET
3315 7610    SKP CLA
3316 4427    ERROR
3317 3134    FLGCK5, DCA ACTFLG /DATA ACCEPTED FLAG SET
3320 7240    CLA CMA
3321 3041    DCA INTFLG
3322 4774    JMS RETURN
3323 3326    INTRET
3324 1251    TAD AC
3325 5726    JMP I INTRET
3326 0000    INTRET: 0
```

/ROUTINE TO WAIT FOR SERIAL LINE UNITS XMIT FLAG

```
3327 3000    WATTSF: 0
3330 7300    CLA CLL
3331 6035    KJE
3332 1150    TAD K7710      /CLEAR INTERRUPT ENABLE P/F
3333 3044    DCA CNT1
3334 3043    DCA CNT
3335 4773    JMS TSFXOR    /GO CHECK FOR XOR AND XMIT FLAG
3336 4362    JMS ADDTIM
3337 2327    ISZ WATTSF
3340 5727    JMP I WATTSF    /RETURN TO THE PROGRAM=GOT THE FLAG
```

/ROUTINE TO WAIT FOR THE SERIAL LINE UNIT RECEIVE FLAG

```
3341 0000    WATKSF: 0
3342 7300    CLA CLL
3343 1150    TAD K7710
3344 3044    DCA CNT1
3345 3043    DCA CNT
3346 6031    KSF
3347 4362    JMS ADDTIM
3350 2327    ISZ WATKSF
3351 5741    JMP I WATKSF    /RETURN TO THE PROGRAM=GOT THE FLAG
```

/ROUTINE TO WAIT FOR THE REAL TIME CLOCK FLAG

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2=41

```
3352 0000    WTCLSK, 0
3353 7240    CLA CMA
3354 3044    DCA CNT1
3355 3043    DCA CNT
3356 4577    JMS I CCLKXOR   /GO CHECK FOR THE REAL TIME CLOCK FLAG
3357 4362    JMS ADDTIM
3360 2352    ISZ WTCLSK
3361 5752    JMP I WTCLSK    /RETURN TO THE PROGRAM=GOT THE FLAG
```

/ROUTINE TO WAIT FOR THE FLAG

```
3362 7000    ADDTIM, 0
3363 2043    ISZ CNT
3364 7610    SKP CLA
3365 2044    ISZ CNT1
3366 7346    CLA CLL CMA RTL
3367 7001    IAC
3370 1362    TAD ADDTIM
3371 3362    DCA ADDTIM
3372 5762    JMP I ADDTIM
3373 4637
3374 3420
3375 4714
3376 3544
3377 3441
3400    PAGE
```

/THIS IS THE END OF A PROGRAM PASS; IF SR3=1 HALT, IF NOT START PROGRAM OVER

```
3402 6160    ENDPAS, SIMCLR   /CLEAR THE SIMULATOR
3401 4435    SWNCMK          /GO GET SWITCH REGISTER
3402 7006    RTL
3403 7004    RAL
3404 4605    JMS I +1
3405 4600    PASSED
3406 5777    JMP 0200        /START PROGRAM OVER
```

/CHECK TO SEE IF FRONT PANEL IS AVAILABLE TO DO EITHER A TAD SWITCH OR A LAS COMMAND

```
3407 0000    CHKSWH, 0
3410 7200    CLA
3411 1021    TAD OPSEL
3412 7700    SMA CLA
3413 5216    JMP ,+3
3414 7684    LAS
3415 5607    JMP I CHKSWH
3416 1022    TAD SWITCH
3417 5687    JMP I CHKSWH
```

/THIS ROUTINE SETS UP A RETURN ADDRESS FOR INTERRUPT RETURNS FROM ANOTHER FIELD

```

3422 0000 RETURN; 0
3421 6201 CDF
3422 1635 TAD I K0 /CHANGE DATA FIELD TO FIELD 0
3423 3237 DCA RETADD /GET THE INTERRUPT PC
3424 6224 RIF /SAVE IT
3425 1132 TAD KCDF /READ THE PROGRAM INSTRUCTION FIELD
3426 3227 DCA ,+1 /ADD A CDF INSTRUCTION TO IT
3427 7402 HLT/CDF /SAVE IT IN THE NEXT LOCATION
3428 1620 TAD I RETURN /RETURN TO THE PROGRAM DATA FIELD
3429 3240 DCA SAVLOC /GET THE INTERRUPT RETURN LOCATION
3430 2220 ISE RETURN /SAVE IT
3431 1237 TAD RETADD
3432 3648 DCA I SAVLOC
3433 5620 JMP I RETURN

3436 0000 K0; 0
3437 0000 RETADD; 0
3438 0000 SAVLOC; 0

/POWER FAIL ROUTINE. THE PROGRAM WILL DO IT'S OWN AUTO-RESTART
/AT THE BEGINNING OF THE TEST THAT IT WAS EXECUTING UNLESS ALL POWER
/WENT AWAY, THEN THE POWER FAIL AUTO-RESTART OPTION WOULD TRY TO DO
/A RESTART IF IT WAS SELECTED;

3441 7200 POWFAL; CLA CLA
3442 6201 CDF 00
3443 1265 TAD KJMP7
3444 3636 DCA I K0
3445 1045 TAD TEST
3446 3666 DCA I KTEST
3447 1267 TAD FLGRST
3450 3670 DCA I C7
3451 1133 TAD KRTF
3452 3671 DCA I K10
3453 1272 TAD KJMPRT
3454 3673 DCA I K11
3455 6004 GTF
3456 3674 DCA I K12
3457 6244 RMF
3460 6183 CAL
3461 6102 SPL
3462 7610 SKP CLA
3463 5261 JMP ;+2
3464 5445 JMP I TEST

3465 5007 KJMP7; JMP 7
3466 0045 KTEST; TEST
3467 1012 FLGRST; TAD 12
3470 0007 C7; 7
3471 0010 K10; 10
3472 5445 KJMPRT; JMP I TEST
3473 0011 K11; 11
3474 0012 K12; 12

```

```

/LOGIC ERROR ROUTINE = RESTART TEST IF SR1#1

3475 0000 AEROR; 0
3476 4326 JMS ACTCHK /GO CHECK TO SEE IF RUNNING ON ACT LINE
3477 4435 SWCHK /CHECK SR0 TO INHIBIT ERROR HALT
3500 7710 SPA CLA
3501 5307 JMP AERSWH /SR0=1 CHECK LOOP ON LOGIC ERROR
3502 7249 CLA CHA
3503 1275 TAD AERROR
3504 7402 HLT /AC = ADDRESS WHERE ERROR WAS DETECTED
3505 4314 JMS SIMWRD /WAS THE SIMULATOR SELECTED
3506 7492 HLT /AC=SIMULATOR CONTROL WORD
3507 4435 AERSWH; SWCHK /CHECK SR1#1 TO LOOP ON ERROR
3512 7004 RAL
3511 7700 SMA CLA
3512 5675 JMP I AERROR /RETURN WITHOUT LOOPING ON TEST
3513 5446 JMP I TSTL0P /SCOPE LOOP GO BACK TO START OF TEST SECTION

```

```

3514 0000 SIMWRD; 0
3515 7300 CLA CLL
3516 1021 TAD OPSEL
3517 0057 AND K200
3520 7650 SNA CLA
3521 5324 JMP ;+3
3522 1055 TAD CONTWD
3523 5734 JMP I SIMWRD
3524 2314 ISE SIMWRD
3525 5714 JMP I SIMWRD

```

/ROUTINE TO EXIT TO PROM ON AN ERROR IF RUNNING ON THE ACT LINE

```

3526 0000 ACTCHK; 0
3527 7300 CLA CLL
3528 1022 TAD OP2SEL /GET THE HARDWARE CONTROL WORD
3529 7700 SMA CLA /IS THE PROGRAM RUNNING ON THE ACT LINE?
3530 5726 JMP I ACTCHK /NO, RETURN TO ERROR ROUTINE
3531 6002 IOF /TURN THE INTERRUPT OFF
3532 7344 CLA CLL CMA RAL
3533 1326 TAD ACTCHK
3534 3343 DCA ERRPC
3535 7240 CLA CMA
3536 1743 TAD I ERRPC /GET THE LOCATION WHERE THE ERROR WAS DETECTED
3537 6272 CIF 70 /CHANGE INSTRUCTION FIELD TO FIELD 7
3538 5500 JMP I BADPAS /GO TO THE PROM

3543 0000 ERRPC; 0

```

```

3544 3000  CHKACT, 0
3545 6137  CLSK      /WAS THE CLOCK FLAG SET
3546 7410  SKP       /NO=RETURN TO INT SERVICE ROUTINE
3547 5352  JMP      CLKSET  /YES-CLEAR THE FLAG
3548 2344  ISE      CHKACT  /ADD 1 TO THE INCOMING PC
3549 5744  JMP I   CHKACT  /RETURN TO SKIP CHAIN
3550 6136  CLKSET, CLCL  /CLEAR THE CLOCK FLAG
3551 1022  TAD      OP2SEL /GET THE ACT LINE BIT
3552 7710  SPA      CLA      /IS THE PROGRAM RUNNING ON ACT LINE
3553 5365  JMP      ONACTL /YES,CHECK FOR # OF CLOCK TICKS
3554 5390  JMP      CHKACT+4/RETURN TO INTERRUPT ROUTINE
3555 4220  JMS      RETURN /NO,RETURN TO THE PROGRAM
3562 3564  ACTRET
3561 1776  TAD      AC      /TURN THE INTERRUPT ON
3562 6001  ION      ACTRET /RETURN TO THE PROGRAM
3563 3764  JMP I   ACTRET
3564 2000  ACTRET, 0
3565 2122  ONACTL, ISZ  ACTCNT /100 CLOCK TICKS YET?
3566 5357  JMP      CLKSET+5/NO RETURN TO PROGRAM
3567 1103  TAD      H144  /RESET ACT TIME COUNTER
3572 3102  DCA      ACTCNT /SAVE THE NUMBER
3571 6272  CIF      70      /CHANGE INSTRUCTION FIELD TO 7
3572 4581  JNS I   GOODPS /GOODPS PROM THAT PROGRAM STILLS PAS
3573 7240  CLA      CMA
3574 3134  DCA      ACTFLG /SET THE ACT LINE FLAG TO ONES
3575 5357  JMP      CLKSET+5/RETURN TO THE PROGRAM

3576 3251
3577 2200
3600  PAGE

```

/ROUTINE FOR TRANSMITTING, READING AND COMPARING DATA FOR PARALLEL I/O

```

3602 3000  DATPIO, 0
3601 6007  CAF      /CLEAR ALL
3602 4146  RTCENA /SET REAL TIME CLOCK INT ENA
3603 6001  ION      /TURN THE INTERRUPT ON
3604 4575  DBSE      /SET PARALLEL I/O INT ENA
3605 1051  TAD PIOXMT /GET THE WORD TO BE LOADED INTO PARALLEL I/O
3606 6574  DBTD      /LOAD AND TRANSMIT THE WORD
3607 7200  CLA
3610 6571  DBSK      /SKIP ON DATA READY
3611 4427  ERROR    /ERROR, DATA READY FLAG FAILED TO SET SY DBTD
3612 2041  ISZ INTFLG /GET PROGRAM INTERRUPT FLAG
3613 4427  ERROR    /PROGRAM FAILED TO INTERRUPT WITH INT ENA & FLAG SET
3614 3041  DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
3615 6572  DBRD      /READ THE 12 BIT PARALLEL I/O BUFFER
3616 3052  DCA PIOREC /SAVE THE WORD READ
3617 6571  DBSK      /SKIP ON DATA READY FLAG
3620 4427  ERROR    /DBRD CLEARED DATA READY FLAG
3621 6573  DBCF      /CLEAR DATA READY FLAG
3622 6001  ION      /TURN INTERRUPT BACK ON
3623 7000  NOP      /SHOULD INTERRUPT HERE FOR DATA ACCEPT FLAG

```

```

3624 6570  DBST      /SKIP ON DATA ACCEPT
3625 7610  SKP CLA
3626 4427  ERROR    /DATA ACCEPT FAILED TO CLEAR IN INTERRUPT ROUTINE
3627 2041  ISZ INTFLG /CHECK TO SEE IT IT INTERRUPTED
3630 4427  ERROR    /DATA ACCEPT FLAG FAILED TO INTERRUPT
3631 6001  ION      /TURN THE INTERRUPT BACK ON
3632 7000  NOP
3633 1041  TAD INTFLG /GET PROGRAM INTERRUPT FLAG
3634 7640  SZA CLA
3635 4427  ERROR    /DID IT INTERRUPT?
3636 1051  TAD PIOXMT /PROGRAM INTERRUPTED WITHOUT DATA READY SET
3637 7041  CIA
3640 1052  TAD PIOREC /GET THE WORD READ
3641 7640  SZA CLA
3642 5600  JMP I DATPIO /DATA ERROR RETURN TO REPORT ERROR
3643 6007  CAF      /CLEAR ALL FLAGS AND P I/O BUFFER
3644 4146  RTCENA
3645 6001  ION      /TURN THE INTERRUPT ON
3646 6572  DBRD      /READ THE 12 BIT P I/O BUFFER
3647 7640  SZA CLA
3650 4427  ERROR    /CAF FAILED TO CLEAR THE 12 BIT DATA BUFFER
3651 2200  ISZ DATPIO /BUMP RETURN ADDRESS POINTER BY 1
3652 5600  JMP I DATPIO /RETURN TO TEST

```

/ROUTINE FOR TRANSMITTING,READING AND COMPARING DATA FOR SLU

```

3653 2000  DATSLU, 2
3654 6007  CAF      /CLEAR ALL FLAGS BUT SET INT ENA ON SLU
3655 4146  RTCENA /SET REAL TIME CLOCK INT ENA
3656 6001  ION      /TURN THE INTERRUPT ON
3657 3041  DCA      INTFLG /CLEAR THE PROGRAM INTERRUPT FLAG
3660 1053  TAD      SLUXMT /GET THE WORD TO BE TRANSMITTED
3661 6046  TLS
3662 4431  TSFWAT  /LOAD AND TRANSMIT IT AND CLEAR THE FLAG
3663 4427  ERROR    /WAIT FOR THE TRANSMIT FLAG
3664 2041  ISZ      INTFLG /XMIT FLAG FAILED TO SET
3665 4427  ERROR    /DID THE PROGRAM INTERRUPT?
3666 6042  TCF      /PROGRAM FAILED TO INTERRUPT
3667 6001  ION      /CLEAR THE XMIT FLAG
3670 4432  KSFWAT  /TURN THE INTERRUPT BACK ON
3671 4427  ERROR    /WAIT FOR THE RECEIVE FLAG TO SET
3672 2041  ISZ      INTFLG /RECEIVE FLAG FAILED TO SET
3673 4427  ERROR    /DID THE RECEIVE FLAG CAUSE A INTERRUPT?
3674 6036  KR8
3675 3054  DCA      SLUREC /CLEAR THE AC AND RCV FLAG AND READ BUFFER
3676 6001  ION      /SAVE THE WORD READ BACK
3677 1041  TAD      INTFLG /TURN THE INTERRUPT BACK ON
3700 7640  SEA      CLA
3701 4427  ERROR    /CHECK THAT KR8 CLEARED THE RCV FLAG
3702 1053  TAD      SLUXMT /KR8 FAILED TO CLEAR RCV FLAG OR INTERRUPTED
3703 7041  CIA
3704 1054  TAD      SLUREC /GET THE WORD READ BACK
3705 7640  SZA      CLA
3706 5653  JMP I DATSLU /DATA ERROR=RETURN TO REPORT THE ERROR
3707 2253  ISZ      DATSLU /BUMP RETURN ADDRESS POINTER BY ONE

```

/DKCB=AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2=46
 3710 5653 JMP I DATSLU /RETURN TO TEST

/DATA ERROR ROUTINE FOR PARALLEL I/O

```

3711 0000 DERPIO, 0
3712 4777 JMS ACTCHK /CHECK TO SEE IF RUNNING ON ACT LINE
3713 4435 SWHCHK /CHECK SR0 TO INHIBIT ERROR HALT
3714 7710 SPA CLA /IS SR0 SET?
3715 5327 JMP PIOSSH /YES, GO CHECK SR1 TO LOOP ON ERROR
3716 7240 CLA CMA
3717 1311 TAD DERPIO
3720 7402 HLT /AC = ADDRESS WHERE ERROR WAS DETECTED
3721 7200 CLA
3722 1051 TAD PIOXMT /GET THE WORD TRANSMITTED
3723 7402 HLT /AC = THE GOOD WORD
3724 7200 CLA
3725 1052 TAD PIOREC /GET THE WORD READ
3726 7402 HLT /AC = THE BAD WORD = WORD READ
3727 4435 PIOSSH, SWHCHK /LOOP ON DATA ERROR IF SR1=1
3730 7004 RAL
3731 7700 SMA CLA /LOOP?
3732 5711 JMP I DERPIO /NO, RETURN TO TEST
3733 5446 JMP I TSTLOP /RETURN AND DO SAME PATTERN(S)

```

/DATA ERROR ROUTINE FOR SERIAL LINE UNIT

```

3734 0000 DERSLU, 0
3735 4777 JMS ACTCHK /CHECK TO SEE IF RUNNING ON THE ACT LINE
3736 4435 SWHCHK /CHECK SR0=1 TO INHIBIT ERROR HALT
3737 7710 SPA CLA
3740 5354 JMP SLUSHW /GO CHECK SR1=1 TO LOOP ON ERROR
3741 7240 CLA CMA
3742 1334 TAD DERSLU /
3743 7402 HLT /AC=ADDRESS WHERE ERROR WAS DETECTED
3744 7200 CLA
3745 1053 TAD SLUXMT /GET THE WORD TRANSMITTED
3746 7402 HLT /AC=GOOD WORD=THE WORD TRANSMITTED
3747 7200 CLA
3750 1054 TAD SLUREC /GET THE WORD READ
3751 7402 HLT /AC=THE BAD WORD=THE WORD READ
3752 4776 JMS SIMWRD /WAS THE SIMULATOR SELECTED
3753 7402 HLT /AC=THE SIMULATOR CONTROL WORD
3754 4435 SLUSHW, SWHCHK /LOOP ON DATA ERROR IF SR1=1
3755 7004 RAL
3756 7700 SMA CLA /LOOP?
3757 5734 JMP I DERSLU /NO, RETURN TO TEST
3760 5446 JMP I TSTLOP

```

3761 0000 CHKSIM, 0

/DKCB=AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2=47

```

3762 1021 TAD OP1SEL /CHECK FOR SIMULATOR
3763 2057 AND K200
3764 7650 SNA CLA
3765 5371 JMP !+4 /NO
3766 1761 TAD I CHKSIM /GET THE CONTROL WORD
3767 3055 DCA CONTWD /SAVE IT
3770 7410 SKP
3771 2361 ISZ CHKSIM
3772 2361 ISZ CHKSIM
3773 1361 TAD CHKSIM
3774 3046 DCA TSTLOP
3775 5761 JMP I CHKSIM

```

3776 3514
 3777 3526
 4000 PAGE

 /REAL TIME CLOCK TIMING TEST

```

4003 6160 RTCINT, SIMCLR /SETUP INTERRUPT SERVICE
4004 4104 JMS PATCH
4002 4015 RTCINT
4003 1377 TAD (=5667) /SET UP A COUNT FOR 2999 CLOCK TICKS
4004 3047 DCA TSTCNT /SAVE CLOCK TICK COUNTER
4005 6007 CAF /CLEAR ALL FLAGS
4006 6137 CLSK /WAIT FOR THE FIRST CLOCK FLAG
4007 5206 JMP ,=1 /CLEAR THE CLOCK FLAG
4010 6136 CLCL
4011 7301 CLA CLL IAC
4012 6135 CLLE /LOAD CLOCK INTERRUPT ENABLE
4013 6001 ION /TURN THE INTERRUPT ON
4014 5214 JMP
4015 6136 RTCINT, CLCL /CLEAR THE CLOCK FLAG
4016 7300 CLA CLL /CLEAR THE AC AND LINK
4017 2047 ISZ TSTCNT /DONE YET?
4020 5213 JMP RTCINT=2 /RETURN TO WAIT FOR NEXT FLAG
4021 7682 HLT CLA /HAS IT 30 SECONDS
4022 5200 JMP RTCINT /DO TEST OVER OR DO ANOTHER TEST

```

 /SERIAL LINE UNIT TIMING TEST

```

4023 6160 SLUTIM, SIMCLR /SETUP INTERRUPT SERVICE
4024 4104 JMS PATCH
4025 4071 SLUINT
4026 7402 HLT /SET THE SR IF SELECTED OR LOCATION 20
                  /TO THE BAUD RATE AND # OF STOP BITS
                  /TO BE TESTED

```

/DKC8-AA OPTION TEST 1 MAINDEC=0B=DJOKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2=48

```

4027 4435 SWHCHK      /GO GET LOCATION 20 OR THE SR
4030 0376 AND (17)    /MASK OUT THE BAUD RATE AND STOP BIT
4031 3304 DCA BAUDWD /SAVE THE BAUD RATE AND STOP BIT
4032 1304 TAD BAUDWD /GET THE WORD
4033 0064 AND K7     /MASK OUT THE BAUD RATE
4034 3305 DCA BAUDRT /SAVE IT
4035 1304 TAD BAUDWD /CHECK FOR THE NUMBER OF STOP BITS
4036 0375 AND (10)
4037 7640 SZA CLA     /1 OR 2 STOP BITS
4040 7326 CLA CLL CML RTL /STOP BITS EQUAL 2
4041 3306 DCA STPBIT  /SAVE THE STOP BITS
4042 1305 TAD BAUDRT  /GET THE BAUD RATE (0 = 7)
4043 1374 TAD (BAUDTB) /GET THE ADDRESS OF THE BAUD RATE TABLE
4044 3307 DCA BDPNTR   /SAVE THE TABLE POINTER ADDRESS
4045 1787 TAD I BDPNTR /GET THE ADDRESS OF THE CONSTANTS
4046 1306 TAD STPBIT   /ADD 0 FOR 1 SB OR 2 FOR 2 SB
4047 3307 DCA BDPNTR   /SAVE THE POINTER TO THE CONSTANTS
4050 1307 SLUSTR, TAD BDPNTR /ACTUAL TEST STARTS HERE
4051 3047 DCA TSTCNT   /SAVE THE POINTER IN TEST COUNT
4052 1447 TAD I TSTCNT /GET THE FIRST CONSTANT
4053 3043 DCA CNT     /SAVE IT
4054 2047 ISZ TSTCNT  /ADD 1 TO THE WORKING POINTER
4055 1447 TAD I TSTCNT /GET THE SECOND CONSTANT
4056 3044 DCA CNT1    /DCA CNT1
4057 6007 CAF        /CLEAR ALL FLAGS
4060 6046 TLS        /LOAD AND TRANSMIT THE FIRST CHARACTER
4061 6041 TSF        /THE FIRST FLAG COMES UP WITHIN USEC'S
4062 5261 JMP ,=1
4063 5266 JMP ,=3
4064 6036 INTON, KRB /GO AND CLEAR FLAG AND TRANSMIT AGAIN
4065 7610 SKP CLA    /CLEAR THE RECEIVE FLAG
4066 6046 TLS        /LOAD AND TRANSMIT AND CLEAR FLAG
4067 6001 ION        /TURN THE INTERRUPT ON
4070 5270 JMP !
4071 6031 SLUINT, KSF /SKIP ON THE RECEIVE FLAG
4072 7610 SKP CLA
4073 5264 JMP INTON   /CLEAR THE RECEIVE FLAG AND TURN INT ON
4074 6041 TSF        /SKIP IF TRANSMIT FLAG SET
4075 4427 ERROR     /ILLEGAL INTERRUPT
4076 2043 ISZ CNT    /ADD ONE TO THE FIRST COUNTER
4077 5266 JMP INTON+2 /OVERFLOWED FIRST COUNT ADD 1 TO SECOND
4102 2044 ISZ CNT1   /GO DO ANOTHER 4995 INTERRUPTS
4103 5266 JMP INTON+2 /WAS IT 30 SECONDS ???
4102 7602 HLT CLA    /GO DO IT AGAIN OR START ANOTHER TEST
4103 5223 JMP SLUTIM

/POINTERS TO BAUD RATE TABLES

4110 4120 BAUDTB, BR110

```

/DKC8-AA OPTION TEST 1 MAINDEC=0B=DJOKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2=49

```

4111 4124 BR150
4112 4130 BR300
4113 4134 BR600
4114 4140 BR1200
4115 4144 BR2400
4116 4150 BR4800
4117 4154 BR9600

/BAUD RATE CONSTANTS FOR 110 BAUD
4120 7266 BR110, -512   /10 BITS AT 11 CHAR/SEC=330 CHAR/30 SEC
4121 7777 -1
4122 7324 -454
4123 7777 -1

/BAUD RATE CONSTANTS FOR 150 BAUD
4124 7076 BR150, -702   /10 BITS AT 15 CHAR/SEC=450 CHAR/30 SEC
4125 7777 -1
4126 7147 -631
4127 7777 -1

/BAUD RATE CONSTANTS FOR 300 BAUD
4130 6174 BR300, -1604  /10 BITS AT 30 CHAR/SEC=900 CHAR/30 SEC
4131 7777 -1
4132 6316 -1462
4133 7777 -1

/BAUD RATE CONSTANTS FOR 600 BAUD
4134 4370 BR600, -3410  /10 BITS AT 60 CHAR/SEC=1800 CHAR/30 SEC
4135 7777 -1
4136 4633 -3145
4137 7777 -1

/BAUD RATE CONSTANTS FOR 1200 BAUD
4140 3760 BR1200, -7020  /10 BITS AT 120 CHAR/SEC=3600 CHAR/30 SEC
4141 7777 -1
4142 1467 -6311
4143 7777 -1

/BAUD RATE CONSTANTS FOR 2400 BAUD
4144 1737 BR2400, -6041  /10 BITS AT 240 CHAR/SEC=7200 CHAR/30 SEC
4145 7776 -2
4146 3156 -4622
4147 7776 -2

/BAUD RATE CONSTANTS FOR 4800 BAUD
4150 3675 BR4800, -4103  /10 BITS AT 480 CHAR/SEC=14,400 CHAR/30 SEC
4151 7774 -4
4152 6332 -1446

```

4153 7774 =4

/BAUD RATE CONSTANTS FOR 9600 BAUD

4154 7571	BR9600, =207	/10 BITS AT 960 CHAR/SEC=28,800 CHAR/30 SEC
4155 7770	=10	
4156 4664	=3114	/11 BITS AT 872.73 CHAR/SEC=26,182 CHAR/30 SEC
4157 7771	=7	

/THIS ROUTINE WILL WAIT FOR APPROXIMATELY 255MS BEFORE EXITING TO ALLOW FLAGS TO SETTLE.

4160 0000	DELAY, 0	
4161 1371	TAD M15	
4162 3044	DCA CN71	
4163 3043	DCA CNT	
4164 2043	ISZ CNT	
4165 5364	JMP ,=1	
4166 2044	ISZ CNT1	
4167 5364	JMP ,=3	
4172 5760	JMP I DELAY	
4171 7763	M15, =15	
4174 4110		
4175 0010		
4176 0017		
4177 2111		
4200	PAGE	

/INTERACTIVE SKIP CHAIN FOR SLU,RTC, AND PI/O TEST 42

4202 3325	INTSKP, DCA ACBRET	/SAVE THE AC
4201 7010	RAR	
4202 3326	DCA LINKRT	/SAVE THE LINK
4203 6102	SPL	/SKIP ON POWER LOH FLAG
4204 7610	SKP CLA	
4205 5777	JMP POWFAL	/POWER GOING DOWN
4206 6041	TSF	/SKIP ON SLU XMIT FLAG
4207 7610	SKP CLA	
4210 5327	JMP XMTSER	/XMIT FLAG SET GO SERVICE IT
4211 6031	KSF	/SKIP ON RECEIVE FLAG
4212 7610	SKP CLA	
4213 5776	JMP RECSER	/SERVICE THE RECEIVE FLAG AND COMPARE DATA
4214 6137	CLKS	/SKIP ON REAL TIME CLOCK FLAG
4215 7610	SKP CLA	
4216 5333	JMP RTCSER	/GO SERVICE THE RTC FLAG
4217 6571	DBSK	/SKIP ON P I/O DATA READY FLAG
4220 7610	SKP CLA	
4221 5224	JMP PIOSER	/GO SERVICE THE PARALLEL I/O FLAG
4222 4427	ERROR	/ILLEGAL INTERRUPT
4223 5445	JMP I TEST	/RESTART THE TEST

/12 BIT PARALLEL I/O INTERACTIVE SERVICE ROUTINE TEST 42

4224 1066	PIOSEN, TAD M10	/SET UP A COUNTER OF M10 FOR
4225 3076	DCA PNOINT	/PARALLEL I/O NO INTERRUPT ERROR
4226 6572	DBRD	/READ THE 12 BIT P I/O DATA WORD
4227 6573	DBCF	/CLEAR THE DATA READY FLAG
4230 3052	DCA PIOREC	/SAVE THE WORD READ
4231 6570	DBST	/SKIP AND CLEAR DATA ACCEPTED + DATA AVAIL.
4232 4427	ERROR	/DBCF FAILED TO SET DATA ACCEPTED
4233 6570	DBST	/SKIP ON DATA ACCEPTED
4234 7610	SKP CLA	
4235 4427	ERROR	/DBST FAILED TO CLEAR DATA ACCEPTED
4236 4775	JMS CMPACL	/COMPARE THE AC DATA AND LINK
4237 1051	TAD PIOXMT	/COMPARE THE XMITTED WITH WORD READ
4240 7041	CIA	
4241 1052	TAD PIOREC	
4242 7640	SZA CLA	/ARE THEY EQUAL?
4243 4774	JMS PIOERR	/NO DATA ERROR
4244 7301	CLA CLL IAC	/GENERATE A RANDOM AC DATA WORD
4245 1323	TAD RAN1	
4246 1324	TAD RAN2	
4247 7186	CLL RTL	
4250 3323	DCA RAN1	
4251 1324	TAD RAN2	
4252 7012	RTR	
4253 1323	TAD RAN1	
4254 3324	DCA RAN2	
4255 1324	TAD RAN2	
4256 3071	DCA EXPACD	/SAVE THE EXPECTED AC DATA WORD
4257 7010	RAR	
4260 3072	DCA LINK	/SAVE THE EXPECTED LINK
4261 2051	ISZ PIOXMT	/ADD ONE TO THE WORD TO BE TRANSMITTED
4262 1051	TAD PIOXMT	/GET THE WORD
4263 6574	DBTD	/LOAD AND TRANSMIT IT
4264 7300	CLA CLL	
4265 5306	JMP ACLION	/GO GET THE AC DATA WORD AND LION
4266 1073	RTCSLU, TAD XMTFLG	/CHECK ALL DEVICES TO BE INTERRUPTING
4267 1074	TAD RECFLG	/
4270 1075	TAD RTCFLG	/
4271 7650	SNA CLA	/ARE THEY?
4272 5276	JMP RESET	/YES RESET FLAGS TO INACTIVE
4273 2077	ISZ INACTV	/BUMP DEVICE INACTIVE COUNTER
4274 5306	JMP ACLION	/CONTINUE THE TEST
4275 4773	JMS INACDV	/ERROR A DEVICE IS INACTIVE
4276 7342	RESET, CLA CLL CMA	/SET SLU XMIT FLAG TO INACTIVE
4277 3073	DCA XMTFLG	
4300 7240	CLA CMA	/SET SLU REC FLAG TO INACTIVE
4301 3074	DCA RECFLG	
4302 7240	CLA CMA	/SET RTC FLAG TO INACTIVE
4303 3075	DCA RTCFLG	/RESET DEVICE INACTIVE COUNTER
4304 1372	TAD (=40)	/TO -40
4305 3077	DCA INACTV	/SETUP INTERRUPT RETURN
4306 4771	ACLION, JMS RETURN	
4307 4322	INTERA	
4310 7300	CLA CLL	/SETUP AC AND LINK AND TURN INTERRUPT ON
4311 1072	TAD LINK	/GET THE LINK

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 8158 PAGE 2a52

```
4312 7004      RAL
4313 1071      TAD    EXPACD   /GET THE AC DATA WORD
4314 6001      ION
4315 2076      ISZ    PNOINT  /TURN THE INTERRUPT ON
4316 5722      JMP    I INTERA /ADD 1 TO P I/O NO INTERRUPT COUNTER
4317 7300      CLA    CLL     /RETURN TO PROGRAM
4320 4427      ERROR
4321 5445      JMP    I TEST   /ERROR PARALLEL I/O FAILED TO INTERRUPT
4322 0000      INTERA, 0
4323 1234      RAN1, 1234
4324 5670      RAN2, 5670
4325 0000      ACORET, 0
4326 0000      LINKRT, 0
```

/SERIAL LINE UNIT INTERACTIVE TRANSMITTER SERVICE ROUTINE TEST 42

```
4327 3073      XMTSER, DCA  XMTFLG   /SET TRANSMITTER ACTIVE FLAG
4330 6042      TCF
4331 4775      JMS    CMPACL  /CLEAR THE TRANSMIT FLAG
4332 5266      JMP    RTCSLU /COMPARE THE AC DATA WORD AND LINK
                                /GO CHECK FOR ACTIVE DEVICES
```

/REAL TIME CLOCK INTERACTIVE CLOCK SERVICE ROUTINE TEST 42

```
4333 3075      RTCSER, DCA  RTCFLG   /SET CLOCK ACTIVE FLAG
4334 6136      CLCL
4335 4775'     JMS    CMPACL  /CLEAR THE CLOCK FLAG
4336 1022      TAO    OP2SEL  /COMPARE THE AC AND LINK
4337 7700      SMA    CLA     /CHECK TO SEE IF RUNNING ON ACT LINE
4342 5346      JMP    ,+6    /IS IT?
4341 2132      ISZ    ACTCNT  /NO
4342 5346      JMP    ,+4    /1 SECOND YET?
4343 1183      TAD    H144
4344 3182      DCA    ACTCNT  /RESET ACT COUNTER
4345 4136      JMS    TSTGOD  /SAVE IT
4346 2047      ISZ    TSTCNT  /GOOD PAS SO FAR
4347 5266      JMP    RTCSLU /INCREMENT PROGRAM TEST COUNTER
4350 4470      JMS    I DELAYR /GO CHECK FOR ACTIVE DEVICES
4351 6007      CAF
4352 4136      JMS    TSTGOD /DELAY FOR 200MS TO ALLOW FLAGS TO SETTLE
4353 4435      SHCHK
4354 7006      RTL
4355 7710      SPA    CLA     /CLEAR ALL FLAGS BUT SET SLU INT ENA
4356 5445      JMP    I TEST   /GOOD AGAIN!!!!
4357 5440      PRGEND
                                /CHECK SR2#1 TO LOOP ON TEST
                                /LOOP?
                                /YES, DO TEST OVER
                                /NO, END OF TEST
```

4371 3420
4372 7740
4373 4470
4374 4542
4375 4421
4376 4400
4377 3441
4400

PAGE

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 4K PAL10 V142A 16-JUN-75 8158 PAGE 2a53

/SERIAL LINE UNIT INTERACTIVE RECEIVER SERVICE ROUTINE TEST 42

```
4402 3074      RECSER, DCA  RECFLG   /SET RECEIVE FLAG TO ACTIVE
4401 6036      KRB
4402 3054      DCA    SLUREC  /CLEAR AC AND FLAG AND READ BUFFER
4403 4221      JMS    CMPACL  /SAVE THE WORD READ
4404 1053      TAD    SLUXMT  /COMPARE THE AC AND LINK
4405 7041      CIA
4406 1054      TAD    SLUREC
4407 7640      SZA    CLA     /ARE THEY EQUAL?
4410 4317      JMS    SLUERR  /NO, DATA ERROR
4411 1053      TAD    SLUXMT  /ADD ONE TO THE WORD TO BE TRANSMITTED
4412 7001      IAC
4413 2056      AND   K377
4414 3053      DCA    SLUXMT  /MASK OUT FOR THE EIGHT BITS
4415 1053      TAD    SLUXMT  /SAVE THE NEW WORD
4416 6046      TLS
4417 7300      CLA    CLL     /GET THE WORD AND TRANSMIT IT
4420 5777'     JMP    RTCSLU /LOAD AND TRANSMIT THE WORD
                                /GO CHECK FOR ACTIVE DEVICES AND RESET THE AC
```

/ROUTINE TO CHECK THAT THE AC AND LINK DIDN'T CHANGE DURING INTERACTION TEST 42

```
4421 3000      CMPACL, 0
4422 1071      TAD    EXPACD  /GET THE EXPECTED AC DATA
4423 7041      CIA
4424 1776'     TAD    ACORET  /GET THE DATA RETURNED
4425 7640      SZA    CLA     /ARE THEY EQUAL?
4426 5234      JMP    ACLERR  /NO, ERROR
4427 1072      TAD    LINK
4430 7041      CIA
4431 1775'     TAD    LINKRT  /GET THE RETURN LINK
4432 7650      SNA    CLA     /ARE THEY EQUAL?
4433 5621      JMP    I CMPACL /YES, RETURN TO TEST
4434 1221      TAD    CNPACL
4435 3237      DCA    ,+2
4436 7610      SKP    CLA
4437 7402      HLT/CMPACL
4440 4774'     JMS    ACTCHK /CHECK TO SEE IF RUNNING ON ACT LINE
4441 4435      SHCHK
4442 7710      SPA    CLA     /CHECK SR0#1 TO INHIBIT ERROR HALT
4443 5263      JMP    ACLLOP /INHIBIT ERROR HALT, GO CHECK LOOP SWITCH
4444 7240      CLA    CMA
4445 1221      TAD    CMPACL
4446 7402      HLT
                                /AC CONTAINS ADDRESS WHERE THE ERROR WAS DETECTED
4447 7200      CLA
4450 1071      TAD    EXPACD
4451 7402      HLT
4452 7200      CLA
4453 1776'     TAD    ACORET /THE AC CONTAINS AC DATA BEFORE INTERRUPT
```

/OKC8=AA OPTION TEST 1 MAINDEG=08=DJOKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2=54

```

4454 7402 HLT /THE AC CONTAINS AC DATA AFTER INTERRUPT
4455 7200 CLA
4456 1072 TAD LINK /THE AC CONTAINS THE LINK BEFORE INTERRUPT
4457 7402 HLT
4460 7200 CLA
4461 1775' TAD LINKRT /THE AC CONTAINS LINK AFTER INTERRUPT
4462 7402 HLT /CHECK SR 1 TO LOOP ON ERROR
4463 4435 ACLLOP, SWHCHK
4464 7004 RAL
4465 7710 SPA CLA
4466 5446 JMP I TSTLOP /SCOPE LOOP
4467 5621 JMP I CMPACL /RETURN TO TEST

```

/INACTIVE DEVICE ERROR

```

4470 0000 INACDV; 0
4471 4774' JMS ACTCHK /CHECK TO SEE IF RUNNING ON THE ACT LINE
4472 4435 SWHCHK /INHIBIT ERROR HALT?
4473 7710 SPA CLA
4474 5312 JMP INACLP /YES CHECK LOOP SWITCH
4475 7240 CLA CMA
4476 1270 TAD INACDV /AC = ADDRESS WHERE ERROR WAS DETECTED
4477 7402 HLT
4500 7300 CLA CLL
4501 1073 TAD XMTFLG
4502 7640 S2A CLA
4503 7422 HLT
4504 1074 TAD RECFLG
4505 7640 S2A CLA /SLU XMIT FLAG IS INACTIVE
4506 7402 HLT
4507 1075 TAD RTEFLG
4510 7640 S2A CLA
4511 7402 HLT /RTE FLAG IS INACTIVE
4512 4435 INACLP, SWHCHK /CHECK SR1=1 TO LOOP ON ERROR
4513 7004 RAL
4514 7710 SPA CLA
4515 5446 JMP I TSTLOP /SCOPE LOOP
4516 5670 JMP I INACDV /RETURN TO THE TEST

```

/SLU DATA ERROR DURING INTERACTION TEST 42

```

4517 0000 SLUERR; 0
4520 4774' JMS ACTCHK /CHECK TO SEE IF RUNNING ON ACT LINE
4521 4435 SWHCHK
4522 7710 SPA CLA
4523 5335 JMP SLULOP /SR=1 INHIBIT ERROR HALT=CHECK LOOP SW
4524 7240 CLA CMA
4525 1317 TAD SLUERR /AC = ADDRESS WHERE ERROR WAS DETECTED
4526 7402 HLT
4527 7200 CLA
4530 1053 TAD SLUXMT /AC = WORD TRANSMITTED
4531 7402 HLT
4532 7200 CLA
4533 1054 TAD SLUREC /AC = WORD THAT WAS READ
4534 7402 HLT

```

/OKC8=AA OPTION TEST 1 MAINDEG=08=DJOKA=B=L 4K PAL10 V142A 16=JUN=75 8158 PAGE 2=55

```

4535 4435 SLULOP, SWHCHK /CHECK SR1=1 TO LOOP ON ERROR
4536 7004 RAL
4537 7710 SPA CLA
4540 5446 JMP I TSTLOP /SCOPE LOOP
4541 5717 JMP I SLUERR /RETURN TO TEST

```

/PARALLEL I/O DATA ERROR DURING INTERACTION TEST 42

```

4542 0000 PIOERR; 0
4543 4774' JMS ACTCHK /CHECK TO SEE IF RUNNING ON ACT LINE
4544 4435 SWHCHK /INHIBIT ERROR HALT?
4545 7710 SPA CLA /YES, CHECK LOOP SWITCH
4546 5360 JMP PIOLOP
4547 7240 CLA CMA
4550 1342 TAD PIOERR /AC = ADDRESS WHERE ERROR WAS DETECTED
4551 7402 HLT
4552 7200 CLA
4553 1051 TAD PIOXMT /AC = THE WORD TRANSMITTED
4554 7402 HLT
4555 7200 CLA
4556 1052 TAD PIOREC /AC = THE WORD READ FROM P I/O
4557 7402 HLT /LOOP ON ERROR IF SR1=1
4560 4435 PIOLOP, SWHCHK
4561 7004 RAL
4562 7710 SPA CLA
4563 5446 JMP I TSTLOP /SCOPE LOOP
4564 5742 JMP I PIOERR /RETURN TO TEST

```

```

4574 3526
4575 4326
4576 4329
4577 4266
4600 PAGE
4602 0000 PASSED; 0
4601 7710 SPA CLA /SR3=1 END OF A COMPLETE PROGRAM PASS
4602 7402 HLT /GET THE HARDWARE CONFIGURATION
4603 1021 TAD OP1SEL /MASK OUT XON BIT
4604 7377 AND {100 /IS IT SET ?
4605 7650 SNA CLA /NO RETURN
4606 5224 JMP STNPAS /CLEAR ALL FLAGS
4607 6007 CAF /SKIP IF MUX POWER ON AND 1ST XRON
4612 6173 STIP
4611 7410 SKP
4612 5216 JMP ,+4 /MUX POWER ON GO ISSUE SECOND XRON
4613 6007 CAF /CLEAR ALL FLAGS
4614 6170 XRON /START INITIALIZATION OF MUX
4615 5224 JMP STNPAS /RETURN TO PROGRAM
4616 6100 SIMCLR /CLEAR THE SIMULATOR
4617 6007 CAF /CLEAR ALL FLAGS
4620 6171 SKXR /SKIP IF ERROR 1 FLOP SET
4621 6170 XRON /START ACTUAL TEST AND ENABLE ALL ERRORS
4622 6007 CAF /CLEAR ALL FLAGS
4623 5224 JMP STNPAS /RETURN TO PROGRAM

```

```

4624 2200 STNPAS, ISZ PASSED /BUMP RETURN POINTER
4625 5600 JMP I PASSED /RETRUN TO PROGRAM

4626 3000 DONONE, 0
4627 1021 TAD OP1SEL /GET THE HARDWARE CONFIGURATION
4630 0377 AND (100) /MASK OFF XOR BIT
4631 7640 SZA CLA /IS IT SET ?
4632 6171 SKXR /YES, SKIP IF XOR ERROR 1 SET
4633 2047 ISZ TSTCNT /INCREMENT TEST COUNTER
4634 5446 JMP I TSTL0P /GO BACK TO SAME TEST
4635 2226 ISZ DONONE /BUMP RETURN POINTER
4636 5626 JMP I DONONE /RETURN FOR NEXT TEST OR SAME TEST

4637 0000 TSFXOR, 0
4640 1021 TAD OP1SEL /GET THE HARDWARE CONFIGURATION
4641 0377 AND (100) /MASK OUT THE XOR BIT
4642 7640 SZA CLA /IS THE XOR BIT SET ?
4643 5251 JMP XORTSF /YES, GO WAIT FOR THE FLAGS
4644 4267 JMS OFONKI /CHECK TO SEE IF INT ENA
4645 6941 TSF /NO, SKIP ON THE SLU XMIT FLAG
4646 5437 JMP I TSFXOR /FLAG NOT SET RETURN TO BUMP COUNTER
4647 2237 TSFRET, ISZ TSFXOR /BUMP A LOCATION TO SIMULATE A SKIP
4650 5637 JMP I TSFXOR /RETURN TO THE PROGRAM

4651 6002 XORTSF, IOF
4652 1055 TAD CONTWD /TURN THE INTERRUPT OFF
4653 0664 AND K7 /GET THE SIMULATOR CONTROL WORD
4654 1376 TAD (X110B /MASK THE BAUD RATE BITS OUT
4655 5303 DCA TEMP /GET THE TABLE STARTING ADDRESS
4656 1703 TAD I TEMP /SAVE THE ADDRESS
4657 3347 DCA NDELAY /GET THE BAUD RATE CONSTANT
4660 4324 JMS DELAYB /SAVE IT FOR THE DELAY
4661 6941 TSF /DELAY ACCORDING TO BAUD RATE
4662 4427 ERROR /SKIP ON SLU XMIT FLAG
4663 4267 JMS OFONKI /FLAG NOT SET IN ALLOTTED TIME
4664 6001 ION /CHECK INT ENA FOR ON OR OFF
4665 7000 NOP /TURN THE INTERRUPT ON
4666 5247 JMP TSFRET /SHOULD INTERRUPT HERE IF GOING TO
4667 3000 OFONKI, 0 /RETURN TO THE PROGRAM

4670 1045 TAD TEST /ROUTINE TO TURN INT ENA OFF OR ON
4671 1375 TAD (=TEST31 /GET THE TEST BEING EXECUTED
4672 7650 SNA CLA /WAS IT TEST 31
4673 5300 JMP ,+5 /YES=DISABLE SLU INT ENA
4674 1045 TAD TEST /GET THE TEST BEING EXECUTED
4675 1374 TAD (=TEST37 /WAS IT TEST 37
4676 7640 SZA CLA /NO, SET THE AC TO 0001
4677 7301 CLA CLL IAC /ENABLE OR DISABLE SLU INT ENA
4700 6935 KIE /CLEAR THE AC BIT IF SET
4701 7200 CLA /RETURN
4702 5667 JMP I OFONKI


```

```

4703 0000 TEMP, R
        DECIMAL
4704 5664 X110B, -1100 /110MS
4705 6340 X150B, -800 /80MS
4706 7160 X300B, +400 /40MS
4707 7470 X600B, -200 /20MS
4712 7634 X1200B, -100 /10MS
4711 7716 X2400B, -50 /5MS
4712 7747 X4800B, -25 /2.5MS
4713 7763 X9600B, +13 /1.5MS
        OCTAL

4714 0000 INTXOR, 0
4715 6041 TSF /SKIP ON SLU XMIT FLAG
4716 5714 JMP I INTXOR /NOT XMIT FLAG= RETURN TO SKIP CHAIN
4717 1021 TAD OP1SEL /GET THE HARDWARE CONFIGURATION
4720 0377 AND (100) /MASK OUT THE XOR BIT
4721 7640 SZA CLA /IS THE XOR SELECTED?
4722 5773' JMP FLGCK3 /YES=SKIP OVER RECEIVE FLAG CHECK
4723 5772' JMP FLGCK2 /NO=CHECK SLU RECEIVE FLAG

4724 0000 DELAYB, 0
4725 7300 CLA CLL /SET UP DELAY
4726 1347 TAD NDELAY /GET THE DELAY
4727 3350 DCA DELAYN /SET UP DELAY
4730 1351 DELL0P, TAD CON100 /SET UP DELAY
4731 3352 DCA US100 /SET UP DELAY
4732 2352 ISZ US100 /SET UP DELAY
4733 5332 JMP ,+1 /SET UP DELAY
4734 7200 CLA /SET UP DELAY
4735 7200 CLA /SET UP DELAY
4736 7200 CLA /SET UP DELAY
4737 7200 CLA /SET UP DELAY
4740 2350 ISZ DELAYN /SET UP DELAY
4741 7610 SKP CLA /SET UP DELAY
4742 5724 JMP I DELAYB /SET UP DELAY
4743 0724 AND I DELAYB /SET UP DELAY
4744 0724 AND I DELAYB /SET UP DELAY
4745 4324 AND DELAYB /SET UP DELAY
4746 5330 JMP DELL0P /SET UP DELAY

4747 0000 NDELAY, 0
4750 0000 DELAYN, 0
4751 7754 CON100, =24
4752 0000 US100, 0

4753 0000 CLKXOR, 0
4754 1021 TAD OP1SEL /GET THE HARDWARE CONFIGURATION
4755 0377 AND (100) /MASK OUT THE XOR BIT
4756 7640 SZA CLA /IS THE XOR BIT SET ?
4757 4771' JMS XORCLK /YES, GO WAIT FOR THE FLAG
4760 6137 CLSK /NO, SKIP ON THE CLOCK FLAG
4761 5753 JMP I CLKXOR /FLAG NOT SET = RETURN TO BUMP COUNTER

```

/DKCB=AA OPTION TEST 1 MAINDEQ=0B=DJOKA=B=L' 4K PAL10 V142A 16-JUN-75 8:58 PAGE 2-58

4762 2353 ISZ CLKXOR /BUMP LOCATION TO SIMULATE THE SKIP
4763 5753 JMP I CLKXOR /RETURN TO THE PROGRAM

4771 5000
4772 3306
4773 3311
4774 5252
4775 5477
4776 4704
4777 0100
5000 PAGE

5000 0000 XORCLK, #
5001 6135 CLLE //CLEAR CLK INT ENA
5002 6002 IOF //TURN THE INTERRUPT OFF
5003 1777 TAD X1200B //GET A 10MS CONSTANT
5004 3776 DCA NDELAY //SAVE IT FOR THE DELAY
5005 4775 JMS DELAYB //DELAY FOR APPROXIMATELY 10MS
5006 6137 CLSK //SKIP ON THE CLOCK FLAG
5007 4427 ERROR //FLAG NOT SET IN ALLOTTED TIME
5010 1774 TAD WTCLSK //GET THE ADDRESS INTO CLOCK WAIT ROUTINE
5011 1373 TAD (=XORENA) //CHECK TO SEE IF ENABLE OR DISABLE INT ENA
5012 7650 SNA CLA //ENABLE OR DISABLE CLK INT ENA ?
5013 7301 CLA CLL IAC //ENABLE THE CLK INT ENA
5014 6135 CLL //DISABLE IT IF ABOVE SKIPPED
5015 7200 CLA
5016 6001 ION //TURN THE INTERRUPT ON
5017 7000 NOP //SHOULD INTERRUPT HERE IF IT IS GOING TO
5020 2200 ISZ XORCLK //BUMP RETURN POINTER BY 2
5021 2200 ISZ XORCLK //
5022 5600 JMP I XORCLK //RETURN TO THE PROGRAM

5173 7404
5174 3352
5175 4724
5176 4747
5177 4710
5200 *200

0177 4753 \$

/DKCB=AA OPTION TEST 1 MAINDEQ=0B=DJOKA=B=L' 4K PAL10 V142A 16-JUN-75 8:58 PAGE 2-59

0000 11110003 00000000 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 00000000 00000001

0200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

0400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

0600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

1000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111101

1200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

1400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

1600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

2000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11110000 00000011

2200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

2400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

2600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2700 11111111 11110000 00000000 00000000 00000000 00000000 00000000 00000000 00000011

3000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
3100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 00000011

3200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
3300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

3400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
3500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

3600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
3700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

```

4000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
4100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
4200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
4300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 00000000 71111111
4400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
4500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
4600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
4700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
5000 11111111 11111111 11100000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
5100 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 20711111
5200
5300
5400
5500
5600
5700
6000
6100
6200
6300
6400
6500
6600
6700
7000
7100
7200
7300
7400
7500
7600
7700

```

AC	3251	DBSE	6575	K7	0064	RECSER	4400
ACDRET	4325	DBSK	6571	K7710	0150	RESET	4276
ACLERR	4434	DBSS	6577	KCC	0032	RETADD	3437
ACLION	4306	OBST	6570	KCDF	0132	RETURN	3420
ACLLOP	4463	OBTU	6574	KCF	0030	RMF	6244
ACTCHK	3526	DELAY	4168	KIE	0035	RTCENA	4146
ACTCK2	3276	DELAYB	4724	KJMP	0130	RTCFLG	0075
ACTCNT	4102	DELAYN	4750	KJMP7	3465	RTCFRO	3044
ACTFLG	0134	DELAYR	0070	KJMPRT	3472	RTCINT	4215
ACTRET	3564	DELLOP	4730	KRB	0036	RTCSER	4333
ADDTIM	3362	DERPIO	3711	KRMF	0131	RTCSLU	4266
AERROR	3475	BERSLU	3734	KRS	0034	RTCTIM	4000
AERSWH	3507	DONLOP	4424	KRTF	0133	RTF	6005
BADPAS	0100	DONONE	4626	KSF	0031	RTIMOK	3041
BAUDRT	4105	ENARTC	0146	KSFWAT	4432	SAVADD	0124
BAUDTB	4110	ENDPAS	3400	KTEST	3466	SAVCNT	0050
BAUDWD	4104	ERROR	4427	LINK	0072	SAVLQC	3440
BDPNTR	4107	ERRPC	3543	LINKRT	4320	SBE	6101
BR110	4120	EXPACD	0071	LOADSM	6151	SIMCHK	4436
BR1200	4140	FLGCK1	3383	LOADFRQ	6163	SIMCLR	6160
BR150	4124	FLGCK2	3386	LOADSIM	4437	SIMCNT	0067
BR2400	4144	FLGCK3	3311	LOADPPC	4423	SIMINT	3244
BR300	4130	FLGCK4	3314	LOOPSW	3237	SIMLOD	3214
BR4800	4150	FLGCK5	3317	LOPDON	3221	SIMMRD	3514
BR600	4134	FLGRST	3467	M10	0066	SKPCWN	3252
BR9600	4154	FRCNT	3043	M144	0103	SKPDAV	6165
C7	3470	FROTAB	3114	M15	4171	SKPFRO	6162
CAF	6007	GOODPS	0101	M4	0065	SKPRDR	6157
CAL	5133	GTF	6004	M40	3167	SKPSR	6167
CHKACT	3544	HLT	7402	NDELAY	4747	SKXR	6171
CHKSM1	3761	INACDV	4470	OFONKI	4647	SLUDAT	4433
CHKSMH	3407	INACLP	4512	ONACTL	3545	BLUDER	4434
CLCL	6136	INACTV	0077	OP13K	0000	SLVERR	4517
CLKFLG	2042	INTERA	4322	OP1SEL	0021	SLUINT	4071
CLKSET	3552	INTFLG	0041	OP2SEL	0022	SLULOP	4535
CLKSNC	2135	INTON	4064	PASSED	4600	SLUREC	0054
CLKXOR	4753	INTRET	3326	PATCH	0174	SLUSR	4050
CLLE	6135	INTSKP	4200	PCLOOP	3290	SLUSWH	3754
CLRDET	5156	INTXOR	4714	PIODAT	4426	SLUTIM	4023
CLRSIH	6150	K0	3436	PIOECH	4430	SLUTOK	3112
CLSK	6137	K1	0125	PIOERN	4542	SLUXMT	0053
CLSKWT	4425	K10	3471	PIOLOP	4560	SPI	6045
CMPACL	4421	K11	3473	PIOREC	0032	SPL	6102
CNT	7043	K12	3474	PIOSER	4224	STIP	6173
CNT1	0044	K125	0061	PIOSWH	3727	STNPAS	4624
CON100	4751	K2	0126	PIOXMT	0051	STRBIT	4106
CONTWD	0055	K220	0057	PNOINT	0076	STRFRQ	6161
DATPIO	3600	K252	0063	POWFAL	3441	SWHCWK	4435
DATSLU	3653	K2525	0063	PRGEND	5440	SWITCH	0020
DBCE	6576	K3	0127	PAN1	4323	SXRC	6175
DBCF	6573	K377	0056	PAN2	4324	TABFRQ	3073
DBRD	6572	K5252	0062	RECFLG	0074	TCF	6042

/DKC8-AA OPTION TEST 1 MAINDEC=0B=DJDKA=B=L 4K PAL10 V142A 16=JUN=75 B158 PAGE 2=62

TEMP	4703	TSTGOD	0136
TEST	0045	TSTL0P	0046
TEST1	0200	US100	4752
TEST10	0663	WATKSF	3341
TEST11	0733	WATTSF	3327
TEST12	0774	WTCLSK	3352
TEST13	1027	X1100	4704
TEST14	1124	X1200B	4710
TEST15	1137	X1500	4705
TEST16	1155	X2400B	4711
TEST17	1200	X3000	4706
TEST18	1221	X4800B	4712
TEST19	1273	X6000	4707
TEST2	0246	X9600B	4713
TEST20	1343	XMTFLG	0073
TEST21	1406	XMTSER	4327
TEST22	1457	XORCLK	5000
TEST23	1527	XORENA	0374
TEST24	1611	XORTSF	4651
TEST25	1644	XRC1	6172
TEST26	1721	XRON	6170
TEST27	2012	XRSI	6174
TEST28	2107	XRTO	6176
TEST29	2200		
TEST3	0304		
TEST30	2247		
TEST31	2301		
TEST32	2424		
TEST33	2436		
TEST34	2451		
TEST35	2467		
TEST36	2506		
TEST37	2526		
TEST38	2603		
TEST39	2653		
TEST4	0337		
TEST40	3000		
TEST41	3045		
TEST42	3124		
TEST5	0413		
TEST6	0452		
TEST7	0503		
TEST8	0547		
TEST9	0620		
TFL	6040		
TLS	6046		
TPC	6044		
TSF	6041		
TSFRET	4647		
TSFWAT	4431		
TSFXOR	4637		
TSTCNT	0047		

/DKC8-AA OPTION TEST 1 MAINDEC=0B=DJDKA=B=L 4K PAL10 V142A 16=JUN=75 B158 PAGE 2=63

ERRORS DETECTED 0
 LINKS GENERATED 38
 RUN-TIME 22 SECONDS
 3K CORE USED

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 1K PART 1 PAL10 V142A 16-JUN-75 9100 PAGE 1
/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 1K PART 1
/COPYRIGHT (C) 1974, 1975 DIGITAL EQUIPMENT CORPORATION
/PROGRAMMER: BRUCE HANSEN
/

||||||||||||||||||||||||||||||||||||||||||||||||||||||||
/THE FOLLOWING LISTING WILL CORRESPOND TO THE PAPER TAPE LABELED
/MAINDEC=08=DJOKA=B=PM1, 1K VERSION PART 1; THIS PAPER TAPE AND
/LISTING WILL BE THE FIRST OF FOUR 1K SEGMENTED PAPER TAPES AND
/LISTINGS FOR COMPUTERS WITH LESS THAN 4K OF MEMORY,
||||||||||||||||||||||||||||||||||||||||||||||||||||

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 1K PART 1 PAL10 V142A 16-JUN-75 9100 PAGE 2

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 1K PART 1
/COPYRIGHT (C) 1974, 1975 DIGITAL EQUIPMENT CORPORATION
/PROGRAMMER: BRUCE HANSEN
/
/PROCESSOR INSTRUCTIONS
CAF=6007 /CLEAR ALL FLAGS
SPL=6102 /SKIP ON AC LOW FLIP=FLOP
6103 CAL=6103 /CLEAR AC LOW FLIP=FLOP
6101 SBE=6101 /SKIP ON BATTERY EMPTY
7402 HLT=7402
6244 RHF=6244 /RESTORE MEMORY FIELD
6005 RTF=6005
6004 CTF=6004
/
//OPTION BOARD NUMBER 1 IOT'S
/
//SERIAL LINE UNIT
/RECEIVER IOTS
6030 KCF=6030 /CLEAR RECEIVE FLAG, DON'T SET READER RUN
6031 KSF=6031 /SKIP ON RECEIVE FLAG
6032 KCC=6032 /CLEAR RECEIVE FLAG AND AC, SET READER RUN
6034 KRS=6034 /READ RECEIVE BUFFER
6035 KIE=6035 /AC 11=1 SET INTERRUPT ENABLE
6036 KRB=6036 /AC 11=0 CLEAR INTERRUPT ENABLE
/CLEAR RECEIVE FLAG AND AC, SET READER RUN AND READ
/RECEIVE BUFFER
/
/TRANSMIT IOTS
6040 TFL=6040 /SET TRANSMIT FLAG
6041 TSF=6041 /SKIP ON TRANSMIT FLAG
6042 TCF=6042 /CLEAR THE TRANSMIT FLAG
6044 TPC=6044 /LOAD TRANSMIT BUFFER AND TRANSMIT
6045 SPI=6045 /SKIP IF TRANSMIT OR RECEIVE FLAG SET AND INT ENA SET TO A 1
6046 TLS=6046 /LOAD TRANSMIT BUFFER, TRANSMIT AND CLEAR TRANSMIT FLAG
/
/REAL TIME CRYSTAL CLOCK
6135 CLLE=6135 /AC 11=1 SET INTERRUPT ENABLE
6136 CLCL=6136 /AC 11=0 CLEAR INTERRUPT ENABLE
6137 CLSK=6137 /CLEAR CLOCK FLAG
/SKIP ON CLOCK FLAG
/
/12 BIT PARALLEL I/O
6570 DBST=6570 /SKIP ON DATA ACCEPTED,CLEAR DATA ACCEPTED AND DATA AVAILABLE
6571 DBSK=6571 /SKIP ON DATA READY FLAG
6572 DBRD=6572 /READ DATA INTO AC 0=1
6573 DBCF=6573 /CLEAR DATA READY FLAG, ISSUE DATA ACCEPTED OUT
6574 DBTD=6574 /LOAD AC 0=1 INTO BUFFER AND TRANSMIT DATA OUT
6575 DBSE=6575 /SET INTERRUPT ENABLE TO A 1

/DKC8=AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 1 PAL10 V142A 16=JUN=78 9100 PAGE 2=1

6576 DBCE=6576 /SET INTERRUPT ENABLE TO A 0
6577 DBSS=6577 /ISSUE A STROBE PULSE

/SWITCH REGISTER SETTINGS

/SR0=1 = INHIBIT ERROR HALT
/SR1=1 = LOOP ON ERROR
/SR2=1 = LOOP ON TEST
/SR3=1 = HALT AT COMPLETION OF A PROGRAM PASS

/OPTION BOARD 1 SIMULATOR IOT/S
6150 CLRSIM4=6150 /CLEAR SIMULATOR CONTROL REGISTERS
6151 LOADSM=6151 /LOAD SIMULATOR CONTROL WORD 1
6156 CLRDET=6156 /CLEAR READER RUN, STROBE, AND DATA AVAILABLE CATCHER F/F SET
6157 SKPDRR=6157 /SKIP ON READER RUN CATCHER F/F SET
6160 SIMCLR=6160 /CLEAR CONTROL REGISTERS AND MOST OF LOGIC ON SIMULATOR
6161 STRFRQ=6161 /START FREQUENCY CHECK (SLU OR RTC)
6162 SKPFRQ=6162 /SKIP ON FREQUENCY CHECK IN PROGRESS
6163 LODFRQ=6163 /READ FREQUENCY COUNT INTO AC
6165 SKPDAT=6165 /SKIP ON DATA AVAILABLE CATCHER F/F SET
6167 SKPSTR=6167 /SKIP ON STROBE CATCHER F/F SET

/OPTION BOARD 1 SIMULATOR CONTROL WORD BIT ASSIGNMENTS
/BIT 0 COUNTER RESET 1=ACTIVATE
/ 2=NO ACTION

/BIT 1 PARALLEL I/O CLEAR DATA 1=T51
/ AVAILABLE SELECT 2=DATA ACCEPTED IN

/BIT 2 NOT USED

/BIT 3 NOT USED

/BIT 4 NOT USED

/BIT 5 RTC FREQUENCY OR 1=RTC
SLU FREQUENCY CHECK 0=SLU BAUD RATES

/BIT 6 REAL TIME CLOCK 1=OFF
2=ON

/BIT 7 SLU EIA/20MA SELECT 1=EIA RECEIVE DATA
0=20 MA RECEIVE DATA

/BIT 8 STOP BIT SELECT 1=1 STOP BITS
2=2 STOP BIT

/BIT 9 BAUD RATE SELECT BIT 9, 10, 11 ALL 0'S

/BIT 10 BAUD RATE SELECT EQUALS 110 BAUD, EACH

/BIT 11 BAUD RATE SELECT INCREASING BIT SELECTS

/DKC8=AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 1 PAL10 V142A 16=JUN=78 9100 PAGE 2=2

/NEXT HIGHEST BAUD RATE;

0000 *0
0000 0302 302 /PROGRAM REVISION LETTER=MAINDEC=08=DJDKA=B
0001 6244 RMF /RESTORE MEMORY FIELDS
0002 5403 JMP I 3 /RETURN TO INTERRUPT SERVICE ROUTINE
0003 1244 SIMINT/SKPCHN/SIMCHK/RTCINT/SLUINT /INTERRUPT SERVICE ROUTINES

0020 *20

0020 0000 SWITCH, 0

0021 2000 CP1SEL, 2000 /BIT 0=0 USE LOCATION 20 AS A PSEUDO SWITCH REGISTER
/BIT 0=1 USE HARDWARE FRONT PANEL SWITCH REGISTER
/BIT 1=1 HAS OPTION 1
/BIT 2=1 HAS OPTION 2
/BIT 3=1 HAS 8A CPU SIMULATOR
/BIT 4=1 HAS 8A OPTION 1+2 SIMULATOR
/BIT 5=1 PROGRAM ON PDP-8A XOR(QUIRES BIT 4 SET ALSO)
/BIT 6=1 HAS PDP-8E TYPE CPU
/BIT 7=11 MEMORY SIZE = 8*51K, 37*32K; MEMORY
/SIZE CAN BE INCREASED IN 1K INCREMENTS BY ADDING
/ONE TO THE NUMBER IN BITS 7 = 11
/BIT 0 IS SET FOR THE ACT LINE

0022 0000 OP2SEL, 0 LOOPPC=JMS I,
4423 PCLOOP
0023 1200 DONLDP=JMS I,
4424 LDPDN
0024 1221 CLSKWT=JMS I,
4425 WCLSK
0025 1353 PIODAT=JMS I,
4426 DATPIO
0026 1600 ERROR=JMS I,
4427 AERROR
0027 1475 PIODER=JMS I,
4430 DERPIO
0030 1711 TSFWAT=JMS I,
4431 DERTSF
0031 1331 KSFWAT=JMS I,
4432 WATKSF
0032 1342 SLUDATE=JMS I,
4433 DATSLU
0033 1653 SLUDER=JMS I,
4434 DERSLU
0034 1734 SWHCK=JMS I,
4435 CKSHWH
0035 1427 SIMCHK=JMS I,
4436 CKHSIM
0036 1761 LODSIM=JMS I,
4437 SIMLOD
0037 1214 RTCENA=JMS ENARTC
4145

```

      5440   PRGEND#JMP I
  0040 1400           ENDPAS

  /LOCATIONS USED BY THE PROGRAM

  0041 0000  INTFLG, 0
  0042 0000  CLKFLG, 0
  0043 0000  CNT, 2
  0044 0000  CNT1, 0
  0045 0000  TEST, 0
  0046 0000  TSTLOP, 0
  0047 0000  TSTCNT, 0
  0050 0000  SAVCNT, 0
  0051 0000  PIOXNT, 0
  0052 0000  PIOREC, 0
  0053 0000  SLUXNT, 0
  0054 0000  SLUREC, 0
  0055 0000  CONTWD, 0
  0056 0377  K377, 377
  0057 0200  K200, 200
  0060 0252  K252, 252
  0061 3125  K125, 125
  0062 5252  K5252, 5252
  0063 2525  K2525, 2525
  0064 0007  K7, 7
  0065 7774  M4, -4
  0066 7770  M10, -10
  0067 0000  SIMC4T, 0

  0072 0000  EXPACD, 0
  0071 0000  LINK, 0
  0072 0000  XMTFLG, 0
  0073 0000  RECFLG, 0
  0074 2000  RTCFLG, 0
  0075 0000  PPOINT, 0
  0076 0000  INACTV, 0
  0077 6520  BADPAS, 6520
  0100 6500  COOPUS, 6500
  0101 7634  ACTCNT, -144
  0102 7634  M144, -144

  /ACT LINE ERROR RETURN TO FIELD 9
  /ACT LINE GOOD RETURN TO FIELD 7

```

/ROUTINE TO SETUP FIELD 8 TO HANDLE INTERRUPTS FROM ANOTHER FIELD

```

 0103 0000  PATCH, 0
 0104 1583  TAD I PATCH          /GET THE INTERRUPT SERVICE ADDRESS
 0105 3123  DCA SAVADD          /SAVE INTERRUPT ADDRESS
 0106 6201  CDF
 0107 1130  TAD KRMF          /GET THE INSTRUCTION RMF
 0110 3524  DCA I K1          /PUT IT IN LOCATION 1 OF FIELD 0
 0111 1127  TAD KJMP          /GET THE INSTRUCTION JMP I 3
 0112 3525  DCA I K2          /PUT IT IN LOCATION 2 OF FIELD 0
 0113 1123  TAD SAVADD          /GET THE INTERRUPT SERVICE ADDRESS

```

```

 0114 3526  DCA I K3          /PUT IT IN LOCATION 3 IF FIELD 0
 0115 6224  RIF
 0116 1131  TAD KCBF          /GET THE PROGRAM FIELD INTO THE AC
 0117 3120  DCA ,+1          /AND IT TO THE CDF INSTRUCTION
 0120 7402  HLT/CDF          /PUT IT IN THE NEXT LOCATION
 0121 2103  ISZ PATCH          /EXECUTE IT
 0122 5583  JMP I PATCH          /ADD 1 TO THE ENTRANCE
                                /RETURN

 0123 0000  SAVADD, 0
 0124 0001  K1, 1
 0125 0002  K2, 2
 0126 0003  K3, 3
 0127 5403  KJMP, JMP I 3
 0130 6244  KRMF, 6244
 0131 6201  KCDF, CDF
 0132 6005  KRTF, RTF
 0133 0000  ACTFLG, 0
 0134 0000  CLKSNC, 0

```

/THIS ROUTINE USED WHEN RUNNING ON THE ACT LINE TO SIGNIFY THAT NO ERRORS HAVE BEEN ENCOUNTERED

```

 0135 0000  TSTGOO, ?          /GET THE HARDWARE FLAG
 0136 1922  TAD OP2SEL          /ARE WE ON THE ACT LINE?
 0137 7700  SMA CLA          /NO, RETURN TO THE PROGRAM
 0140 5535  JMP I TSTGOO          /TURN THE INTERRUPT OFF
 0141 6002  IOF
 0142 6272  CIF 70          /CHANGE THE INSTRUCTION TO FIELD 7
 0143 4500  JMS I GOODPS          /GO TO PROM
 0144 5535  JMP I TSTGOO          /RETURN TO THE PROGRAM

```

```

 0145 0000  ENARTC, 0
 0146 1022  TAD OP2SEL          /CHECK TO SEE IF ON ACT LINE
 0147 7710  K7710, SPA CLA          /IF NOT CLEAR RTC INT ENA
 0150 7301  CLA CLL IAC          /SET AC BIT 11
 0151 6135  CLLE
 0152 7200  CLA
 0153 5545  JMP I ENARTC          /LOAD BIT 11 INTO CLOCK INT ENA

```

0200 0200

 /INITIALIZATION TEST
 /TEST 1 - CHECKS THAT INITIALIZE WILL CLEAR ALL FLAGS, ANY ERROR MAYBE DUE TO A FLAG STUCK ON OR THE IOT SKIPPED, THE PARALLEL I/O BUFFER IS CHECKED TO CONTAIN ZEROES, HOWEVER, THE READ COMMAND (6572) MAY NOT WORK, THE TEST WAITS FOR THE RTC FLAG TO SET AND CHECKS THE FLAG TO SKIP, NO INTERRUPTS SHOULD OCCUR.
 /NOTE! INITIALIZE SETS THE SERIAL LINE UNIT'S INTERRUPT ENABLE.

0200 6160 TEST1, SIMCLR

/DKC8-AA OPTION TEST 1 MAINDEC=0B=DJOKA=B=L 1K PART 1 PAL10 V142A 16-JUN-75 9100 PAGE 2=5

```

0201 4103 JMS PATCH      /SETUP INTERRUPT SERVICE
0202 1244 SIMINT
0203 4423 LOOPPC      /STORE THE LOOPING PC AND SETUP TEST COUNT
0204 7777 *1
0205 4436 SIMCHK
0206 4000 4000 /CLEAR PROGRAM INTERRUPT FLAG
0207 4437 LODSIM
0210 3041 DCA INTFLG /CONTROL WORD FOR SIMULATOR
0211 6007 CAF          /LOAD SIMULATOR=TEST LOOP USING SIMULATOR
0212 6001 ION          /CLEAR PROGRAM INTERRUPT FLAG
0213 6031 KSF          /INITIALIZE THE MODULE = CAF SETS INT ENA ON SLU
0214 7410 SKP          /TURN THE INTERRUPT ON
0215 4427 ERROR        /SKIP ON RECEIVE FLAG
0216 6041 TSP          /RECEIVE FLAG SET OR KSF SKIPPED
0217 7410 SKP          /SKIP ON TRANSMIT FLAG
0220 4427 ERROR        /TRANSMIT FLAG SET OR TSP SKIPPED
0221 6045 SPI          /SKIP ON XMIT/RECEIVE + INT ENA
0222 7410 SKP
0223 4427 ERROR        /@ SIDE OF XMIT/RECEIVE HELD LOW OR SPI SKIPPED
0224 6571 DBSK          /SKIP ON DATA READY FLAG
0225 7410 SKP
0226 4427 ERROR        /DATA READY FLAG SET OR DBSK SKIPPED
0227 6570 DBST         /SKIP ON DATA ACCEPTED @ IT AND DATA AVAILABLE
0230 7410 SKP
0231 4427 ERROR        /DBST SKIPPED OR DATA ACCEPTED SET
0232 7240 CLA CMA
0233 6572 DBRD          /SET THE AC TO ALL ONES
0234 7410 SKP          /READ THE 12 BIT PARALLEL I/O BUFFER
0235 4427 ERROR        /DBRD SKIPPED
0236 7640 SZA CLA
0237 4427 ERROR        /CAF FAILED TO CLEAR XMIT BUFFER OR DBRD FAILED,
0240 4425 CLSKWT        /WAIT FOR REAL TIME CLOCK FLAG TO SET
0241 4427 ERROR        /CLOCK FLAG FAILED TO SET WITHIN A ISZ LOOP
0242 1041 TAD INTFLG   /DID THE PROGRAM INTERRUPT
0243 7640 SZA CLA
0244 4427 ERROR        /PROGRAM INTERRUPTED = ALL FLAGS ZERO EXCEPT CLK FLG
0245 4424 DONLDP       /CHECK TO SEE IF DONE, OR LOOP ON TEST IF SR2=1

*****  

//FIRST SECTION OF THE REAL TIME CLOCK DIAGNOSTIC  

//TEST 2 - CHECKS THAT KLKL TICK WILL SET CLK FLAG AND THAT CAF WILL CLEAR IT, THE  

//PROGRAM IS CHECKED NOT TO TO AN INTERRUPT,  

*****
```

```

0246 4103 TEST2; JMS PATCH      /SETUP INTERRUPT SERVICE
0247 1252 SKPCHN
0250 7240 CLA CMA
0251 3242 DCA CLKFLG
0252 4423 LOOPPC      /SET INTERRUPT CHAIN TO ACKNOWLEDGE CLOCK INTERRUPTS,
0253 7777 *1           /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0254 4436 SIMCHK
0255 4000 4000 /CLEAR PROGRAM INTERRUPT FLAG
0256 4437 LODSIM      /CHECK TO SEE IF SIMULATOR IS SELECTED
                           /CONTROL WORD FOR THE SIMULATOR
                           /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                           /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                           /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
```

/DKC8-AA OPTION TEST 1 MAINDEC=0B=DJOKA=B=L 1K PART 1 PAL10 V142A 16-JUN-75 9100 PAGE 2=6

```

0257 7344 CLA CLL CMA RAL /SETUP A PROGRAM LOOP TO LOOK AT 2 CLOCK FLAGS
0260 3134 DCA CLKSNC /TO SYNC THE REAL TIME CLOCK
0261 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
0262 6007 CAF          /CLEAR ALL FLAGS BUT SET INT ENA ON SLU
0263 6001 ION          /TURN THE INTERRUPT ON
0264 4425 CLSKWT        /WAIT FOR THE CLOCK FLAG TO SET
0265 4427 ERROR        /CLK FLAG FAILED TO SET OR NO KLKL TICK PULSE
0266 1041 TAD INTFLG   /GET THE PROGRAM INTERRUPT FLAG
0267 7640 SZA CLA
0270 4427 ERROR        /DID IT INTERRUPT?
0271 2134 ISZ CLKSNC /PROGRAM INTERRUPTED WITHOUT CLK INT ENA
0272 5261 JMP ,#11 /2ND FLAG SET?
0273 6007 CAF          /NO, GO AND TRY TO CLEAR CLK FLAG WITH CAF
0274 6001 ION          /CLEAR ALL FLAGS BUT SET SLU'S INT ENA
0275 6137 CLSK          /TURN THE INTERRUPT BACK ON
0276 7610 SKP CLA
0277 4427 ERROR        /SKIP ON THE CLOCK FLAG
0300 1041 TAD INTFLG   /CAF FAILED TO CLEAR CLK FLAG OR CLSK SKIPPED,
0301 7640 SZA CLA
0302 4427 ERROR        /GET THE PROGRAM INTERRUPT FLAG
0303 4424 DONLDP       /PROGRAM INTERRUPTED WITHOUT CLK INT ENA + CLK FLAG
                           /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1

*****  

//TEST 3 - CHECKS THAT KLKL TICK WILL SET CLK FLAG AND THAT IT CAN BE CLEARED BY CLCL.
//THE CLK FLAG IS CHECKED NOT TO CAUSE AN INTERRUPT,
*****
```

```

0304 4423 TEST3; LOOPPC      /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0305 7777 *1
0306 4436 SIMCHK
0307 4000 4000 /CLEAR PROGRAM INTERRUPT FLAG
0310 4437 LODSIM      /CHECK TO SEE IF SIMULATOR IS SELECTED
                           /CONTROL WORD FOR THE SIMULATOR
                           /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                           /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                           /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
```

```

0311 7344 CLA CLL CMA RAL /SETUP A PROGRAM LOOP TO LOOK AT 2 CLK FLAGS TO
0312 3134 DCA CLKSNC /SYNC THE REAL TIME CLOCK
0313 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
0314 6007 CAF          /CLEAR ALL FLAGS BUT SET INT ENA ON SLU
0315 6001 ION          /TURN INTERRUPT ON
0316 4425 CLSKWT        /WAIT FOR CLK FLAG
0317 4427 ERROR        /CLOCK FLAG FAILED TO SET
0320 1041 TAD INTFLG   /GET THE PROGRAM INTERRUPT FLAG
0321 7640 SZA CLA
0322 4427 ERROR        /DID IT INTERRUPT?
0323 2134 ISZ CLKSNC /PROGRAM INTERRUPTED WITH CLK INT ENA,
0324 5313 JMP ,#11 /2ND FLAG SET?
0325 6136 CLCL          /NO, GO CLEAR THE FLAG WITH CAF AND WAIT FOR NEXT ONE
0326 7610 SKP CLA
0327 4427 ERROR        /CLEAR THE CLK FLAG
0330 6137 CLSK          /CLCL SKIPPED
0331 7610 SKP CLA
0332 4427 ERROR        /SKIP ON CLOCK FLAG
0333 1041 TAD INTFLG   /CLCL FAILED TO CLEAR CLK FLAG
0334 7640 SZA CLA
0335 4427 ERROR        /GET THE PROGRAM INTERRUPT FLAG
                           /DID THE PROGRAM INTERRUPT?
                           /PROGRAM INTERRUPTED, COULD BE CLCL SHORTED TO CLLE
```

```

0336 4424      DONLOP      /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1

/***** TEST 4 - CHECK THAT CLK INT ENA CAN BE SET AND CLEARED BY DATA BIT 11
/AND CLLE USING THE CLK FLAG TO INTERRUPT ON
/***** TEST4: LOOPPC      /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0337 4423      =1          /SIMULATOR ITERATION COUNTER
0345 7777      SIMCHK     /CHECK TO SEE IF SIMULATOR IS SELECTED
0341 4436      4000       /CONTROL WORD FOR THE SIMULATOR
0342 4000      LODSIM     /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
0343 4437      LODSIM     /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                           /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
0344 7344      CLA CLL CMA RAL /SETUP A PROGRAM LOOP TO LOOK AT 2 CLK FLAGS
0345 3134      DCA CLKNSNC /TO SYNC UP THE REAL TIME CLOCK
0346 3041      DCA INTFLG  /CLEAR PROGRAM INTERRUPT FLAG
0347 6007      CAF         /CLEAR ALL FLAGS BUT SET INT ENA ON SLU
0350 6001      ION         /TURN THE INTERRUPT ON
0351 4425      CLSKWT     /WAIT FOR THE CLK FLAG
0352 4427      ERROR       /CLK FLAG FAILED TO SET
0353 1041      TAD INTFLG  /GET THE PROGRAM INTERRUPT FLAG
0354 7640      SZA CLA    /DID THE PROGRAM INTERRUPT?
0355 4427      ERROR       /FLAG INTERRUPTED WITHOUT CLK INT ENA
0356 2134      ISZ CLKNSNC /2ND FLAG SET?
0357 5346      JMP ,=11    /NO, GO CLEAR FLAG WITH CAF AND WAIT FOR NEXT FLAG
0360 6136      CLCL        /CLEAR THE CLOCK FLAG
0361 6137      CLSK        /SKIP ON CLOCK FLAG
0362 7610      SKP CLA    /CLEAR CLK INT ENA
0363 4427      ERROR       /CLCL FAILED TO CLEAR CLK FLAG
0364 7301      CLA CLL IAC  /SET DATA BIT 11 TO A ONE
0365 6135      CLLE        /TRY AND SET CLK INT ENA
0366 7610      SKP CLA    /CLEAR CLK INT ENA
0367 4427      ERROR       /CLLE SKIPPED
0370 1041      TAD INTFLG  /GET THE PROGRAM INTERRUPT FLAG
0371 7640      SZA CLA    /PROGRAM INTERRUPTED WITHOUT CLK FLAG SET
0372 4427      ERROR       /WAIT FOR NEXT CLK FLAG
0373 4425      CLSKWT     /CLK FLAG FAILED TO SET
0374 4427      XORENA,   /DID THE PROGRAM INTERRUPT
0375 2041      ISZ INTFLG  /CLLE FAILED TO SET CLK INT ENA OR FAILED TO INT
0376 4427      ERROR       /CLEAR THE PROGRAM INTERRUPT FLAG
0377 3041      DCA INTFLG  /CLEAR CLK INT ENA
0400 6135      CLLE        /TURN THE INTERRUPT ON
0401 6001      ION         /
0422 7300      CLA CLL    /GET THE PROGRAM INTERRUPT FLAG
0403 1041      TAD INTFLG  /DID IT INTERRUPT?
0404 7640      SZA CLA    /YES, CLLE FAILED TO CLEAR CLK INT ENA
0405 4427      ERROR       /CLEAR THE CLOCK FLAG
0406 6136      CLCL        /SKIP ON CLOCK FLAG
0407 6137      CLSK        /CLEAR CLK INT ENA
0410 7610      SKP CLA    /CLEAR CLK INT ENA
0411 4427      ERROR       /ERROR CLCL FAILED TO CLEAR CLOCK FLAG
0412 4424      DONLOP     /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1

```

```

/***** TEST 5 - CHECKS THAT CLK INT ENA CAN BE SET AND THAT CAF WILL CLEAR IT
/USING THE CLK FLAG TO INTERRUPT ON
/***** TEST5: LOOPPC      /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0413 4423      =1          /SIMULATOR ITERATION COUNTER
0414 7777      SIMCHK     /CHECK TO SEE IF SIMULATOR IS SELECTED
0415 4436      4000       /CONTROL WORD FOR THE SIMULATOR
0416 4000      LODSIM     /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
0417 4437      LODSIM     /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                           /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
0420 7344      CLA CLL CMA RAL /SETUP A PROGRAM LOOP TO LOOK AT 2 CLOCK FLAGS
0421 3134      DCA CLKNSNC /TO SYNC UP THE REAL TIME CLOCK
0422 3041      DCA INTFLG  /CLEAR PROGRAM INTERRUPT FLAG
0423 6007      CAF         /CLEAR ALL FLAGS AND SET INT ENA ON SLU
0424 6001      ION         /TURN THE INTERRUPT ON
0425 4425      CLSKWT     /WAIT FOR THE CLOCK FLAG
0426 4427      ERROR       /CLK FLAG FAILED TO SET
0427 1041      TAD INTFLG  /GET THE PROGRAM INTERRUPT FLAG
0430 7640      SZA CLA    /PROGRAM INTERRUPTED WITHOUT CLK INT ENA
0431 4427      ERROR       /2ND FLAG SET?
0432 2134      ISZ CLKNSNC /NO, GO CLEAR FLAG AND WAIT FOR NEXT
0433 5222      JMP ,=11    /CLEAR CLK INT ENA
0434 7301      CLA CLL IAC  /SET INTERRUPT INABLE TO A ONE
0435 6135      CLLE        /SHOULD INTERRUPT HERE
0436 7300      CLA CLL    /DID THE PROGRAM INTERRUPT
0437 2041      ISZ INTFLG  /PROGRAM FAILED TO INTERRUPT WITH CLK FLAG + CLK INT ENA
0440 4427      ERROR       /CLEAR ALL FLAGS
0441 6007      CAF         /
0442 6001      ION         /WAIT FOR CLK FLAG
0443 4425      CLSKWT     /CLK FLAG FAILED TO RESET
0444 4427      ERROR       /GET THE PROGRAM INTERRUPT FLAG
0445 1041      TAD INTFLG  /DID IT INTERRUPT
0446 7640      SZA CLA    /CAF FAILED TO CLEAR CLK INT ENA
0447 4427      ERROR       /CLEAR THE CLOCK FLAG
0450 6136      CLCL        /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1
                           /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
/***** TEST 6 - CHECKS THAT THE THREE RTC IUT'S DON'T EFFECT THE AC
/***** TEST6: LOOPPC      /STORE THE TEST LOOPING PC
0452 4423      =1          /SIMULATOR ITERATION COUNTER
0453 7777      SIMCHK     /CHECK TO SEE IF SIMULATOR IS SELECTED
0454 4436      4000       /CONTROL WORD FOR THE SIMULATOR
0455 4000      LODSIM     /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
0456 4437      LODSIM     /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                           /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
0457 6007      CAF         /
0458 6001      ION         /CLEAR CLK INT ENABE
0461 7344      CLA CLL CMA RAL
0462 6135      CLLE
0463 1125      TAD K2

```

0464	7640	SEA CLA	
0465	4427	ERROR	/CLIE CHANGED THE AC
0466	7240	CLA CMA	
0467	6136	CLCL	/CLEAR CLOCK FLAG
0470	7001	IAC	
0471	7640	SEA CLA	
0472	4427	ERROR	/CLCL CHANGED THE AC
0473	7240	CLA CMA	
0474	6137	CLSK	/SKIP ON CLOCK FLAG
0475	7000	NOP	
0476	7001	IAC	
0477	7640	SEA CLA	
0500	4427	ERROR	/CLSK CHANGED THE AC
0501	4424	DONLDP	/CHECK TO SEE IF DONE OR LOOP ON TEST,
0502	4135	JMS TSTGOD	/GO CHECK FOR THE ACT LINE

```
=====
/FIRST SECTION OF THE 12 BIT PARALLEL I/O DIAGNOSTIC TESTS
/THE PARALLEL I/O MUST BE CONNECTED IN LOOP BACK MODE (12 BIT DATA OUT
/TO 12 BIT DATA IN), DATA AVAILABLE TO SET DATA READY, AND DATA ACCEPTED
/OUT TO DATA ACCEPTED IN, THE SWITCH FOR TS1 TO CLEAR DATA AVAILABLE SHOULD
/BE LEFT OFF TO RUN THIS SECTION OF THE PROGRAM,
=====
```

```
=====
/TEST 7 - CHECKS THE DATA ACCEPTED AND THE DATA READY FLIPFLOPS TO BE
/ZERO FOLLOWING A CAF, THE PROGRAM ISSUES THE IOT DBCF TO CLEAR THE DATA
/READY FLAG AND TO SET THE DATA ACCEPTED F/F, THE IOT DBST IS THEN
/ISSUED TO CHECK THAT IT WILL SKIP ON DATA ACCEPTED F/F AND THEN RE-
/ISSUED TO CHECK THAT THE FIRST DBST CLEARED DATA ACCEPTED;
=====
```

0503	4103	TEST7; JMS PATCH	
0504	1252	SKPCHN	
0505	4423	LOOPPC	/SETUP TEST COUNT AND TEST LOOPING ADDRESS
0506	7777	-1	/SIMULATOR ITERATION COUNTER
0507	4436	SIMCHK	/CHECK TO SEE IF SIMULATOR IS SELECTED
0510	4000	4000	/SIMULATOR CONTROL WORD
0511	4437	LOADSIM	/LOAD SIMULATOR IF SELECTED ALSO SET SCOPE LOOP
			/EQUAL THIS ADDRESS IF SELECTED OTHERWISE
			/SET IT TO THE NEXT ADDRESS
0512	6007	CAF	/CLEAR ALL FLAGS
0513	4145	RTCENA	/SET REAL TIME CLOCK INT ENA
0514	3041	DCA	/CLEAR PROGRAM INTERRUPT FLAG
0515	3042	CLKFLG	/SET INTERRUPT SERVICE TO IGNORE CLOCK FLAG
0516	6001	ION	/TURN THE INTERRUPT ON
0517	6571	DBSK	/SKIP ON THE DATA READY FLAG
0520	7640	SEA CLA	/CHECK THAT DBSK DIDN'T READ ANYTHING INTO AC
0521	4427	ERROR	/INIT FAILED TO 0 DATA READY,DBSK SKIPPED OR
			/READ SOMETHING INTO THE AC
0522	5570	DBST	/SKIP ON DATA ACCEPTED, & DATA ACCEPTED AND DATA AVAILABLE
0523	7640	SEA CLA	
0524	4427	ERROR	/INIT FAILED TO 0 DATA ACCEPTED, DBST SKIPPED OR
			/DBST READ SOMETHING INTO THE AC
0525	1041	TAD INTFLG	/GET THE PROGRAM INTERRUPT FLAG

0526	7640	SEA CLA	
0527	4427	ERROR	/PROGRAM INTERRUPTED WITHOUT INT ENA AND FLAG SET
0530	6573	DBCF	/CLEAR DATA READY SET DATA ACCEPTED
0531	7640	SEA CLA	
0532	4427	ERROR	/DBCF SKIPPED OR READ SOMETHING INTO AC
0533	6571	DBSK	/SKIP ON DATA READY
0534	7610	SKP CLA	
0535	4427	ERROR	/DATA READY FLAG GOT SET BY DBST OR DBCF
0536	6570	DBST	/SKIP ON DATA ACCEPTED AND CLEAR IT
0537	4427	ERROR	/DATA ACCEPTED NOT SET OR DBST FAILED TO SKIP
0540	6570	DBST	/SKIP ON DATA ACCEPTED TO CHECK THAT IT CLEARED
0541	7610	SKP CLA	
0542	4427	ERROR	/DBST AND TP4 FAILED TO CLEAR DATA ACCEPTED F/F
0543	1041	TAD INTFLG	/GET THE PROGRAM INTERRUPT FLAG
0544	7640	SEA CLA	
0545	4427	ERROR	/PROGRAM INTERRUPTED WITHOUT INT ENA SET
0546	4424	DONLDP	/REPEAT TEST IF SR EQUAL TO 1000

```
=====
/TEST 8 - CHECKS THAT THE DATA READY FLAG CAN BE SET AND CLEARED, TO
/SET THE DATA READY FLAG, THE PROGRAM ISSUES THE IOT DBTO TO TRANSMIT
/AND SET DATA AVAILABLE F/F, THE SETTING OF DATA AVAILABLE F/F IN LOOP
/BACK MODE SETS THE DATA READY F/F, THE IOT DBSK IS THEN ISSUED TO
/CHECK THAT THE FLAG IS SET AND THAT THE IOT WILL SKIP, THE PROGRAM
/THEN CLEARS THE DATA READY FLAG WITH DBCF WHICH ALSO SETS DATA ACCEPTED,
/THE DATA READY FLAG IS CHECKED TO BE CLEARED BY ISSUING A DBSK AND
/DATA ACCEPTED F/F IS CHECKED TO BE SET BY ISSUING A DBST, THE DATA
/ACCEPTED F/F IS CHECKED AGAIN TO BE CLEARED BY ISSUING ANOTHER DBST;
=====
```

0547	4423	TEST8; LOOPPC	
0550	7777	-1	/SETUP TEST COUNT AND TEST LOOPING ADDRESS
0551	4436	SIMCHK	/SIMULATOR ITERATION COUNTER
0552	4000	4000	/CHECK TO SEE IF THE SIMULATOR IS SELECTED
0553	4437	LOADSIM	/SIMULATOR CONTROL WORD
			/LOAD SIMULATOR IF SELECTED, ALSO SET SCOPE
			/SCOPE # THIS ADDRESS IF SELECTED OTHERWISE
			/SCOPE LOOP WILL BE NEXT ADDRESS;
0554	6007	CAF	/CLEAR ALL FLAGS
0555	4145	RTCENA	/SET REAL TIME CLOCK INT ENA
0556	3041	DCA	/CLEAR PROGRAM INTERRUPT FLAG
0557	6001	ION	/TURN THE INTERRUPT ON
0560	6571	DBSK	/SKIP ON DATA READY FLAG
0561	7610	SKP CLA	
0562	4427	ERROR	/DATA READY FLAG SET OR DBSK SKIPPED
0563	6570	DBST	/SKIP ON DATA ACCEPTED, & DATA ACCEPTED AND DATA AVAILABLE
0564	7610	SKP CLA	
0565	4427	ERROR	/DATA ACCEPTED SET OR DBST SKIPPED
0566	6574	DBTD	/TRANSMIT AND SET DATA AVAILABLE AND DATA READY
0567	7640	SEA CLA	/CHECK THAT DBTD DIDN'T READ ANYTHING INTO AC
0570	4427	ERROR	/DBTD SKIPPED
0571	6571	DBSK	/SKIP ON DATA READY FLAG
0572	4427	ERROR	/DBTD FAILED TO SET DATA READY FLAG
0573	6570	DBST	/SKIP ON DATA ACCEPTED, & DATA AVAILABLE AND DATA ACCEPTED
0574	7610	SKP CLA	
0575	4427	ERROR	/DATA ACCEPTED SET BEFORE DBCF WAS ISSUED

```

0576 6571      DBSK      /SKIP ON DATA READY
0577 4427      ERROR     /DATA READY FLAG CLEARED
0600 1041      TAD       INTFLG  /GET THE PROGRAM INTERRUPT FLAG
0601 7640      SZA      CLA
0602 4427      ERROR     /PROGRAM INTERRUPTED WITHOUT SETTING INT ENA
0603 6573      DBCF     /CLEAR DATA READY SET DATA ACCEPTED
0604 6571      DBSK     /SKIP ON DATA READY
0605 7410      SKP
0606 4427      ERROR     /DBCF FAILED TO CLEAR DATA READY
0607 6570      DBST     /SKIP ON DATA ACCEPTED AND CLEAR IT AND DATA AVAIL,
0610 4427      ERROR     /DBCF FAILED TO SET DATA ACCEPTED OR DBST FAILED TO SKIP
0611 6570      DBST     /SKIP ON DATA ACCEPTED
0612 7410      SKP
0613 4427      ERROR     /THE FIRST DBST FAILED TO CLEAR DATA ACCEPTED
0614 1041      TAD       INTFLG  /GET THE PROGRAM INTERRUPT FLAG
0615 7640      SZA      CLA
0616 4427      ERROR     /PROGRAM INTERRUPTED WITHOUT INT ENA SET
0617 4424      DONLDP   /REPEAT TEST IF SR = 1000

*****  

/*TEST 9 - CHECKS THAT CAF WILL CLEAR THE DATA READY FLAG AND THE  

/*DATA ACCEPTED FLAG,  

*****  

0620 4423      TEST9, LOOPPC /SETUP TEST COUNT AND TEST LOOPING ADDRESS
0621 7777      #1
0622 4436      SIMCHK   /SIMULATOR ITERATION COUNTER
0623 4000      4000   /CHECK TO SEE IF SIMULATOR IS SELECTED
0624 4437      LODSIM   /SIMULATOR CONTROL WORD
                      /LOAD SIMULATOR IF SELECTED, ALSO SET SCOPE
                      /LOOP EQUAL THIS ADDRESS IF SIMULATOR SELECTED
                      /OTHERWISE SCOPE LOOP WILL BE NEXT ADDRES
0625 6007      CAF
0626 4145      RTCENA   /CLEAR ALL FLAGS
0627 3041      DCA      /SET REAL TIME CLOCK INT ENA
0630 6001      ION      /CLEAR PROGRAM INTERRUPT FLAG
0631 6574      DBTD     /TURN THE INTERRUPT ON
0632 6571      DBSK     /TRANSMIT AND SET DATA READY FLAG
0633 4427      ERROR     /DBTD FAILED TO SET DATA READY
0634 6570      DBST     /SKIP ON DATA ACCEPTED AND CLEAR IT
0635 7410      SKP
0636 4427      ERROR     /DATA ACCEPTED GOT SET BEFORE A DBCF WAS ISSUED
0637 1041      TAD       INTFLG  /GET THE PROGRAM INTERRUPT FLAG
0640 7640      SZA
0641 4427      ERROR     /PROGRAM INTERRUPTED WITHOUT INT ENA SET
0642 6007      CAF
0643 4145      RTCENA   /CLEAR DATA READY FLAG
0644 6571      DBSK     /SET REAL TIME CLOCK INT ENA
0645 7610      SKP      /SKIP ON DATA READY FLAG
0646 4427      ERROR     /INIT FAILED TO CLEAR DATA READY FLAG
0647 6001      ION      /TURN THE INTERRUPT BACK ON
0650 6573      DBCF     /CLEAR DATA READY SET DATA ACCEPTED
                      /THE PROGRAM ASSUMES THAT DBCF SET DATA ACCEPTED
0651 6007      CAF
0652 4145      RTCENA   /CLEAR DATA ACCEPTED
0653 6001      ION      /SET REAL TIME CLOCK INT ENA
                      /TURN THE INTERRUPT ON

```

```

/DKCB=AA OPTION TEST 1 MAINDEC=0B=DJDKA=B=L 1K PART 1 PAL10 V142A 16-JUN-75 9100 PAGE 2/12
 0654 6570      DBST      /SKIP ON DATA ACCEPTED
 0655 7640      SZA       CLA
 0656 4427      ERROR
 0657 1041      TAD       INTFLG /INIT FAILED TO CLEAR DATA ACCEPTED
 0658 7640      SZA       CLA /GET THE PROGRAM INTERRUPT FLAG
 0661 4427      ERROR
 0662 4424      DONLDP   /PROGRAM INTERRUPTED WITHOUT INT ENA SET
                           /REPEAT TEST IF SR = 1000

*****TEST 10 - CHECKS THAT INT ENA CAN BE SET AND CLEARED USING THE
/ DATA READY FLAG TO SKIP AND INTERRUPT ON
*****TEST 10 - CHECKS THAT INT ENA CAN BE SET AND CLEARED USING THE
/ DATA READY FLAG TO SKIP AND INTERRUPT ON

 0663 4423      TEST10, LOOPPC   /SETUP TEST COUNT AND TEST LOOPING ADDRESS
 0664 7777      =1
 0665 4436      SIMCHK   /SIMULATOR ITERATION COUNTER
 0666 4000      4000
 0667 4437      LOOPSIM   /CHECK TO SEE IF SIMULATOR SELECTED
                           /SIMULATOR CONTROL WORD
                           /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                           /LOOP @ THIS ADDRESS IF SIMULATOR SELECTED
                           /OTHERWISE SCOPE LOOP IS NEXT ADDRESS
 0670 6007      CAF
 0671 4145      RTCENA   /CLEAR ALL FLAGS
 0672 3841      DCA      INTFLG /SET REAL TIME CLOCK INT ENA
 0673 6021      ION
 0674 6571      DBSK
 0675 7610      SKP      CLA /CLEAR PROGRAM INTERRUPT FLAG
 0676 4427      ERROR
 0677 6570      DBST   /TURN THE INTERRUPT ON
 0700 7610      SKP
 0701 4427      ERROR
 0702 1041      TAD      CLA /SKIP ON DATA READY FLAG
 0703 7640      SZA
 0704 4427      ERROR
 0705 6575      DBSE   /DATA READY FLAGS SET FOLLOWING INIT
 0706 7640      SZA   /SKIP ON DATA ACCEPTED
 0707 4427      ERROR
 0710 1041      TAD      INTFLG /DATA ACCEPTED SET FOLLOWING INIT
 0711 7640      SZA   /CHECK THAT THE PROGRAM DID NOT INTERRUPT
 0712 4427      ERROR
 0713 6574      DBTD   /PROGRAM INTERRUPTED WITHOUT FLAGS AND INT ENA SET
 0714 6571      DBSK   /SET INTERRUPT ENABLE TO A 1
 0715 4427      ERROR
 0716 2041      ISZ      CLA /CHECK THAT DBSE DIDN'T CHANGE THE AC
 0717 4427      ERROR
 0720 6576      DBCE   /DBSE SKIPPED OR READ SOMETHING INTO AC
 0721 7640      SZA   /GET THE PROGRAM INTERRUPT FLAG
 0722 4427      ERROR
 0723 6001      ION
 0724 6571      DBSK   /PROGRAM INTERRUPTED WITHOUT FLAG SET
 0725 4427      ERROR
 0726 1041      TAD      INTFLG /TRANSMIT AND SET DATA READY
 0727 7640      SZA   /SKIP ON DATA READY FLAG
 0730 4427      ERROR
 0731 6007      CAF /DBTD FAILED TO SET DATA READY
                           /DID THE PROGRAM INTERRUPT?
                           /PROGRAM FAILED TO INTERRUPT OR INT ENA NOT SET
                           /CLEAR INTERRUPT ENABLE
                           /CHECK THAT DBCE DIDN'T CHANGE THE AC
                           /DBCE SKIPPED OR CHANGED THE AC
                           /TURN THE INTERRUPT ON
                           /SKIP ON DATA READY
                           /DATA READY FLAG GOT CLEARED
                           /GET THE PROGRAM INTERRUPT FLAG
                           /PROGRAM INTERRUPTED, DBCE FAILED TO 0 INT ENA
                           /CLEAR ALL FLAGS

```

0732 4424 DONLOP /REPEAT TEST IF SR = 1000

```
*****TEST 11 - CHECKS THAT INITIALIZATION WILL CLEAR INT ENA F/F USING THE
*****DATA READY FLAG TO SKIP AND INTERRUPT ON,
```

0733 4423 TEST11, LOOPPC /SETUP TEST COUNT AND TEST LOOPING ADDRESS
 0734 7777 =1 /SIMULATOR ITERATION COUNTER
 0735 4436 SIMCHK /CHECK TO SEE IF SIMULATOR SELECTED
 0736 4000 4000 /SIMULATOR CONTROL WORD
 0737 4437 LOOSIM /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
 /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
 /OTHERWISE SCOPE LOOP IS NEXT ADDRESS

0740 6007 CAF /CLEAR ALL FLAGS
 0741 4145 RTCENA /SET REAL TIME CLOCK INT ENA
 0742 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
 0743 6001 ION /TURN THE INTERRUPT ON
 0744 6574 DBTD /TRANSMIT AND SET DATA READY
 0745 6571 DBSK /SKIP ON DATA READY FLAG
 0746 4427 ERROR /DBTD FAILED TO SET DATA READY
 0747 6575 DBSE /SET INTERRUPT ENABLE
 0750 7000 NOP /PROGRAM SHOULD INTERRUPT HERE
 0751 2041 ISZ INTFLG /DID THE PROGRAM INTERRUPT
 0752 4427 ERROR /NO, PROGRAM FAILED TO INTERRUPT
 0753 6007 CAF /CLEAR ALL FLAGS
 0754 4145 RTCENA /SET REAL TIME CLOCK INT ENA
 0755 6001 ION /TURN THE INTERRUPT BACK ON
 0756 6571 DBSK /SKIP ON DATA READY FLAG
 0757 7410 SKP
 0760 4427 ERROR /INIT FAILED TO CLEAR DATA READY
 0761 6574 DBTD /TRANSMIT AND SET DATA READY
 0762 6571 DBSK /SKIP ON DATA READY FLAG
 0763 4427 ERROR /DBTD FAILED TO SET DATA READY FLAG
 0764 1041 TAD INTFLG /GET THE PROGRAM INTERRUPT FLAG
 0765 7640 SZA CLA
 0766 4427 ERROR /PROGRAM INTERRUPTED, INIT FAILED TO
 /CLEAR INTERRUPT ENABLE F/F
 0767 6007 CAF /CLEAR DATA READY FLAG
 0770 6571 DBSK /SKIP ON DATA READY FLAG
 0771 7410 SKP
 0772 4427 ERROR /INIT FAILED TO CLEAR DATA READY
 0773 4424 DONLOP /REPEAT TEST IF SR = 1000

```
*****TEST 12 - CHECKS THAT DATA ACCEPTED CAN CAUSE A INTERRUPT,
```

0774 4423 TEST12, LOOPPC /SETUP TEST COUNT AND TEST LOOPING ADDRESS
 0775 7777 =1 /SIMULATOR ITERATION COUNTER
 0776 4436 SIMCHK /CHECK TO SEE IF SIMULATOR IS SELECTED
 0777 4000 4000 /SIMULATOR CONTROL WORD
 1000 4437 LOOSIM /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
 /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
 /OTHERWISE SCOPE LOOP IS NEXT ADDRESS

1001 6007 CAF /CLEAR ALL FLAGS
 1002 4145 RTCENA /SET REAL TIME CLOCK INT ENA
 1003 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
 1004 6001 ION /TURN THE INTERRUPT ON
 1005 6573 DBCF /CLEAR DATA READY SET DATA ACCEPTED
 1006 7000 NOP /SHOULDN'T INTERRUPT HERE
 1007 1041 TAD INTFLG /GET THE PROGRAM INTERRUPT FLAG
 1010 7640 SZA CLA
 1011 4427 ERROR /PROGRAM INTERRUPTED WITHOUT INT ENA SET
 1012 6575 DBSE /SET INTERRUPT ENABLE
 1013 7000 NOP /SHOULD INTERRUPT HERE WITH INT ENA AND FLAG SET
 1014 2041 ISZ INTFLG /DID THE PROGRAM INTERRUPT
 1015 4427 ERROR /NO, FAILED TO INTERRUPT WITH INT ENA AND DATA ACCEPTED SET
 1016 6001 ION /TURN THE INTERRUPT BACK ON
 1017 6570 DBST /CHECK THAT DATA ACCEPTED GOT CLEARED BY 1ST DBST IN SKIP CHAIN
 1020 7610 SKP CLA
 1021 4427 ERROR /DATA ACCEPTED DIDN'T CLEAR IN INTERRUPT SKIP CHAIN
 1022 1041 TAD INTFLG /GET THE PROGRAM INTERRUPT FLAG
 1023 7640 SZA CLA
 1024 4427 ERROR /PROGRAM INTERRUPTED WITH DATA ACCEPTED CLEARED
 1025 6576 DBCE
 1026 4424 DONLOP /CLEAR INTERRUPT ENABLE
 /REPEAT TEST IF SR = 1000

```
*****TEST 13 - CHECKS THE EFFECT OF THE IOT ON THE AC; DBRD SHOULD BE THE ONLY
*****IOT TO CHANGE THE AC
```

1027 4423 TEST13, LOOPPC /STORE THE TEST LOOPING ADDRESS AND SETUP TEST COUNT
 1032 7777 =1 /SIMULATOR ITERATION COUNTER
 1031 4436 SIMCHK /CHECK TO SEE IF SIMULATOR IS SELECTED
 1032 4000 4000 /CONTROL WORD FOR THE SIMULATOR
 1033 4437 LOOSIM /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
 /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
 /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
 1034 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
 1035 6007 CAF /CLEAR ALL FLAGS
 1036 4145 RTCENA /SET REAL TIME CLOCK INT ENA
 1037 6001 ION /TURN INTERRUPT ON
 1040 7240 CLA CMA /SET THE AC TO ALL ONES
 1041 6574 DBTD /TRANSMIT DATA
 1042 7001 IAC
 1043 7640 SZA CLA
 1044 4427 ERROR /DBTD CHANGED THE AC
 1045 6007 CAF /CLEAR ALL
 1046 4145 RTCENA /SET REAL TIME CLOCK INT ENA
 1047 6001 ION /TURN INTERRUPT BACK ON
 1050 7240 CLA CMA /SET THE AC TO ALL ONES
 1051 6572 DBRD /READ THE 12 BIT PARALLEL I/O
 1052 7640 SZA CLA
 1053 4427 ERROR /DBRD FAILED TO READ OR CAF FAILED TO CLEAR XMIT BUFFERS
 1054 7240 CLA CMA /SET AC TO ALL ONES
 1055 6571 DBSK /SKIP ON DATA READY
 1056 7001 IAC
 1057 7640 SZA CLA

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 1K PART 1 PAL10 V142A 16-JUN-75 9100 PAGE 2-15

```
1260 4427      ERROR      /DBSK CHANGED THE AC
1261 6002      I0F
1262 7240      CLA CMA   /SET THE AC TO ALL ONES
1263 6573      DBCF      /CLEAR DATA READY FLAG SET DATA ACCEPT FLAG
1264 7001      IAC
1265 7640      SZA CLA
1266 4427      ERROR      /DBCF CHANGED THE AC
1267 6007      CAF
1270 4145      RTCENA
1271 6001      ION
1272 7240      CLA CMA   /SET INTERRUPT ENABLE
1273 6570      DBST      /SKIP AND CLEAR DATA ACCEPTED AND DATA AVAILABLE
1274 7001      IAC
1275 7640      SZA CLA
1276 4427      ERROR      /DBST SKIPPED OR CHANGED THE AC
1277 7240      CLA CMA   /SET PARALLEL INTERRUPT ENABLE
1102 6575      DBSE      /CLEAR INTERRUPT ENABLE
1101 7001      IAC
1102 7640      SZA CLA
1103 4427      ERROR      /DBSE CHANGED THE AC
1104 7240      CLA CMA
1105 6576      DBCE      /CLEAR INTERRUPT ENABLE
1106 7001      IAC
1107 7640      SZA CLA
1110 4427      ERROR      /DBCE CHANGED THE AC
1111 7240      CLA CMA   /SET THE AC TO ALL ONES
1112 6577      DBSS      /ISSUE A STROBE PULSE
1113 7410      SKP
1114 4427      ERROR      /DBSS SKIPPED
1115 7001      IAC
1116 7640      SZA CLA
1117 4427      ERROR      /DBSS CHANGED THE AC
1122 1041      TAD INTFLG /DID THE PROGRAM INTERRUPT
1121 7640      SZA CLA
1122 4427      ERROR      /PROGRAM INTERRUPTED
1123 4424      DONLOP    /CHECK TO SEE IF DONE OR LOOP ON TEST

*****  
/TEST 14 = CHECKS THAT ALL ONES CAN BE TRANSMITTED AND READ BACK, IT ALSO CHECKS THAT  
/CAF CAN CLEAR THE XMIT BUFFERS, INTERRUPTS ARE ALSO CHECKED  
*****
```

```
1124 4423      TEST14, LOOPPC /SETUP SCOPE LOOP ADDRESS AND SETUP TEST COUNT,
1125 7777      -1          /SIMULATOR ITERATION COUNTER
1126 4436      SIMCHK   /CHECK TO SEE IF SIMULATOR IS SELECTED
1127 4000      4000      /CONTROL WORD FOR THE SIMULATOR
1130 4437      LODSIM    /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
1131 3041      DCA INTFLG /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
1132 7240      CLA CMA
1133 3051      DCA PIOXMT /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
1134 4426      PIODAT   /CLEAR PROGRAM INTERRUPT FLAG
1135 4430      PIODER   /SET THE WORD TO BE TRANSMITTED TO ALL ONES
1136 4424      DONLOP    /GO TRANSMIT AND COMPARE THE WORD
1137 4423      TEST15, LOOPPC /DATA ERROR = WORD DIDN'T COMPARE IN ROUTINE PIODAT
1140 7777      -1          /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1
1141 4436      SIMCHK   /TEST 15 = CHECKS FOR A COMPLEMENTING DATA PATTERN OF 7777 THEN 0000 AND CHECKS THAT CAF
1142 4000      4000      /WILL CLEAR THE DATA BUFFER, THE PROGRAM IS CHECKED TO INTERRUPT
1143 4437      LODSIM    *****
```

```
1144 3041      DCA INTFLG /SETUP TEST SCOPE LOOP AND TEST COUNT
1145 7240      CLA CMA
1146 3051      DCA PIOXMT /SIMULATOR ITERATION COUNTER
1147 4426      PIODAT   /CHECK TO SEE IF SIMULATOR IS SELECTED
1150 4430      PIODER   /CONTROL WORD FOR THE SIMULATOR
1151 3051      DCA PIOXMT /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
1152 4426      PIODAT   /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
1153 4430      PIODER   /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
1154 4424      DONLOP    /CLEAR PROGRAM INTERRUPT FLAG
1155 4423      TEST16, LOOPPC /SET THE FIRST WORD TO ALL ONES
1156 7777      -1          /SAVE IT
1157 4436      SIMCHK   /GO TRANSMIT AND COMPARE THE WORD
1160 4000      4000      /DATA ERROR = WORD DIDN'T COMPARE IN ROUTINE PIODAT
1161 4437      LODSIM    /SET THE WORD TO 0
1162 3041      DCA INTFLG /GO TRANSMIT AND COMPARE THE WORD
1163 1262      TAD K5252 /DATA ERROR = WORD DIDN'T COMPARE
1164 3251      DCA PIOXMT /SET THE SECOND WORD TO TRANSMIT = 2525
1165 4426      PIODAT   /GO TRANSMIT AND COMPARE THE DATA WORD
1166 4430      PIODER   /DATA ERROR = WORD DIDN'T COMPARE
1167 1263      TAD K5252 /SET THE FIRST WORD TO TRANSMIT = 2525
1170 3051      DCA PIOXMT /GO TRANSMIT AND COMPARE THE WORD
1171 4426      PIODAT   /DATA ERROR = WORD DIDN'T COMPARE
1172 4430      PIODER   /REPEAT THE TEST IF NOT DONE OR LOOP ON TEST IF SR2=1
1173 4424      DONLOP    *****
```

```
1174 5440      PRGEND  /END OF 1ST 1K SEGMENT
IFDEF OP13K <PAGE>
IFDEF OP13K <PAGE>
IFDEF OP13K <PAGE>
```

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 1K PART 1 PAL10 V142A 16-JUN-75 9100 PAGE 2-16

```
*****  
/TEST 15 = CHECKS FOR A COMPLEMENTING DATA PATTERN OF 7777 THEN 0000 AND CHECKS THAT CAF  
/WILL CLEAR THE DATA BUFFER, THE PROGRAM IS CHECKED TO INTERRUPT  
*****
```

```
1137 4423      TEST15, LOOPPC /SETUP TEST SCOPE LOOP AND TEST COUNT
1140 7777      -1          /SIMULATOR ITERATION COUNTER
1141 4436      SIMCHK   /CHECK TO SEE IF SIMULATOR IS SELECTED
1142 4000      4000      /CONTROL WORD FOR THE SIMULATOR
1143 4437      LODSIM    /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
1144 3041      DCA INTFLG /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
1145 7240      CLA CMA
1146 3051      DCA PIOXMT /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
1147 4426      PIODAT   /CLEAR PROGRAM INTERRUPT FLAG
1150 4430      PIODER   /SET THE FIRST WORD TO ALL ONES
1151 3051      DCA PIOXMT /SAVE IT
1152 4426      PIODAT   /GO TRANSMIT AND COMPARE THE WORD
1153 4430      PIODER   /DATA ERROR = WORD DIDN'T COMPARE IN ROUTINE PIODAT
1154 4424      DONLOP    /SET THE WORD TO 0
1155 4423      TEST16, LOOPPC /GO TRANSMIT AND COMPARE THE WORD
1156 7777      -1          /DATA ERROR = WORD DIDN'T COMPARE
1157 4436      SIMCHK   /SET THE WORD TO 0
1160 4000      4000      /GO TRANSMIT AND COMPARE THE WORD
1161 4437      LODSIM    /DATA ERROR = WORD DIDN'T COMPARE
1162 3041      DCA INTFLG /SET THE SECOND WORD TO TRANSMIT = 2525
1163 1262      TAD K5252 /GO TRANSMIT AND COMPARE THE DATA WORD
1164 3251      DCA PIOXMT /DATA ERROR = WORD DIDN'T COMPARE
1165 4426      PIODAT   /SET THE FIRST WORD TO TRANSMIT = 2525
1166 4430      PIODER   /GO TRANSMIT AND COMPARE THE WORD
1167 1263      TAD K5252 /DATA ERROR = WORD DIDN'T COMPARE
1170 3051      DCA PIOXMT /GO TRANSMIT AND COMPARE THE WORD
1171 4426      PIODAT   /DATA ERROR = WORD DIDN'T COMPARE
1172 4430      PIODER   /REPEAT THE TEST IF NOT DONE OR LOOP ON TEST IF SR2=1
1173 4424      DONLOP    *****
```

```
1174 5440      PRGEND  /END OF 1ST 1K SEGMENT
IFDEF OP13K <PAGE>
IFDEF OP13K <PAGE>
IFDEF OP13K <PAGE>
```

1200 PAGE

/ROUTINE TO SETUP # OF PASSES/TEST AND TO STORE THE RETURN ADDRESS FOR SCOPE LOOPING

```

1200 0000 PCLOOP, 0
1201 7340 CLA CLL CMA
1202 1200 TAD PCLOOP
1203 3045 DCA TEST
1204 1600 TAD I PCLOOP
1205 3067 DCA SIMCNT
1206 7240 CLA CMA
1207 3050 DCA SAVCNT
1208 1050 TAD SAVCNT
1209 3047 DCA TSTCNT
1210 2200 ISZ PCLOOP
1211 5600 JMP I PCLOOP
1212 2200
1213 5600

1214 0000 SIMLOD, 0
1215 1055 TAD CONTWD /GET THE CONTROL WORD
1216 6151 LOADSM /LOAD THE SIMULATOR CONTROL WORD
1217 7300 CLA CLL
1218 5614 JMP I SIMLOD

1221 0000 LOPDON, 0
1222 2047 ISZ TSTCNT /TEST DONE?
1223 5446 JMP I TSYLOP /NO RETURN TO TEST
1224 1021 TAD OPSEL /IS THE SIMULATOR SELECTED
1225 2057 AND K2B0
1226 7650 SNA CLA
1227 5237 JMP LOOPSW /SIMULATOR NOT SELECTED, CHECK TEST LOOP SWITCH
1228 2067 ISZ SIMCNT /ADD 1 TO THE CONTROL WORD?
1229 7610 SKP CLA
1230 5237 JMP LOOPSW /NO, CHECK TEST LOOP SWITCH
1231 2055 ISZ CONTWD /ADD 1 TO THE CONTROL WORD FOR BAUD RATES
1232 1050 TAD SAVCNT /GET THE TEST COUNT
1233 3047 DCA TSTCNT /RESTORE IT FOR A NEW PASS FOR A DIFFERENT BAUD
1234 5446 JMP I TSYLOP /RETURN FOR NEW BAUD RATE
1235 4435 SHWHOK /CHECK FOR SR2=1
1236 7006 RTL
1237 7700 SMA CLA
1238 5621 JMP I LOPDON /LOOP?
1239 5445 JMP I TEST /NO, GO TO NEXT TEST
1240 5445 /YES, LOOP ON THIS TEST

1244 6102 SIMINT, SPL /SKIP ON POWER LOW
1245 7410 SKP
1246 5777 JMP POWFAL /POWER GOING DOWN = GO SAVE EVERYTHING

```

```

1247 3251 DCA AC /SAVE THE AC
1250 5321 JMP FLGCK5 /RETURN TO THE PROGRAM

1251 0000 AC, 0

1252 6102 SKPGHN, SPL /SKIP ON POWER LOW
1253 7410 SKP
1254 5777 JMP POWFAL /POWER GOING DOWN SAVE EVERYTHING
1255 3251 DCA AC /SAVE THE AC
1256 1042 TAD CLKFLG /WERE WE EXPECTING A CLOCK INTERRUPT?
1257 7650 SNA CLA
1258 4776 JMS CHKACT /GO CHECK FOR THE ACT LINE
1259 6137 CLSK /YES = SKIP ON REAL TIME CLOCK FLAG
1260 7410 SKP
1261 5305 JMP FLGCK1 /GO CHECK THE OTHER FLAGS
1262 1133 TAD ACTFLG /GET THE ACT FLAG
1263 7440 SZA /DID THE PROGRAM GO TO THE PROM ?
1264 5300 JMP ACTGK2 /YES, CHECK PARALLEL I/O DATA ACCEPTED
1265 6041 TSF /WAS IT A TRANSMIT FLAG?
1266 7610 SKP CLA
1267 5310 JMP FLGCK2 /TRANSMIT FLAG SET = CHECK THE OTHER FLAGS
1268 6031 KSF /WAS IT A RECEIVE FLAG?
1269 7410 SKP
1270 5313 JMP FLGCK3 /RECEIVE FLAG SET
1271 6571 DBSK /WAS THE DATA READY FLAG SET?
1272 7410 SKP
1273 5316 JMP FLGCK4 /YES = CHECK DATA ACCEPTED FLAG
1274 6570 ACTGK2, DBST /WAS DATA ACCEPTED SET? IF SO CLEAR IT
1275 7640 SZA CLA /YES, THE FLAG SHOULD BE CLEAR NOW
1276 5317 JMP FLGCK5#2 /ILLEGAL INTERRUPT -
1277 4427 ERROR /RETURN
1278 6041 FLGCK1, TSF /SKIP ON XMIT FLAG
1279 7410 SKP
1280 4427 ERROR /XMIT FLAG SET
1281 6031 FLGCK2, KSF /SKIP ON RECEIVE FLAG
1282 7410 SKP
1283 4427 ERROR /RECEIVE FLAG SET
1284 6571 FLGCK3, DBSK /SKIP ON P I/O DATA READY
1285 4427 ERROR /DATA READY FLAG SET
1286 6570 FLGCK4, DBST /SKIP ON DATA ACCEPTED
1287 7610 SKP CLA
1288 4427 ERROR /DATA ACCEPTED FLAG SET
1289 3133 FLGCK5, DCA ACTFLG /CLEAR THE ACT FLAG
1290 7240 CLA CMA
1291 3041 DCA INTFLG
1292 4775 JMS RETURN
1293 1330 INTRET
1294 1251 TAD AC
1295 5730 JMP I INTRET
1296 0000 INTRET, 0

```

/ROUTINE TO WAIT FOR SERIAL LINE UNITS XMIT FLAG

```

1331 0000 WATTSF, 0
1332 7300 CLA CLL
1333 1147 TAD K7710
1334 3044 DCA CNT1
1335 3043 DCA CNT
1336 6041 TSF /SKIP ON SLU TRANSMIT FLAG
1337 4363 JMS ADDTIM /GO ADD ONE TO THE COUNTER
1342 2331 ISZ WATTSF
1341 5731 JMP I WATTSF /RETURN TO THE PROGRAM=GOT THE FLAG

```

/ROUTINE TO WAIT FOR THE SERIAL LINE UNIT RECEIVE FLAG

```

1342 0000 WATKSF, 0
1343 7300 CLA CLL
1344 1147 TAD K7710
1345 3044 DCA CNT1
1346 3043 DCA CNT
1347 6031 KSF /SKIP ON SLU RECEIVE FLAG
1350 4363 JMS ADDTIM /GO ADD A ONE TO THE COUNTER
1351 2342 ISZ WATKSF
1352 5742 JMP I WATKSF /RETURN TO THE PROGRAM=GOT THE FLAG

```

/ROUTINE TO WAIT FOR THE REAL TIME CLOCK FLAG

```

1353 0000 WTCLSK, 0
1354 7240 CLA CMA
1355 3044 DCA CNT1
1356 3043 DCA CNT
1357 6137 CLSK /SKIP ON THE REAL TIME CLOCK FLAG
1360 4363 JMS ADDTIM /GO ADD ONE TO THE COUNTER
1361 2353 ISZ WTCLSK
1362 5753 JMP I WTCLSK /RETURN TO THE PROGRAM=GOT THE FLAG

```

/ROUTINE TO WAIT FOR THE FLAG

```

1363 0000 ADDTIM, 0
1364 2043 ISZ CNT
1365 7610 SKP CLA
1366 2044 ISZ CNT1
1367 7346 CLA CLL CMA RTL
1370 7001 TAC
1371 1363 TAD ADDTIM
1372 3363 DCA ADDTIM
1373 5743 JMP I ADDTIM

```

```

1375 1420
1376 1544
1377 1441
1400 PAGE

```

/THIS IS THE END OF A PROGRAM PASS; IF SR3=1 HALT; IF NOT START PROGRAM OVER

```

1400 6160 ENDPAS, SIMCLR /CLEAR THE SIMULATOR
1401 4435 SWCHK /GO GET SWITCH REGISTER
1402 7006 RTL
1403 7004 RAL
1404 7710 SPA CLA
1405 7402 HLT /SR3=1 END OF A COMPLETE PROGRAM PASS
1406 5777! JMP 0200 /START PROGRAM OVER

```

/CHECK TO SEE IF FRONT PANEL IS AVAILABLE TO DO EITHER A TAD SWITCH OR A LAS COMMAND

```

1407 2000 CHKSWH, 0
1410 7200 CLA
1411 1021 TAD OP1SEL
1412 7700 SMA CLA
1413 5216 JMP +3
1414 7604 LAS
1415 5607 JMP I CHKSWH
1416 1020 TAD SWITCH
1417 5607 JMP I CHKSWH

```

/THIS ROUTINE SETS UP A RETURN ADDRESS FOR INTERRUPT RETURNS FROM ANOTHER FIELD

```

1420 0000 RETURN, 0
1421 6201 CDF /CHANGE DATA FIELD TO FIELD 0
1422 1636 TAD I K0 /GET THE INTERRUPT PC
1423 3237 DCA RETADD /SAVE IT
1424 6224 RIF /READ THE PROGRAM INSTRUCTION FIELD
1425 1131 TAD KCDF /ADD A CDF INSTRUCTION TO IT
1426 3227 DCA ,+1 /SAVE IT IN THE NEXT LOCATION
1427 7402 HLT/CDF /RETURN TO THE PROGRAM DATA FIELD
1430 1620 TAD I RETURN /GET THE INTERRUPT RETURN LOCATION
1431 3240 DCA SAVLOC /SAVE IT
1432 2220 ISZ RETURN
1433 1237 TAD RETADD
1434 3640 DCA I SAVLOC
1435 5620 JMP I RETURN

```

```

1436 2000 K0, 0
1437 0000 RETADD, 0
1440 0000 SAVLOC, 0

```

/POWER FAIL ROUTINE, THE PROGRAM WILL DO IT'S OWN AUTO-RESTART
 /AT THE BEGINNING OF THE TEST THAT IT WAS EXECUTING UNLESS ALL POWER
 /WENT AWAY, THEN THE POWER FAIL AUTO-RESTART OPTION WOULD TRY TO DO
 /A RESTART IF IT WAS SELECTED.

```

1441 7200 POWFAL, CLA CLA
1442 6201 CDF 00
1443 1265 TAD KJMP7
1444 3636 DCA I K0
1445 1045 TAD TEST
1446 3666 DCA I KTEST

```

```

1447 1267      TAD FLGRST
1450 3670      DCA I C7
1451 1132      TAD KRTF
1452 3671      DCA I K10
1453 1272      TAD KJMPRT
1454 3673      DCA I K11
1455 6004      GTF
1456 3674      DCA I K12
1457 6244      RMF
1460 5103      CAL
1461 6102      SPL
1462 7610      SKP CLA
1463 5261      JMP I =2
1464 5445      JMP I TEST

1465 5007      KJMP7; JMP 7
1466 5045      KTEST; TEST
1467 1012      FLGRST, TAD 12
1470 0007      C7, 7
1471 0010      K10, 10
1472 5445      KJMPRT, JMP I TEST
1473 0011      K11, 11
1474 0012      K12, 12

/LOGIC ERROR ROUTINE - RESTART TEST IF SR1=1

1475 0000      AERROR, 0
1476 4326      JMS ACTCHK      /GO CHECK TO SEE IF RUNNING ON ACT LINE
1477 4435      SWNCHK      /CHECK SR0 TO INHIBIT ERROR HALT
1500 7710      SPA CLA
1501 5307      JMP AERSWH
1502 7240      CLA CMA
1503 1275      TAD AERROR
1504 7482      HLT      /AC = ADDRESS WHERE ERROR WAS DETECTED
1505 4314      JMS SIMWRD      /WAS THE SIMULATOR SELECTED
1506 7402      HLT      /AC=SIMULATOR CONTROL WORD
1507 4435      AERSWH, SWNCHK      /CHECK SR1=1 TO LOOP ON ERROR
1510 7004      RAL
1511 7700      SMA CLA
1512 5675      JMP I AERROR      /RETURN WITHOUT LOOPING ON TEST
1513 5446      JMP I TSTLOP      /SCOPE LOOP GO BACK TO START OF TEST SECTION

1514 7000      SIMWRD, 0
1515 7300      CLA CLL
1516 1021      TAD OP1SEL
1517 0057      AND K200
1520 7650      SNA CLA
1521 5324      JMP ,+3
1522 1055      TAD CONTWD
1523 5714      JMP I SIMWRD
1524 2314      ISZ SIMWRD
1525 5714      JMP I SIMWRD

```

```

/ROUTINE TO EXIT TO PROM ON AN ERROR IF RUNNING ON THE ACT LINE

1526 7000      ACTCHK, 0
1527 7300      CLA CLL
1530 1022      TAD OP2SEL      /GET THE HARDWARE CONTROL WORD
1531 7700      SMA CLA      /IS THE PROGRAM RUNNING ON THE ACT LINE?
1532 5726      JMP I ACTCHK      /NO, RETURN TO ERROR ROUTINE
1533 6002      IOF      /TURN THE INTERRUPT OFF
1534 7344      CLA CLL CMA RAL
1535 1326      TAD ACTCHK
1536 3343      DCA ERRPC
1537 7240      CLA CMA
1540 1743      TAD I ERRPC      /GET THE LOCATION WHERE THE ERROR WAS DETECTED
1541 6272      CIF 70      /CHANGE INSTRUCTION FIELD TO FIELD 7
1542 5477      JMP I BADPAS      /GO TO THE PROM

1543 0000      ERRPC, 0

```

```

1544 0000      CHKACT, 0
1545 6137      CLSK      /WAS THE CLOCK FLAG SET
1546 7410      SKP      /NO-RETURN TO INT SERVICE ROUTINE
1547 5352      JMP CLKSET      /YES-CLEAR THE FLAG
1550 2344      ISZ CHKACT      /ADD 1 TO THE INCOMING PC
1551 5744      JMP I CHKACT      /RETURN TO SKIP CHAIN
1552 6136      CLKSET, CLCL      /CLEAR THE CLOCK FLAG
1553 1022      TAD OPSEL      /GET THE ACT LINE BIT
1554 7710      SPA CLA      /IS THE PROGRAM RUNNING ON ACT LINE
1555 5365      JMP ONACTL      /YES,CHECK FOR # OF CLOCK TICKS
1556 5350      JMP CHKACT+4      /RETURN TO INTERRUPT ROUTINE
1557 4220      JMS RETURN      /NO,RETURN TO THE PROGRAM
1560 1564      ACTRET
1561 1776'      TAD AC
1562 6001      ION      /TURN THE INTERRUPT ON
1563 5764      JMP I ACTRET      /RETURN TO THE PROGRAM
1564 2000      ACTRET, 0
1565 2101      ISZ ACTCNT      /100 CLOCK TICKS YET?
1566 5357      JMP CLKSET+5      /NO RETURN TO PROGRAM
1567 1102      TAD M144      /RESET ACT TIME COUNTER
1570 3101      DCA ACTCNT      /SAVE THE NUMBER
1571 6272      CIF 70      /CHANGE INSTRUCTION FIELD TO 7
1572 4500      JMS I GOODPS      /SIGNAL PROM THAT PROGRAM STILLS PAS
1573 7240      CLA CMA
1574 3133      DCA ACTFLG      /SET THE ACT LINE FLAG TO ONES
1575 5357      JMP CLKSET+5      /RETURN TO THE PROGRAM

1576 1251
1577 0200

```

1600

PAGE

/ROUTINE FOR TRANSMITTING, READING AND COMPARING DATA FOR PARALLEL I/O

```

1600 0000 DATPIO: 0
1601 6007 CAF /CLEAR ALL
1602 4145 RTCENA /SET REAL TIME CLOCK INT ENA
1603 6001 ION /TURN THE INTERRUPT ON
1604 6575 DBSE /SET PARALLEL I/O INT ENA
1605 1051 TAD PIOXHT /GET THE WORD TO BE LOADED INTO PARALLEL I/O
1606 6574 DBTD /LOAD AND TRANSMIT THE WORD
1607 7200 CLA
1610 6571 DBSK /SKIP ON DATA READY
1611 4427 ERROR /ERROR, DATA READY FLAG FAILED TO SET BY DBTD
1612 2041 ISZ INTFLG /GET PROGRAM INTERRUPT FLAG
1613 4427 ERROR /PROGRAM FAILED TO INTERRUPT WITH INT ENA + FLAG SET
1614 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
1615 6572 DBRD /READ THE 12 BIT PARALLEL I/O BUFFER
1616 3052 DCA PIDREC /SAVE THE WORD READ
1617 6571 DBSK /SKIP ON DATA READY FLAG
1622 4427 ERROR /DBRD CLEARED DATA READY FLAG
1621 6573 DBCF /CLEAR DATA READY FLAG
1622 6001 ION /TURN INTERRUPT BACK ON
1623 7000 NOP /SHOULD INTERRUPT HERE FOR DATA ACCEPT FLAG
1624 6570 DBST /SKIP ON DATA ACCEPT
1625 7610 SKP CLA
1626 4427 ERROR /DATA ACCEPT FAILED TO CLEAR IN INTERRUPT ROUTINE
1627 2041 ISZ INTFLG /CHECK TO SEE IT IT INTERRUPTED
1632 4427 ERROR /DATA ACCEPT FLAG FAILED TO INTERRUPT
1631 6001 ION /TURN THE INTERRUPT BACK ON
1632 7000 NOP
1633 1041 TAD INTFLG /GET PROGRAM INTERRUPT FLAG
1634 7640 SZA CLA /DID IT INTERRUPT?
1635 4427 ERROR /PROGRAM INTERRUPTED WITHOUT DATA READY SET
1636 1051 TAD PIOXMT /GET THE WORD TRANSMITED
1637 7041 CIA
1640 1052 TAD PIOREC /GET THE WORD READ
1641 7640 SZA CLA /ARE THEY EQUAL?
1642 5600 JMP I DATPIO /DATA ERROR RETURN TO REPORT ERROR
1643 6007 CAF /CLEAR ALL FLAGS AND P I/O BUFFER
1644 4145 RTCENA
1645 6001 ION /TURN THE INTERRUPT ON
1646 6572 DBRD /READ THE 12 BIT P I/O BUFFER
1647 7640 SZA CLA
1650 4427 ERROR /CAF FAILED TO CLEAR THE 12 BIT DATA BUFFER
1651 2200 ISZ DATPIO /BUMP RETURN ADDRESS POINTER BY 1
1652 5600 JMP I DATPIO /RETURN TO TEST

```

/ROUTINE FOR TRANSMITTING, READING AND COMPARING DATA FOR SLU

```

1653 0000 DATSLU: 0
1654 6007 CAF /CLEAR ALL FLAGS BUT SET INT ENA ON SLU
1655 4145 RTCENA /SET REAL TIME CLOCK INT ENA
1656 6001 ION /TURN THE INTERRUPT ON
1657 3041 DCA INTFLG /CLEAR THE PROGRAM INTERRUPT FLAG

```

```

1660 1053 TAD SLUXMT /GET THE WORD TO BE TRANSMITTED
1661 6046 TLS /LOAD AND TRANSMIT IT AND CLEAR THE FLAG
1662 4431 TSFWAT /WAIT FOR THE TRANSMIT FLAG
1663 4427 ERROR /XMIT FLAG FAILED TO SET
1664 2041 ISZ INTFLG /DID THE PROGRAM INTERRUPT?
1665 4427 ERROR /PROGRAM FAILED TO INTERRUPT
1666 6042 TCF /CLEAR THE XMIT FLAG
1667 6001 ION /TURN THE INTERRUPT BACK ON
1670 4432 KSFWAT /WAIT FOR THE RECEIVE FLAG TO SET
1671 4427 ERROR /RECEIVE FLAG FAILED TO SET
1672 2041 ISZ INTFLG /DID THE RECEIVE FLAG CAUSE A INTERRUPT
1673 4427 ERROR /RECEIVE FLAG FAILED TO CAUSE A INTERRUPT
1674 6036 KRB /CLEAR THE AC AND RCV FLAG AND READ BUFFER
1675 3054 DCA SLUREC /SAVE THE WORD READ BACK
1676 6001 ION /TURN THE INTERRUPT BACK ON
1677 1041 TAD INTFLG /CHECK THAT KRB CLEARED THE RCV FLAG
1678 7640 SZA CLA
1679 4427 ERROR /KRB FAILED TO CLEAR RCV FLAG OR INTERRUPTED
1680 1053 TAD SLUXMT /GET THE WORD TRANSMITTED
1681 7041 CIA
1684 1054 TAD SLUREC /GET THE WORD READ BACK
1685 7640 SZA CLA
1686 5653 JMP I DATSLU /DATA ERROR-RETURN TO REPORT THE ERROR
1687 2253 ISZ DATSLU /BUMP RETURN ADDRESS POINTER BY ONE
1688 5653 JMP I DATSLU /RETURN TO TEST

```

/DATA ERROR ROUTINE FOR PARALLEL I/O

```

1711 0000 DERPIO: 0
1712 4777 JMS ACTCHK /CHECK TO SEE IF RUNNING ON ACT LINE
1713 4435 SHWCWK /CHECK SR0 TO INHIBIT ERROR HALT
1714 7710 SPA CLA /IS SR0 SET?
1715 5327 JMP PIOSWH /YES, GO CHECK SR1 TO LOOP ON ERROR
1716 7240 CLA CMA
1717 1311 TAD DERPIO
1720 7402 HLT /AC = ADDRESS WHERE ERROR WAS DETECTED
1721 7200 CLA
1722 1051 TAD PIOXMT /GET THE WORD TRANSMITTED
1723 7402 HLT /AC = THE GOOD WORD
1724 7200 CLA
1725 1052 TAD PIOREC /GET THE WORD READ
1726 7402 HLT /AC = THE BAD WORD = WORD READ
1727 4435 PIOSWH, SHWCWK /LOOP ON DATA ERROR IF SR1=1
1730 7004 RAL
1731 7700 SMA CLA /LOOP?
1732 5711 JMP I DERPIO /NO, RETURN TO TEST
1733 5446 JMP I TSTL0P /RETURN AND DO SAME PATTERN(S)

```

/DATA ERROR ROUTINE FOR SERIAL LINE UNIT

```

1734 0000 DERSLU: 0
1735 4777 JMS ACTCHK /CHECK TO SEE IF RUNNING ON THE ACT LINE
1736 4435 SHWCWK /CHECK SR0=1 TO INHIBIT ERROR HALT

```

/DKC8-AA OPTION TEST 1 MAINDEC=08=JDKA=B=L 1K PART 1 PAL10 V142A 16-MIN-78 0122 PAGE 2 OF

1737	7710	SPA	CLA	
1740	5354	JMP	SLUSHW	/GO CHECK SR1#1 TO LOOP ON ERROR
1741	7240	CLA	CMA	
1742	1334	TAD	DERSLU	/
1743	7482	HLT		
1744	7200	CLA		/AC=ADRESS WHERE ERROR WAS DETECTED
1745	1053	TAD		
1746	7402	SLUXMT		/GET THE WORD TRANSMITTED
1747	7200	CLA		/AC=GOOD WORD=THE WORD TRANSMITTED
1750	1054	TAD	SLUREC	/GET THE WORD READ
1751	7402	HLT		/AC=THE PAD WORD=THE WORD READ
1752	4776	JMS	SIMWRD	/WAS THE SIMULATOR SELECTED
1753	7402	HLT		/AC=THE SIMULATOR CONTROL WORD
1754	4435	SLUSHW,	SWHCHK	/LOOP ON DATA ERROR IF SR1#1
1755	7004	RAL		
1756	7700	SMA	CLA	/LOOP?
1757	5374	JMP I	DERSLU	/NO, RETURN TO TEST
1760	5446	JMP I	TS1#OP	

```

1761 2000 CHKSIM, 0
1762 2021 TAD OPSEL
1763 2057 AND K200 /CHECK FOR SIMULATOR
1764 7650 SNA CLA
1765 5371 JMP ,+4 /NO
1766 1761 TAD I CHKSIM /GET THE CONTROL WORD
1767 3055 DCA CONTWD /SAVE IT
1770 7410 SKP
1771 2361 ISZ CHKSIM
1772 2361 ISZ CHKSIM
1773 1361 TAD CHKSIM
1774 3046 DCA TSTLDP
1775 5761 JMP I CHKSIM

```

1776 1514
1777 1526
1778 1520 #200

5

/DKC8-AA OPTION TEST 1 MAINDEC=08=0JOKA=B-L 1K PART 1 PAL10 V142A 16-JUN-75 9100 PAGE 2/26

4000
4100

4200
4300

4400
4500

4600
4700

5000
5100

5200
5300

5400
5500

5600
5700

6000
6100

6200
6300

6400
6500

6600
6700

7000
7100

7200
7300

7400
7500

7600
7700

AC	1251	GOODPS	0100	PIONDR	4430	TEST5	0413
ACTCHK	1526	GTF	6004	PIOREC	0092	TEST6	0452
ACTCK2	1300	HLT	7402	PIOSWH	1727	TEST7	0503
ACTCNT	0101	INACTV	0076	PIOXMT	0051	TEST8	0547
ACTFLG	0133	INTFLG	0041	PNOINT	0075	TEST9	0620
ACTRET	1564	INTRET	1330	POWFAL	1441	TFL	6040
ADDTIM	1363	K0	1436	PRGENU	5440	TLS	6046
AERROR	1475	K1	0124	RECFLG	0073	TPC	6044
AERSNH	1507	K10	1471	RETAUD	1437	TSF	6041
BADPAS	0077	K11	1473	RETURN	1420	TSFWAT	4431
C7	1470	K12	1474	RMF	6244	TSTCNT	0047
CAF	6087	K125	0061	RTCENA	4145	TSTGOD	0135
CAL	6103	K2	0125	RTCFGL	0074	TSTLDP	0046
CHKACT	1544	K200	0057	RTF	6005	WATKSF	1342
CHKSIM	1761	K252	0060	SAVADD	0123	WATTSF	1331
CHKSWH	1487	K2525	0063	SAVCNT	0050	WTCLSK	1353
CLCL	6136	K3	0126	SAVLOC	1440	XHTFLG	0072
CLKFLG	0042	K377	0056	SBE	6101	XORENA	0374
CLKSET	1552	K5252	0062	SIMCHK	4436		
CLKSNC	7134	K7	0064	SIMCLR	6160		
CLLE	6135	K7710	0147	SIMONT	0067		
CLRDET	6156	KCC	6032	SIMINT	1244		
CLRSIM	6150	KCDF	0131	SIMLDR	1244		
CLSK	6137	KCF	6030	SIMHRD	1514		
CLSKWT	4425	KIE	6035	SKPGHN	1292		
CNT	0043	KJMP	0127	SKPDAV	6165		
CNT1	0044	KJMP7	1465	SKPFREQ	6162		
CONTND	0055	KJMPRT	1472	SKPRDR	6157		
DATPIO	1600	KRB	6036	SKPSTR	6167		
DATSLU	1653	KRMF	0130	SLUDAT	4433		
DBCE	6576	KRS	6034	SLUDER	4434		
DBCF	6573	KRTF	0132	SLUREQ	0054		
DBRD	6572	KSF	6031	SLUSWH	1754		
DBSE	6575	KSFWAT	4432	SLUXMT	0053		
DBSK	6571	KTEST	1466	SPI	6045		
DBSS	6577	LINK	0071	SPL	6102		
DBST	6570	LOADSH	6151	STRFRQ	6161		
DBTD	6574	LOADFRQ	6163	SWHCK	4435		
DERPIO	1711	LODSIM	4437	SWITCH	0020		
DERLSU	1734	LOOPPC	4423	TCP	6042		
DONLDP	4424	LOOPSW	1237	TEST	0045		
ENARTC	0145	LOPDON	1221	TEST1	0200		
ENDPAS	1400	M10	0066	TEST10	0663		
ERROR	4427	M144	0102	TEST11	0733		
ERRPC	1543	M4	0065	TEST12	0774		
EXPAD	0070	ONACTL	1565	TEST13	1027		
FLGCK1	1305	OP11K1	0000	TEST14	1124		
FLGCK2	1310	OP1SEL	0021	TEST15	1137		
FLGCK3	1313	OP2SEL	0022	TEST16	1155		
FLGCK4	1316	PATCH	0103	TEST2	0246		
FLGCK5	1321	PCLOOP	1200	TEST3	0304		
FLGRST	1467	P10DAT	4426	TEST4	0337		

/DKG8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 1 PAL10 V142A 16-JUN-75 9100 PAGE 2=29

ERRORS DETECTED 0
LINKS GENERATED 9
RUN-TIME 18 SECONDS
2K CORE USED

/DKG8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 2 PAL10 V142A 16-JUN-75 9102 PAGE 1

/DKG8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 2
/COPYRIGHT (c) 1974, 1975 DIGITAL EQUIPMENT CORPORATION
/PROGRAMMER BRUCE HANSEN
/

||||||||||||||||||||||||||||||||||||||||||||||||
/THE FOLLOWING LISTING WILL CORRESPOND TO THE PAPER TAPE LABELED
/MAINDEC=08=DJDKA=B=PM2, 1K VERSION PART 2; THIS PAPER TAPE AND
/LISTING WILL BE THE SECOND OF FOUR 1K SEGMENTED PAPER TAPES AND
/LISTINGS FOR COMPUTERS WITH LESS THAN 4K OF MEMORY,
||||||||||||||||||||||||||||||||||||||||||||

```

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 1K PART 2
/
/COPYRIGHT (C) 1974, 1975 DIGITAL EQUIPMENT CORPORATION
/
/PROGRAMMER: BRUCE HANSEN
/

/PROCESSOR INSTRUCTIONS
6007 CAF#6007           /CLEAR ALL FLAGS
6102 SPL#6102           /SKIP ON AC LOW FLIP-FLOP
6103 CAL#6103           /CLEAR AC LOW FLIP-FLOP
6101 SBE#6101           /SKIP ON BATTERY EMPTY
7402 HT#7402
6244 RMF#6244
6005 RTF#6005           /RESTORE MEMORY FIELD
6004 GTF#6004

/OPTION BOARD NUMBER 1 IOTS
//SERIAL LINE UNIT
/RX RECEIVER IOTS
6030 KCF#6030           /CLEAR RECEIVE FLAG, DON'T SET READER RUN
6031 KSF#6031           /SKIP ON RECEIVE FLAG
6032 KCC#6032           /CLEAR RECEIVE FLAG AND AC, SET READER RUN
6034 KRS#6034           /READ RECEIVE BUFFER
6035 KIE#6035           /AC 11#1 SET INTERRUPT ENABLE
6036 KRB#6036           /AC 11#0 CLEAR INTERRUPT ENABLE
                           /CLEAR RECEIVE FLAG AND AC, SET READER RUN AND READ
                           /RECEIVE BUFFER

/TRANSMIT IOTS
6040 TPL#6040           /SET TRANSMIT FLAG
6041 TSF#6041           /SKIP ON TRANSMIT FLAG
6042 TOF#6042           /CLEAR THE TRANSMIT FLAG
6044 TPC#6044           /LOAD TRANSMIT BUFFER AND TRANSMIT
6045 SPI#6045           /SKIP IF TRANSMIT OR RECEIVE FLAG SET AND INT ENA SET TO A 1
6046 TLS#6046           /LOAD TRANSMIT BUFFER, TRANSMIT AND CLEAR TRANSMIT FLAG

/REAL TIME CRYSTAL CLOCK
6135 CLLE#6135           /AC 11#1 SET INTERRUPT ENABLE
6136 CLCL#6136           /AC 11#0 CLEAR INTERRUPT ENABLE
6137 CLSK#6137           /CLEAR CLOCK FLAG
                           /SKIP ON CLOCK FLAG

/12 BIT PARALLEL I/O
6570 DBST#6570           /SKIP ON DATA ACCEPTED, CLEAR DATA ACCEPTED AND DATA AVAILABLE
6571 DBSK#6571           /SKIP ON DATA READY FLAG
6572 DBRD#6572           /READ DATA INTO AC 0#11
6573 DBCF#6573           /CLEAR DATA READY FLAG, ISSUE DATA ACCEPTED OUT
6574 DBTD#6574           /LOAD AC 0#11 INTO BUFFER AND TRANSMIT DATA OUT
6575 DBSE#6575           /SET INTERRUPT ENABLE TO A 1
6576 DBCE#6576           /SET INTERRUPT ENABLE TO A 0

```

```

6577 DBSS#6577           /ISSUE A STROBE PULSE

/SWITCH REGISTER SETTINGS
/SR0#1 = INHIBIT ERROR HALT
/SR1#1 = LOOP ON ERROR
/SR2#1 = LOOP ON TEST
/SR3#1 = HALT AT COMPLETION OF A PROGRAM PASS

/OPTION BOARD 1 SIMULATOR IOT'S
6150 CLRSIM#6150           /CLEAR SIMULATOR CONTROL REGISTERS
6151 LOADSM#6151           /LOAD SIMULATOR CONTROL WORD 1
6156 CLRDET#6156           /CLEAR READER RUN, STROBE, AND DATA AVAILABLE CATCHER F/F'S
6157 SKPRDR#6157           /SKIP ON READER RUN CATCHER F/F SET
6160 SIMLDR#6160           /CLEAR CONTROL REGISTERS AND MOST OF LOGIC ON SIMULATOR
6161 STRFRQ#6161           /START FREQUENCY CHECK (SLU OR RTC)
6162 SKPFRQ#6162           /SKIP ON FREQUENCY CHECK IN PROGRESS
6163 LOOFRQ#6163           /READ FREQUENCY COUNT INTO AC
6165 SKPUAV#6165           /SKIP ON DATA AVAILABLE CATCHER F/F SET
6167 SKPSTR#6167           /SKIP ON STROBE CATCHER F/F SET

/OPTION BOARD 1 SIMULATOR CONTROL WORD BIT ASSIGNMENTS
/BIT 0 COUNTER RESET      1=ACTIVATE
                           0=NO ACTION
/
/BIT 1 PARALLEL I/O CLEAR DATA      1=TS1
                           AVAILABLE SELECT      0=DATA ACCEPTED IN
/
/BIT 2 NOT USED
/
/BIT 3 NOT USED
/
/BIT 4 NOT USED
/
/BIT 5 RTC FREQUENCY OR      1=RTC
                           SLU FREQUENCY CHECK      0=SLU BAUD RATES
/
/BIT 6 REAL TIME CLOCK      1=OFF
                           0=ON
/
/BIT 7 SLU EIA/20MA SELECT      1=EIA RECEIVE DATA
                           0=20 MA RECEIVE DATA
/
/BIT 8 STOP BIT SELECT      1=1 STOP BITS
                           0=2 STOP BIT
/
/BIT 9 BAUD RATE SELECT      BIT 9, 10, 11 ALL 0'S
/
/BIT 10 BAUD RATE SELECT      EQUALS 110 BAUD, EACH
/
/BIT 11 BAUD RATE SELECT      INCREASING BIT SELECTS
                           NEXT HIGHEST BAUD RATE
/
```

```

0000      *0
0000  0002      302          /PROGRAM REVISION LETTER=MAINDEC=08=DJDKA=B
0001  6244      RMF          /RESTORE MEMORY FIELDS
0002  5403      JMP I 3      /RETURN TO INTERRUPT SERVICE ROUTINE
0003  1244      SIMINT/SKPCHN/SIMCHK/RTCINT/SLUINT /INTERRUPT SERVICE ROUTINES

0020      *20
0020  0000      SWITCH, 0
0021  2000      OP1SEL, 2000
                /BIT 0=0 USE LOCATION 20 AS A PSEUDO SWITCH REGISTER
                /BIT 0=1 USE HARDWARE FRONT PANEL SWITCH REGISTER
                /BIT 1=1 HAS OPTION 1
                /BIT 2=1 HAS OPTION 2
                /BIT 3=1 HAS 8A CPU SIMULATOR
                /BIT 4=1 HAS 8A OPTION 1-2 SIMULATOR
                /BIT 5=1 PROGRAM ON PDP=8A XDR(NEEDS BIT 4 SET ALSO)
                /BIT 6=1 HAS PDP=8E TYPE CPU
                /BIT 7=11 MEMORY SIZE = 0'8=1K, 37'32K; MEMORY
                /SIZE CAN BE INCREASED IN 1K INCREMENTS BY ADDING
                /ONE TO THE NUMBER IN BITS 7 = 11
                /BIT 0 IS SET FOR THE ACT LINE

0022  0000      OP2SEL, 0
                LOOPPC=JMS I,
0023  4200      PCLOOP
                DONLOP=JMS I,
0024  4221      LOPDON
                CLSKWT=JMS I,
0025  1353      WTCLSK
                PIODATE=JMS I,
0026  1600      DATPIO
                ERROR=JMS I,
0027  1475      AERROR
                PIODER=JMS I,
0030  1711      DERPIO
                TSFWAT=JMS I,
0031  4431      WATTSF
                KSFWAT=JMS I,
0032  1342      WATKSF
                4433      SLUDAT=JMS I,
0033  1653      DATSLU
                4434      SLUDER=JMS I,
0034  1734      DERSLU
                4435      SHWCHK=JMS I,
0035  1407      CHKSHW
                4436      SIMCHK=JMS I,
0036  1761      CHKSIM
                4437      LOOSIM=JMS I,
0037  1214      SIMLOD
                4145      RTCENA=JMS ENARTD

```

```

5440      PRGENU=JMP I,
0040  1400      ENDPAS

```

/LOCATIONS USED BY THE PROGRAM

```

0041  0000      INTFLG, 0
0042  0000      CLKFLG, 0
0043  0000      CNT, 0
0044  0000      CNT1, 0
0045  0000      TEST, 0
0046  0000      TSTLOP, 0
0047  0000      TSTCNT, 0
0050  0000      SAVCNT, 0
0051  0000      PIOXMT, 0
0052  0000      PIOREC, 0
0053  0000      SLUXMT, 0
0054  0000      SLUREC, 0
0055  0000      CONTWD, 0
0056  0377      K377, 377
0057  0200      K200, 200
0060  0252      K252, 252
0061  0125      K125, 125
0062  5252      K5252, 5252
0063  2525      K2525, 2525
0064  0007      K7, 7
0065  7774      M4, -4
0066  7770      M10, -10
0067  0000      SIMCNT, 0

0070  0000      EXPACD, 0
0071  0000      LINK, 0
0072  0000      XMTFLG, 0
0073  0000      RECFLG, 0
0074  0000      RTCFLG, 0
0075  0000      PPOINT, 0
0076  0000      INACTV, 0
0077  6520      BADPAS, 6520      /ACT LINE ERROR RETURN TO FIELD 7
0100  6500      GOODPS, 6500      /ACT LINE GOOD RETURN TO FIELD 7
0101  7634      ACTCNT, -144
0102  7634      M144, -144

```

/ROUTINE TO SETUP FIELD 0 TO HANDLE INTERRUPTS FROM ANOTHER FIELD

```

0103  0000      PATCH, 0
0104  1503      TAD I PATCH      /GET THE INTERRUPT SERVICE ADDRESS
0105  3123      DCA SAVADD     /SAVE INTERRUPT ADDRESS
0106  6201      CDF          /CHANGE DATA FIELD TO FIELD 0
0107  1130      TAD I KRMF    /GET THE INSTRUCTION RMF
0110  3524      DCA I K1       /PUT IT IN LOCATION 1 OF FIELD 0
0111  1127      TAD I KJMP    /GET THE INSTRUCTION JMP I 3
0112  3525      DCA I K2       /PUT IT IN LOCATION 2 OF FIELD 0
0113  1123      TAD SAVADD     /GET THE INTERRUPT SERVICE ADDRESS
0114  3526      DCA I K3       /PUT IT IN LOCATION 3 IF FIELD 0

```

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA-B=L 1K PART 2 PAL10 V142A 16=JUN=75 9122 PAGE 2=4

0115	6224	RIF	/GET THE PROGRAM FIELD INTO THE AC
0116	1131	TAD	/AND IT TO THE CDF INSTRUCTION
0117	3120	DCA	/PUT IT IN THE NEXT LOCATION
0120	7402	HLT/CDF	/EXECUTE IT
0121	2103	ISZ	/ADD 1 TO THE ENTRANCE
0122	5503	JMP I	/RETURN

0123	0000	SAVACD,	%
0124	0001	K1,	1
0125	0002	K2,	2
0126	0003	K3,	3
0127	5403	KJNP,	JMP I 3
0130	6244	KRHF,	6244
0131	6201	KCDF,	CDF
0132	6005	KRTF,	RTF
0133	0000	ACTFLG,	%
0134	0000	CLKSNC,	%

/THIS ROUTINE USED WHEN RUNNING ON THE ACT LINE TO SIGNIFY THAT NO
/ERRORS HAVE BEEN ENCOUNTERED

```

0135 2000 TSTGOD, A
0136 1022 TAD OP2SEL /GET THE HARDWARE FLAG
0137 7700 SMA CLA /ARE WE ON THE ACT LINE?
0140 5535 JMP I TSTGOD /NO,RETURN TO THE PROGRAM
0141 6002 IDF /TURN THE INTERRUPT OFF
0142 6272 CIF 70 /CHANGE THE INSTRUCTION TO FIELD 7
0143 4500 JMS I GOODPS /GO TO PROM
0144 5535 JMP I TSTGOD /RETURN TO THE PROGRAM

```

```

0145 50000 ENARTC, 0
0146 1022 TAD OP2SEL
0147 7710 K7710, SPA CLA /CHECK TO SEE IF ON ACT LINE
0148 7301 CLA CLL IAC /IF NOT CLEAR RTC INT ENA
0150 6135 CLLE /SET AC BIT 11
0152 7200 CLA /LOAD BIT 11 INTO CLOCK INT ENA
0153 5545 JMP I ENARTC

```

3200 *200

IFDEF OP13K <PAGE>

```
*****  
/*TEST 17 = CHECKS FOR AN INCREMENTING DATA PATTERN;  
*****
```

0200	6160	SIMCLR	/CLEAR THE SIMULATOR
0201	4423	TEST17: SETUPPC	/SET UP TEST LOOPING ADDRESS
0202	7777	-1	/SIMULATOR ITERATION COUNTER
0203	4103	JMS PATCH	/GO SET UP FOR INTERRUPT RETURN
0204	1292	SKPCHN	
0205	3042	DCA CLKFLG	
0206	7300	CLA CLL	/SET INTERRUPT TO IGNORE RTC FLAGS

/DKC8-AA OPTION TEST 1 MAINDEG=08-0JDKA=B-L 1K PART 2 PAL18 V142A 16-JUN-75 9102 PAGE 25

```

0277 3050 DCA SAVCNT      /CLEAR PROGRAM TEST COUNTER
0278 3047 DCA TSTCNT     /CHECK FOR SIMULATOR
0279 4436 SIMCHK        /SIMULATOR CONTROL WORD
0280 4000 LODSIM         /LOAD THE SIMULATOR IF SELECTED
0281 4437 DCA INTFLG     /CLEAR PROGRAM INTERRUPT FLAG
0282 1047 TAD TSTCNT     /GET TEST COUNTER
0283 3051 DCA P10XHT     /SET THE WORD TO BE TRANSMITTED = TO IT
0284 4426 P10DAT         /GO TRANSMIT AND COMPARE THE WORD
0285 4430 P10DER         /DATA ERROR
0286 4424 D0NLP          /DONE OR LOOP ON TEST IF SR2=1

```

```
*****  
/TEST 18 = CHECKS FOR AN INCREMENTING DATA PATTERN WITH THE INTERRUPT  
/ENABLE DISABLED WHICH ALLOWS FOR FASTER READING BECAUSE OF NO SKIP CHAIN  
*****
```

```

0222 4423 TEST18, LOOPPC          /SETUP TEST COUNT AND TEST LOOP ADDRESS
0223 7777                         .1
0224 7300 CLA CLL
0225 3050 DCA SAVCNT
0226 3047 DCA TSTCNT
0227 4436 SIMCHK
0228 4000 AB00
0229 4437 LODSIM
0230 6097 CAF
0231 4145 RTCENA
0232 6001 ION
0233 3041 DCA INTFLG
0234 1047 TAD TSTCNT
0235 3051 DCA PIOXHT
0236 1051 TAD PIOXHT
0237 6574 DBTD
0238 6571 DBSK
0239 4427 ERROR
0240 7240 CLA CMA
0241 6572 DBRD
0242 3652 DCA PIOREC
0243 4573 DBCF
0244 6570 DBST
0245 4427 ERROR
0246 6570 DBST
0247 2533 7410 SKP
0248 4427 ERROR
0249 1051 TAD PIOXHT
0250 7041 CIA
0251 1052 TAD PIOREC
0252 7640 SZA CLA
0253 4430 PIODER
0254 6097 CAF
0255 4145 RTCENA
0256 6001 ION
0257 6572 DBRD
0258 7640 SZA CLA
0259 4430 PIODER
0260 6097 CAF
0261 4145 RTCENA
0262 6001 ION
0263 6572 DBRD
0264 7640 SZA CLA
0265 4430 PIODER
0266 6097 CAF
0267 4145 RTCENA
0268 6001 ION
0269 6572 DBRD
0270 7640 SZA CLA
0271 4430 PIODER
0272 6097 CAF
0273 4145 RTCENA
0274 6001 ION
0275 6572 DBRD
0276 7640 SZA CLA
0277 4430 PIODER
0278 6097 CAF
0279 4145 RTCENA
0280 6001 ION
0281 6572 DBRD
0282 7640 SZA CLA
0283 4430 PIODER
0284 6097 CAF
0285 4145 RTCENA
0286 6001 ION
0287 6572 DBRD
0288 7640 SZA CLA
0289 4430 PIODER
0290 6097 CAF
0291 4145 RTCENA
0292 6001 ION
0293 6572 DBRD
0294 7640 SZA CLA
0295 4430 PIODER
0296 6097 CAF
0297 4145 RTCENA
0298 6001 ION
0299 6572 DBRD
0300 7640 SZA CLA
0301 4430 PIODER
0302 6097 CAF
0303 4145 RTCENA
0304 6001 ION
0305 6572 DBRD
0306 7640 SZA CLA
0307 4430 PIODER
0308 6097 CAF
0309 4145 RTCENA
0310 6001 ION
0311 6572 DBRD
0312 7640 SZA CLA
0313 4430 PIODER
0314 6097 CAF
0315 4145 RTCENA
0316 6001 ION
0317 6572 DBRD
0318 7640 SZA CLA
0319 4430 PIODER
0320 6097 CAF
0321 4145 RTCENA
0322 6001 ION
0323 6572 DBRD
0324 7640 SZA CLA
0325 4430 PIODER
0326 6097 CAF
0327 4145 RTCENA
0328 6001 ION
0329 6572 DBRD
0330 7640 SZA CLA
0331 4430 PIODER
0332 6097 CAF
0333 4145 RTCENA
0334 6001 ION
0335 6572 DBRD
0336 7640 SZA CLA
0337 4430 PIODER
0338 6097 CAF
0339 4145 RTCENA
0340 6001 ION
0341 6572 DBRD
0342 7640 SZA CLA
0343 4430 PIODER
0344 6097 CAF
0345 4145 RTCENA
0346 6001 ION
0347 6572 DBRD
0348 7640 SZA CLA
0349 4430 PIODER
0350 6097 CAF
0351 4145 RTCENA
0352 6001 ION
0353 6572 DBRD
0354 7640 SZA CLA
0355 4430 PIODER
0356 6097 CAF
0357 4145 RTCENA
0358 6001 ION
0359 6572 DBRD
0360 7640 SZA CLA
0361 4430 PIODER
0362 6097 CAF
0363 4145 RTCENA
0364 6001 ION
0365 6572 DBRD
0366 7640 SZA CLA
0367 4430 PIODER
0368 6097 CAF
0369 4145 RTCENA
0370 6001 ION
0371 6572 DBRD
0372 7640 SZA CLA
0373 4430 PIODER
0374 6097 CAF
0375 4145 RTCENA
0376 6001 ION
0377 6572 DBRD
0378 7640 SZA CLA
0379 4430 PIODER
0380 6097 CAF
0381 4145 RTCENA
0382 6001 ION
0383 6572 DBRD
0384 7640 SZA CLA
0385 4430 PIODER
0386 6097 CAF
0387 4145 RTCENA
0388 6001 ION
0389 6572 DBRD
0390 7640 SZA CLA
0391 4430 PIODER
0392 6097 CAF
0393 4145 RTCENA
0394 6001 ION
0395 6572 DBRD
0396 7640 SZA CLA
0397 4430 PIODER
0398 6097 CAF
0399 4145 RTCENA
0400 6001 ION
0401 6572 DBRD
0402 7640 SZA CLA
0403 4430 PIODER
0404 6097 CAF
0405 4145 RTCENA
0406 6001 ION
0407 6572 DBRD
0408 7640 SZA CLA
0409 4430 PIODER
0410 6097 CAF
0411 4145 RTCENA
0412 6001 ION
0413 6572 DBRD
0414 7640 SZA CLA
0415 4430 PIODER
0416 6097 CAF
0417 4145 RTCENA
0418 6001 ION
0419 6572 DBRD
0420 7640 SZA CLA
0421 4430 PIODER
0422 6097 CAF
0423 4145 RTCENA
0424 6001 ION
0425 6572 DBRD
0426 7640 SZA CLA
0427 4430 PIODER
0428 6097 CAF
0429 4145 RTCENA
0430 6001 ION
0431 6572 DBRD
0432 7640 SZA CLA
0433 4430 PIODER
0434 6097 CAF
0435 4145 RTCENA
0436 6001 ION
0437 6572 DBRD
0438 7640 SZA CLA
0439 4430 PIODER
0440 6097 CAF
0441 4145 RTCENA
0442 6001 ION
0443 6572 DBRD
0444 7640 SZA CLA
0445 4430 PIODER
0446 6097 CAF
0447 4145 RTCENA
0448 6001 ION
0449 6572 DBRD
0450 7640 SZA CLA
0451 4430 PIODER
0452 6097 CAF
0453 4145 RTCENA
0454 6001 ION
0455 6572 DBRD
0456 7640 SZA CLA
0457 4430 PIODER
0458 6097 CAF
0459 4145 RTCENA
0460 6001 ION
0461 6572 DBRD
0462 7640 SZA CLA
0463 4430 PIODER
0464 6097 CAF
0465 4145 RTCENA
0466 6001 ION
0467 6572 DBRD
0468 7640 SZA CLA
0469 4430 PIODER
0470 6097 CAF
0471 4145 RTCENA
0472 6001 ION
0473 6572 DBRD
0474 7640 SZA CLA
0475 4430 PIODER
0476 6097 CAF
0477 4145 RTCENA
0478 6001 ION
0479 6572 DBRD
0480 7640 SZA CLA
0481 4430 PIODER
0482 6097 CAF
0483 4145 RTCENA
0484 6001 ION
0485 6572 DBRD
0486 7640 SZA CLA
0487 4430 PIODER
0488 6097 CAF
0489 4145 RTCENA
0490 6001 ION
0491 6572 DBRD
0492 7640 SZA CLA
0493 4430 PIODER
0494 6097 CAF
0495 4145 RTCENA
0496 6001 ION
0497 6572 DBRD
0498 7640 SZA CLA
0499 4430 PIODER
0500 6097 CAF
0501 4145 RTCENA
0502 6001 ION
0503 6572 DBRD
0504 7640 SZA CLA
0505 4430 PIODER
0506 6097 CAF
0507 4145 RTCENA
0508 6001 ION
0509 6572 DBRD
0510 7640 SZA CLA
0511 4430 PIODER
0512 6097 CAF
0513 4145 RTCENA
0514 6001 ION
0515 6572 DBRD
0516 7640 SZA CLA
0517 4430 PIODER
0518 6097 CAF
0519 4145 RTCENA
0520 6001 ION
0521 6572 DBRD
0522 7640 SZA CLA
0523 4430 PIODER
0524 6097 CAF
0525 4145 RTCENA
0526 6001 ION
0527 6572 DBRD
0528 7640 SZA CLA
0529 4430 PIODER
0530 6097 CAF
0531 4145 RTCENA
0532 6001 ION
0533 6572 DBRD
0534 7640 SZA CLA
0535 4430 PIODER
0536 6097 CAF
0537 4145 RTCENA
0538 6001 ION
0539 6572 DBRD
0540 7640 SZA CLA
0541 4430 PIODER
0542 6097 CAF
0543 4145 RTCENA
0544 6001 ION
0545 6572 DBRD
0546 7640 SZA CLA
0547 4430 PIODER
0548 6097 CAF
0549 4145 RTCENA
0550 6001 ION
0551 6572 DBRD
0552 7640 SZA CLA
0553 4430 PIODER
0554 6097 CAF
0555 4145 RTCENA
0556 6001 ION
0557 6572 DBRD
0558 7640 SZA CLA
0559 4430 PIODER
0560 6097 CAF
0561 4145 RTCENA
0562 6001 ION
0563 6572 DBRD
0564 7640 SZA CLA
0565 4430 PIODER
0566 6097 CAF
0567 4145 RTCENA
0568 6001 ION
0569 6572 DBRD
0570 7640 SZA CLA
0571 4430 PIODER
0572 6097 CAF
0573 4145 RTCENA
0574 6001 ION
0575 6572 DBRD
0576 7640 SZA CLA
0577 4430 PIODER
0578 6097 CAF
0579 4145 RTCENA
0580 6001 ION
0581 6572 DBRD
0582 7640 SZA CLA
0583 4430 PIODER
0584 6097 CAF
0585 4145 RTCENA
0586 6001 ION
0587 6572 DBRD
0588 7640 SZA CLA
0589 4430 PIODER
0590 6097 CAF
0591 4145 RTCENA
0592 6001 ION
0593 6572 DBRD
0594 7640 SZA CLA
0595 4430 PIODER
0596 6097 CAF
0597 4145 RTCENA
0598 6001 ION
0599 6572 DBRD
0600 7640 SZA CLA
0601 4430 PIODER
0602 6097 CAF
0603 4145 RTCENA
0604 6001 ION
0605 6572 DBRD
0606 7640 SZA CLA
0607 4430 PIODER
0608 6097 CAF
0609 4145 RTCENA
0610 6001 ION
0611 6572 DBRD
0612 7640 SZA CLA
0613 4430 PIODER
0614 6097 CAF
0615 4145 RTCENA
0616 6001 ION
0617 6572 DBRD
0618 7640 SZA CLA
0619 4430 PIODER
0620 6097 CAF
0621 4145 RTCENA
0622 6001 ION
0623 6572 DBRD
0624 7640 SZA CLA
0625 4430 PIODER
0626 6097 CAF
0627 4145 RTCENA
0628 6001 ION
0629 6572 DBRD
0630 7640 SZA CLA
0631 4430 PIODER
0632 6097 CAF
0633 4145 RTCENA
0634 6001 ION
0635 6572 DBRD
0636 7640 SZA CLA
0637 4430 PIODER
0638 6097 CAF
0639 4145 RTCENA
0640 6001 ION
0641 6572 DBRD
0642 7640 SZA CLA
0643 4430 PIODER
0644 6097 CAF
0645 4145 RTCENA
0646 6001 ION
0647 6572 DBRD
0648 7640 SZA CLA
0649 4430 PIODER
0650 6097 CAF
0651 4145 RTCENA
0652 6001 ION
0653 6572 DBRD
0654 7640 SZA CLA
0655 4430 PIODER
0656 6097 CAF
0657 4145 RTCENA
0658 6001 ION
0659 6572 DBRD
0660 7640 SZA CLA
0661 4430 PIODER
0662 6097 CAF
0663 4145 RTCENA
0664 6001 ION
0665 6572 DBRD
0666 7640 SZA CLA
0667 4430 PIODER
0668 6097 CAF
0669 4145 RTCENA
0670 6001 ION
0671 6572 DBRD
0672 7640 SZA CLA
0673 4430 PIODER
0674 6097 CAF
0675 4145 RTCENA
0676 6001 ION
0677 6572 DBRD
0678 7640 SZA CLA
0679 4430 PIODER
0680 6097 CAF
0681 4145 RTCENA
0682 6001 ION
0683 6572 DBRD
0684 7640 SZA CLA
0685 4430 PIODER
0686 6097 CAF
0687 4145 RTCENA
0688 6001 ION
0689 6572 DBRD
0690 7640 SZA CLA
0691 4430 PIODER
0692 6097 CAF
0693 4145 RTCENA
0694 6001 ION
0695 6572 DBRD
0696 7640 SZA CLA
0697 4430 PIODER
0698 6097 CAF
0699 4145 RTCENA
0700 6001 ION
0701 6572 DBRD
0702 7640 SZA CLA
0703 4430 PIODER
0704 6097 CAF
0705 4145 RTCENA
0706 6001 ION
0707 6572 DBRD
0708 7640 SZA CLA
0709 4430 PIODER
0710 6097 CAF
0711 4145 RTCENA
0712 6001 ION
0713 6572 DBRD
0714 7640 SZA CLA
0715 4430 PIODER
0716 6097 CAF
0717 4145 RTCENA
0718 6001 ION
0719 6572 DBRD
0720 7640 SZA CLA
0721 4430 PIODER
0722 6097 CAF
0723 4145 RTCENA
0724 6001 ION
0725 6572 DBRD
0726 7640 SZA CLA
0727 4430 PIODER
0728 6097 CAF
0729 4145 RTCENA
0730 6001 ION
0731 6572 DBRD
0732 7640 SZA CLA
0733 4430 PIODER
0734 6097 CAF
0735 4145 RTCENA
0736 6001 ION
0737 6572 DBRD
0738 7640 SZA CLA
0739 4430 PIODER
0740 6097 CAF
0741 4145 RTCENA
0742 6001 ION
0743 6572 DBRD
0744 7640 SZA CLA
0745 4430 PIODER
0746 6097 CAF
0747 4145 RTCENA
0748 6001 ION
0749 6572 DBRD
0750 7640 SZA CLA
0751 4430 PIODER
0752 6097 CAF
0753 4145 RTCENA
0754 6001 ION
0755 6572 DBRD
0756 7640 SZA CLA
0757 4430 PIODER
0758 6097 CAF
0759 4145 RTCENA
0760 6001 ION
0761 6572 DBRD
0762 7640 SZA CLA
0763 4430 PIODER
0764 6097 CAF
0765 4145 RTCENA
0766 6001 ION
0767 6572 DBRD
0768 7640 SZA CLA
0769 4430 PIODER
0770 6097 CAF
0771 4145 RTCENA
0772 6001 ION
0773 6572 DBRD
0774 7640 SZA CLA
0775 4430 PIODER
0776 6097 CAF
0777 4145 RTCENA
0778 6001 ION
0779 6572 DBRD
0780 7640 SZA CLA
0781 4430 PIODER
0782 6097 CAF
0783 4145 RTCENA
0784 6001 ION
0785 6572 DBRD
0786 7640 SZA CLA
0787 4430 PIODER
0788 6097 CAF
0789 4145 RTCENA
0790 6001 ION
0791 6572 DBRD
0792 7640 SZA CLA
0793 4430 PIODER
0794 6097 CAF
0795 4145 RTCENA
0796 6001 ION
0797 6572 DBRD
0798 7640 SZA CLA
0799 4430 PIODER
0800 6097 CAF
0801 4145 RTCENA
0802 6001 ION
0803 6572 DBRD
0804 7640 SZA CLA
0805 4430 PIODER
0806 6097 CAF
0807 4145 RTCENA
0808 6001 ION
0809 6572 DBRD
0810 7640 SZA CLA
0811 4430 PIODER
0812 6097 CAF
0813 4145 RTCENA
0814 6001 ION
0815 6572 DBRD
0816 7640 SZA CLA
0817 4430 PIODER
0818 6097 CAF
0819 4145 RTCENA
0820 6001 ION
0821 6572 DBRD
0822 7640 SZA CLA
0823 4430 PIODER
0824 6097 CAF
0825 4145 RTCENA
0826 6001 ION
0827 6572 DBRD
0828 7640 SZA CLA
0829 4430 PIODER
0830 6097 CAF
0831 4145 RTCENA
0832 6001 ION
0833 6572 DBRD
0834 7640 SZA CLA
0835 4430 PIODER
0836 6097 CAF
0837 4145 RTCENA
0838 6001 ION
0839 6572 DBRD
0840 7640 SZA CLA
0841 4430 PIODER
0842 6097 CAF
0843 4145 RTCENA
0844 6001 ION
0845 6572 DBRD
0846 7640 SZA CLA
0847 4430 PIODER
0848 6097 CAF
0849 4145 RTCENA
0850 6001 ION
0851 6572 DBRD
0852 7640 SZA CLA
0853 4430 PIODER
0854 6097 CAF
0855 4145 RTCENA
0856 6001 ION
0857 6572 DBRD
0858 7640 SZA CLA
0859 4430 PIODER
0860 6097 CAF
0861 4145 RTCENA
0862 6001 ION
0863 6572 DBRD
0864 7640 SZA CLA
0865 4430 PIODER
0866 6097 CAF
0867 4145 RTCENA
0868 6001 ION
0869 6572 DBRD
0870 7640 SZA CLA
0871 4430 PIODER
0872 6097 CAF
0873 4145 RTCENA
0874 6001 ION
0875 6572 DBRD
0876 7640 SZA CLA
0877 4430 PIODER
0878 6097 CAF
0879 4145 RTCENA
0880 6001 ION
0881 6572 DBRD
0882 7640 SZA CLA
0883 4430 PIODER
0884 6097 CAF
0885 4145 RTCENA
0886 6001 ION
0887 6572 DBRD
0888 7640 SZA CLA
0889 4430 PIODER
0890 6097 CAF
0891 4145 RTCENA
0892 6001 ION
0893 6572 DBRD
0894 7640 SZA CLA
0895 4430 PIODER
0896 6097 CAF
0897 4145 RTCENA
0898 6001 ION
0899 6572 DBRD
0900 7640 SZA CLA
0901 4430 PIODER
0902 6097 CAF
0903 4145 RTCENA
0904 6001 ION
0905 6572 DBRD
0906 7640 SZA CLA
0907 4430 PIODER
0908 6097 CAF
0909 4145 RTCENA
0910 6001 ION
0911 6572 DBRD
0912 7640 SZA CLA
0913 4430 PIODER
0914 6097 CAF
0915 4145 RTCENA
0916 6001 ION
0917 6572 DBRD
0918 7640 SZA CLA
0919 4430 PIODER
0920 6097 CAF
0921 4145 RTCENA
0922 6001 ION
0923 6572 DBRD
0924 7640 SZA CLA
0925 4430 PIODER
0926 6097 CAF
0927 4145 RTCENA
0928 6001 ION
0929 6572 DBRD
0930 7640 SZA CLA
0931 4430 PIODER
0932 6097 CAF
0933 4145 RTCENA
0934 6001 ION
0935 6572 DBRD
0936 7640 SZA CLA
0937 4430 PIODER
0938 6097 CAF
0939 4145 RTCENA
0940 6001 ION
0941 6572 DBRD
0942 7640 SZA CLA
0943 4430 PIODER
0944 6097 CAF
0945 4145 RTCENA
0946 6001 ION
0947 6572 DBRD
0948 7640 SZA CLA
0949 4430 PIODER
0950 6097 CAF
0951 4145 RTCENA
0952 6001 ION
0953 6572 DBRD
0954 7640 SZA CLA
0955 4430 PIODER
0956 6097 CAF
0957 4145 RTCENA
0958 6001 ION
0959 6572 DBRD
0960 7640 SZA CLA
0961 4430 PIODER
0962 6097 CAF
0963 4145 RTCENA
0964 6001 ION
0965 6572 DBRD
0966 7640 SZA CLA
0967 4430 PIODER
0968 6097 CAF
0969 4145 RTCENA
0970 6001 ION
0971 6572 DBRD
0972 7640 SZA CLA
0973 4430 PIODER
0974 6097 CAF
0975 4145 RTCENA
0976 6001 ION
0977 6572 DBRD
0978 7640 SZA CLA
0979 4430 PIODER
0980 6097 CAF
0981 4145 RTCENA
0982 6001 ION
0983 6572 DBRD
0984 7640 SZA CLA
0985 4430 PIODER
0986 6097 CAF
0987 4145 RTCENA
0988 6001 ION
0989 6572 DBRD
0990 7640 SZA CLA
0991 4430 PIODER
0992 6097 CAF
0993 4145 RTCENA
0994 6001 ION
0995 6572 DBRD
0996 7640 SZA CLA
0997 4430 PIODER
0998 6097 CAF
0999 4145 RTCENA

```

0267	4427	ERROR	/NO, INIT FAILED TO CLEAR BUFFER
0270	1041	TAD INTFLG	/GET THE PROGRAM INTERRUPT FLAG
0271	7640	SZA CLA	
0272	4427	ERROR	/PROGRAM INTERRUPTED WITHOUT INT ENA SET
0273	1424	DONLOP	/DONE OR REPEAT TEST IF SR=1
 ***** /TEST 19 - IS ONLY TESTED WHEN THE SIMULATOR IS SELECTED, THE TEST /CHECKS THAT STROBE CAN BE SET BY DBSS AND TP3 AND THAT TIME STATE 1 /CAN CLEAR IT, *****			
0274	4423	TEST19, LOOPPC	/SETUP TEST COUNT AND TEST LOOP ADDRESS
0275	7777	=1	/SIMULATOR ITERATION COUNTER
0276	4436	SIMCHK	/CHECK TO SEE IF SIMULATOR IS SELECTED
0277	4000	4000	/SIMULATOR CONTROL WORD
0300	4437	LOADSIM	/LOAD THE CONTROL WORD
0311	1021	TAD OP1SEL	/RECHECK THE SIMULATOR BIT
0302	2557	AND K200	/MASK OUT FOR SIMULATOR BIT
0303	7640	SZA CLA	/IS IT SET?
0304	5307	JMP ,+3	/YES GO CHECK THAT STROBE SETS AND CLEARS
0305	5766	JMP I ,+1	/GO TO NEXT TEST
0306	6530	TEST23	/ADDRESS OF THE NEXT TEST
0307	6007	CAF	/CLEAR ALL FLAGS
0310	4445	RTCENA	/SET REAL TIME CLOCK INT ENA
0311	3041	DCA INTFLG	/CLEAR THE PROGRAM INTERRUPT FLAG
0312	6001	ION	/TURN THE INTERRUPT ON
0313	6156	CLRDET	/CLEAR SIMULATOR DETECTOR F/F'S
0314	6167	SKPSTR	/SKIP ON STROBE DETECTOR F/F SET
0315	7610	SKP CLA	
0316	4427	ERROR	/STROBE IS SET TO A ONE
0317	6577	DBSS	/ISSUE A STROBE PULSE
0320	7440	SZA	
0321	4427	ERROR	/DBSS SKIPPED OR READ SOMETHING INTO THE AC
0322	6167	SKPSTR	/SKIP ON STROBE DETECTOR F/F SET
0323	4427	ERROR	/DBSS FAILED TO SET STROBE OR SIMULATOR DETECTOR F/F
0324	6156	CLRDET	/CLEAR READER RUN AND STROBE DETECTOR F/F
0325	6167	SKPSTR	/SKIP ON STROBE DETECTOR F/F SET
0326	7410	SKP	
0327	4427	ERROR	/STROBE STILL SET OR DETECTOR F/F DIDN'T CLEAR
0330	6577	DBSS	/ISSUE ANOTHER STROBE PULSE
0331	6167	SKPSTR	/SKIP ON STROBE DETECTOR F/F SET
0332	4427	ERROR	/DBSS FAILED TO SET STROBE OR DETECTOR F/F
0333	6156	CLRDET	/CLEAR READER RUN AND STROBE DETECTOR F/F
0334	6167	SKPSTR	/SKIP ON STROBE DETECTOR F/F SET
0335	7410	SKP	
0336	4427	ERROR	/STROBE STILL SET OR DETECTOR F/F DIDN'T 0
0337	1041	TAD INTFLG	/CHECK THAT THE PROGRAM DIDN'T INTERRUPT
0340	7640	SZA CLA	
0341	4427	ERROR	/PROGRAM INTERRUPTED
0342	6002	ION	/TURN THE INTERRUPT ON
0343	4424	DONLOP	/REPEAT TEST IF SR = 1000

 ***** /TEST 20 - IS ONLY TESTED WHEN SIMULATOR IS SELECTED, THE TEST CHECKS /THAT DATA AVAILABLE CAN BE SET BY DBTD AND CLEARED BY CAF, *****			
0344	4423	TEST20, LOOPPC	/SETUP TEST COUNT AND TEST LOOP ADDRESS
0345	7777	=1	/SIMULATOR ITERATION COUNTER
0346	4436	SIMCHK	/CHECK TO SEE IF SIMULATOR IS SELECTED
0347	4000	4000	/SIMULATOR CONTROL WORD
0350	4437	LOADSIM	/LOAD THE CONTROL WORD
0351	6037	CAF	/CLEAR ALL FLAGS
0352	4145	RTCENA	/SET REAL TIME CLOCK INT ENA
0353	3041	DCA INTFLG	/CLEAR THE PROGRAM INTERRUPT FLAG
0354	6001	ION	/TURN THE INTERRUPT ON
0355	6156	CLRDET	/CLEAR SIMULATOR DETECTOR F/F'S
0356	6165	SKPDVA	/SKIP ON DATA AVAILABLE DETECTOR F/F
0357	7610	SKP CLA	
0362	4427	ERROR	/CAF FAILED TO CLEAR DATA AVAIL, OR IT IS STUCK ON
0361	6574	DBTD	/TRANSMIT AND SET DATA READY AND DATA AVAILABLE
0362	6571	DBSK	/SKIP ON DATA READY
0363	4427	ERROR	/DBTD FAILED TO SET DATA READY
0364	6165	SKPDVA	/SKIP ON DATA AVAILABLE DETECTOR F/F
0365	4427	ERROR	/DATA AVAILABLE FAILED TO SET
0366	6156	CLRDET	/CLEAR DETECTOR F/F'S
0367	6165	SKPDVA	/SKIP ON DATA AVAILABLE DETECTOR F/F
0370	4427	ERROR	/DATA AVAILABLE GOT CLEARED
0371	6007	CAF	/CLEAR ALL FLAGS
0372	4145	RTCENA	/SET REAL TIME CLOCK INT ENA
0373	6001	ION	/TURN THE INTERRUPT ON
0374	6156	CLRDET	/CLEAR THE SIMULATOR DETECTOR F/F'S
0375	6165	SKPDVA	/SKIP ON DATA AVAILABLE DETECTOR F/F
0376	7610	SKP CLA	
0377	4427	ERROR	/INIT FAILED TO CLEAR DATA AVAILABLE
0400	6571	DBSK	/SKIP ON DATA READY
0401	7610	SKP CLA	
0402	4427	ERROR	/INIT FAILED TO CLEAR DATA READY
0403	1041	TAD INTFLG	/GET THE PROGRAM INTERRUPT FLAG
0404	7640	SZA CLA	
0405	4427	ERROR	/ERROR, PROGRAM INTERRUPTED
0406	4424	DONLOP	/DONE, OR REPEAT TEST IF SR=1000
 ***** /TEST 21 - IS ONLY TESTED WHEN THE SIMULATOR IS SELECTED, THE TEST CHECKS /THAT DBTD WILL SET DATA AVAILABLE AND THAT DBST WILL CLEAR IT, *****			
0407	4423	TEST21, LOOPPC	/SETUP TEST COUNT AND TEST LOOP ADDRESS
0410	7777	=1	/SIMULATOR ITERATION COUNTER
0411	4436	SIMCHK	/CHECK TO SEE IF THE SIMULATOR IS SELECTED
0412	4000	4000	/SIMULATOR CONTROL WORD
0413	4437	LOADSIM	/LOAD THE SIMULATOR CONTROL WORD
0414	6007	CAF	/CLEAR ALL FLAGS
0415	4145	RTCENA	/SET REAL TIME CLOCK INT ENA
0416	3041	DCA INTFLG	/CLEAR PROGRAM INTERRUPT FLAG
0417	6001	ION	/TURN THE INTERRUPT ON

```

0420 6156 CLRDET /CLEAR SIMULATOR DETECTOR F/F'S
0421 6165 SKPDAV /SKIP ON SIMULATOR DATA AVAIL, DETECTOR F/F
0422 7610 SKP CLA
0423 4427 ERROR /DATA AVAILABLE SET AFTER INITIALIZE
0424 6574 DBTD /TRANSMIT & SET DATA AVAILABLE AND DATA READY
0425 6571 DBSK /SKIP ON DATA READY
0426 4427 ERROR /DATA READY FLAG NOT SET
0427 6165 SKPDAV /SKIP ON DATA AVAILABLE DETECTOR F/F
0430 4427 ERROR /DBTD FAILED TO SET DATA AVAILABLE
0431 6156 CLRDET /CLEAR SIMULATOR DETECTOR F/F'S
0432 6165 SKPDAV /SKIP ON DATA AVAILABLE DETECTOR F/F
0433 4427 ERROR /DATA AVAILABLE GOT CLEARED
0434 6573 DBCF /CLEAR DATA READY FLAG SET DATA ACCEPTED
0435 6571 DBSK /SKIP ON DATA READY FLAG
0436 7610 SKP CLA
0437 4427 ERROR /DBCFS FAILED TO CLEAR DATA READY
0442 6156 CLRDET /CLEAR SIMULATOR DETECTOR F/F'S
0441 6165 SKPDAV /SKIP ON SIMULATOR DETECTOR F/F
0442 4427 ERROR /DATA AVAILABLE GOT CLEARED
0443 6570 DBST /SKIP ON DATA ACCEPTED, ? DATA AVAILABLE
0444 4427 ERROR /DBCFS FAILED TO SET DATA ACCEPTED
0445 6156 CLRDET /CLEAR SIMULATOR DETECTOR F/F'S
0446 6165 SKPDAV /SKIP ON DATA AVAILABLE SIMULATOR DETECTOR F/F
0447 7610 SKP CLA
0450 4427 ERROR /DBST FAILED TO CLEAR DATA AVAILABLE
0451 6570 DBST /SKIP ON DATA ACCEPTED
0452 7610 SKP CLA
0453 4427 ERROR /1ST DBST FAILED TO CLEAR DATA ACCEPTED
0454 1041 TAD INTFLG /GET THE PROGRAM INTERRUPT FLAG
0455 7640 SEA CLA
0456 4427 ERROR /PROGRAM INTERRUPTED
0457 4424 DNLDP /DONE OR REPEAT TEST IS SR = 1000

```

//TEST 22 = IS ONLY TESTED WHEN SIMULATOR IS SELECTED, THE TEST CHECKS
//THAT DATA AVAILABLE CAN BE SET BY DBTD AND CLEARED BY "TS1".

```

0462 4423 TEST22, LOOPPC /SETUP TEST COUNT AND TEST LOOP ADDRESS
0461 7777 =1 /SIMULATOR ITERATION COUNTER
0462 4436 SIMCHK /CHECK FOR SIMULATOR
0463 6000 6000 /SIMULATOR CONTROL WORD
0464 4437 LOOSIM /LOAD THE CONTROL WORD
0465 6007 CAF /CLEAR ALL FLAGS
0466 4145 RTCENA /SET REAL TIME CLOCK INT ENA
0467 6001 ION /TURN THE INTERRUPT ON
0472 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
0471 6156 CLRDET /CLEAR SIMULATOR DETECTOR F/F'S
0472 6165 SKPDAV /SKIP ON DATA AVAILABLE DETECTOR F/F
0473 7610 SKP CLA
0474 4427 ERROR /DATA AVAILABLE SET AFTER INITIALIZE
0475 6574 DBTD /TRANSMIT & SET DATA READY AND DATA AVAILABLE,
0476 6571 DBSK /SKIP ON DATA READY
0477 4427 ERROR /DBTD FAILED TO SET DATA READY
0500 6165 SKPDAV /SKIP ON DATA AVAILABLE

```

```

0501 4427 ERROR /DBTD FAILED TO SET DATA AVAILABLE
0502 6156 CLRDET /CLEAR SIMULATOR DETECTOR F/F'S
0503 6165 SKPDAV /SKIP ON DATA AVAILABLE DETECTOR F/F
0504 7610 SKP CLA
0505 4427 ERROR /TS1 FAILED TO CLEAR DATA AVAILABLE
0506 6007 CAF /CLEAR ALL FLAGS
0507 4145 RTCENA /SET REAL TIME CLOCK INT ENA
0512 6001 ION /TURN THE INTERRUPT BACK ON
0511 6571 DBSK /SKIP ON DATA READY
0512 7610 SKP CLA
0513 4427 ERROR /INIT FAILED TO CLEAR DATA READY
0514 6574 DBTD /TRANSMIT & SET DATA READY AND DATA AVAILABLE
0515 6165 SKPDAV /SKIP ON DATA AVAILABLE DETECTOR F/F
0516 4427 ERROR /DATA AVAILABLE FAILED TO SET
0517 6156 CLRDET /CLEAR SIMULATOR DETECTOR F/F'S
0522 6165 SKPDAV /SKIP ON DATA AVAILABLE DETECTOR F/F
0521 7610 SKP CLA
0522 4427 ERROR /TS1 FAILED TO CLEAR DATA AVAILABLE
0523 6007 CAF /CLEAR ALL FLAGS
0524 6571 DBSK /SKIP ON DATA READY
0525 7610 SKP CLA
0526 4427 ERROR /INIT FAILED TO CLEAR DATA READY
0527 4424 DNLDP /DONE OR REPEAT TEST IF SR = 1000

```

//FIRST SECTION OF SERIAL LINE UNIT DIAGNOSTIC
//TEST 23 = TRY TO CLEAR SLU INT ENA BY ISSUING A KIE COMMAND, THEN TEST THE SLU XMIT
//FLAG TO SET BY TFL AND CLEAR BY TCF, THE FLAG IS CHECKED WITH TSF AND SPI, IF AN
//INTERRUPT OCCURRED, IT MAY BE DUE TO INT ENA NOT BEING CLEARED BY KIE AND DATA BIT 11 ON A 0.

```

0533 4103 TEST23, JMS PATCH /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0531 1252 SKPCHN /SIMULATOR ITERATION COUNTER
0532 4423 LOOPPC /CHECK TO SEE IF SIMULATOR IS SELECTED
0533 7777 =1 /CONTROL WORD FOR THE SIMULATOR
0534 4436 SIMCHK /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
0535 4000 4000 /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
0536 4437 LOOSIM /OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
0537 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
0542 6007 CAF /CLEAR ALL FLAGS + SET SLU INT ENA
0541 4145 RTCENA /SET REAL TIME CLOCK INT ENA
0542 6001 ION /TURN THE INTERRUPT ON
0543 6031 KSF /CHECK TO SEE IF RECEIVE FLAG IS A 0
0544 7610 SKP CLA
0545 4427 ERROR /RECEIVE FLAG SET OR KSF SKIPPED
0546 6035 KIE /CLEAR SLU INT ENA
0547 7610 SKP CLA
0552 4427 ERROR /KIE SKIPPED,
0551 1043 TAD INTFLG /PROGRAM INTERRUPTED
0552 7640 SEA CLA /SET THE TRANSMIT FLAG
0553 4427 ERROR
0554 6000 TFL
0555 7410 SKP

```

/DKC8-AA OPTION TEST 1 MAINDEG=08=DJOKA=B-L 1K PART 2 PAL10 V142A 16-JUN-75 9102 PAGE 2-10

```

0556 4427   ERROR          /TFL SKIPPED
0557 6041   TSF           /SKIP ON XMIT FLAG
0560 4427   ERROR          /TFL + TP3 FAILED TO SET XMIT FLAG OR NO SKIP OCCURRED
0561 6045   SPI           /SKIP ON XMIT/RECEIVE + INT ENA ON A 1
0562 7410   SKP           /SPI SKIPPED OR KIE AND DATA 11 L FAILED TO CLEAR INT ENA
0563 4427   ERROR          /SKIP ON RECEIVE FLAG
0564 6031   KSF           /RECEIVE FLAG SET BY ABOVE CODE
0565 7410   SKP           /GET THE PROGRAM INTERRUPT FLAG
0566 4427   ERROR          /PROGRAM INTERRUPTED WITHOUT INT ENA SET
0567 1041   TAD INTFLG    /CLEAR TRANSMIT FLAG
0570 7640   SZA CLA        /TCF SKIPPED
0571 4427   ERROR          /SKIP ON XMIT FLAG
0572 6042   TCF           /TCF + TP3 FAILED TO CLEAR XMIT FLAG
0573 7410   SKP           /SKIP ON XMIT/RECEIVE + INT ENA ON A 1
0574 4427   ERROR          /TCF SKIPPED
0575 6041   TSF           /SKIP ON XMIT FLAG
0576 7410   SKP           /RECEIVE FLAG GOT SET BY ABOVE CODE
0577 4427   ERROR          /GET THE PROGRAM INTERRUPT FLAG
0600 6045   SPI           /PROGRAM INTERRUPTED WITHOUT INT ENA + FLAG
0601 7610   SKP CLA        /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2#1
0602 4427   ERROR          /CLEAR PROGRAM INTERRUPT FLAG
0603 6031   KSF           /SIMCHK
0604 7610   SKP CLA        /TEST 24 - CHECKS THAT CAF WILL CLEAR THE TRANSMIT FLAG, THE PROGRAM
0605 4427   ERROR          /CHECKS THAT NO INTERRUPTIONS OCCURRED,
0606 1041   TAD INTFLG    /*****END*****
0607 7640   SZA CLA
0610 4427   ERROR          /CAF WILL CLEAR THE TRANSMIT FLAG
0611 4424   DONLDP         /TEST 24 - CHECKS THAT CAF WILL CLEAR THE TRANSMIT FLAG

```

```

0612 4423   TEST24, LOOPPC  /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0613 7777   =1             /SIMULATOR ITERATION COUNTER
0614 4436   SIMCHK        /CHECK TO SEE IF SIMULATOR IS SELECTED
0615 4000   4000          /CONTROL WORD FOR THE SIMULATOR
0616 4437   LODSIM         /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
0617 3041   DCA INTFLG    /LOOP # THIS ADDRESS IF SIMULATOR SELECTED
0620 6007   CAF           /CLEAR PROGRAM INTERRUPT FLAG
0621 4145   RTCENA        /SET REAL TIME CLOCK INT ENA
0622 6001   ION           /TURN THE INTERRUPT ON
0623 6035   KIE           /CLEAR SLU INT ENA
0624 6040   TFL           /SET THE TRANSMIT FLAG
0625 6041   TSF           /SKIP ON THE XMIT FLAG
0626 4427   ERROR          /TFL AND TP3 FAILED TO SET THE XMIT FLAG
0627 6045   SPI           /SKIP ON XMIT/RECEIVE + INT ENA
0630 7410   SKP           /RECEIVE FLAG SET BY ABOVE CODE
0631 4427   ERROR          /CLEAR ALL FLAGS
0632 6007   CAF           /PROGRAM INTERRUPTED WITHOUT INT ENA SET OR KIE FAILED
0633 6041   TSF           /REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2#1
0634 7410   SKP           /CLEAR PROGRAM INTERRUPT FLAG

```

/DKC8-AA OPTION TEST 1 MAINDEG=08=DJOKA=B-L 1K PART 2 PAL10 V142A 16-JUN-75 9102 PAGE 2-11

```

0635 4427   ERROR          /BBUF INIT HIGH FAILED TO CLEAR XMIT FLAG
0636 1041   TAD INTFLG    /GET THE PROGRAM INTERRUPT FLAG
0637 7640   SZA CLA        /PROGRAM INTERRUPTED CHECK INT ENA
0640 4427   ERROR          /SKIP ON RECEIVE FLAG
0641 6031   KSF           /RECEIVE FLAG SET BY ABOVE CODE
0642 7610   SKP CLA        /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1
0643 4427   ERROR          /*****END*****
0644 4424   DONLDP         /TEST 25 - CHECK THAT CAF WILL SET SLU INT ENABLE AND THAT KIE
0645 4423   TEST25, LOOPPC /AND DATA 11 ON A 0 WILL CLEAR IT USING XMIT FLAG TO INTERRUPT ON,
0646 7777   =1             /SPI IS CHECKED TO SKIP AND NOT TO SKIP,
0647 4436   SIMCHK        /*****END*****
0650 4000   4000          /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0651 4437   LODSIM         /SIMULATOR ITERATION COUNTER
0652 3041   DCA INTFLG    /CHECK TO SEE IF SIMULATOR IS SELECTED
0653 6037   CAF           /CONTROL WORD FOR THE SIMULATOR
0654 4145   RTCENA        /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
0655 6021   ION           /LOOP # THIS ADDRESS IF SIMULATOR SELECTED
0656 6041   TSF           /CLEAR PROGRAM INTERRUPT FLAG
0657 7410   SKP           /CLEAR ALL FLAGS BUT SET SLU INTERRUPT ENABLE
0660 4427   ERROR          /SET REAL TIME CLOCK INT ENA
0661 6045   SPI           /TURN THE INTERRUPT ON
0662 7410   SKP           /SKIP ON XMIT FLAG
0663 4427   ERROR          /XMIT FLAG SET AFTER A CAF
0664 1041   TAD INTFLG    /SKIP ON XMIT/RECEIVE AND INT ENA ON A 1
0665 7640   SZA CLA        /RECEIVE FLAG SET BY ABOVE CODE
0666 4427   ERROR          /GET THE PROGRAM INTERRUPT FLAG
0667 6040   TFL           /PROGRAM INTERRUPTED WITHOUT XMIT FLAG
0668 6041   TSF           /SET THE TRANSMIT FLAG
0669 4427   ERROR          /SKIP ON THE TRANSMIT FLAG
0670 6045   SPI           /TFL FAILED TO SET THE XMIT FLAG
0671 4427   ERROR          /SKIP ON XMIT FLAG AND INT ENA ON A 1
0672 6045   TSF           /CAF FAILED TO SET SLU INT ENA OR SPI DIDN'T SKIP
0673 4427   ERROR          /DID THE PROGRAM INTERRUPT WITH XMIT + INT ENA
0674 2041   ISE INTFLG    /PROGRAM FAILED TO INTERRUPT WITH XMIT + INT ENA SET
0675 4427   ERROR          /CLEAR THE ACCUMULATED
0676 7200   CLA           /CLEAR INT ENA ON SLU
0677 6035   KIE           /CLEAR PROGRAM INTERRUPT FLAG
0678 3041   DCA INTFLG    /TURN THE INTERRUPT BACK ON
0679 6001   ION           /SKIP ON TRANSMIT FLAG
0680 6041   TSF           /XMIT FLAG GOT CLEARED
0681 4427   ERROR          /SKIP ON XMIT AND INT ENA ON A 1
0682 6045   SPI           /KIE AND DATA 11 FAILED TO CLEAR INT ENA
0683 7410   SKP           /GET THE PROGRAM INTERRUPT FLAG
0684 4427   ERROR          /PROGRAM INTERRUPTED WITHOUT INT ENA SET
0685 6042   TCF           /CLEAR XMIT FLAG

```

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 1K PART 2 PAL10 V142A 16-JUN-75 9102 PAGE 2-12

```

0713 6041      TSF           /SKIP ON TRANSMIT FLAG
0714 7410      SKP           /TCF FAILED TO CLEAR XMIT FLAG
0715 4427      ERROR         /SKIP ON RECEIVE FLAG
0716 6031      KSF           /RECEIVE FLAG GOT SET BY ABOVE CODE
0717 7410      SKP           /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1
0720 4427      ERROR         /TEST 26 = CHECKS THAT SLU INT ENA CAN BE SET AND CLEARED BY KIE
0721 4424      DONLOP        /AND DATA BIT 11 USING THE XMIT FLAG TO INTERRUPT ON
*****  

/TEST 26 = CHECKS THAT SLU INT ENA CAN BE SET AND CLEARED BY KIE  

/AND DATA BIT 11 USING THE XMIT FLAG TO INTERRUPT ON
*****  

0722 4423      TEST26, LOOPPC   /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0723 7777      #1             /SIMULATOR ITERATION COUNTER
0724 4436      SIMCHK        /CHECK TO SEE IF SIMULATOR IS SELECTED
0725 4000      4000          /CONTROL WORD FOR THE SIMULATOR
0726 4437      LOOSIM         /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
0727 3041      DCA INTFLG    /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
0730 6007      CAF           /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
0731 4145      RTCENA        /CLEAR PROGRAM INTERRUPT FLAG
0732 6035      KIE           /CLEAR ALL FLAGS
0733 6001      ION           /SET REAL TIME CLOCK INT ENA
0734 6040      TFL           /CLEAR SLU INTERRUPT ENABLE
0735 6041      TSF           /TURN THE INTERRUPT ON
0736 4427      ERROR         /SET THE TRANSMIT FLAG
0737 6045      SPI           /SKIP ON TRANSMIT FLAG
0740 7610      SKP CLA       /TFL FAILED TO SET TRANSMIT FLAG
0741 4427      ERROR         /SKIP ON XMIT/RECEIVE + INT ENA ON A 1
0742 1041      TAD INTFLG    /ERROR, INT ENA SET OR KIE FAILED TO CLEAR INT ENA
0743 7640      SEA CLA       /GET THE PROGRAM INTERRUPT FLAG
0744 4427      ERROR         /PROGRAM INTERRUPTED WITHOUT INT ENA SET
0745 7301      CLA CLL IAC   /SET DATA 11 TO A 1
0746 6035      KIE           /SET INT ENA
0747 6041      TSF           /SKIP ON TRANSMIT FLAG
0750 4427      ERROR         /XMIT FLAG GOT CLEARED
0751 6045      SPI           /SKIP ON XMIT + INT ENA ON A 1
0752 4427      ERROR         /KIE AND DATA 11 ON A 1 FAILED TO SET INT ENA
0753 7200      CLA           /PROGRAM FAILED TO INTERRUPT WITH INT ENA & XMIT FLAG
0754 2041      ISZ INTFLG    /CLEAR INTERRUPT ENABLE
0755 4427      ERROR         /TURN THE INTERRUPT ON
0756 3041      DCA INTFLG    /SKIP ON XMIT FLAG
0757 6035      KIE           /XMIT FLAG CLEARED
0760 6001      ION           /SKIP ON XMIT & INT ENA ON A 1
0761 6041      TSF           /KIE + DATA 11 ON A 2 FAILED TO CLEAR INT ENA
0762 4427      ERROR         /GET THE PROGRAM INTERRUPT FLAG
0763 6045      SPI           /PROGRAM INTERRUPTED WITHOUT INT ENA SET
0764 7610      SKP CLA       /CLEAR THE XMIT FLAG
0765 4427      ERROR         /TEST 27 = CHECKS THAT TLS WILL CLEAR THE XMIT FLAG AND THEN SET IT WITH
0766 1041      TAD INTFLG    /RCV DATA AVAILABLE H TO SET RECEIVE FLAG, THE RECEIVE FLAG IS CHECKED TO
0767 7640      SEA CLA       /SKIP AND INTERRUPT AND THEN TO CLEAR BY KCF,
0770 4427      ERROR         /*****  

0771 6042      TCP           /TEST 27 = CHECKS THAT TLS WILL CLEAR THE XMIT FLAG AND THEN SET IT WITH
0772 6041      TSF           /RCV DATA AVAILABLE H TO SET RECEIVE FLAG, THE RECEIVE FLAG IS CHECKED TO
0773 7610      SKP CLA       /SKIP ON SLU XMIT FLAG
0774 4427      ERROR         /TCF FAILED TO CLEAR XMIT FLAG
0775 6031      KSF           /SKIP ON RECEIVE FLAG
0776 7610      SKP CLA       /RECEIVE FLAG SET BY ABOVE CODE
0777 4427      ERROR         /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1
*****  

/TEST 27 = CHECKS THAT TLS WILL CLEAR THE XMIT FLAG AND THEN SET IT WITH  

/XMIT BUFF MT H, THE PROGRAM THEN CLEARS THE XMIT FLAG AND WAITS FOR  

/RCV DATA AVAILABLE H TO SET RECEIVE FLAG, THE RECEIVE FLAG IS CHECKED TO  

/SKIP AND INTERRUPT AND THEN TO CLEAR BY KCF,
*****  

0801 4423      TEST27, LOOPPC   /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0802 7740      #40            /SIMULATOR ITERATION COUNTER
0803 4436      SIMCHK        /CHECK TO SEE IF SIMULATOR IS SELECTED
0804 4000      4000          /CONTROL WORD FOR THE SIMULATOR
0805 4437      LOOSIM         /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
0806 3041      DCA INTFLG    /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
0807 6007      CAF           /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
0810 4145      RTCENA        /CLEAR PROGRAM INTERRUPT FLAG
0811 6001      ION           /CLEAR ALL FLAGS BUT SET SLU INT ENA
0812 5040      TFL           /SET REAL TIME CLOCK INT ENA
0813 6041      TSF           /TURN THE INTERRUPT ON
0814 4427      ERROR         /SET THE TRANSMIT FLAG
0815 6045      SPI           /SKIP ON XMIT FLAG
0816 4427      ERROR         /TRANSMIT FLAG FAILED TO SET BY TFL
0817 2041      ISZ INTFLG    /SKIP ON XMIT FLAG AND INT ENA ON A 1
0818 4427      ERROR         /SPI FAILED TO SKIP WITH INT ENA + FLAG SET
0819 6046      TLS           /DID THE PROGRAM INTERRUPT?
0820 7610      SKP CLA       /PROGRAM FAILED TO INTERRUPT WITH XMIT AND INT ENA SET
0821 4427      ERROR         /LOAD TRANSMIT BUFFER, TRANSMIT AND CLEAR XMIT FLAG
0822 6001      ION           /TLS SKIPPED
0823 6041      TSF           /TURN THE INTERRUPT ON
0824 7610      SKP CLA       /SKIP ON THE TRANSMIT FLAG
0825 4427      ERROR         /TLS FAILED TO CLEAR XMIT FLAG
0826 7610      SKP CLA       /WAIT FOR TRANSMIT FLAG TO SET
0827 4427      ERROR         /XMIT BUFF MT FAILED TO SET XMIT FLAG
0828 4431      TSFWAT        /DID THE PROGRAM INTERRUPT?
0829 4427      ERROR         /ERROR, NO INTERRUPT WITH XMIT AND INT ENA SET
0830 2041      ISZ INTFLG    /SKIP ON SLU INTERRUPT (XMIT SIDE)
0831 4427      ERROR         /FAILED TO SKIP OR INT ENA OR FLAG GOT CLEARED
0832 6041      TSF           /CLEAR TRANSMIT FLAG
0833 4427      ERROR         /TURN THE INTERRUPT ON
0834 6045      SPI           /WAIT FOR THE RECEIVE FLAG TO SET
0835 4427      ERROR         /NO SKIP, OR RECEIVE FLAG NOT SET BY RCD DATA AVAILABLE
0836 6042      TCF           /SKIP ON RCV FLAG AND INT ENA
0837 6001      ION           /NO SIDE OF RCV FLAG NOT LOW OR FAILED TO INTERRUPT
0838 4432      KSFWAT        /DID RCD AND INT ENA CAUSE AN INTERRUPT?
0839 4427      ERROR         /NO, ERROR
0840 6030      KCF           /CLEAR RECEIVE FLAG

```

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 1K PART 2 PAL10 V142A 16-JUN-75 9102 PAGE 2-13

```

0772 6041      TSF           /SKIP ON SLU XMIT FLAG
0773 7610      SKP CLA       /TCF FAILED TO CLEAR XMIT FLAG
0774 4427      ERROR         /SKIP ON RECEIVE FLAG
0775 6031      KSF           /RECEIVE FLAG SET BY ABOVE CODE
0776 7610      SKP CLA       /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1
*****  

/TEST 27 = CHECKS THAT TLS WILL CLEAR THE XMIT FLAG AND THEN SET IT WITH
/XMIT BUFF MT H, THE PROGRAM THEN CLEARS THE XMIT FLAG AND WAITS FOR
/RCV DATA AVAILABLE H TO SET RECEIVE FLAG, THE RECEIVE FLAG IS CHECKED TO
/SKIP AND INTERRUPT AND THEN TO CLEAR BY KCF,
*****  

1001 4423      TEST27, LOOPPC   /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
1002 7740      #40            /SIMULATOR ITERATION COUNTER
1003 4436      SIMCHK        /CHECK TO SEE IF SIMULATOR IS SELECTED
1004 4000      4000          /CONTROL WORD FOR THE SIMULATOR
1005 4437      LOOSIM         /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
1006 3041      DCA INTFLG    /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
1007 6007      CAF           /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
1010 4145      RTCENA        /CLEAR PROGRAM INTERRUPT FLAG
1011 6001      ION           /CLEAR ALL FLAGS BUT SET SLU INT ENA
1012 5040      TFL           /SET REAL TIME CLOCK INT ENA
1013 6041      TSF           /TURN THE INTERRUPT ON
1014 4427      ERROR         /SET THE TRANSMIT FLAG
1015 6045      SPI           /SKIP ON XMIT FLAG
1016 4427      ERROR         /TRANSMIT FLAG FAILED TO SET BY TFL
1017 2041      ISZ INTFLG    /SKIP ON XMIT FLAG AND INT ENA ON A 1
1018 4427      ERROR         /SPI FAILED TO SKIP WITH INT ENA + FLAG SET
1019 6046      TLS           /DID THE PROGRAM INTERRUPT?
1020 7610      SKP CLA       /PROGRAM FAILED TO INTERRUPT WITH XMIT AND INT ENA SET
1021 4427      ERROR         /LOAD TRANSMIT BUFFER, TRANSMIT AND CLEAR XMIT FLAG
1022 6001      ION           /TLS SKIPPED
1023 6041      TSF           /TURN THE INTERRUPT ON
1024 7610      SKP CLA       /SKIP ON THE TRANSMIT FLAG
1025 4427      ERROR         /TLS FAILED TO CLEAR XMIT FLAG
1026 7610      SKP CLA       /WAIT FOR TRANSMIT FLAG TO SET
1027 4427      ERROR         /XMIT BUFF MT FAILED TO SET XMIT FLAG
1028 4431      TSFWAT        /DID THE PROGRAM INTERRUPT?
1029 4427      ERROR         /ERROR, NO INTERRUPT WITH XMIT AND INT ENA SET
1030 2041      ISZ INTFLG    /SKIP ON SLU INTERRUPT (XMIT SIDE)
1031 4427      ERROR         /FAILED TO SKIP OR INT ENA OR FLAG GOT CLEARED
1032 6041      TSF           /CLEAR TRANSMIT FLAG
1033 4427      ERROR         /TURN THE INTERRUPT ON
1034 6045      SPI           /WAIT FOR THE RECEIVE FLAG TO SET
1035 4427      ERROR         /NO SKIP, OR RECEIVE FLAG NOT SET BY RCD DATA AVAILABLE
1036 6042      TCF           /SKIP ON RCV FLAG AND INT ENA
1037 6001      ION           /NO SIDE OF RCV FLAG NOT LOW OR FAILED TO INTERRUPT
1038 4432      KSFWAT        /DID RCD AND INT ENA CAUSE AN INTERRUPT?
1039 4427      ERROR         /NO, ERROR
1040 6030      KCF           /CLEAR RECEIVE FLAG

```

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 2 PAL10 V142A 16=JUN=75 9102 PAGE 2*14

1047 7610	SKP CLA	
1050 4427	ERROR	/KCF SKIPPED
1051 6001	ION	/TURN THE INTERRUPT ON
1052 6031	KSF	/SKIP ON RECEIVE FLAG
1053 7610	SKP CLA	
1054 4427	ERROR	/KCF + TPC FAILED TO CLEAR RECEIVE FLAG
1055 1041	TAD INTFLG	/GET THE PROGRAM INTERRUPT FLAG
1056 7640	S2A CLA	
1057 4427	ERROR	/PROGRAM INTERRUPTED WITH RCV FLAG CLEARED
1062 6041	TSF	/SKIP ON XMIT FLAG
1061 7610	SKP CLA	
1062 4427	ERROR	/TRANSMIT FLAG GOT RESET BY ABOVE CODE
1063 4424	DONLDP	/REPEAT TEST IF NOT DONE OR SCOPE LOOP IF SR2=1
<hr/>		
/*TEST 28 * CHECKS THAT TPC WILL NOT CLEAR XMIT FLAG AND THAT IT WILL		
/RESET IT, TEST 28 ALSO CHECKS THAT THE RECEIVE FLAG WILL SET AND THAT IT		
/CAN BE CLEARED BY KCC;		
<hr/>		
1064 4423	TEST28, LOOPC	/SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
1065 7740	=40	/SIMULATOR ITERATION COUNTER
1066 4436	SIMCHK	/CHECK TO SEE IF SIMULATOR IS SELECTED
1067 4000	4000	/CONTROL WORD FOR THE SIMULATOR
1070 4437	LOADSIM	/LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
		/LOOP = THIS ADDRESS IF SIMULATOR SELECTED
		/OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
1071 3041	DCA INTFLG	/CLEAR PROGRAM INTERRUPT
1072 6007	CAF	/CLEAR ALL FLAGS BUT SET SLU INT ENA
1073 4145	RTCENA	/SET REAL TIME CLOCK INT ENA
1074 6001	ION	/TURN THE INTERRUPT ON
1075 6040	TFI	/SET THE TRANSMIT FLAG
1076 6041	TSF	/SKIP ON TRANSMIT FLAG
1077 4427	ERROR	/TFL FAILED TO SET XMIT FLAG
1102 2041	ISZ INTFLG	
1121 4427	ERROR	/PROGRAM FAILED TO INTERRUPT
1122 6244	TPC	/LOAD TRANSMIT BUFFER AND TRANSMIT
1123 7610	SKP CLA	
1124 4427	ERROR	/TPC SKIPPED
1125 6041	TSF	/SKIP ON XMIT FLAG
1126 4427	ERROR	/TPC CLEARED XMIT FLAG
1127 6042	TCF	/CLEAR TRANSMIT FLAG
1112 6001	ION	/TURN THE INTERRUPT BACK ON
1111 4431	TSFWAT	/WAIT FOR XMIT BUFF MT H TO SET XMIT FLAG
1112 4427	ERROR	/TPC FAILED TO SET XMIT FLAG
1113 2041	ISZ INTFLG	/CHECK TO SEE IF PROGRAM INTERRUPTED
1114 4427	ERROR	/PROGRAM FAILED TO INTERRUPT WITH XMIT FLAG + INT ENA
1115 6242	TCF	/CLEAR THE TRANSMIT FLAG
1116 6001	ION	/TURN THE INTERRUPT ON
1117 4432	KSFWAT	/WAIT FOR RECEIVE FLAG TO SET
1120 4427	ERROR	/RECEIVE FLAG FAILED TO SET BY A TPC COMMAND
1121 6045	SPI	/SKIP ON RCV FLAG AND INT ENA
1122 4427	ERROR	/FAILED TO SKIP
1123 2041	ISZ INTFLG	/DID THE PROGRAM INTERRUPT
1124 4427	ERROR	/FAILED TO INTERRUPT WITH RCV AND INT ENA SET

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 2 PAL10 V142A 16=JUN=75 9102 PAGE 2*15

1125 6032	KCC	/CLEAR THE RECEIVE FLAG
1126 7610	SKP CLA	
1127 4427	ERROR	/KCC SKIPPED
1130 6001	ION	/TURN THE INTERRUPT ON
1131 6031	KSF	/SKIP ON RECEIVE FLAG
1132 7610	SKP CLA	
1133 4427	ERROR	/KCC FAILED TO CLEAR RCV FLAG
1134 1041	TAD INTFLG	/GET THE PROGRAM INTERRUPT FLAG
1135 7640	S2A CLA	
1136 4427	ERROR	/PROGRAM INTERRUPTED WITH RCV FLAG CLEARED
1137 4424	DONLDP	/REPEAT TEST IF NOT DONE OR LOOP ON TEST IF SR2=1
1140 5440	PRGEND	/END OF 2ND 1K SEGMENT

IFDEF OP13K <PAGE>

IFDEF OP13K <PAGE>

1200 PAGE

/ROUTINE TO SETUP # OF PASSES/TEST AND TO STORE THE RETURN ADDRESS FOR SCOPE LOOPING

1200 3000	PCLOOP, 0	
1201 7340	CIA CLL CMA	
1202 1200	TAD PCLOOP	
1203 3045	DCA TEST	
1204 1600	TAD I PCLOOP	
1205 3067	DCA SIMCNT	
1206 7240	CLA CMA	
1207 3050	DCA SAVCNT	
1212 1050	TAD SAVCNT	
1211 3047	DCA TSTCNT	
1212 2230	ISZ PCLOOP	
1213 5600	JMP I PCLOOP	
1214 2000	SIMLOO, 0	
1215 1055	TAD CONTWD	/GET THE CONTROL WORD
1216 6151	LOADSM	/LOAD THE SIMULATOR CONTROL WORD
1217 7300	CLA CLL	
1222 5614	JMP I SIMLOO	
1221 2000	LOPDON, 0	
1222 2047	ISZ TSTCNT	/TEST DONE?
1223 5446	JMP I TSTLDP	/NO RETURN TO TEST
1224 1021	TAD DP1SEL	/IS THE SIMULATOR SELECTED
1225 0057	AND K200	

```

1226 7650      SNA CLA
1227 5237      JMP LOOPSW /SIMULATOR NOT SELECTED, CHECK TEST LOOP SWITCH
1230 2067      ISZ SIMCNT /ADD A 1 TO THE CONTROL WORD?
1231 7610      SKP CLA
1232 5237      JMP LOOPSW /NO, CHECK TEST LOOP SWITCH
1233 2055      ISZ CONTWD /ADD 1 TO THE CONTROL WORD FOR BAUD RATES
1234 1050      TAD SAVCNT /GET THE TEST COUNT
1235 3047      DCA TSTCNT /RESTORE IT FOR A NEW PASS FOR A DIFFERENT BAUD
1236 5446      JMP I TSTLOP /RETURN FOR NEW BAUD RATE
1237 4435      LOOPSW, SWHCHK /CHECK FOR SR2#1
1240 7006      RTL
1241 7700      SMA CLA /LOOP?
1242 5621      JMP I LOPDON /NO, GO TO NEXT TEST
1243 5445      JMP I TEST /YES, LOOP ON THIS TEST

1244 6132      SIMINT, SPL /SKIP ON POWER LOW
1245 7410      SKP
1246 5777'     JMP POWFAL /POWER GOING DOWN = GO SAVE EVERYTHING
1247 3251      DCA AC /SAVE THE AC
1250 5321      JMP FLGCK5 /RETURN TO THE PROGRAM

1251 8000      AC, ? 

1252 6102      SKPCHN, SPL /SKIP ON POWER LOW
1253 7410      SKP
1254 5777'     JMP POWFAL /POWER GOING DOWN SAVE EVERYTHING
1255 3251      DCA AC /SAVE THE AC
1256 1042      TAD CLKFLG /WERE WE EXPECTING A CLOCK INTERRUPT?
1257 7650      SNA CLA
1260 4776'     JMS CHKACT /GO CHECK FOR THE ACT LINE
1261 6137      CLSK /YES = SKIP ON REAL TIME CLOCK FLAG
1262 7410      SKP
1263 5305      JMP FLGCK1 /GO CHECK THE OTHER FLAGS
1264 1133      TAD ACTFLG /GET THE ACT FLAG
1265 7440      S2A /DID THE PROGRAM GO TO THE PROM ?
1266 5300      JMP ACTCK2 /YES, CHECK PARALLEL I/O DATA ACCEPTED
1267 6041      TSF /WAS IT A TRANSMIT FLAG?
1270 7610      SKP CLA
1271 5310      JMP FLGCK2 /TRANSMIT FLAG SET = CHECK THE OTHER FLAGS
1272 6031      KSF /WAS IT A RECEIVE FLAG?
1273 7410      SKP
1274 5313      JMP FLGCK3 /YES = GO CHECK THE OTHER FLAGS
1275 6571      DBSK /WAS THE DATA READY FLAG SET?
1276 7410      SKP
1277 5316      JMP FLGCK4 /YES = CHECK DATA ACCEPTED FLAG
1280 6570      ACTCK2, DBST /HAS DATA ACCEPTED SET=IF SO CLEAR IT
1301 7640      S2A CLA
1302 5317      JMP FLGCK5#2 /YES, THE FLAG SHOULD BE CLEAR NOW
1303 4427      ERROR /ILLEGAL INTERRUPT
1304 5317      JMP FLGCK5#2 /RETURN
1305 6041      TSF /SKIP ON XMIT FLAG
1306 7410      SKP
1307 4427      ERROR /XMIT FLAG SET

```

```

1310 6031      FLGCK2, KSF /SKIP ON RECEIVE FLAG
1311 7410      SKP
1312 4427      ERROR /RECEIVE FLAG SET
1313 6571      FLGCK3, DBSK /SKIP ON P/I/O DATA READY
1314 7410      SKP
1315 4427      ERROR /DATA READY FLAG SET
1316 6570      FLGCK4, DBST /SKIP ON DATA ACCEPTED
1317 7610      SKP CLA
1320 4427      ERROR /DATA ACCEPTED FLAG SET
1321 3133      FLGCK5, DCA ACTFLG /CLEAR THE ACT FLAG
1322 7240      CLA CMA
1323 3041      DCA INTFLG
1324 4775'     JMS RETURN /SET INTERRUPT FLAG
1325 1330      INTRET
1326 1251      TAD AC
1327 5730      JMP I INTRET

1330 8000      INTHET, ? 

/ROUTINE TO WAIT FOR SERIAL LINE UNITS XMIT FLAG
1331 8000      WATTSF, ? 
1332 7300      CLA    CLL
1333 1147      TAD    K7710
1334 3044      DCA    CNT1
1335 3043      DCA    CNT
1336 6041      TSF
1337 4363      JMS    ADDTIM /SKIP ON SLU TRANSMIT FLAG
1338 2331      ISZ    WATTSF /GO ADD ONE TO THE COUNTER
1341 5731      JMP I WATTSF /RETURN TO THE PROGRAM=GOT THE FLAG

/ROUTINE TO WAIT FOR THE SERIAL LINE UNIT RECEIVE FLAG
1342 8000      WATKSF, ? 
1343 7300      CLA    CLL
1344 1147      TAD    K7710
1345 3044      DCA    CNT1
1346 3043      DCA    CNT
1347 6031      KSF
1350 4363      JMS    ADDTIM /SKIP ON SLU RECEIVE FLAG
1351 2342      ISZ    WATKSF /GO ADD A ONE TO THE COUNTER
1352 5742      JMP I WATKSF /RETURN TO THE PROGRAM=GOT THE FLAG

/ROUTINE TO WAIT FOR THE REAL TIME CLOCK FLAG
1353 8000      WTCLSK, ? 
1354 7240      CLA    CMA
1355 3044      DCA    CNT1
1356 3043      DCA    CNT
1357 6137      CLSK
1360 4363      JMS    ADDTIM /SKIP ON THE REAL TIME CLOCK FLAG
1361 2353      ISZ    WTCLSK /GO ADD ONE TO THE COUNTER
1362 5753      JMP I WTCLSK /RETURN TO THE PROGRAM=GOT THE FLAG

```

/ROUTINE TO WAIT FOR THE FLAG

```

1363 0000 ADDTIM: 0
1364 2043 ISZ CNT
1365 7610 SKP CLA
1366 2044 ISZ CNT1
1367 7346 CLA CLL CMA RTL
1370 7001 IAC
1371 1363 TAD ADDTIM
1372 3363 DCA ADDTIM
1373 5763 JMP I ADDTIM

```

```

1375 1420
1376 1544
1377 1441
1378 1400

```

PAGE

/THIS IS THE END OF A PROGRAM PASS; IF SR3=1 HALT; IF NOT START PROGRAM OVER

```

1400 6160 ENDPAS: SIMCLR /CLEAR THE SIMULATOR
1401 4435 SWCHK /GO GET SWITCH REGISTER
1402 7006 RTL
1403 7004 RAL
1404 7710 SPA CLA
1405 7402 HLT /SR3=1 END OF A COMPLETE PROGRAM PASS
1406 5777 JMP 0200 /START PROGRAM OVER

```

/CHECK TO SEE IF FRONT PANEL IS AVAILABLE TO DO EITHER A TAD SWITCH OR A LAS COMMAND

```

1407 0000 CHKSWH: 0
1410 7200 CLA
1411 1021 TAD OP1SEL
1412 7700 SMA CLA
1413 5216 JMP 1+3
1414 7604 LAS
1415 5607 JMP I CHKSWH
1416 1020 TAD SWITCH
1417 5607 JMP I CHKSWH

```

/THIS ROUTINE SETS UP A RETURN ADDRESS FOR INTERRUPT RETURNS FROM ANOTHER FIELD

```

1420 2000 RETURN: 0
1421 4201 CDF /CHANGE DATA FIELD TO FIELD 0
1422 1636 TAD I K0 /GET THE INTERRUPT PC
1423 3237 DCA RETADD /SAVE IT
1424 6224 RIF /READ THE PROGRAM INSTRUCTION FIELD
1425 1131 TAD KCDF /ADD A CDF INSTRUCTION TO IT
1426 3227 DCA 1+1 /SAVE IT IN THE NEXT LOCATION
1427 7402 HLT/CDF /RETURN TO THE PROGRAM DATA FIELD
1430 1620 TAD I RETURN /GET THE INTERRUPT RETURN LOCATION
1431 3240 DCA SAVLOC /SAVE IT
1432 2220 ISZ RETURN

```

```

1433 1237 TAD RETADD
1434 3640 DCA I SAVLOC
1435 5620 JMP I RETURN

```

```

1436 0000 K0, 0
1437 0000 RETADD, 0
1438 0000 SAVLOC, 0

```

/POWER FAIL ROUTINE, THE PROGRAM WILL DO IT'S OWN AUTO-RESTART
 AT THE BEGINNING OF THE TEST THAT IT WAS EXECUTING UNLESS ALL POWER
 WENT AWAY; THEN THE POWER FAIL AUTO-RESTART OPTION WOULD TRY TO DO
 A RESTART IF IT WAS SELECTED;

```

1441 7200 POWFAL: CLA CLA
1442 6201 CDF 00
1443 1265 TAD KJMP7
1444 3636 DCA I K0
1445 1045 TAD TEST
1446 3666 DCA I KTEST
1447 1267 TAD FLGRST
1450 3670 DCA I C7
1451 1132 TAD KRTF
1452 3671 DCA I K10
1453 1272 TAD KJMPRT
1454 3673 DCA I K11
1455 6024 GTF
1456 3674 DCA I K12
1457 6244 RMF
1460 6103 CAL
1461 6102 SPL
1462 7610 SKP CLA
1463 5261 JMP 1+2
1464 9445 JMP I TEST

```

```

1465 5007 KJMP7: JMP 7
1466 0045 KTEST: TEST
1467 1012 FLGRST: TAD 12
1470 2007 C7, 7
1471 2010 K10, 10
1472 5445 KJMPRT: JMP I TEST
1473 0011 K11, 11
1474 0012 K12, 12

```

/LOGIC ERROR ROUTINE = RESTART TEST IF SR1=1

```

1475 0000 AERROR: 0
1476 4326 JMS ACTCHK /GO CHECK TO SEE IF RUNNING ON ACT LINE
1477 4435 SWCHK /CHECK SR0 TO INHIBIT ERROR HALT
1500 7710 SPA CLA
1501 5307 JMP AERSHH /SR0=1 CHECK LOOP ON LOGIC ERROR
1502 7240 CLA CMA
1503 1275 TAD AERROR
1504 7402 HLT /AC = ADDRESS WHERE ERROR WAS DETECTED
1505 4314 JMS SIMWRD /WAS THE SIMULATOR SELECTED

```

```

1506 7402 HLT /AC=SIMULATOR CONTROL WORD
1507 4435 AERSWH, SWHCHK /CHECK SR1#1 TO LOOP ON ERROR
1510 7084 RAL
1511 7700 SMA CLA
1512 5675 JMP I AERROR /RETURN WITHOUT LOOPING ON TEST
1513 5446 JMP I TSTL0P /SCOPE LOOP GO BACK TO START OF TEST SECTION

1514 7000 SIMWRD, 0
1515 7300 CLA CLL
1516 1021 TAD OP1SEL
1517 3057 AND K200
1520 7600 SNA CLA
1521 5324 JMP +3
1522 1055 TAD CONTWD
1523 5714 JMP I SIMWRD
1524 2314 ISZ SIMWRD
1525 5714 JMP I SIMWRD

```

/ROUTINE TO EXIT TO PROM ON AN ERROR IF RUNNING ON THE ACT LINE

```

1526 0000 ACTCHK, 0
1527 7300 CLA CLL
1528 1022 TAD OP2SEL /GET THE HARDWARE CONTROL WORD
1529 7700 SMA CLA /IS THE PROGRAM RUNNING ON THE ACT LINE?
1530 5726 JNP I ACTCHK /NO, RETURN TO ERROR ROUTINE
1531 4002 IOF /TURN THE INTERRUPT OFF
1534 7344 CLA CLL CMA RAL
1535 1326 TAD ACTCHK
1536 3343 DCA ERRPC
1537 7240 CLA CMA
1542 1743 TAD I ERRPC /GET THE LOCATION WHERE THE ERROR WAS DETECTED
1541 6272 CIF 70 /CHANGE INSTRUCTION FIELD TO FIELD 7
1542 5477 JMP I RADPAS /GO TO THE PROM

1543 0000 ERRPC, 0

```

```

1544 0000 CHKACT, 0
1545 6137 CLSK /WAS THE CLOCK FLAG SET
1546 7410 SKP /NO-RETURN TO INT SERVICE ROUTINE
1547 5352 JMP CLKSET /YES-CLEAR THE FLAG
1550 2344 ISZ CHKACT /ADD 1 TO THE INCOMING PC
1551 5744 JMP I CHKACT /RETURN TO SKIP CHAIN
1552 4136 CLKSET, CLCL /CLEAR THE CLOCK FLAG
1553 1922 TAD OP2SEL /GET THE ACT LINE BIT
1554 7710 SPA CLA /IS THE PROGRAM RUNNING ON ACT LINE
1555 5365 JMP ONACTL /YES,CHECK FOR # OF CLOCK TICKS

```

```

1556 5350 JMP CHKACT+4/RETURN TO INTERRUPT ROUTINE
1557 4220 JMS RETURN /NO,RETURN TO THE PROGRAM
1562 1564 ACTRET
1561 1776 TAD AC
1562 6901 ION /TURN THE INTERRUPT ON
1563 5764 JMP I ACTRET /RETURN TO THE PROGRAM
1564 0000 ACTRET, 0
1565 2101 ONACTL, ISZ ACTCNT /100 CLOCK TICKS YET?
1566 5357 JMP CLKSET+5/NO RETURN TO PROGRAM
1567 1102 TAD M144 /RESET ACT TIME COUNTER
1570 3101 DCA ACTCNT /SAVE THE NUMBER
1571 6272 CIF 70 /CHANGE INSTRUCTION FIELD TO 7
1572 4500 JMS I GOODPS /SIGNAL PROM THAT PROGRAM STILLS PAS
1573 7240 CLA CMA
1574 3333 DCA ACTFLG /SET THE ACT LINE FLAG TO ONES
1575 5357 JMP CLKSET+5/RETURN TO THE PROGRAM

1576 1251
1577 5200
1600 PAGE

```

/ROUTINE FOR TRANSMITTING, READING AND COMPARING DATA FOR PARALLEL I/O

```

1600 0000 DATPIO, 0
1601 6007 CAF /CLEAR ALL
1602 4145 RTCENA /SET REAL TIME CLOCK INT ENA
1603 6001 ION /TURN THE INTERRUPT ON
1604 6575 DBSE /SET PARALLEL I/O INT ENA
1605 1051 TAD PIOXMT /GET THE WORD TO BE LOADED INTO PARALLEL I/O
1606 6574 DBTD /LOAD AND TRANSMIT THE WORD
1607 7200 CLA
1612 6571 DBSK /SKIP ON DATA READY
1611 4427 ERROR /ERROR, DATA READY FLAG FAILED TO SET SY DBTD
1612 2041 ISZ INTFLG /GET PROGRAM INTERRUPT FLAG
1613 4427 ERROR /PROGRAM FAILED TO INTERRUPT WITH INT ENA + FLAG SET
1614 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
1615 6572 DBRD /READ THE 12 BIT PARALLEL I/O BUFFER
1616 3052 DCA PIOREC /SAVE THE WORD READ
1617 6571 DBSK /SKIP ON DATA READY FLAG
1620 4427 ERROR /DBRD CLEARED DATA READY FLAG
1621 6573 DBCF /CLEAR DATA READY FLAG
1622 6001 ION /TURN INTERRUPT BACK ON
1623 7000 NOP /SHOULD INTERRUPT HERE FOR DATA ACCEPT FLAG
1624 6570 DBST /SKIP ON DATA ACCEPT
1625 7610 SKP CLA
1626 4427 ERROR /DATA ACCEPT FAILED TO CLEAR IN INTERRUPT ROUTINE
1627 2041 ISZ INTFLG /CHECK TO SEE IT IT INTERRUPTED
1630 4427 ERROR /DATA ACCEPT FLAG FAILED TO INTERRUPT
1631 6001 ION /TURN THE INTERRUPT BACK ON
1632 7000 NOP
1633 1041 TAD INTFLG /GET PROGRAM INTERRUPT FLAG
1634 7640 SEA CLA /DID IT INTERRUPT?
1635 4427 ERROR /PROGRAM INTERRUPTED WITHOUT DATA READY SET
1636 1051 TAD PIOXMT /GET THE WORD TRANSMITTED
1637 7041 CIA

```

/DKC8-AA OPTION TEST 1 MAINDEC=0B=DJDKA-B-L 1K PART 2 PAL10 V142A 16-JUN-75

```

1640 1052      TAD PIOREC    /GET THE WORD READ
1641 7640      SZA CLA     /ARE THEY EQUAL?
1642 5600      JMP I DATPIO  /DATA ERROR RETURN TO REPORT ERROR
1643 6007      CAF          /CLEAR ALL FLAGS AND P I/O BUFFER
1644 4145      RTCENA
1645 6001      ION          /TURN THE INTERRUPT ON
1646 6572      DBRD         /READ THE 12 BIT P I/O BUFFER
1647 7640      SZA CLA     /CAF FAILED TO CLEAR THE 12 BIT DATA BUFFER
1650 4427      ERROR        /BUMP RETURN ADDRESS POINTER BY 1
1651 2200      ISZ DATPIO
1652 5600      JMP I DATPIO  /RETURN TO TEST

```

/ROUTINE FOR TRANSMITTING,READING AND COMPARING DATA FOR SLU

```

1653 0000      DATSLU; %
1654 6007      CAF          /CLEAR ALL FLAGS BUT SET INT ENA ON SLU
1655 4145      RTCENA
1656 6001      ION          /TURN THE INTERRUPT ON
1657 3041      DCA INTFLG   /CLEAR THE PROGRAM INTERRUPT FLAG
1662 1053      TAD SLUXMT   /GET THE WORD TO BE TRANSMITTED
1661 6046      TLS          /LOAD AND TRANSMIT IT AND CLEAR THE FLAG
1662 4431      TSFWAT
1663 4427      ERROR        /WAIT FOR THE TRANSMIT FLAG
1664 2041      ISZ INTFLG   /XMIT FLAG FAILED TO SET
1665 4427      ERROR        /DID THE PROGRAM INTERRUPT?
1666 6042      TCF          /PROGRAM FAILED TO INTERRUPT
1667 6001      ION          /CLEAR THE XMIT FLAG
1670 4432      KSPWAT
1671 4427      ERROR        /TURN THE INTERRUPT BACK ON
1672 2041      ISZ INTFLG   /WAIT FOR THE RECEIVE FLAG TO SET
1673 4427      ERROR        /RECEIVE FLAG FAILED TO SET
1674 6036      KRB          /RECEIVE FLAG FAILED TO CAUSE A INTERRUPT
1675 3054      DCA SLUREC   /CLEAR THE AC AND RCV FLAG AND READ BUFFER
1676 6001      ION          /SAVE THE WORD READ BACK
1677 1041      TAD INTFLG   /TURN THE INTERRUPT BACK ON
1678 7640      SZA CLA     /CHECK THAT KRB CLEARED THE RCV FLAG
1679 4427      ERROR        /KRB FAILED TO CLEAR RCV FLAG OR INTERRUPTED
1682 1053      TAD SLUXHT   /GET THE WORD TRANSMITTED
1683 7041      CIA          /
1684 1054      TAD SLUREC   /GET THE WORD READ BACK
1685 7640      SZA CLA     /AC = ADDRESS WHERE ERROR WAS DETECTED
1686 5653      JMP I DATSLU /DATA ERROR-RETURN TO REPORT THE ERROR
1687 2253      ISZ DATSLU
1688 5653      JMP I DATSLU  /BUMP RETURN ADDRESS POINTER BY ONE
1710 5653      JMP I DATSLU  /RETURN TO TEST

```

/DATA ERROR ROUTINE FOR PARALLEL I/O

```

1711 0000      DERPIO; %
1712 4777'      JMS ACTCHK  /CHECK TO SEE IF RUNNING ON ACT LINE
1713 4435      SWCHCK
1714 7710      SPA CLA     /CHECK SR0 TO INHIBIT ERROR HALT
1715 5327      JMP PIOSWH
1716 7240      CLA CMA     /IS SR0 SET?
1717 5327      JMP PIOSWH  /YES, GO CHECK SR1 TO LOOP ON ERROR

```

/DKC8-AA OPTION TEST 1 MAINDEC=0B=DJDKA-B-L 1K PART 2 PAL10 V142A 16-JUN-75 9102 PAGE 2-23

```

1717 1311      TAD DERPIO
1722 7402      HLT          /AC = ADDRESS WHERE ERROR WAS DETECTED
1721 7200      CLA          /
1722 1051      TAD PIOXHT  /GET THE WORD TRANSMITTED
1723 7402      HLT          /AC = THE GOOD WORD
1724 7200      CLA          /
1725 1052      TAD PIOREC
1726 7402      HLT          /AC = THE BAD WORD = WORD READ
1727 4435      PIOSWH, SWCHCK  /LOOP ON DATA ERROR IF SR1=1
1732 7004      RAL          /
1731 7700      SMA CLA     /LOOP?
1732 5711      JMP I DERPIO  /NO, RETURN TO TEST
1733 5446      JMP I TSTLOP  /RETURN AND DO SAME PATTERN(S)

```

/DATA ERROR ROUTINE FOR SERIAL LINE UNIT

```

1734 0000      DERSLU; %
1735 4777'      JMS ACTCHK  /CHECK TO SEE IF RUNNING ON THE ACT LINE
1736 4435      SWCHCK
1737 7710      SPA CLA     /CHECK SP0=1 TO INHIBIT ERROR HALT
1740 5354      JMP SLUSWH
1741 7240      CLA CMA     /GO CHECK SR1=1 TO LOOP ON ERROR
1742 1334      TAD DERSLU  /
1743 7402      HLT          /AC=ADDRESS WHERE ERROR WAS DETECTED
1744 7200      CLA          /
1745 1053      TAD SLUXHT  /GET THE WORD TRANSMITTED
1746 7402      HLT          /AC=GOOD WORD=THE WORD TRANSMITTED
1747 7200      CLA          /
1750 1054      TAD SLUREC   /GET THE WORD READ
1751 7402      HLT          /AC=THE BAD WORD=THE WORD READ
1752 4776'      JMS SIMWRD  /WAS THE SIMULATOR SELECTED
1753 7402      HLT          /AC=THE SIMULATOR CONTROL WORD
1754 4435      SLUSWH, SWCHCK  /LOOP ON DATA ERROR IF SR1=1
1755 7004      RAL          /
1756 7700      SMA CLA     /LOOP?
1757 5734      JMP I DERSLU  /NO, RETURN TO TEST
1758 5446      JMP I TSTLOP

```

1761 0000 CHKSIM; %
1762 1021 TAD CP1SEL
1763 1057 AND K200
1764 7650 SNA CLA
1765 5371 JMP ,+4
1766 1761 TAD I CHKSIM /GET THE CONTROL WORD
1767 3255 DCA CONTWD /SAVE IT
1770 7410 SKP /
1771 2361 ISZ CHKSIM
1772 2361 ISZ CHKSIM
1773 1361 TAD CHKSIM
1774 3046 DCA TSTLOP
1775 5761 JMP I CHKSIM

/DKC8-AA OPTION TEST 1 MAINDEC=08-DJOKA-B-L 1K PART 2 PAL10 V142A 16-JUN-75 9102 PAGE 2-24

1776	1514
1777	1526
	3200
	*200

5

/DKCB=AA OPTION TEST 1 MAINDEC=08-0 DJOKA-B=L 1K PART 2 PAL10 V142A 16-JUN-75 9102 PAGE 2/25

4000
4100
4200
4300
4400
4500
4600
4700

5000
5100
5200
5300
5400
5500
5600
5700

6000
6100
6200
6300
6400
6500
6600
6700

7000
7100
7200
7300
7400
7500
7600
7700

AC	1251	GOODPS	0100	P10DER	4430	TEST28	1064
ACTCHK	1526	GTF	6004	P10REC	0052	TFL	6040
ACTCK2	1300	HLT	7402	P10SH	1727	TLS	6046
ACTCNT	0181	INACTV	0076	P10XMT	0051	TPC	6044
ACTFLG	0133	INFILG	0041	PNOINT	0075	TSF	6041
ACTRET	1564	INTRET	1330	POWFAL	1441	TSFWAT	4431
ADDTIM	1333	K0	1436	PRGENO	5440	TSTCNT	0047
AERROR	1475	K1	0124	RECFLG	0073	TSTGOD	0135
AERSWH	1587	K10	1471	RETAD0	1437	TSTLDP	0046
BADPAS	0077	K11	1473	RETURN	1420	WATKSF	1342
C7	1470	K12	1474	RMF	6244	WATTSF	1331
CAF	6087	K125	0061	RTCENA	4145	WTCLSK	1353
CAL	6103	K2	0125	RTCFLG	0074	XMTFLG	0072
CHKACT	1544	K200	0057	RTF	6005		
CHKSIM	1761	K252	0060	SAVADD	0123		
CHKSWH	1407	K2525	0063	SAVCNT	0000		
CLCL	6136	K3	0126	SAVLOC	1440		
CLKFLG	0042	K377	0056	SBE	6101		
CLKSET	1552	K5252	0062	SIMCHK	4436		
CLKSNC	0134	K7	0064	SIMCLR	6160		
CLLE	6135	K7710	0147	SIMCNT	0067		
CLROET	6156	KCC	6032	SIMINT	1244		
CLRSIM	6150	KCDF	0131	SIMLDD	1214		
CLSLK	6137	KCF	6030	SIMWRD	1514		
CLSKWT	4425	KIE	6035	SKPCHN	1292		
CNT	0043	KJMP	0127	SKPDVA	6165		
CNT1	0044	KJMP7	1465	SKPFRRQ	6162		
CONTWD	0085	KJMPRT	1472	SKPRDR	6197		
NATPIO	1600	KRB	6030	SKPRTR	6187		
NATSLU	1653	KRMF	0130	SLUDAT	4433		
NBCGE	6576	KRS	6034	SLUDER	4434		
NBCF	6573	KRTF	0132	SLUREC	0084		
DBRO	6572	KSF	6031	SLUSHH	1734		
DBSE	6575	KSFWAT	4432	SLUXMT	0053		
DBSK	6571	KTEST	1466	SPI	6045		
DBSS	6577	LINK	0071	SPL	6102		
DBST	6570	LOADSM	6151	STRFRQ	6161		
DBTD	6574	LODFRQ	6163	SWHCHK	4435		
DERPC	1711	LODSIM	4437	SWITCH	0080		
DERSLU	1734	LOOPPC	4423	TCP	6042		
DONLDP	4424	LOOPSH	1237	TEST	0045		
ENARTO	2145	LOPDON	1221	TEST17	0291		
ENDPAS	1400	M10	0066	TEST18	0222		
ERROR	4427	M144	0102	TEST19	0274		
ERRPC	1543	M4	0065	TEST20	0344		
EXPACD	0070	DNACTL	1565	TEST21	0407		
FLGCK1	1305	OP11K2	0000	TEST22	0400		
FLGCK2	1310	OP1SEL	0021	TEST23	0530		
FLGCK3	1313	OP2SEL	0022	TEST24	0612		
FLGCK4	1316	PATCH	0103	TEST25	0645		
FLGCK5	1321	PCLOOP	1200	TEST26	0722		
FLGRST	1467	PIODAT	4426	TEST27	1001		

/DKC8=AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 2 PAL10 V142A 16=JUN=75 9102 PAGE 2=28

ERRORS DETECTED 0
LINKS GENERATED 9
RUN=TIMEI 19 SECONDS
2K CORE USED

/DKC8=AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 3 PAL10 V142A 16=JUN=75 9104 PAGE 1

/DKC8=AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 3
/COPYRIGHT (C) 1974, 1975 DIGITAL EQUIPMENT CORPORATION
/PROGRAMMER: BRUCE HANSEN
/

||||||||||||||||||||||||||||||||||||||||||||||||||||
/THE FOLLOWING LISTING WILL CORRESPOND TO THE PAPER TAPE LABELED
/MAINDEC=08=DJDKA=B=PN3, 1K VERSION PART 3; THIS PAPER TAPE AND
/LISTING WILL BE THE THIRD OF FOUR 1K SEGMENTED PAPER TAPES
/AND LISTINGS FOR COMPUTERS WITH LESS THAN 4K OF MEMORY,
||||||||||||||||||||||||||||||||||||||||||||||||

```

/DKC8-AA OPTION TEST 1 MAINDEC=0B=DJOKA=B=L 1K PART 3
/
/COPYRIGHT (C) 1974, 1975 DIGITAL EQUIPMENT CORPORATION
/
/PROGRAMMER1 BRUCE HANSEN
/
/PROCESSOR INSTRUCTIONS
6007 CAF#6007 /CLEAR ALL FLAGS
6122 SPL#6102 /SKIP ON AC LOW FLIP-FLOP
6103 CAL#6103 /CLEAR AC LOW FLIP-FLOP
6101 SBE#6101 /SKIP ON BATTERY EMPTY
7402 HLT#7402
6244 RMP#6244 /RESTORE MEMORY FIELD
6005 RTF#6005
6004 GTF#6004

/OPTION BOARD NUMBER 1 IOT'S
/SERIAL LINE UNIT
/RECEIVER IOTS
6030 KCF#6030 /CLEAR RECEIVE FLAG, DON'T SET READER RUN
6031 KSF#6031 /SKIP ON RECEIVE FLAG
6032 KCC#6032 /CLEAR RECEIVE FLAG AND AC, SET READER RUN
6034 KRS#6034 /READ RECEIVE BUFFER
6035 KIE#6035 /AC 11#1 SET INTERRUPT ENABLE
6036 KRB#6036 /AC 11#0 CLEAR INTERRUPT ENABLE
/RECEIVE BUFFER
/TRANSMIT IOTS
6040 TFL#6040 /SET TRANSMIT FLAG
6041 TSF#6041 /SKIP ON TRANSMIT FLAG
6042 TCF#6042 /CLEAR THE TRANSMIT FLAG
6044 TPC#6044 /LOAD TRANSMIT BUFFER AND TRANSMIT
6045 SPI#6045 /SKIP IF TRANSMIT OR RECEIVE FLAG SET AND INT ENA SET TO A 1
6046 TLS#6046 /LOAD TRANSMIT BUFFER, TRANSMIT AND CLEAR TRANSMIT FLAG

/REAL TIME CRYSTAL CLOCK
6135 CLEL#6135 /AC 11#1 SET INTERRUPT ENABLE
6136 CLCL#6136 /CLEAR CLOCK FLAG
6137 CLSK#6137 /SKIP ON CLOCK FLAG

/12 BIT PARALLEL I/O
6570 DBST#6570 /SKIP ON DATA ACCEPTED,CLEAR DATA ACCEPTED AND DATA AVAILABLE
6571 DBSk#6571 /SKIP ON DATA READY FLAG
6572 DBRD#6572 /READ DATA INTO AC 0#11
6573 DBCF#6573 /CLEAR DATA READY FLAG, ISSUE DATA ACCEPTED OUT
6574 DBTO#6574 /LOAD AC 0#11 INTO BUFFER AND TRANSMIT DATA OUT
6575 DBSE#6575 /SET INTERRUPT ENABLE TO A 1
6576 DBCE#6576 /SET INTERRUPT ENABLE TO A 0

```

```

6577 DBSS#6577 /ISSUE A STROBE PULSE
/SWITCH REGISTER SETTINGS
/SR0#1 = INHIBIT ERROR HALT
/SR1#1 = LOOP ON ERROR
/SR2#1 = LOOP ON TEST
/SR3#1 = HALT AT COMPLETION OF A PROGRAM PASS

/OPTION BOARD 1 SIMULATOR IOT'S
6150 CLRSM#6150 /CLEAR SIMULATOR CONTROL REGISTERS
6151 LOADSM#6151 /LOAD SIMULATOR CONTROL WORD 1
6156 CLRDET#6156 /CLEAR READER RUN, STROBE, AND DATA AVAILABLE CATCHER F/F SET
6157 SKPRDR#6157 /SKIP ON READER RUN CATCHER F/F SET
6160 SIMCLR#6160 /CLEAR CONTROL REGISTERS AND MOST OF LOGIC ON SIMULATOR
6161 STRFRQ#6161 /START FREQUENCY CHECK (SLU OR RTC)
6162 SKPFRQ#6162 /SKIP ON FREQUENCY CHECK IN PROGRESS
6163 LODFRG#6163 /READ FREQUENCY COUNT INTO AC
6165 SKPDAV#6165 /SKIP ON DATA AVAILABLE CATCHER F/F SET
6167 SKPSTR#6167 /SKIP ON STROBE CATCHER F/F SET

/OPTION BOARD 1 SIMULATOR CONTROL WORD BIT ASSIGNMENTS
/BIT 0 COUNTER RESET 1=ACTIVATE
/ 2=NO ACTION
/BIT 1 PARALLEL I/O CLEAR DATA 1=TSI
/ AVAILABLE SELECT 2=DATA ACCEPTED IN
/BIT 2 NOT USED
/BIT 3 NOT USED
/BIT 4 NOT USED
/BIT 5 RTC FREQUENCY OR 1=RTC
/ SLU FREQUENCY CHECK 2=SLU BAUD RATES
/BIT 6 REAL TIME CLOCK 1=OFF
/ 2=ON
/BIT 7 SLU EIA/ZDMA SELECT 1=EIA RECEIVE DATA
/ 2=ZD MA RECEIVE DATA
/BIT 8 STOP BIT SELECT 1=1 STOP BITS
/ 2=2 STOP BIT
/BIT 9 BAUD RATE SELECT BIT 9, 10, 11 ALL 0'S
/BIT 10 BAUD RATE SELECT EQUALS 110 BAUD, EACH
/BIT 11 BAUD RATE SELECT INCREASING BIT SELECTS
/ NEXT HIGHEST BAUD RATE;

```

```

0000 2000 *0
0001 2302 302 /PROGRAM REVISION LETTER=MAINDEC=08=DJOKA=B
0001 6244 RMF /RESTORE MEMORY FIELDS
0002 5403 JMP I 3 /RETURN TO INTERRUPT SERVICE ROUTINE
0003 1044 SIMINT/SKPCHN/SIMCHK/RTCTINT/SLUINT /INTERRUPT SERVICE ROUTINES

0020 *20
0020 0000 SWITCH; 2
0021 2000 OPSEL; 2000
0021 2000          /BIT 0=0 USE LOCATION 20 AS A PSEUDO SWITCH REGISTER
0021 2000          /BIT 0=1 USE HARDWARE FRONT PANEL SWITCH REGISTER
0021 2000          /BIT 1=1 HAS OPTION 1
0021 2000          /BIT 2=1 HAS OPTION 2
0021 2000          /BIT 3=1 HAS BA CRU SIMULATOR
0021 2000          /BIT 4=1 HAS BA OPTION 1+2 SIMULATOR
0021 2000          /BIT 5=1 PROGRAM ON PDP-8A XOR (REQUIRES BIT 4 SET ALSO)
0021 2000          /BIT 6=1 HAS PDP-8E TYPE CPU
0021 2000          /BIT 7=11 MEMORY SIZE = 2^K=1K, 37=32K, MEMORY
0021 2000          /SIZE CAN BE INCREASED IN 1K INCREMENTS BY ADDING
0021 2000          /ONE TO THE NUMBER IN BITS 7 = 11
0021 2000          /BIT 8 IS SET FOR THE ACT LINE

0022 0000 OPSEL; 0
0022 0000 LOOPPC=JMS I,
0023 1000 PCLOOP
0024 4423 DONLOOP=JMS I,
0024 4424 LOPDON
0024 1021 CLSKWLT=JMS I,
0025 1153 WICLSK
0025 4425 PIODAT=JMS I,
0026 1400 DATPIO
0026 4426 ERROR=JMS I,
0027 1275 AERROR
0027 4430 PIODER=JMS I,
0028 1511 DERPIO
0028 4431 TSFWAT=JMS I,
0029 1131 WATTSF
0029 4432 KSFWAT=JMS I,
0030 1142 WATKSF
0030 4433 SLUDAT=JMS I,
0031 1483 DATSLU
0031 4434 SLUDER=JMS I,
0032 1534 DERSLU
0032 4435 SWHCHK=JMS I,
0033 1237 CHKSHW
0033 4436 SIMCHK=JMS I,
0034 1581 CHKSIM
0034 4437 LODSIM=JMS I,
0035 1014 SIMLOD
0037 4145 RTCENA=JMS ENARTC

```

```

0040 5440 PRGENO=JMP I,
0042 1200 ENDPAS

/LOCATIONS USED BY THE PROGRAM

0041 0000 INTFLG; 0
0042 0000 CLKFLG; 0
0043 0000 C1T; 0
0044 0000 C1T1; 0
0045 1000 TEST; 0
0046 1000 TSTLDP; 0
0047 1000 TSTCNT; 0
0053 0000 SAVCNT; 0
0051 0000 PI0XNT; 0
0052 0000 PI0REC; 0
0053 0000 SLUXHT; 0
0054 0000 SLUREC; 0
0055 0000 CONTWO; 0
0056 3377 K377; 377
0057 0200 K200; 200
0058 0252 K252; 252
0061 2125 K125; 125
0062 5252 K5252; 5252
0063 2525 K2525; 2525
0064 2007 K7; 7
0065 7774 M4; -4
0066 7770 M10; -10
0067 0000 SIMCNT; 0

0070 0000 EXPACD; 0
0071 4000 LINK; 0
0072 0000 XHTFLG; 0
0073 0000 RECFLG; 0
0074 0000 RTCFLG; 0
0075 0000 PPOINT; 0
0076 0000 IIACTV; 0
0077 6520 BADPAS; 6520 /ACT LINE ERROR RETURN TO FIELD 7
0123 6500 GOODPS; 6500 /ACT LINE GOOD RETURN TO FIELD 7
0101 7634 ACTCNT; -144
0102 7634 "144; -144

```

/ROUTINE TO SETUP FIELD 0 TO HANDLE INTERRUPTS FROM ANOTHER FIELD

```

0103 0000 PATCH; 0
0104 1503 TAD I PATCH /GET THE INTERRUPT SERVICE ADDRESS
0105 3123 DCA SAVADD /SAVE INTERRUPT ADDRESS
0106 6201 CDF /CHANGE DATA FIELD TO FIELD 0
0107 1130 TAD KRMF /GET THE INSTRUCTION RMF
0110 3524 DCA I K1 /PUT IT IN LOCATION 1 OF FIELD 0
0111 1127 TAD KJMP /GET THE INSTRUCTION JMP I 3
0112 3525 DCA I K2 /PUT IT IN LOCATION 2 OF FIELD 0
0113 1123 TAD SAVADD /GET THE INTERRUPT SERVICE ADDRESS
0114 3526 DCA I K3 /PUT IT IN LOCATION 3 IF FIELD 0

```

/DKC8-AA OPTION TEST 1 MAINDEG=08=DJOKA=B=L 1K PART 3 PAL10 V142A 16-JUN-75 9104 PAGE 2-4

```

0115 6224 RIF /GET THE PROGRAM FIELD INTO THE AC
0116 1131 TAD KCDF /AND IT TO THE CDF INSTRUCTION.
0117 3120 DCA ,*4 /PUT IT IN THE NEXT LOCATION
0120 7402 HLT/CDF /EXECUTE IT
0121 2103 ISZ PATCH /ADD 1 TO THE ENTRANCE
0122 5503 JMP I PATCH /RETURN

0123 7000 SAVADD: 0
0124 0001 K1, 1
0125 7002 K2, 2
0126 0003 K3, 3
0127 5403 KJMP, JMP I 3
0130 6244 KRNF, 6244
0131 6201 KCDF, CDF
0132 6005 KRTF, RTF
0133 0000 ACTFLG, 0
0134 0000 CLKNSNC, 0

/
/THIS ROUTINE USED WHEN RUNNING ON THE ACT LINE TO SIGNIFY THAT NO
/ERRORS HAVE BEEN ENCOUNTERED

0135 0000 TSTGOD: 0
0136 1022 TAD OP2SEL /GET THE HARDWARE FLAG
0137 7700 SMA CLA /ARE WE ON THE ACT LINE?
0138 5535 JMP I TSTGOD /NO, RETURN TO THE PROGRAM
0141 4002 IOF /TURN THE INTERRUPT OFF
0142 6272 CIF, 70 /CHANGE THE INSTRUCTION TO FIELD 7
0143 4500 JMS I GOODPS /GO TO PROM
0144 5535 JMP I TSTGOD /RETURN TO THE PROGRAM

0145 0000 ENARTC, 0
0146 1022 TAD OP2SEL /CHECK TO SEE IF ON ACT LINE
0147 7710 K7710, SPA CLA /IF NOT CLEAR RTC INT ENA
0150 7301 CLA CLL IAC /SET AC BIT 11
0151 6135 CLLE /LOAD BIT 11 INTO CLOCK INT ENA
0152 7200 CLA
0153 5545 JMP I ENARTC

0200 #200
IFDEF OP13K <PAGE>
IFDEF OP13K <PAGE>

/***** TEST 29 - CHECKS THAT KRB WILL CLEAR THE RCV FLAG; THE RCV FLAG
/IS SET BY ISSUING TLS COMMAND;
***** */

0200 6160 SIMCLR
0201 4423 TEST29, LOOPPC /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS

/DKC8-AA OPTION TEST 1 MAINDEG=08=DJOKA=B=L 1K PART 3 PAL10 V142A 16-JUN-75 9104 PAGE 2-5

0202 7775 =3 /SIMULATOR ITERATION COUNTER
0203 4103 JNS PATCH /SET UP SKIP CHAIN
0204 1052 SKPCHN /SET INTERRUPT TO IGNORE RTC
0205 3842 DCA CLKFLG /CHECK TO SEE IF SIMULATOR IS SELECTED
0206 4436 SIMCHK /CONTROL WORD FOR THE SIMULATOR
0207 4017 4017 /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
0210 4437 LOOSIM /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
/OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
/CLEAR PROGRAM INTERRUPT FLAG
0211 3041 DCA INTFLG /CLEAR ALL FLAGS AND SET SLU INT ENA
0212 6007 CAF /SET REAL TIME CLOCK INT ENA
0213 4145 RTCENA /TURN THE INTERRUPT ON
0214 6001 ION /TRANSMIT AND CLEAR THE FLAG
0215 6046 TLS /WAIT FOR THE XMIT FLAG TO SET
0216 4431 TSFWAT /XMIT FLAG FAILED TO SET BY TLS
0217 4427 ERROR /DID THE PROGRAM INTERRUPT
0220 2041 ISZ INTFLG /FAILED TO INTERRUPT WITH INT ENA AND XMIT FLAG
0221 4427 ERROR /CLEAR XMIT FLAG
0222 6242 TCF /TURN THE INTERRUPT ON
0223 6001 ION /WAIT FOR THE RCV FLAG TO SET
0224 4432 KSFWAT /RECEIVE FLAG FAILED TO SET
0225 4427 ERROR /READ THE RECEIVE BUFFER
0226 6034 KRS
0227 7610 SKP CLA
0230 4427 ERROR /KRS SKIPPED
0231 6031 KSF /SKIP ON RECEIVE FLAG
0232 4427 ERROR /KRS CLEARED THE RCV FLAG
0233 2041 ISZ INTFLG /DID THE PROGRAM INTERRUPT
0234 4427 ERROR /FAILED TO INTERRUPT WITH INT ENA + RCV FLAG
0235 6036 KRB /CLEAR RECEIVE FLAG
0236 7610 SKP CLA
0237 4427 ERROR /KRB SKIPPED
0240 6001 ION /TURN THE INTERRUPT BACK ON
0241 6031 KSF /SKIP ON RECEIVE FLAG
0242 7610 SKP CLA
0243 4427 ERROR /KRB FAILED TO CLEAR RECEIVE FLAG
0244 1041 TAD INTFLG /GET THE PROGRAM INTERRUPT FLAG
0245 7640 S2A CLA
0246 4427 ERROR /PROGRAM INTERRUPTED WITHOUT RCV FLAG SET
0247 4424 D0NLOP /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1

/***** TEST 30 - CHECKS THAT CAF WILL CLEAR RCV FLAG
***** */

0250 4423 TEST30, LOOPPC /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0251 7775 =3 /SIMULATOR ITERATION COUNTER
0252 4436 SIMCHK /CHECK TO SEE IF SIMULATOR IS SELECTED
0253 4017 4017 /CONTROL WORD FOR THE SIMULATOR
0254 4437 LOOSIM /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
/LOOP = THIS ADDRESS IF SIMULATOR SELECTED
/OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
/CLEAR PROGRAM INTERRUPT FLAG
0255 3041 DCA INTFLG /CLEAR ALL FLAGS
0256 6007 CAF /SET REAL TIME CLOCK INT ENA
0257 4145 RTCENA

```

0262	6001	ION	/TURN THE INTERRUPT ON
0261	6046	TLS	/TRANSMIT AND CLEAR THE XMIT FLAG
0262	4431	TSFWAT	/WAIT FOR XMIT FLAG
0263	4427	ERROR	/XMIT FLAG FAILED TO SET
0264	2041	ISZ INTFLG	/DID THE PROGRAM INTERRUPT?
0265	4427	ERROR	/PROGRAM FAILED TO INTERRUPT
0266	6042	TCF	/CLEAR TRANSMIT FLAG
0267	6001	ION	
0270	4432	TSFWAT	
0271	4427	ERROR	
0272	2041	ISZ INTFLG	
0273	4427	ERROR	
0274	6037	CAF	/CLEAR ALL FLAGS
0275	6001	ION	/TURN THE INTERRUPT BACK ON
0276	6031	KSF	/SKIP ON RECEIVE FLAG
0277	7610	SKP CLA	
0300	4427	ERROR	/INITIALIZE FAILED TO CLEAR RECEIVE FLAG
0301	4424	DONLOP	/REPEAT TEST IF NOT DONE OR LOOP IF SR2=1

/TEST 31 = CHECKS THE EFFECT OF THE SLU I/O'S UPON THE AC

0302	4423	TEST31, LOOPPC	/SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0303	7777	*1	/SIMULATOR ITERATION COUNTER
0304	4436	SIMCHK	/CHECK TO SEE IF SIMULATOR IS SELECTED
0305	4007	4007	/CONTROL WORD FOR THE SIMULATOR
0306	4437	LODSIM	/LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
0307	3041	DCA INTFLG	/LOOP = THIS ADDRESS IF SIMULATOR SELECTED
0312	6007	CAF	/OTHERWISE SCOPE LOOP IS THIS ADDRESS *1
0311	4145	RTGENA	/CLEAR PROGRAM INTERRUPT FLAG
0312	6001	ION	/CLEAR ALL FLAGS
0313	7344	CLA CLL CMA RAL	/SET REAL TIME CLOCK INT ENA
0314	6035	KIE	/TURN THE INTERRUPT ON
0315	7050	CMA RAR	/SET THE AC TO -2
0316	7620	SNL CLA	/CLEAR SLU INTERRUPT ENABLE
0317	4427	ERROR	
0322	7240	CLA CMA	/KIE CHANGED THE AC
0321	6032	KCC	/CLEAR RECEIVE FLAG AND AC
0322	7640	SEA CLA	/KCC FAILED TO CLEAR THE AC
0323	4427	ERROR	
0324	7240	CLA CMA	/READ RECEIVE FLAG; CLEAR AC AND READ RECEIVE BUFFER
0325	6036	KRB	
0326	7510	SPA	/KRB FAILED TO CLEAR AC
0327	4427	ERROR	
0330	7240	CLA CMA	/READ RECEIVE BUFFER = INCLUSIVE OR WITH AC
0331	6034	KRS	/SET THE AC BACK TO 2
0332	7040	CMA	
0333	7640	SEA CLA	/KRS CHANGED THE AC
0334	4427	ERROR	
0335	7340	CLA CLL CMA	/SKIP ON RECEIVE FLAG
0336	6031	KSF	
0337	7040	CMA	

0340	7640	SZA CLA	/KSF CHANGED THE AC
0341	4427	ERROR	
0342	7240	CLA CMA	/CLEAR RECEIVE FLAG
0343	6030	KCF	
0344	7040	CMA	
0345	7640	SZA CLA	/KCF CHANGED THE AC
0346	4427	ERROR	
0347	7240	CLA CMA	/SET TRANSMIT FLAG
0350	6040	TFL	
0351	7640	CMA	
0352	7640	SZA CLA	/TFL CHANGED THE AC
0353	4427	ERROR	
0354	7240	CLA CMA	/CLEAR THE TRANSMIT FLAG
0355	6042	TCF	
0356	7240	CMA	
0357	7640	SZA CLA	/TCF CHANGED THE AC
0360	4427	ERROR	
0361	7240	CLA CMA	/SKIP ON TRANSMIT FLAG
0362	6041	TSF	
0363	7040	CMA	
0364	7640	SZA CLA	/TSF CHANGED THE AC
0365	4427	ERROR	
0366	7240	CLA CMA	/LOAD TRANSMIT BUFFER AND TRANSMIT
0367	6044	TPC	
0373	7640	CMA	
0371	7640	SZA CLA	/TPC CHANGED THE AC
0372	4427	ERROR	
0373	4431	TSFWAT	/WAIT FOR THE TRANSMIT FLAG
0374	4427	ERROR	/TRANSMIT FLAG FAILED TO SET
0375	4432	KSFWAT	/WAIT FOR THE RECEIVE FLAG
0376	4427	ERROR	/RECEIVE FLAG FAILED TO SET
0377	6042	TCF	/CLEAR THE XMIT FLAG
0402	6030	KCF	/CLEAR THE RECEIVE FLAG
0401	7240	CLA CMA	
0402	6045	SPI	/SKIP IF XMIT/RCV FLAG SET AND INT ENA SET
0403	7040	CMA	
0404	7640	SZA CLA	/SPI CHANGED THE AC
0405	4427	ERROR	
0406	7240	CLA CMA	/LOAD TRANSMIT BUFFER, TRANSMIT + CLEAR FLAG
0407	6046	TLS	
0410	7040	CMA	
0411	7640	SZA CLA	/TLS CHANGED THE AC
0412	4427	ERROR	
0413	4431	TSFWAT	/WAIT FOR THE TRANSMIT FLAG
0414	4427	ERROR	/TRANSMIT FLAG FAILED TO SET
0415	4432	KSFWAT	/WAIT FOR THE RECEIVE FLAG TO SET
0416	4427	ERROR	/ERROR RECEIVE FLAG FAILED TO SET
0417	6042	TCF	/CLEAR THE TRANSMIT FLAG
0420	6032	KCC	/CLEAR AC AND RECEIVE FLAG
0421	1041	TAD INTFLG	/DID THE PROGRAM INTERRUPT?
0422	7640	SEA CLA	
0423	4427	ERROR	/PROGRAM INTERRUPTED WITHOUT INT ENA SET
0424	4424	DONLOP	/REPEAT TEST IF NOT DONE OR LOOP IF SR2=1

```

/TEST 32 - CHECKS THAT ALL ZEROES CAN BE TRANSMITTED AND READ BACK IN
*****TEST 32*****
0425 4423 TEST32, LOOPPC           /SETUP TEST COUNT AND SCOPE LOOP ADDRESS
0426 7775 -3                         /SIMULATOR ITERATION COUNTER
0427 4436 SIMCHK                     /CHECK TO SEE IF SIMULATOR IS SELECTED
0430 4017 4017                      /CONTROL WORD FOR THE SIMULATOR
0431 4437 LOOSIM                      /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                                         /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                                         /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
0432 3041 DCA INTFLG                 /CLEAR PROGRAM INTERRUPT FLAG
0433 3053 DCA SLUXHT                 /CLEAR THE WORD TO BE TRANSMITTED
0434 4433 SLUDAT                     /GO TRANSMIT, READ AND COMPARE THE WORD
0435 4434 SLUDER                     /DATA ERROR=WORD WAS NON ZERO BEING READ BACK
0436 4424 DONLDP                     /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1

*****TEST 32*****

```

```

/TEST 33 - CHECKS THAT ALL ONES CAN BE TRANSMITTED AND READ BACK
*****TEST 33*****
0437 4423 TEST33, LOOPPC           /SETUP TEST COUNT AND SCOPE LOOP ADDRESS
0440 7775 -3                         /SIMULATOR ITERATION COUNTER
0441 4436 SIMCHK                     /CHECK TO SEE IF SIMULATOR IS SELECTED
0442 4017 4017                      /CONTROL WORD FOR THE SIMULATOR
0443 4437 LOOSIM                      /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                                         /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                                         /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
0444 3041 DCA INTFLG                 /CLEAR PROGRAM INTERRUPT FLAG
0445 1056 TAD K377                   /SET THE WORD TO BE TRANSMITTED TO ALL ONE'S
0446 3053 DCA SLUXHT                 /GO TRANSMIT, READ AND COMPARE
0447 4433 SLUDAT                     /DATA ERROR = WORDS DO NOT COMPARE
0450 4434 SLUDER                     /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1
0451 4424 DONLDP                     /CLEAR PROGRAM INTERRUPT FLAG

*****TEST 33*****

```

```

/TEST 34 - CHECKS THAT A COMPLEMENTING PATTERN (200-377) CAN BE
/TRANSMITTED AND READ BACK,
*****TEST 34*****
0452 4423 TEST34, LOOPPC           /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0453 7775 -3                         /SIMULATOR ITERATION COUNTER
0454 4436 SIMCHK                     /CHECK TO SEE IF SIMULATOR IS SELECTED
0455 4017 4017                      /CONTROL WORD FOR THE SIMULATOR
0456 4437 LOOSIM                      /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                                         /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                                         /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
0457 3041 DCA INTFLG                 /CLEAR PROGRAM INTERRUPT FLAG
0460 3053 DCA SLUXHT                 /CLEAR THE WORD TO BE TRANSMITTED
0461 4433 SLUDAT                     /GO TRANSMIT, READ AND COMPARE THE WORD
0462 4434 SLUDER                     /DATA ERROR = TRANSMITTING ZEROES
0463 1056 TAD K377                   /SET THE WORD TO TRANSMIT EQUAL TO 377
0464 3053 DCA SLUXMT                 /TRANSMIT, READ AND COMPARE THE WORD
0465 4433 SLUDAT                     /DATA ERROR = WHILE TRANSMITTING 377
0466 4434 SLUDER                     /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1

*****TEST 34*****

```

```

0467 4424 DONLDP                     /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1

*****TEST 35*****
/TEST 35 - CHECKS THAT A COMPLEMENTING PATTERN (252-125) CAN BE
/TRANSMITTED AND READ BACK,
*****TEST 35*****
0470 4423 TEST35, LOOPPC           /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0471 7775 -3                         /SIMULATOR ITERATION COUNTER
0472 4436 SIMCHK                     /CHECK TO SEE IF SIMULATOR IS SELECTED
0473 4007 4007                      /CONTROL WORD FOR THE SIMULATOR
0474 4437 LOOSIM                      /LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
                                         /LOOP = THIS ADDRESS IF SIMULATOR SELECTED
                                         /OTHERWISE SCOPE LOOP IS THIS ADDRESS #1
0475 3041 DCA INTFLG                 /CLEAR PROGRAM INTERRUPT FLAG
0476 1060 TAD K252                   /SET THE TRANSMIT WORD TO 252
0477 3053 DCA SLUXMT                 /TRANSMIT, READ AND COMPARE THE WORD
0500 4433 SLUDAT                     /DATA ERROR = TRANSMITTED A 252
0501 4434 SLUDER                     /SET TRANSMIT WORD TO 125
0502 1061 TAD K125                   /TRANSMIT, READ AND COMPARE THE WORD
0503 3053 DCA SLUXMT                 /DATA ERROR = TRANSMITTED A 125
0504 4433 SLUDAT                     /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1
0505 4434 SLUDER                     /CLEAR PROGRAM INTERRUPT FLAG
0506 4424 DONLDP                     /CLEAR PROGRAM INTERRUPT FLAG

*****TEST 35*****

```

```

/TEST 36 - CHECKS FOR LOADING AND READING A BINARY COUNT PATTERN,
*****TEST 36*****
0507 4423 TEST36, LOOPPC           /SETUP TEST LOOP ADDRESS
0510 7777 -1                         /SIMULATOR ITERATION COUNTER
0511 1056 TAD K377                   /SETUP COUNTER TO TRANSMIT 377 TIMES
0512 7041 CIA
0513 3050 DCA SAVCNT                 /CHECK FOR THE SIMULATOR
0514 1050 TAD SAVCNT                 /CONTROL WORD FOR THE SIMULATOR
0515 3047 DCA TSTCNT
0516 4436 SIMCHK                     /LOAD THE SIMULATOR IF SELECTED
0517 4007 4007                      /GET THE WORD TO BE TRANSMITTED
0520 4437 LOOSIM                      /MASK OFF THE 8 BITS
0521 1047 TAD TSTCNT
0522 0256 AND K377
0523 3053 DCA SLUXMT
0524 4433 SLUDAT                     /SET TRANSMIT WORD TO THIS NUMBER
0525 4434 SLUDER                     /TRANSMIT READ AND COMPARE THE WORD
0526 4424 DONLDP                     /DATA ERROR
                                         /REPEAT TEST IF NOT DONE OR LOOP IF SR2#1

*****TEST 36*****

```

```

/TEST 37 - CHECKS FOR LOADING AND READING A BINARY COUNT PATTERN WITHOUT
/THE SLU INTERRUPT ENABLE SET TO SAVE TIME IN SKIP CHAIN SO THAT THE
/WORD CAN BE READ FASTER
*****TEST 37*****
0527 4423 TEST37, LOOPPC           /SET UP TEST COUNT AN TEST LOOP ADDRESS

```

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 3 PAL10 V142A 16=JUN=75 9104 PAGE 2=10

0530 7777	=1		/SIMULATOR ITERATION COUNTER
0531 1056	TAD	K377	/SETUP COUNTER TO TRANSMIT 377 TIMES
0532 7041	CIA		
0533 3050	DCA	SAVCNT	
0534 1050	TAD	SAVCNT	
0535 3047	DCA	TSTCNT	
0536 4436	SIMCHK		/CHECK TO SEE IF SIMULATOR IS SELECTED
0537 4017	4017		/SIMULATOR CONTROL WORD
0542 4437	LOADSIM		/LOAD THE SIMULATOR CONTROL WORD
0541 6007	CAF		/CLEAR ALL FLAGS
0542 4145	RTCENA		/SET REAL TIME CLOCK INT ENA
0543 6001	ION		/TURN THE INTERRUPT ON
0544 3041	DCA	INTFLG	/CLEAR PROGRAM INTERRUPT FLAG
0545 6035	KIE		/CLEAR SLU INT ENABLE
0546 1047	TAD	TSTCNT	/GET THE TEST COUNT NUMBER
0547 2056	AND	K377	/MASK OUT FOR 8 BITS
0552 3053	DCA	SLUXMT	/SAVE THE WORD TO BE TRANSMITTED
0551 1053	TAD	SLUXMT	
0552 6046	TLS		/GET THE WORD
0553 4431	TSFWAT		/TRANSMIT IT
0554 4427	ERROR		/WAIT FOR THE TRANSMIT FLAG TO SET
0555 6042	TCF		/TRANSMIT FLAG FAILED TO SET
0556 4432	KSFWAT		/CLEAR THE TRANSMIT FLAG
0557 4427	ERROR		/WAIT FOR THE RECEIVE FLAG TO SET
0560 7240	CLA	CHA	/RECEIVE FLAG FAILED TO SET
0561 6036	KRB		/SET THE AC TO ALL ONES
0562 3054	DCA	SLUREC	/READ THE WORD
0563 1053	TAD	SLUXMT	/SAVE THE WORD READ
0564 7041	CIA		/COMPARE THE WORD TRANSMITTED WITH THE WORD READ
0565 1054	TAD	SLUREC	
0566 7640	SEA	CLA	/ARE THEY EQUAL?
0567 4434	SLUDER		/NO,DATA ERROR ON SERIAL LINE UNIT
0570 1041	TAD	INTFLG	/GET THE PROGRAM INTERRUPT FLAG
0571 7640	SEA	CLA	
0572 4427	ERROR		/PROGRAM INTERRUPTED WITHOUT INT ENA
0573 4424	BONLOP		/DONE? OR REPEAT TEST IF SR2#1
0574 7000	NOP		
0575 7000	NOP		
0576 1021	TAD	OP1SEL	/GET THE HARDWARE CONFIGURATION
0577 2057	AND	K200	/CHECK FOR THE SIMULATOR
0602 7650	SNA	CLA	/IS IT SELECTED
0601 5440	PRGEND		/NO,END OF PROGRAM IF NO SIMULATOR
0602 5204	JMP	TEST38	/YES,GO DO SIMULATOR TEST
0603 7000	NOP		

```
*****  
/THIS TEST IS ENTERED WHEN SIMULATOR IS SELECTED,  
/TEST 38 = CHECKS THAT READER RUN CAN BE SET BY KCC AND KRB AND  
/CLEARED BY INITALIZE, THE SIMULATOR IS USED TO CHECK THAT READER  
/RUN SETS AND CLEARS;  
*****
```

0604 4423 TEST38, LOOPPC /SETUP TEST COUNT AND TEST LOOP ADDRESS

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 3 PAL10 V142A 16=JUN=75 9104 PAGE 2=11

0625 7777	=1		/SIMULATOR ITERATION COUNT
0626 4436	SIMCHK		/CHECK FOR SIMULATOR
0627 4000	4000		/SIMULATOR CONTROL WORD
0622 4437	LOADSIM		/LOAD THE SIMULATOR CONTROL WORD
0511 6007	CAF		/CLEAR ALL
0622 4145	RTCENA		/SET REAL TIME CLOCK INT ENA
0623 3041	DCA	INTFLG	/CLEAR THE PROGRAM INTERRUPT FLAG
0514 4103	JMS	PATCH	
0615 1052	SKPCHN		
0616 6001	ION		/TURN THE INTERRUPT ON
0617 6156	CLRDET		/CLEAR READER RUN DETECTOR FLIP-FLOP
0620 6157	SKPRDR		/SKIP ON READER RUN F/F SET
0621 7610	SKP	CLA	
0622 4427	ERROR		/READER RUN IS SET AFTER A INITALIZE
0623 6032	KCC		/CLEAR RECEIVE FLAG AND SET READER RUN
0624 6157	SKPRDR		/SKIP ON READER RUN SET
0625 4427	ERROR		/KCC FAILED TO SET READER RUN
0626 6007	CAF		/CLEAR ALL INCLUDING READER RUN F/F
0627 4145	RTCENA		/SET REAL TIME CLOCK INT ENA
0632 6001	ION		/TURN THE INTERRUPT BACK ON
0631 6156	CLRDET		/CLEAR READER RUN DETECTOR F/F
0632 6157	SKPRDR		/SKIP ON READER RUN F/F SET
0633 7410	SKP		
0634 4427	ERROR		/INITIALIZE FAILED TO CLEAR READER RUN
0635 6036	KRB		/CLEAR AC AND RECEIVE FLAG AND SET READER RUN
0636 7300	CLA	CLL	
0637 6157	SKPRDR		/SKIP ON READER RUN DETECTOR F/F SET
0643 4427	ERROR		/KRB FAILED TO SET READER RUN
0641 6007	CAF		/CLEAR ALL INCLUDING READER RUN F/F
0642 4145	RTCENA		/SET REAL TIME CLOCK INT ENA
0643 6001	ION		/TURN THE INTERRUPT ON
0644 6156	CLRDET		/CLEAR READER RUN DETECTOR F/F
0645 6157	SKPRDR		/SKIP ON READER RUN F/F SET
0646 7610	SKP	CLA	
0647 4427	ERROR		/INITIALIZE FAILED TO CLEAR READER RUN
0652 1041	TAD	INTFLG	/GET THE PROGRAM INTERRUPT FLAG
0651 7640	SEA	CLA	
0652 4427	ERROR		/PROGRAM INTERRUPTED
0653 4424	BONLOP		/DONE? OR REPEAT TEST IF SR2#1

```
*****  
/THIS TEST IS ENTERED WHEN SIMULATOR IS SELECTED,  
/TEST 39 = CHECKS THAT READER RUN WILL CLEAR AFTER A WORD HAS BEEN TRANSMITTED  
/AND DATA LOOPS BACK INTO THE RECEIVE BUFFERS USING THE 20 MA CURRENT  
/LOOP FOR 110 BAUD TO 9600 BAUD,  
*****
```

0654 4423	TEST39, LOOPPC		/SETUP TEST COUNT AND TEST LOOP ADDRESS
0655 7771	=7		/SIMULATOR ITERATION COUNTER
0656 4436	SIMCHK		/CHECK FOR SIMULATOR
0657 4000	4000		/SIMULATOR CONTROL WORD
0662 4437	LOADSIM		/LOAD THE SIMULATOR
0661 6007	CAF		/CLEAR ALL FLAGS
0662 4145	RTCENA		/SET REAL TIME CLOCK INT ENA

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 1K PART 3 PAL10 V142A 16-JUN-79 9104 PAGE 2-12

```

0663 6001 ION          /TURN THE INTERRUPT ON
0664 6035 KIE          /DISABLE SLU INT ENABLE
0665 6156 CLRDET      /CLEAR READER RUN
0666 6157 SKPRDR      /SKIP ON READER DETECTOR F/F SET
0667 7610 SKP CLA       /READER RUN FAILED TO CLEAR BY INIT
0670 4427 ERROR        /SET READER RUN
0671 6032 KCC          /SKIP ON READER RUN DETECTOR F/F SET
0672 6157 SKPRDR      /KCC FAILED TO SET READER RUN
0673 4427 ERROR        /TRANSMIT
0674 6046 TLS           /WAIT FOR THE TRANSMIT FLAG
0675 4431 TSFWAT       /TRANSMIT FLAG FAILED TO SET
0676 4427 ERROR        /CLEAR THE TRANSMIT FLAG
0677 6042 KCC          /WAIT FOR THE RECEIVE FLAG
0700 4432 KSFWAT       /RECEIVE FLAG FAILED TO SET
0701 4427 ERROR        /CLEAR READER RUN DETECTOR F/F
0702 6156 CLRDET      /CLEAR READER RUN DETECTOR F/F SET
0703 6157 SKPRDR      /SKIP ON READER RUN DETECTOR F/F SET
0704 7610 SKP CLA       /CLOCK PULSE TO READER RUN FAILED TO CLEAR READER RUN
0705 4427 ERROR        /REPEAT TEST FOR NEXT BAUD RATE
0706 4424 DNLORP        /END 3RD 1K SEGMENT
0707 5440 PRGEND

```

IFDEF OP13K <PAGE>

1000 PAGE

/ROUTINE TO SETUP # OF PASSES/TEST AND TO STORE THE RETURN ADDRESS FOR SCOPE LOOPING

```

1000 0000 PCLOOP: 0
1001 7340 CLA CLL CMA
1002 1200 TAD PCLOOP
1003 3045 DCA TEST
1004 1600 TAD I PCLOOP
1005 3067 DCA SIMCNT
1006 7240 CLA CMA
1007 3050 DCA SAVCNT
1013 1050 TAD SAVCNT
1011 3047 DCA TSTCNT
1012 2200 ISZ PCLOOP
1013 5600 JMP I PCLOOP

1014 0000 SIMLOD: 0
1015 1055 TAD CONTWD /GET THE CONTROL WORD
1016 6151 LOADSM /LOAD THE SIMULATOR CONTROL WORD
1017 7300 CLA CLL
1020 5614 JMP I SIMLOD

```

/DKC8-AA OPTION TEST 1 MAINDEC=08=DJOKA=B=L 1K PART 3 PAL10 V142A 16-JUN-79 9104 PAGE 2-13

```

1021 0000 LOPDON: 0
1022 2047 ISZ TSTCNT /TEST DONE?
1023 5446 JMP I TSTL0P /NO RETURN TO TEST
1024 1021 TAD OP1SEL /IS THE SIMULATOR SELECTED
1025 0057 AND K200
1026 7610 SNA CLA
1027 5237 JMP LOOPSW /SIMULATOR NOT SELECTED,CHECK TEST LOOP SWITCH
1030 2047 ISZ SIMCNT /ADD A 1 TO THE CONTROL WORD?
1031 7610 SKP CLA
1032 5237 JMP LOOPSW /NO,CHECK TEST LOOP SWITCH
1033 2055 ISZ CONTWD /AND 1 TO THE CONTROL WORD FOR BAUD RATES
1034 1050 TAD SAVCNT /GET THE TEST COUNT
1035 3047 DCA TSTCNT /RESTORE IT FOR A NEW PASS FOR A DIFFERENT BAUD
1036 5446 JMP I TSTL0P /RETURN FOR NEW BAUD RATE
1037 4435 LOOPSW, SWCHK /CHECK FOR SR2#1
1040 7006 RTL
1041 7700 SHA CLA /LOOP?
1042 5621 JMP I LOPDON /NO,GO TO NEXT TEST
1043 5445 JMP I TEST /YES,LOOP ON THIS TEST

1044 6102 SIMINT, SPL /SKIP ON POWER LOW
1045 7410 SKP
1046 5777 JMP POWFAL /POWER GOING DOWN = GO SAVE EVERYTHING
1047 3291 DCA AC /SAVE THE AC
1050 5321 JMP FLGCK5 /RETURN TO THE PROGRAM

1051 0000 AC: 0

1052 6102 SKPCHN, SPL /SKIP ON POWER LOW
1053 7410 SKP
1054 5777 JMP POWFAL /POWER GOING DOWN SAVE EVERYTHING
1055 3291 DCA AC /SAVE THE AC
1056 1042 TAD CLKFLG /WERE WE EXPECTING A CLOCK INTERRUPT?
1057 7610 SNA CLA
1058 4776 JMS CHKACT /GO CHECK FOR THE ACT LINE
1059 6137 CCLK /YES = SKIP ON REAL TIME CLOCK FLAG
1060 7410 SKP
1063 5305 JMP FLGCK1 /GO CHECK THE OTHER FLAGS
1064 1133 TAD ACTFLG /GET THE ACT FLAG
1065 7440 SEA /DID THE PROGRAM GO TO THE PROM ?
1066 5300 JMP ACTCK2 /YES,CHECK PARALLEL I/O DATA ACCEPTED
1067 4041 TSF /WAS IT A TRANSMIT FLAG?
1070 7610 SKP CLA
1071 5310 JMP FLGCK2 /TRANSMIT FLAG SET = CHECK THE OTHER FLAGS
1072 6031 KSF /WAS IT A RECEIVE FLAG?
1073 7410 SKP
1074 5313 JMP FLGCK3 /YES = GO CHECK THE OTHER FLAGS
1075 6571 DBSK /WAS THE DATA READY FLAG SET?
1076 7410 SKP
1077 5316 JMP FLGCK4 /YES = CHECK DATA ACCEPTED FLAG
1078 6572 ACTCK2, DBST /WAS DATA ACCEPTED SET=IF SO CLEAR IT
1081 7640 SZA CLA
1082 5317 JMP FLGCK5=2 /YES,THE FLAG SHOULD BE CLEAR NOW

```

```

1103 4427      ERROR          /ILLEGAL INTERRUPT =
1104 5317      JMP  FLGCK5#2   /RETURN
1105 5241      FLGCK1, TSF    /SKIP ON XMIT FLAG
1106 7410      SKP
1107 4427      ERROR          /XMIT FLAG SET
1108 6231      FLGCK2, KSF    /SKIP ON RECEIVE FLAG
1109 7410      SKP
1110 4427      ERROR          /RECEIVE FLAG SET
1111 6571      FLGCK3, DBSK   /SKIP ON P I/O DATA READY
1112 7410      SKP
1113 4427      ERROR          /DATA READY FLAG SET
1114 6570      FLGCK4, DBST   /SKIP ON DATA ACCEPTED
1115 7610      SKP CLA
1116 4427      ERROR          /DATA ACCEPTED FLAG SET
1117 3133      FLGCK5, DCA ACTFLG /CLEAR THE ACT FLAG
1118 7240      CLA CMA
1119 3041      DCA INTFLG
1120 4775      JMS RETURN
1121 1130      INTRET
1122 1251      TAD AC
1123 5730      JMP I INTRET

1130 8000      INTRET, 0

```

/ROUTINE TO WAIT FOR SERIAL LINE UNITS XMIT FLAG

```

1131 8000      WATTSF, 0
1132 7300      CLA CLL
1133 1147      TAD K7710
1134 3044      DCA CNT1
1135 3043      DCA CNT
1136 6041      TSF          /SKIP ON SLU TRANSMIT FLAG
1137 4363      JMS ADDTIM
1138 2331      ISZ WATTSF
1139 5731      JMP I WATTSF /RETURN TO THE PROGRAM=GOT THE FLAG

```

/ROUTINE TO WAIT FOR THE SERIAL LINE UNIT RECEIVE FLAG

```

1142 8000      WATKSF, 0
1143 7300      CLA CLL
1144 1147      TAD K7710
1145 3044      DCA CNT1
1146 3043      DCA CNT
1147 6031      KSF          /SKIP ON SLU RECEIVE FLAG
1148 4363      JMS ADDTIM
1149 2342      ISZ WATKSF
1150 5742      JMP I WATKSF /RETURN TO THE PROGRAM=GOT THE FLAG

```

/ROUTINE TO WAIT FOR THE REAL TIME CLOCK FLAG

```

1153 8000      WTCLSK, 0
1154 7240      CLA CMA
1155 3044      DCA CNT1
1156 3043      DCA CNT

```

```

1157 6137      CLSK
1158 4363      JMS ADDTIM
1159 2353      ISZ WTCLSK
1160 5753      JMP I WTCLSK /RETURN TO THE PROGRAM=GOT THE FLAG

```

/ROUTINE TO WAIT FOR THE FLAG

```

1163 8000      ADDTIM, 0
1164 2043      ISZ CNT
1165 7610      SKP CLA
1166 2044      ISZ CNT1
1167 7346      CLA CLL CMA RTL
1168 7001      IAC
1169 1363      TAD ADDTIM
1170 3343      DCA ADDTIM
1171 5763      JMP I ADDTIM

```

```

1172 1220
1173 1344
1174 1241
1175 1200

```

PAGE

/THIS IS THE END OF A PROGRAM PASS; IF SR3=1 HALT; IF NOT START PROGRAM OVER

```

1200 6160      ENDPAS, SIMCLR      /CLEAR THE SIMULATOR
1201 4435      SWCHK
1202 7006      RTL
1203 7004      RAL
1204 7710      SPA CLA
1205 7402      HALT
1206 5777      JMP 0200          /SR3=1 END OF A COMPLETE PROGRAM PASS

```

/CHECK TO SEE IF FRONT PANEL IS AVAILABE TO DO EITHER A TAD SWITCH OR A LAS COMMAND

```

1207 8000      CHKSWH, 0
1208 7200      CLA
1209 1021      TAD OP1SEL
1210 7700      SMA CLA
1211 5216      JMP .+3
1212 7604      LAS
1213 5607      JMP I CHKSWH
1214 1020      TAD SWITCH
1215 5607      JMP I CHKSWH

```

/

/THIS ROUTINE SETS UP A RETURN ADDRESS FOR INTERRUPT RETURNS FROM ANOTHER FIELD

```

1222 8000      RETURN, 0
1223 6201      CDF
1224 1636      TAD I K0          /CHANGE DATA FIELD TO FIELD 0
1225 3237      DCA RETADD      /GET THE INTERRUPT PC
1226 4224      RIF
1227 1131      TAD KCDF          /SAVE IT
1228 6224      RIF
1229 1131      TAD KCDF          /READ THE PROGRAM INSTRUCTION FIELD
1230 6224      RIF
1231 1131      TAD KCDF          /ADD A CDF INSTRUCTION TO IT

```

```

1226 3227 DCA ,+1 /SAVE IT IN THE NEXT LOCATION
1227 7402 HLT/CDF /RETURN TO THE PROGRAM DATA FIELD
1230 1620 TAD I RETURN /GET THE INTERRUPT RETURN LOCATION
1231 3240 DCA SAVLOC /SAVE IT
1232 2220 ISZ RETURN
1233 1237 TAD READD
1234 3640 DCA I SAVLOC
1235 5620 JMP I RETURN

1236 0000 K0, 0
1237 0000 RETADD, 0
1238 0000 SAVLOC, 0

/POWER FAIL ROUTINE, THE PROGRAM WILL DO IT'S OWN AUTO-RESTART
/AT THE BEGINNING OF THE TEST THAT IT WAS EXECUTING UNLESS ALL POWER
/WENT AWAY, THEN THE POWER FAIL AUTO-RESTART OPTION WOULD TRY TO DO
/A RESTART IF IT WAS SELECTED

1241 7200 POWFAL, CLA CLA
1242 6201 CDF #0
1243 1265 TAD KJMP7
1244 3636 DCA I K0
1245 1045 TAD TEST
1246 3666 DCA I KTEST
1247 1267 TAD FLGRST
1248 3670 DCA I C7
1249 1132 TAD KRTE
1250 3671 DCA I K10
1251 1272 TAD KJMPRT
1252 3673 DCA I K11
1253 6004 GTF
1254 3674 DCA I K12
1255 6244 RNF
1256 6103 CAL
1257 6102 SPL
1258 7610 SKP CLA
1259 5241 JMP !"2
1260 5445 JMP I TEST

1261 5007 KJMP7, JMP 7
1262 0045 KTEST, TEST
1263 1012 FLGRST, TAD 12
1264 3607 C7, 7
1265 2010 K10, 10
1266 5445 KJMPRT, JMP I TEST
1267 3011 K11, 11
1268 3012 K12, 12

/LOGIC ERROR ROUTINE = RESTART TEST IF SR1#1

1275 0000 AERROR, 0
1276 4326 JMS ACTCHK /GO CHECK TO SEE IF RUNNING ON ACT LINE
1277 4435 SWCHK /CHECK SR0 TO INHIBIT ERROR HALT
1278 7710 SPA CLA

```

```

1301 5307 JMP AERSWH /SR0=1 CHECK LOOP ON LOGIC ERROR
1302 7240 CLA CMA
1303 1275 TAD AERROR
1304 7402 HLT /AC = ADDRESS WHERE ERROR WAS DETECTED
1305 4314 JMS SIMWRD /WAS THE SIMULATOR SELECTED
1306 7402 HLT /AC=SIMULATOR CONTROL WORD
1307 4435 AERSWH, SWCHK /CHECK SR1#1 TO LOOP ON ERROR
1308 7004 RAL
1309 7700 SMA CLA
1310 5675 JMP I AERROR /RETURN WITHOUT LOOPING ON TEST
1311 5446 JMP I TSTLDP /SCOPE LOOP GO BACK TO START OF TEST SECTION

1312 1000 SIMWRD, 0
1313 7300 CLA CLL
1314 1021 TAD OP1SEL
1315 1057 AND K200
1316 7650 SNA CLA
1317 5324 JMP +3
1318 1055 TAD CONTWD
1319 5714 JMP I SIMWRD
1320 2314 ISZ SIMWRD
1321 5714 JMP I SIMWRD

1322 1000 SIMWRD, 0
1323 7300 CLA CLL
1324 1021 TAD OP2SEL /GET THE HARDWARE CONTROL WORD
1325 1057 SMA CLA /IS THE PROGRAM RUNNING ON THE ACT LINE?
1326 5726 JMP I ACTCHK /NO, RETURN TO ERROR ROUTINE
1327 6002 IOF /TURN THE INTERRUPT OFF
1328 7344 CLA CLL CMA RAL
1329 1326 TAD ACTCHK
1330 3343 DCA ERRCPC
1331 7240 CLA CMA
1332 1743 TAD I ERRCPC /GET THE LOCATION WHERE THE ERROR WAS DETECTED
1333 6272 CIF 70 /CHANGE INSTRUCTION FIELD TO FIELD 7
1334 5477 JMP I BADPAS /GO TO THE PRGM

1335 0000 ERRCPC, 0

```

```

1336 7000 CHKACT, 0 /WAS THE CLOCK FLAG SET
1337 5137 CLSK /NO-RETURN TO INT SERVICE ROUTINE
1338 7410 SKP
1339 5352 JMP CLKSET /YES-CLEAR THE FLAG
1340 2344 ISZ CHKACT /ADD 1 TO THE INCOMING PC

```

```

1351 5744   JMP I CHKACT /RETURN TO SKIP CHAIN
1352 6136   CLKSET, CLCL /CLEAR THE CLOCK FLAG
1353 1022   TAD    OP2SEL /GET THE ACT LINE BIT
1354 7710   SPA    CLA /IS THE PROGRAM RUNNING ON ACT LINE
1355 5365   JMP    ONACTL /YES, CHECK FOR # OF CLOCK TICKS
1356 5350   JMP    CHKACT+4/RETURN TO INTERRUPT ROUTINE
1357 4220   JMS    RETURN /NO, RETURN TO THE PROGRAM
1360 1364   ACTRET, AC
1361 1776'   TAD    AC
1362 5001   ION    ACTRET /TURN THE INTERRUPT ON
1363 5764   JMP I ACTRET /RETURN TO THE PROGRAM
1364 2000   ACTRET, P
1365 2101   ONACTL, ISZ ACTCNT /100 CLOCK TICKS YET?
1366 5357   JMP    CLKSET+5/NO RETURN TO PROGRAM
1367 1102   TAD    M144 /RESET ACT TIME COUNTER
1370 3101   DCA    ACTCNT /SAVE THE NUMBER
1371 6272   CIF    70 /CHANGE INSTRUCTION FIELD TO 7
1372 4500   JMS I GOODPS /SIGNAL PROM THAT PROGRAM STILLS PAS
1373 7240   CLA    CMA
1374 3133   DCA    ACTFLG /SET THE ACT LINE FLAG TO ONES
1375 5357   JMP    CLKSET+5/RETURN TO THE PROGRAM

1376 1051
1377 2200
1378 1400

```

PAGE

/ROUTINE FOR TRANSMITTING, READING AND COMPARING DATA FOR PARALLEL I/O

```

1402 0000   DATPIO, 0
1401 6807   CAF    /CLEAR ALL
1402 4145   RTCENA /SET REAL TIME CLOCK INT ENA
1403 6801   ION    /TURN THE INTERRUPT ON
1404 6575   PBSE   /SET PARALLEL I/O INT ENA
1405 1051   TAD    PIOXMT /GET THE WORD TO BE LOADED INTO PARALLEL I/O
1406 6574   DBTD   /LOAD AND TRANSMIT THE WORD
1407 7200   CLA
1410 6571   DBSK   /SKIP ON DATA READY
1411 4427   ERROR  /ERROR, DATA READY FLAG FAILED TO SET BY DBTD
1412 2041   ISZ INTFLG /GET PROGRAM INTERRUPT FLAG
1413 4427   ERROR  /PROGRAM FAILED TO INTERRUPT WITH INT ENA + FLAG SET
1414 3041   DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
1415 6572   DBRD   /READ THE 12 BIT PARALLEL I/O BUFFER
1416 3052   DCA PIOREC /SAVE THE WORD READ
1417 6571   DBSK   /SKIP ON DATA READY FLAG
1420 4427   ERROR  /DBRD CLEARED DATA READY FLAG
1421 6573   DBCF   /CLEAR DATA READY FLAG
1422 6001   ION    /TURN INTERRUPT BACK ON
1423 7000   NOP
1424 6570   NOST   /SHOULD INTERRUPT HERE FOR DATA ACCEPT FLAG
1425 7610   SKP CLA /SKIP ON DATA ACCEPT
1426 4427   ERROR  /DATA ACCEPT FAILED TO CLEAR IN INTERRUPT ROUTINE
1427 2041   ISZ INTFLG /CHECK TO SEE IF IT INTERRUPTED
1432 4427   ERROR  /DATA ACCEPT FLAG FAILED TO INTERRUPT
1431 6001   ION
1432 7000   NOP /TURN THE INTERRUPT BACK ON

```

```

1433 1041   TAD INTFLG /GET PROGRAM INTERRUPT FLAG
1434 7640   SEA CLA /DID IT INTERRUPT?
1435 4427   ERROR  /PROGRAM INTERRUPTED WITHOUT DATA READY SET
1436 1051   TAD PIOXMT /GET THE WORD TRANSMITTED
1437 7041   CIA
1440 1052   TAD PIOREC /GET THE WORD READ
1441 7640   SEA CLA /ARE THEY EQUAL?
1442 5600   JMP I DATPIO /DATA ERROR RETURN TO REPORT ERROR
1443 6007   CAF
1444 4145   RTCENA /CLEAR ALL FLAGS AND P I/O BUFFER
1445 6001   ION
1446 6572   DBRD   /TURN THE INTERRUPT ON
1447 7640   SEA CLA /READ THE 12 BIT P I/O BUFFER
1450 4427   ERROR  /CAF FAILED TO CLEAR THE 12 BIT DATA BUFFER
1451 2200   ISZ DATPIO /BUMP RETURN ADDRESS POINTER BY 1
1452 5600   JMP I DATPIO /RETURN TO TEST

```

/ROUTINE FOR TRANSMITTING, READING AND COMPARING DATA FOR SLU

```

1453 0000   DATSLU, 0
1454 6007   CAF    /CLEAR ALL FLAGS BUT SET INT ENA ON SLU
1455 4145   RTCENA /SET REAL TIME CLOCK INT ENA
1456 6801   ION    /TURN THE INTERRUPT ON
1457 3041   DCA INTFLG /CLEAR THE PROGRAM INTERRUPT FLAG
1458 3053   TAD SLUXMT /GET THE WORD TO BE TRANSMITTED
1460 1053   TLS
1461 6046   TSFWAT /LOAD AND TRANSMIT IT AND CLEAR THE FLAG
1462 4431   ERROR  /WAIT FOR THE TRANSMIT FLAG
1463 4427   ERROR  /XMIT FLAG FAILED TO SET
1464 2041   ISZ INTFLG /DID THE PROGRAM INTERRUPT?
1465 4427   ERROR  /PROGRAM FAILED TO INTERRUPT
1466 6042   TCF
1467 6001   ION
1470 4432   KSFWAT /TURN THE INTERRUPT BACK ON
1471 4427   ERROR  /WAIT FOR THE RECEIVE FLAG TO SET
1472 2041   ISZ INTFLG /RECEIVE FLAG FAILED TO SET
1473 4427   ERROR  /DID THE RECEIVE FLAG CAUSE A INTERRUPT
1474 6236   KRB
1475 3054   DCA SLUREC /RECEIVE FLAG FAILED TO CAUSE A INTERRUPT
1476 5901   ION /CLEAR THE AC AND RCV FLAG AND READ BUFFER
1477 1041   TAD
1478 7640   SEA CLA /SAVE THE WORD READ BACK
1479 7640   ERROR  /TURN THE INTERRUPT BACK ON
1480 4427   TAD SLUXMT /RECEIVE FLAG FAILED TO CLEAR RCV FLAG OR INTERRUPTED
1481 1053   CIA
1483 7041   TAD SLUREC /GET THE WORD READ BACK
1484 1054   SEA CLA
1485 7640   JMP I DATSLU /DATA ERROR-RETURN TO REPORT THE ERROR
1486 5653   ISZ DATSLU /BUMP RETURN ADDRESS POINTER BY ONE
1487 2253   JMP I DATSLU /RETURN TO TEST
1488 5653

```

/DATA ERROR ROUTINE FOR PARALLEL I/O

1511 0000 DERRIO, 0

```

1512 4777' JMS ACTCHK /CHECK TO SEE IF RUNNING ON ACT LINE
1513 4435 SWHCHK /CHECK SR0 TO INHIBIT ERROR HALT
1514 7710 SPA CLA /IS SR0 SET?
1515 5327 JMP PIO5WH /YES, GO CHECK SR1 TO LOOP ON ERROR
1516 7240 CLA CNA
1517 1311 TAD DERPIO
1518 7402 HLT /AC = ADDRESS WHERE ERROR WAS DETECTED
1519 7200 CLA
1520 1051 TAD PIOXMT /GET THE WORD TRANSMITTED
1521 7402 HLT /AC = THE GOOD WORD
1522 7200 CLA
1523 1052 TAD PIOREC /GET THE WORD READ
1524 7402 HLT /AC = THE BAD WORD = WORD READ
1525 4435 PIO5WH, SWHCHK /LOOP ON DATA ERROR IF SR1=1
1526 7004 RAL
1527 7700 SMA CLA /LOOP?
1528 5711 JMP I DERPIO /AND, RETURN TO TEST
1529 5446 JMP I TSTLOP /RETURN AND DO SAME PATTERN(S)

```

/DATA ERROR ROUTINE FOR SERIAL LINE UNIT

```

1534 0000 DERSLU, 0
1535 4777' JMS ACTCHK /CHECK TO SEE IF RUNNING ON THE ACT LINE
1536 4435 SWHCHK /CHECK SR0=1 TO INHIBIT ERROR HALT
1537 7710 SPA CLA
1538 5354 JMP SLUSWH /GO CHECK SR1=1 TO LOOP ON ERROR
1539 7240 CLA CMA
1540 1334 TAD DERSLU /
1541 7402 HLT /AC=ADDRESS WHERE ERROR WAS DETECTED
1542 7200 CLA
1543 1053 TAD SLUXMT /GET THE WORD TRANSMITTED
1544 7402 HLT /AC=GOOD WORD=THE WORD TRANSMITTED
1545 7200 CLA
1546 1054 TAD SLUREC /GET THE WORD READ
1547 7402 HLT /AC=THE BAD WORD=THE WORD READ
1548 4776' JMS SIMWRD /WAS THE SIMULATOR SELECTED
1549 7402 HLT /AC=THE SIMULATOR CONTROL WORD
1550 4435 SLUSWH, SWHCHK /LOOP ON DATA ERROR IF SR1=1
1551 7004 RAL
1552 7700 SMA CLA /LOOP?
1553 5734 JMP I DERSLU /AND, RETURN TO TEST
1554 5446 JMP I TSTLOP

```

```

1561 0000 CHKSIM, 0
1562 1021 TAD OPSEL /CHECK FOR SIMULATOR
1563 0057 AND K200
1564 7650 SNA CLA
1565 5371 JMP :+4 /NO
1566 1761 TAD I CHKSIM /GET THE CONTROL WORD
1567 3055 DCA CONTWD /SAVE IT
1568 7410 SKP

```

```

1571 2361 ISZ CHKSIM
1572 2361 ISZ CHKSIM
1573 1361 TAD CHKSIM
1574 3046 DCA TSTLOP
1575 5761 JMP I CHKSIM

```

```

1576 1314
1577 1326
0200 *200

```

0000 11110000 00000000 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 00000000 00000000
0200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0700 11111111 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
1000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1600
1700

2000
2100

2200
2300

2400
2500

2600
2700

3000
3100

3200
3300

3400
3500

3600
3700

4000
4100

4200
4300

4400
4500

4600
4700

5000
5100

5200
5300

5400
5500

5600
5700

6000
6100

6200
6300

6400
6500

6600
6700

7000
7100

7200
7300

7400
7500

7600
7700

/DKC8-AA OPTION TEST 1 MAINDEG=08=DJOKA=B=L 1K PART 3 PAL10 V142A 16=JUN=75 9104 PAGE 2=24

AC	1051	GOODPS	0100	P10DER	4430	TFL	6040
ACTCHK	1326	GTF	6004	P10REC	0052	TLS	6046
ACTCK2	1100	HLT	7482	P10SH	1527	TPC	6044
ACTCNT	2101	INACTV	0076	P10XMT	0051	TSF	6041
ACTFLG	2133	INTFLG	0041	PNCINT	0075	TSFWAT	4431
ACTRET	1364	INTRET	1130	POWFAL	1241	TSTCNT	0047
ADDTIM	1163	K0	1236	PROEND	5440	TSTG00	0135
AERROR	1275	K1	0124	RECFLG	0073	TSTL0P	0046
AERSWH	1307	K10	1271	RETAUD	1237	WATKSF	1142
BAOPAS	2077	K11	1273	RETURN	1220	WATTSE	1131
C7	1270	K12	1274	RMP	6244	WTCLSK	1153
CAF	6007	K125	0061	RTGENA	4145	XMTFLG	0072
CAL	6103	K2	0125	RTCPFLG	0074		
CHKAET	1344	K200	0257	RTF	6005		
CHKSIM	1561	K252	0060	SAVADU	0123		
CHKSWH	1207	K2525	0003	SAVCNT	0050		
CLCL	6136	K3	0126	SAVLOC	1240		
CLKFLG	2042	K377	0056	SBE	6101		
CLKSET	1352	K5252	0002	SINCHK	4436		
CLKSNC	0134	K7	0064	SINCLR	6100		
CLLE	6135	K7710	0147	SIMCNT	0067		
CLRDET	6156	KCC	6032	SIMINT	1044		
CLRSIM	6150	KCDF	0131	SIML0D	1014		
CLSK	6137	KCF	6030	SIMWRD	1314		
CLSKWT	4425	KIE	6035	SKPCHN	1052		
CNT	2043	KJMP	0127	SKPDAY	6165		
CNT1	2044	KJMP7	1245	SKPFRO	6162		
CONTWO	2055	KJMPRT	1272	SKPRDR	6157		
DATPIO	1400	KRB	6036	SKPSTR	6167		
DATSLU	1453	KRMF	0130	SLUDAT	4433		
DBCELO	6576	KRS	6034	SLUDER	4434		
DBCF	6573	KRTF	0132	SLUREG	0054		
DBRD	6572	KSF	6031	SLUSNH	1554		
DBSE	6575	KSFWAT	4432	SLUXMT	0053		
DBSK	6571	KTEST	1266	SP!	6045		
DBSS	6577	LINK	0071	SPL	6182		
DBST	6570	LOADSH	6151	STRFRQ	6161		
DBTD	6574	LQDFRQ	6163	SWHCHK	4435		
DERPIO	1511	LOOSIM	4437	SWITCH	0020		
DERSLU	1534	LOOPPC	4423	TCF	6042		
DONL0P	4424	LOOPSW	1037	TEST	0045		
ENARTC	7145	LOPDON	1021	TEST29	0201		
ENDRAS	1200	M10	0066	TEST30	0250		
ERRQOR	4427	M144	0102	TEST31	0302		
ERRPC	1343	M4	0065	TEST32	0425		
EXPACD	3070	ONACTL	1365	TEST33	0437		
FLGCK1	1105	OP1K3	0000	TEST34	0452		
FLGCK2	1110	OP1SEL	0021	TEST35	0470		
FLGCK3	1113	OP2SEL	0022	TEST36	0507		
FLGCK4	1116	PATCH	0103	TEST37	0527		
FLGCK5	1121	PCLOOP	1000	TEST38	0604		
FLGRST	1267	P10DAT	4426	TEST39	0654		

/DKC8-AA OPTION TEST 1 MAINDEG=08=DJOKA=B=L 1K PART 3 PAL10 V142A 16=JUN=75 9104 PAGE 2=25

ERRORS DETECTED 0
 LINKS GENERATED 9
 RUN=TIME 17 SECONDS
 2K CORE USED

/DKC8-BA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 4 PAL10 V142A 16-JUN-75 9106 PAGE 1
/DKC8-BA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 4
/
/COPYRIGHT (C) 1974, 1975 DIGITAL EQUIPMENT CORPORATION
/
/PROGRAMMERI BRUCE HANSEN
/

||||||||||||||||||||||||||||||||||||||||||||||||||||
/THE FOLLOWING LISTING WILL CORRESPOND TO THE PAPER TAPE LABELED
/MAINDEC=08=DJDKA=B=PM4, 1K VERSION PART 4; THIS PAPER TAPE AND
/LISTING WILL BE THE LAST OF FOUR 1K SEGMENTED PAPER TAPES AND
/LISTINGS FOR COMPUTERS WITH LESS THAN 4K OF MEMORY.
||||||||||||||||||||||||||||||||||||||||||||||||

/DKC8-BA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 4 PAL10 V142A 16-JUN-75 9106 PAGE 2
/DKC8-BAA OPTION TEST 1 MAINDEC=08=DJDKA=B=L 1K PART 4
/
/COPYRIGHT (C) 1974, 1975 DIGITAL EQUIPMENT CORPORATION
/
/PROGRAMMERI BRUCE HANSEN
/
/PROCESSOR INSTRUCTIONS
5007 CAF#6307 /CLEAR ALL FLAGS
6102 SPL#6102 /SKIP ON AC LOW FLIP-FLOP
6103 CAL#6103 /CLEAR AC LOW FLIP-FLOP
6101 SBE#6101 /SKIP ON BATTERY EMPTY
7402 HLT#7402
6244 RIF#6244 /RESTORE MEMORY FIELD
6025 RTF#6209
6004 GTF#6204

/OPTION BOARD NUMBER 1 IOT'S

//SERIAL LINE UNIT
/RECEIVER IOTS
6030 KRF#6330 /CLEAR RECEIVE FLAG, DON'T SET READER RUN
6031 KSF#6331 /SKIP ON RECEIVE FLAG
6032 KCC#6332 /CLEAR RECEIVE FLAG AND AC, SET READER RUN
6034 KRS#6334 /READ RECEIVE BUFFER
6035 KIE#6335 /AC 11=1 SET INTERRUPT ENABLE
6036 KRB#6336 /AC 11=0 CLEAR INTERRUPT ENABLE
/CLEAR RECEIVE FLAG AND AC, SET READER RUN AND READ
/RECEIVE BUFFER

/TRANSMIT IOTS
6040 TFL#6340 /SET TRANSMIT FLAG
6041 TSF#6341 /SKIP ON TRANSMIT FLAG
6042 TCF#6342 /CLEAR THE TRANSMIT FLAG
6044 TPC#6344 /LOAD TRANSMIT BUFFER AND TRANSMIT
6045 SPI#6345 /SKIP IF TRANSMIT OR RECEIVE FLAG SET AND INT ENA SET TO A 1
6046 TLS#6346 /LOAD TRANSMIT BUFFER, TRANSMIT AND CLEAR TRANSMIT FLAG

/REAL TIME CRYSTAL CLOCK
6135 CLLE#6135 /AC 11=1 SET INTERRUPT ENABLE
6136 CLCL#6136 /AC 11=0 CLEAR INTERRUPT ENABLE
6137 CLSK#6137 /CLEAR CLOCK FLAG
/SKIP ON CLOCK FLAG

/12 BIT PARALLEL I/O
6570 DBST#6570 /SKIP ON DATA ACCEPTED,CLEAR DATA ACCEPTED AND DATA AVAILABLE
6571 DBSK#6571 /SKIP ON DATA READY FLAG
6572 DBRD#6572 /READ DATA INTO AC 0=1
6573 DBCF#6573 /CLEAR DATA READY FLAG, ISSUE DATA ACCEPTED OUT
6574 DBTD#6574 /LOAD AC 0=1 INTO BUFFER AND TRANSMIT DATA OUT
6575 DBSE#6575 /SET INTERRUPT ENABLE TO A 1
6576 DBCE#6576 /SET INTERRUPT ENABLE TO A 0

6577 DBSS=6577 /ISSUE A STROBE PULSE

/SWITCH REGISTER SETTINGS

/SR0=1 = INHIBIT ERROR HALT
 /SR1=1 = LOOP ON ERROR
 /SR2=1 = LOOP ON TEST
 /SR3=1 = HALT AT COMPLETION OF A PROGRAM PASS

/OPTION BOARD 1 SIMULATOR IOT/S

6150 CLRSIMH6150 /CLEAR SIMULATOR CONTROL REGISTERS
 6151 LOADSH6151 /LOAD SIMULATOR CONTROL WORD 1
 6156 CLRQET6156 /CLEAR READER RUN, STROBE, AND DATA AVAILABLE CATCHER F/F'S
 6157 SKPRDR#6157 /SKIP ON READER RUN CATCHER F/F SET
 6160 SIMGLR6160 /CLEAR CONTROL REGISTERS AND MOST OF LOGIC ON SIMULATOR
 6161 STFRQR#6161 /START FREQUENCY CHECK (SLU OR RTC)
 6162 SKPFRQ#6162 /SKIP ON FREQUENCY CHECK IN PROGRESS
 6163 LODFRQ#6163 /READ FREQUENCY COUNT INTO AC
 6165 SKPDAV#6165 /SKIP ON DATA AVAILABLE CATCHER F/F SET
 6167 SKPSTR#6167 /SKIP ON STROBE CATCHER F/F SET

/OPTION BOARD 1 SIMULATOR CONTROL WORD BIT ASSIGNMENTS

/BIT 0 COUNTER RESET 1=ACTIVATE
 / 2=NO ACTION

/BIT 1 PARALLEL I/O CLEAR DATA 1=TS1
 / AVAILABLE SELECT 2=DATA ACCEPTED IN

/BIT 2 NOT USED

/BIT 3 NOT USED

/BIT 4 NOT USED

/BIT 5 RTC FREQUENCY OR 1=RTC
 SLU FREQUENCY CHECK 2=SLU BAUD RATES

/BIT 6 REAL TIME CLOCK 1=OFF
 / 2=ON

/BIT 7 SLU EIA/20MA SELECT 1=EIA RECEIVE DATA
 / 2=20 MA RECEIVE DATA

/BIT 8 STOP BIT SELECT 1=1 STOP BITS
 / 2=2 STOP BIT

/BIT 9 BAUD RATE SELECT BIT 9, 10, 11 ALL 0's

/BIT 10 BAUD RATE SELECT EQUALS 110 BAUD, EACH

/BIT 11 BAUD RATE SELECT INCREASING BIT SELECTS
 / NEXT HIGHEST BAUD RATE

0000 *0
 0003 0302 302 /PROGRAM REVISION LETTER=MAINDEC=08=DJOKA=B
 0001 6244 RMF /RESTORE MEMORY FIELDS
 0002 5403 JMP I 3 /RETURN TO INTERRUPT SERVICE ROUTINE
 0003 2444 SIMINT/SKPCHN/SIMCHK/RTCINT/SLUINT /INTERRUPT SERVICE ROUTINES

0020 *20

0022 0000 SWITCH, 0

0021 0000 OP1SEL, 2000 /BIT 0=0 USE LOCATION 22 AS A PSEUDO SWITCH REGISTER
 /BIT 0=1 USE HARDWARE FRONT PANEL SWITCH REGISTER
 /BIT 1=1 HAS OPTION 1
 /BIT 2=1 HAS OPTION 2
 /BIT 3=1 HAS 8A CPU SIMULATOR
 /BIT 4=1 HAS 8A OPTION 1+2 SIMULATOR
 /BIT 5=1 PROGRAM ON PDP-8A XOR (REQUIRES BIT 4 SET ALSO)
 /BIT 6=1 HAS PDP-8E TYPE CPU
 /BIT 7=11 MEMORY SIZE = 8/S=1K, 37=32K, MEMORY
 /SIZE CAN BE INCREASED IN 1K INCREMENTS BY ADDING
 /ONE TO THE NUMBER IN BITS 7 = 11
 /BIT 0 IS SET FOR THE ACT LINE

0022 0000 OP2SEL, 0
 4423 LOOPPC=JMS I,
 4424 PCLOOP
 0023 0400 DONLDP=JMS I,
 4424 LDPDON
 0024 0421 CLSKWT=JMS I,
 4425 WTCLSK
 0025 0553 PIODATE=JMS I,
 4426 DATPIO
 0026 1000 ERROR=JMS I,
 4427 AERROR
 0027 0675 PIODER=JMS I,
 4430 DERRIO
 0030 1111 TSFWAT=JMS I,
 4431 DERTPIO
 0031 0531 KSFWAT=JMS I,
 4432 WATKSF
 0032 0542 SLUDAT=JMS I,
 4433 DATSLU
 0033 1053 SLUDER=JMS I,
 4434 DERSLU
 0034 1134 SWHCHK=JMS I,
 4435 CHKSWH
 0035 2607 SIMCHKE=JMS I,
 4436 CHKSI4
 0036 1161 LODSIM=JMS I,
 4437 SIMLDD
 0037 0414 RTCENA=JMS ENARTC
 4146

```

0040 0000 PRGEND=JMP I,
0040 0600 ENDPAS

```

/LOCATIONS USED BY THE PROGRAM

```

0041 0000 INTFLG, 0
0042 0000 CLKFLG, 0
0043 0000 CNT, 0
0044 0000 CNTL, 0
0045 0000 TEST, 0
0046 0000 TSTLOP, 0
0047 0000 TSTCNT, 0
0050 0000 SAVCNT, 0
0051 1000 PIOXMT, 0
0052 0600 PIOREG, 0
0053 0000 SLUXMT, 0
0054 0000 SLUREG, 0
0055 0000 CONTWO, 0
0056 377 K377, 377
0057 220 K220, 220
0260 225 K225, 225
0061 125 K125, 125
0062 5252 K5252, 5252
0063 2525 K2525, 2525
0064 0007 K7, 7
0065 7774 M4, -4
0066 7770 M10, -10
0067 0000 SIMCNT, 0

0070 1360 DELAYR, DELAY
0071 0000 EXPACD, 0
0072 0000 LINK, 0
0073 0000 XMFLG, 0
0074 0000 RECFLG, 0
0075 0000 RTCFLG, 0
0076 0000 PPOINT, 0
0077 0000 INACTV, 0
0100 6520 BADPAS, 6520 /ACT LINE ERROR RETURN TO FIELD 7
0101 6500 GOOPS, 6500 /ACT LINE GOOD RETURN TO FIELD 7
0102 7634 ACTCNT, -144
0103 7634 M144, -144

```

/ROUTINE TO SETUP FIELD 0 TO HANDLE INTERRUPTS FROM ANOTHER FIELD

```

0104 0000 PATCH, 0
0105 1504 TAD I PATCH /GET THE INTERRUPT SERVICE ADDRESS
0106 3124 DCA SAVADD /SAVE INTERRUPT ADDRESS
0107 6201 CDF /CHANGE DATA FIELD TO FIELD 0
0110 1131 TAD KRMF /GET THE INSTRUCTION RMF
0111 3525 DCA I K1 /PUT IT IN LOCATION 1 OF FIELD 0
0112 1130 TAD KJMP /GET THE INSTRUCTION JMP I 3
0113 3526 DCA I K2 /PUT IT IN LOCATION 2 OF FIELD 0
0114 1124 TAD SAVADD /GET THE INTERRUPT SERVICE ADDRESS

```

```

0115 3527 DCA I K3 /PUT IT IN LOCATION 3 IF FIELD 0
0116 6224 RIF /GET THE PROGRAM FIELD INTO THE AC
0117 1132 TAD KCDF /AND IT TO THE CDF INSTRUCTION
0120 3121 DCA ,4 /PUT IT IN THE NEXT LOCATION
0121 7402 HLT/CDF /EXECUTE IT
0122 2104 ISZ PATCH /ADD 1 TO THE ENTRANCE
0123 5504 JMP I PATCH /RETURN

0124 0000 SAVADD, 0
0125 2001 K1, 1
0126 2002 K2, 2
0127 2003 K3, 3
0130 5403 KJMP, JMP I 3
0131 4244 KRMF, 6244
0132 6201 KCDF, CDF
0133 6005 KRTE, RTF
0134 0000 ACTFLG, 0
0135 0000 CLKSNC, 0

```

/ THIS ROUTINE USED WHEN RUNNING ON THE ACT LINE TO SIGNIFY THAT NO ERRORS HAVE BEEN ENCOUNTERED

```

0136 0000 TSTGOD, 0
0137 1022 TAD OP2SEL /GET THE HARDWARE FLAG
0142 7700 SMA CLA /ARE WE ON THE ACT LINE?
0141 5536 JMP I TSTGOD /NO, RETURN TO THE PROGRAM
0142 6002 IOF /TURN THE INTERRUPT OFF
0143 6272 CIF, 70 /CHANGE THE INSTRUCTION TO FIELD 7
0144 4501 JMS I GOOPS /GO TO PROM
0145 5536 JMP I TSTGOD /RETURN TO THE PROGRAM

```

```

0146 0000 ENARTC, 0
0147 1022 TAD OP2SEL /CHECK TO SEE IF ON ACT LINE
0150 7710 K7710, SPA CLA /IF NOT CLEAR RTC INT ENA
0151 7301 CLA CLL IAC /SET AC BIT 11
0152 6135 ELSE /LOAD BIT 11 INTO CLOCK INT ENA
0153 7200 CLA
0154 5546 JMP I ENARTC

```

0200 *200

IFDEF OP13K <PAGE>

IFDEF OP13K <PAGE>

IFDEF OP13K <PAGE>

```

*****THIS TEST IS ENTERED WHEN SIMULATOR IS SELECTED*****
/TEST 40 = USES THE SIMULATOR TO TEST THE RTC FREQUENCY*
*****
```

```

0200  6160      SIMCLR
0201  1021      TAD    OP1SEL   /GET HARDWARE CONFIGURATION
0202  0057      AND    K200   /MASK OUT SIMULATOR BIT
0203  7650      SNA    CLA   /IS IT SELECTED ?
0204  5331      JNP    TEST42 /NO, DO INTERACTION TEST

0205  4423      TEST40, LOOPPC
0206  7777      =1      JMS    PATCH   /SETUP TEST COUNT AND TEST LOOP ADDRESS
0207  4104      SKPCHN
0210  7492      DCA    CLKFLG   /SIMULATOR ITERATION COUNTER
0211  3042      SIMCHK
0212  4436      DCA    CLKFLG   /SET INTERRUPT TO IGNORE RTC
0213  4100      SIMCHK
0214  4437      LOADSIM
0215  1377      TAD    (=20
0216  3043      DCA    CNT   /CHECK FOR SIMULATOR
0217  6007      CAF
0222  4146      RTCENA
0221  6031      ION
0222  6161      STRFRQ
0223  6162      SKPFREQ
0224  7610      CLA
0225  5223      JMP    (=2
0226  6163      LOOPFRQ
0227  3250      DCA    FRQCONT
0228  1251      TAD    RTCFRQ
0229  1250      TAD    FRQCONT
0230  7450      SNA
0231  5246      JMP    RTIMOK
0232  7001      IAC
0233  5246      SNA
0234  7001      IAC
0235  7450      SNA
0236  5246      JMP    RTIMOK
0237  2043      ISZ    CNT
0238  5234      JMP    (=4
0241  4427      ERROR
0242  4435      SWCHK
0243  7004      RAL
0244  7710      SPA    CLA
0245  5446      JMP    I TSTL0P
0246  4424      RTIMOK, DONL0P
0247  5252      JMP    TEST41
0250  0000      FRQCONT, 0
0251  3062      RTCFRQ, =4716
                                         /RTC FREQUENCY COUNT 2500 + OR = 10

******/THIS TEST IS ENTERED WHEN SIMULATOR IS SELECTED,
/TEST 41 ~ USES THE SIMULATOR TO CHECK THE TIMING OF THE SERIAL LINE UNIT
/FROM 110 BAUD TO 9600 BAUD USING THE 20MA CURRENT LOOP
******/

```

0252 4423 TEST41, LOOPPC /SETUP TEST COUNT AND TEST LOOP ADDRESS

```

0253  7740      =40
0254  4436      SIMCHK
0255  4000      4000
0256  4437      L0NSIM
0257  1377      TAD    (=20
0258  3043      DCA    CNT
0261  6007      CAF
0262  4146      RTCENA
0263  6039      KIE
0264  6031      ION
0265  6161      STRFRQ
0266  6162      SKPFREQ
0267  7610      CLA
0270  5266      JMP    (=2
0271  6163      LOOPFRQ
0272  3250      DCA    FRQCONT
0273  1055      TAD    CONTWD
0274  7064      AND    K7
0275  1376      TAD    (FRQTAB
0276  3300      DCA    TABFRQ
0277  7410      SKP
0280  7402      TABFRQ, HLT
0301  1730      TAD    I TABFRQ
0302  1250      TAD    FRQCONT
0303  7450      SNA
0304  5317      JMP    SLUTOK
0305  7001      IAC
0306  7450      SNA
0307  5317      JMP    SLUTOK
0310  2043      ISZ    CNT
0311  5325      JMP    (=4
0312  4427      ERROR
0313  4435      SWCHK
0314  7004      RAL
0315  7710      SPA    CLA
0316  5446      JMP    I TSTL0P
0317  4424      SLUTOK, DONL0P
0320  5331      JMP    TEST42
                                         /POINTER ADDRESS TO FREQUENCY TABLE
                                         /GET THE NEG MAXIMUM FREQUENCY COUNT
                                         /GET THE COUNT READ
                                         /ARE THEY EQUAL
                                         /YES, SLU TIMING IS OK
                                         /ADD ONE TO THE NUMBER
                                         /ARE THEY EQUAL?
                                         /YES SLU TIMING IS OK
                                         /BUMP SLU TIMING CHECK COUNTER
                                         /RETURN TO ADD A 1 TO THE NUMBER
                                         /SLU TIMING ERROR=PRESS "CONTINUE" FOR
                                         /SIMULATOR CONTROL WORD
                                         /CHECK FOR LOOP ON ERROR

*****/FREQUENCY COUNT TABLE FOR SLU SIMULATOR TIMING TEST (MAXIMUM COUNTS)

```

0321 2335	FRTAB, =5443	/110 BAUD = 2841 + OR = 10
0322 3723	=4055	/150 BAUD = 2883 + OR = 10
0323 3723	=4055	/300 BAUD = 2883 + OR = 10
0324 3723	=4055	/600 BAUD = 2883 + OR = 10
0325 5744	=2034	/1200 BAUD = 1842 + OR = 10
0326 6755	=1023	/2400 BAUD = 0521 + OR = 10
0327 7362	=0416	/4800 BAUD = 0262 + OR = 10
0330 7564	=0214	/9600 BAUD = 0130 + OR = 10

```
*****  
/*TEST 42 - IS AN INTERACTION TEST, THE TEST CHECKS THAT THE RTC, THE  
/SLU AND THE 12 BIT PARALLEL I/O CAN RUN TOGETHER; THE AC AND LINK  
/IS LOADED WITH SOME RANDOM DATA BEFORE THE INTERRUPT IS TURNED ON;  
/THE PROGRAM CHECKS THAT THE AC AND LINK DON'T CHANGE AND THAT DATA  
/CAN BE TRANSMITTED AND READ BACK CORRECTLY.  
*****
```

```

0331 4423 TEST42, LOOPPC
0332 7777 -1
0333 4436 SIMCHK
0334 4017 4017
0335 4437 LOOSIM

0336 6002 IOF
0337 4470 JMS I DELAYR

0342 6007 CAF
0341 4146 RTCENA
0342 4124 JNS PATCH
0343 1400 INTSKP
0344 3071 DCA EXPACD
0345 3072 DCA LINK
0346 3053 DCA SLUXMT
0347 3051 DCA PIOMXT
0352 7240 CLA CMA
0351 3073 DCA XMFLG
0352 7240 CLA CMA
0353 3074 DCA RECFLG
0354 7240 CLA CHA
0355 3075 DCA RTCFLG
0356 1066 TAD M10
0357 3076 DCA PNDINT
0360 1374 TAD M40
0361 3077 DCA INACTV
0362 7352 CLA CLL CMA RTR
0363 3047 DCA TSTCNT
0364 7301 CLA CLL IAC
0365 6135 CLE
0366 7200 CLA
0367 6575 DBSE
0370 6046 TLS
0371 6574 DBTD
0372 6001 ION
0373 5373 JMP

0374 7740 M40 - -40

```

* * *

```

/SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
/SIMULATOR ITERATION COUNTER
/CHECK TO SEE IF SIMULATOR IS SELECTED
/CONTROL WORD FOR THE SIMULATOR
/LOAD SIMULATOR IF SELECTED ALSO SET SCOPE
/LDCP = THIS ADDRESS IF SIMULATOR SELECTED
/OTHERWISE SCOPE LOOP IS THIS ADDRESS +1
/TURN THE INTERRUPT OFF
/DELAY FOR APPROXIMATELY 200MS TO
/ALLOW FLAGS TO SETTLE
/CLEAR ALL FLAGS BUT SET SLU INT ENA
/SET REAL TIME CLOCK INT ENA
/SETUP INTERRUPT SERVICE

/CLEAR THE EXPECTED AC DATA
/CLEAR THE LINK RIT
/SET INITIAL AC DATA TO 0
/SET PIO INITIAL DATA TO 0
/SET SLU XMT FLAG TO INACTIVE
/SET SLU RCV FLAG TO INACTIVE
/SET RTC FLAG TO INACTIVE

/SETUP A COUNT FOR NO INT'S ON P I/O
/SET DEVICE INACTIVE COUNTER TO -40
/
/SETUP TEST COUNT
/SAVE IT
/SET DATA BIT 11
/SET RTC INT ENA

/SET 12 BIT PARALLEL I/O INT ENA
/LOAD AND TRANSMIT ON SLU
/TRANSMIT ALL 2'S ON P I/O
/TURN THE INTERRUPT ON
/GO BABY GO!!!!

```

0376 321
0377 7762

6400 PAGE

/ROUTINE TO SETUP # OF PASSES/TEST AND TO STORE THE RETURN ADDRESS FOR SCOPE LOOPING

```

M402 7000 PCLLOOP, C
M401 7340 CLA CLL CMA
M402 1200 TAD PCLLOOP
M403 3045 DCA TEST
M404 1600 TAD I PCLLOOP
M405 3067 DCA SIMCNT
M406 7240 CLA CMA
M407 3050 DCA SAVCNT
M408 1050 TAD SAVCNT
M409 3047 DCA TSTCNT
M410 2200 ISZ PCLLOOP
M411 5600 JMP I PCLLOOP

M414 7000 SIMLOD, C
M415 1055 TAD CONTWD /GET THE CONTROL WORD
M416 6151 LOADSM /LOAD THE SIMULATOR CONTROL WORD
M417 7300 CLA CLL
M423 5614 JMP I SIMLOD

M421 7000 LONDON, C
M422 2047 ISZ TSTCNT /TEST DONE?
M423 5446 JMP I TSTLDP /NO RETURN TO TEST
M424 1021 TAD OPSEL /IS THE SIMULATOR SELECTED
M425 1057 AND K200
M426 7650 SNA CLA
M427 5237 JMP LOOPSW /SIMULATOR NOT SELECTED, CHECK TEST LOOP SWITCH
M430 2067 ISZ SIMCNT /ADD A 1 TO THE CONTROL WORD?
M431 7610 SKP CLA
M432 5237 JMP LOOPSW /NO, CHECK TEST LOOP SWITCH
M433 2055 ISZ CONTWD /ADD 1 TO THE CONTROL WORD FOR BAUD RATES
M434 1050 TAD SAVCNT /GET THE TEST COUNT
M435 3047 DCA TSTCNT /RESTORE IT FOR A NEW PASS FOR A DIFFERENT BAUD
M436 5446 JMP I TSTLDP /RETURN FOR NEW BAUD RATE
M437 4435 LOOPSW, SWHCHK /CHECK FOR SR2#1
M440 7036 RTL
M441 7700 SMA CLA /LOOP?
M442 5621 JMP I LONDON /NO, GO TO NEXT TEST
M443 5445 JMP I TEST /YES, LOOP ON THIS TEST

M444 6102 SIMINT, SPL /SKIP ON POWER LOW
M445 7410 SKP
M446 5777/ JMP POWFAL /POWER GOING DOWN = GO SAVE EVERYTHING
M447 3251 DCA AC /SAVE THE AC
M450 5321 JMP FLCKKS /RETURN TO THE PROGRAM

```

0451

0000 AC: 0

```

0452 6102 SKPCHN; SPL      /SKIP ON POWER LOW
0453 7410 SKP
0454 5777, JMP POWFAL   /POWER GOING DOWN SAVE EVERYTHING
0455 3251 DCA AC       /SAVE THE AC
0456 1042 TAD CLKFLG    /WERE WE EXPECTING A CLOCK INTERRUPT?
0457 7650 SNA CLA
0460 4776' JHS CHKACT   /GO CHECK FOR THE ACT LINE
0461 6137 CLSK        /YES = SKIP ON REAL TIME CLOCK FLAG
0462 7410 SKP
0463 5305 JMP FLGCK1   /GO CHECK THE OTHER FLAGS
0464 1134 TAD ACTFLG    /GET THE ACT FLAG
0465 7440 S2A           /DID THE PROGRAM GO TO THE PROM ?
0466 5300 JMP ACTCK2   /YES, CHECK PARALLEL I/O DATA ACCEPTED
0467 6941 TSF          /HAS IT A TRANSMIT FLAG?
0470 7610 SKP CLA
0471 5310 JMP FLGCK2   /TRANSMIT FLAG SET - CHECK THE OTHER FLAGS
0472 6931 KSF          /HAS IT A RECEIVE FLAG?
0473 7410 SKP
0474 5313 JMP FLGCK3   /YES = GO CHECK THE OTHER FLAGS
0475 6571 DBSK
0476 7410 SKP
0477 5316 JMP FLGCK4   /YES = CHECK DATA ACCEPTED FLAG
0500 6570 ACTCK2, DBST  /HAS DATA ACCEPTED SET? IF SO CLEAR IT
0501 7640 S2A CLA
0502 5317 JMP FLGCK5#2  /YES, THE FLAG SHOULD BE CLEAR NOW
0503 4427 ERROR
0504 5317 JMP FLGCK5#2  /ILLEGAL INTERRUPT =
0505 6941 TSF          /RETURN
0506 7410 SKP
0507 4427 ERROR
0510 5031 FLGCK2, KSF   /XMIT FLAG SET
0511 7410 SKP
0512 4427 ERROR
0513 6571 FLGCK3, DBSK  /RECEIVE FLAG SET
0514 7410 SKP
0515 4427 ERROR
0516 6570 FLGCK4, DBST  /DATA READY FLAG SET
0517 7610 SKP CLA
0520 4427 ERROR
0521 3134 FLGCK5, DCA ACTFLG  /CLEAR THE ACT FLAG
0522 7240 CLA CMA
0523 3041 DCA INTFLG
0524 4775' JMS RETURN
0525 5530 INTRET
0526 1251 TAD AC
0527 5730 JMP I INTRET

0530 0000 INTRET; 0

```

/ROUTINE TO WAIT FOR SERIAL LINE UNITS XMIT FLAG

```

0531 0000 WATTSF; 0
0532 7300 CLA CLL
0533 1150 TAD K7710
0534 3044 DCA CNT1
0535 3043 DCA CNT
0536 6041 TSF          /SKIP ON SLU TRANSMIT FLAG
0537 4363 JMS ADDTIM   /GO ADD ONE TO THE COUNTER
0540 2331 ISZ WATTSF
0541 5731 JMP I WATTSF  /RETURN TO THE PROGRAM=GOT THE FLAG

```

/ROUTINE TO WAIT FOR THE SERIAL LINE UNIT RECEIVE FLAG

```

0542 0000 WATKSF; 0
0543 7300 CLA CLL
0544 1150 TAD K7710
0545 3044 DCA CNT1
0546 3043 DCA CNT
0547 6051 KSF          /SKIP ON SLU RECEIVE FLAG
0550 4363 JMS ADDTIM   /GO ADD A ONE TO THE COUNTER
0551 2342 ISZ WATKSF
0552 5742 JMP I WATKSF  /RETURN TO THE PROGRAM=GOT THE FLAG

```

/ROUTINE TO WAIT FOR THE REAL TIME CLOCK FLAG

```

0553 0000 WTCLSK; 0
0554 7240 CLA CMA
0555 3044 DCA CNT1
0556 3043 DCA CNT
0557 6137 CLSK        /SKIP ON THE REAL TIME CLOCK FLAG
0560 4363 JMS ADDTIM   /GO ADD ONE TO THE COUNTER
0561 2353 ISZ WTCLSK
0562 5753 JMP I WTCLSK  /RETURN TO THE PROGRAM=GOT THE FLAG

```

/ROUTINE TO WAIT FOR THE FLAG

```

0563 0000 ADDTIM; 0
0564 2043 ISZ CNT
0565 7610 SKP CLA
0566 2044 ISZ CNT1
0567 7340 CLA CLL CMA RTL
0570 7001 IAC
0571 1363 TAD ADDTIM
0572 3363 DCA ADDTIM
0573 5763 JMP I ADDTIM

```

0575 0620
0576 3744
0577 0641
0600

PAGE

/THIS IS THE END OF A PROGRAM PASS; IF SR3#1 HALT; IF NOT START PROGRAM OVER

0600 6160 ENDPAS, SIMCLR

/CLEAR THE SIMULATOR

/DKC8=BA OPTION TEST 1 MAINDEG=08=DJDKA=B=L 1K PART 4 PAL10 V142A 16-JUN-78 9106 PAGE 2=11

0601 4435 SWCHK /GO GET SWITCH REGISTER
0602 7006 RTL
0603 7024 RAL
0604 7710 SPA CLA
0605 7402 HLT /SR3=1 END OF A COMPLETE PROGRAM PASS
0606 5777' JMP 0200 /START PROGRAM OVER

/CHECK TO SEE IF FRONT PANEL IS AVAILABLE TO DO EITHER A TAD SWITCH OR A LAS COMMAND

0607 3000 CHKSWH, 0
0610 7200 CLA
0611 1021 TAD OP1SEL
0612 7700 SMA CLA
0613 5216 JMP ,+3
0614 7604 LAS
0615 5607 JMP I CHKSWH
0616 1020 TAD SWITCH
0617 5607 JMP I CHKSWH

/THIS ROUTINE SETS UP A RETURN ADDRESS FOR INTERRUPT RETURNS FROM ANOTHER FIELD

0620 3000 RETURN, 0
0621 6201 CDF /CHANGE DATA FIELD TO FIELD 0
0622 1636 TAD I K0 /GET THE INTERRUPT PC
0623 3337 DCA RETADD /SAVE IT
0624 6224 RIF /READ THE PROGRAM INSTRUCTION FIELD
0625 1132 TAD KCDF /ADD A CDF INSTRUCTION TO IT
0626 3227 DCA ,+1 /SAVE IT IN THE NEXT LOCATION
0627 7402 HLT/CDF /RETURN TO THE PROGRAM DATA FIELD
0630 1620 TAD I RETURN /GET THE INTERRUPT RETURN LOCATION
0631 3240 DCA SAVLOC /SAVE IT
0632 2220 ISZ RETURN
0633 1237 TAD RETADD
0634 3640 DCA I SAVLOC
0635 3620 JMP I RETURN

/POWER FAIL ROUTINE, THE PROGRAM WILL DO IT'S OWN AUTO-RESTART
/AT THE BEGINNING OF THE TEST THAT IT WAS EXECUTING UNLESS ALL POWER
/WENT AWAY, THEN THE POWER FAIL AUTO-RESTART OPTION WOULD TRY TO DO
/A RESTART IF IT WAS SELECTED.

0641 7200 POWFAL: CLA CLA
0642 6201 CDF 00
0643 1265 TAD KJMP7
0644 3636 DCA I K0
0645 1045 TAD TEST
0646 3666 DCA I KTEST
0647 1267 TAD FLGRST
0650 3670 DCA I C7
0651 1133 TAD KRTE

/DKC8=BA OPTION TEST 1 MAINDEG=08=DJDKA=B=L 1K PART 4 PAL10 V142A 16-JUN-78 9106 PAGE 2=12

0652 3671 DCA I K10
0653 1272 TAD KJMPRT
0654 3673 DCA I K11
0655 6004 GTF
0656 3674 DCA I K12
0657 6244 RMF
0662 6103 CAL
0661 6102 SPL
0662 7610 SKP CLA
0663 5261 JMP ,+2
0664 3445 JMP I TEST

0665 5007 KJMP7, JMP 7
0666 1045 KTEST, TEST
0667 1012 FLGRST, TAD 12
0672 7007 C7, 7
0671 1010 K10, 10
0672 5445 KJMPRT, JMP I TEST
0673 5011 K11, 11
0674 5012 K12, 12

/LOGIC ERROR ROUTINE = RESTART TEST IF SR1=1

0675 3000 AERROR, ?
0676 4326 JMS ACTCHK /GO CHECK TO SEE IF RUNNING ON ACT LINE
0677 4435 SWCHK /CHECK SR0 TO INHIBIT ERROR HALT
0702 7710 SPA CLA
0701 5307 JMP AERSWH /SR0=1 CHECK LOOP ON LOGIC ERROR
0702 7240 CLA CMA
0703 1275 TAD AERROR
0704 7402 HLT /AC = ADDRESS WHERE ERROR WAS DETECTED
0705 4314 JMS SIMWRD /WAS THE SIMULATOR SELECTED
0706 7402 HLT /AC=SIMULATOR CONTROL WORD
0707 4435 AERSWH, SWCHK /CHECK SR1=1 TO LOOP ON ERROR
0712 7004 RAL
0711 7700 SMA CLA
0712 5675 JMP I AERROR /RETURN WITHOUT LOOPING ON TEST
0713 5446 JMP I TSTLOP /SCOPE LOOP GO BACK TO START OF TEST SECTION

0714 3000 SIMWRD, ?
0715 7300 CLA CLL
0716 1021 TAD OP1SEL
0717 0057 AND K200
0720 7650 SNA CLA
0721 5324 JMP ,+3
0722 1055 TAD CONTND
0723 5714 JMP I SIMWRD
0724 2314 ISZ SIMWRD
0725 5714 JMP I SIMWRD

/ROUTINE TO EXIT TO PROM ON AN ERROR IF RUNNING ON THE ACT LINE

```

0726 0000 ACTCHK: 0
0727 7300 CLA CLL
0730 1022 TAD DP2SEL /GET THE HARDWARE CONTROL WORD
0731 7700 SHA CLA /IS THE PROGRAM RUNNING ON THE ACT LINE?
0732 5726 JMP I ACTCHK /NO, RETURN TO ERROR ROUTINE
0733 5802 10F /TURN THE INTERRUPT OFF
0734 7344 CLA CLL CMA RAL
0735 1326 TAD ACTCHK
0736 3343 DCA ERRPC
0737 7240 CLA CMA
0740 1743 TAD I ERRPC /GET THE LOCATION WHERE THE ERROR WAS DETECTED
0741 6272 CIF 70 /CHANGE INSTRUCTION FIELD TO FIELD 7
0742 5500 JMP I BADPAS /GO TO THE PRM

0743 0000 ERPPC: 0

```

```

0744 0000 CHKACT: 0
0745 A137 CLSK /WAS THE CLOCK FLAG SET
0746 7410 SKP /NO=RETURN TO INT SERVICE ROUTINE
0747 5352 JMP CLKSET /YES=CLEAR THE FLAG
0750 2344 ISZ CHKACT /ADD 1 TO THE INCOMING PC
0751 5744 JMP I CHKACT /RETURN TO SKIP CHAIN
0752 6136 CLKSET, CLCL /CLEAR THE CLOCK FLAG
0753 1022 TAD OP2SEL /GET THE ACT LINE BIT
0754 7710 SPA CLA /IS THE PROGRAM RUNNING ON ACT LINE
0755 5365 JMP ONACTL /YES,CHECK FOR # OF CLOCK TICKS
0756 5350 JMP CHKACT+4/RETURN TO INTERRUPT ROUTINE
0757 4220 JMS RETURN /NO,RETURN TO THE PROGRAM
0762 0764 ACTRET
0761 1776 TAD AC
0762 6001 ION /TURN THE INTERRUPT ON
0763 5764 JMP I ACTRET /RETURN TO THE PROGRAM
0764 0000 ACTRET, 0
0765 2102 ONACTL, ISZ ACTCNT /100 CLOCK TICKS YET?
0766 5357 JMP CLKSET+5/NO RETURN TO PROGRAM
0767 1103 TAD M144 /RESET ACT TIME COUNTER
0770 3102 DCA ACTCNT /SAVE THE NUMBER
0771 6272 CIF 70 /CHANGE INSTRUCTION FIELD TO 7
0772 4501 JMS I GOODPS /SIGNAL PRGM THAT PROGRAM STILLS PAS
0773 7240 CLA CMA
0774 3134 DCA ACTFLG /SET THE ACT LINE FLAG TO ONES
0775 5357 JMP CLKSET+5/RETURN TO THE PROGRAM

0776 7451
0777 0200
1000 PAGE

```

/ROUTINE FOR TRANSMITTING, READING AND COMPARING DATA FOR PARALLEL I/O

```

1000 0000 DATPIO, 0
1001 6007 CAF /CLEAR ALL
1002 4146 RTCENA /SET REAL TIME CLOCK INT ENA
1003 6001 ION /TURN THE INTERRUPT ON
1004 6575 DBSE /SET PARALLEL I/O INT ENA
1005 1051 TAD PIOXMT /GET THE WORD TO BE LOADED INTO PARALLEL I/O
1006 6574 DBTD /LOAD AND TRANSMIT THE WORD
1007 7200 CLA
1011 6571 DBSK /SKIP ON DATA READY
1011 4427 ERROR /ERROR, DATA READY FLAG FAILED TO SET BY DBTD
1012 2041 ISZ INTFLG /GET PROGRAM INTERRUPT FLAG
1013 4427 ERROR /PROGRAM FAILED TO INTERRUPT WITH INT ENA + FLAG SET
1014 3041 DCA INTFLG /CLEAR PROGRAM INTERRUPT FLAG
1015 6572 DBRD /READ THE 12 BIT PARALLEL I/O BUFFER
1016 3052 DCA PIOREC /SAVE THE WORD READ
1017 6571 DBSK /SKIP ON DATA READY FLAG
1020 4427 ERROR /DBRD CLEARED DATA READY FLAG
1021 6573 DBCF /CLEAR DATA READY FLAG
1022 6001 ION /TURN INTERRUPT BACK ON
1023 7000 NOP /SHOULD INTERRUPT HERE FOR DATA ACCEPT FLAG
1024 6570 DBST /SKIP ON DATA ACCEPT
1025 7610 SKP CLA
1026 4427 ERROR /DATA ACCEPT FAILED TO CLEAR IN INTERRUPT ROUTINE
1027 2041 ISZ INTFLG /CHECK TO SEE IT IT INTERRUPTED
1030 4427 ERROR /DATA ACCEPT FLAG FAILED TO INTERRUPT
1031 6001 ION /TURN THE INTERRUPT BACK ON
1032 7000 NOP
1033 1041 TAD INTFLG /GET PROGRAM INTERRUPT FLAG
1034 7640 SZA CLA /DID IT INTERRUPT?
1035 4427 ERROR /PROGRAM INTERRUPTED WITHOUT DATA READY SET
1036 1051 TAD PIOXMT /GET THE WORD TRANSMITTED
1037 7041 CIA
1040 1052 TAD PIOREC /GET THE WORD READ
1041 7640 SZA CLA /ARE THEY EQUAL?
1042 5630 JMP I DATPIO /DATA ERROR RETURN TO REPORT ERROR
1043 6007 CAF /CLEAR ALL FLAGS AND P I/O BUFFER
1044 4146 RTCENA
1045 6001 ION /TURN THE INTERRUPT ON
1046 6572 DBRD /READ THE 12 BIT P I/O BUFFER
1047 7640 SZA CLA
1050 4427 ERROR /CAF FAILED TO CLEAR THE 12 BIT DATA BUFFER
1051 2200 ISZ DATPIO /BUMP RETURN ADDRESS POINTER BY 1
1052 5600 JMP I DATPIO /RETURN TO TEST

```

/ROUTINE FOR TRANSMITTING, READING AND COMPARING DATA FOR SLU

```

1053 0000 DATSLU, 0
1054 6007 CAF /CLEAR ALL FLAGS BUT SET INT ENA ON SLU
1055 4146 RTCENA /SET REAL TIME CLOCK INT ENA
1056 6001 ION /TURN THE INTERRUPT ON
1057 3041 DCA INTFLG /CLEAR THE PROGRAM INTERRUPT FLAG
1060 1053 TAD SLUXMT /GET THE WORD TO BE TRANSMITTED
1061 6246 TLS /LOAD AND TRANSMIT IT AND CLEAR THE FLAG
1062 4431 TSFWAT /WAIT FOR THE TRANSMIT FLAG

```

```

1263 4427      ERROR    /XMIT FLAG FAILED TO SET
1264 2041      ISZ     INTFLG /DID THE PROGRAM INTERRUPT?
1265 4427      ERROR    /PROGRAM FAILED TO INTERRUPT
1266 6942      TCF     /CLEAR THE XMIT FLAG
1267 6901      ION     /TURN THE INTERRUPT BACK ON
1270 4432      KSFWAT /WAIT FOR THE RECEIVE FLAG TO SET
1271 4427      ERROR    /RECEIVE FLAG FAILED TO SET
1272 2041      ISZ     INTFLG /RECEIVE FLAG CAUSED A INTERRUPT?
1273 4427      ERROR    /RECEIVE FLAG FAILED TO CAUSE A INTERRUPT
1274 6936      KRB     /CLEAR THE AC AND RCV FLAG AND READ BUFFER
1275 3054      DCA     SLUREC /SAVE THE WORD READ BACK
1276 6901      ION     /TURN THE INTERRUPT BACK ON
1277 1241      TAD     INTFLG /CHECK THAT KRB CLEARED THE RCV FLAG
1103 7642      SZA     CLA
1101 4427      ERROR    /KRB FAILED TO CLEAR RCV FLAG OR INTERRUPTED
1102 1053      TAD     SLUXMT /GET THE WORD TRANSMITTED
1103 7041      CIA
1104 1054      TAD     SLUREC /GET THE WORD READ BACK
1105 7640      SZA     CLA
1106 5653      JMP    I DATSLU /DATA ERROR-RETURN TO REPORT THE ERROR
1107 2253      ISZ     DATSLU /BUMP RETURN ADDRESS POINTER BY ONE
1110 5653      JMP    I DATSLU /RETURN TO TEST

```

/DATA ERROR ROUTINE FOR PARALLEL I/O

```

1111 0000      DERPIO, 0
1112 4777'      JMS     ACTCHK /CHECK TO SEE IF RUNNING ON ACT LINE
1113 4435      SWCHKH /CHECK SR0 TO INHIBIT ERROR HALT
1114 7710      SPA CLA /IS SR0 SET?
1115 5327      JMP PIOSWH /YES, GO CHECK SR1 TO LOOP ON ERROR
1116 7240      CLA CHA
1117 1311      TAD DERPIO
1120 7402      HLT     /AC = ADDRESS WHERE ERROR WAS DETECTED
1121 7230      CLA
1122 1051      TAD PIOWHT /GET THE WORD TRANSMITTED
1123 7402      HLT     /AC = THE GOOD WORD
1124 7200      CLA
1125 1052      TAD PIOREC /GET THE WORD READ
1126 7402      HLT     /AC = THE BAD WORD - WORD READ
1127 4435      PIOSWH, SWCHKH /LOOP ON DATA ERROR IF SR1=1
1130 7004      RAL
1131 7700      SMA CLA /LOOP?
1132 5711      JMP I DERPIO /NO, RETURN TO TEST
1133 5446      JMP I TSTLDP /RETURN AND DO SAME PATTERN(S)

```

/DATA ERROR ROUTINE FOR SERIAL LINE UNIT

```

1134 0000      DERSLU, 0
1135 4777'      JMS     ACTCHK /CHECK TO SEE IF RUNNING ON THE ACT LINE
1136 4435      SWCHKH /CHECK SR0=1 TO INHIBIT ERROR HALT
1137 7710      SPA CLA
1140 5354      JMP SLUSWH /GO CHECK SR1=1 TO LOOP ON ERROR
1141 7240      CLA CHA

```

```

1142 1334      TAD     DERSLU /
1143 7402      HLT     /AC=ADDRESS WHERE ERROR WAS DETECTED
1144 7200      CLA
1145 1053      TAD     SLUXMT /GET THE WORD TRANSMITTED
1146 7402      HLT     /AC=GOOD WORD-THE WORD TRANSMITTED
1147 7200      CLA
1150 1054      TAD     SLUREC /GET THE WORD READ
1151 7402      HLT     /AC=THE BAD WORD-THE WORD READ
1152 4776'      JMS     SIMWRD /WAS THE SIMULATOR SELECTED
1153 7402      HLT     /AC=THE SIMULATOR CONTROL WORD
1154 4435      SLUSWH, SWCHKH /LOOP ON DATA ERROR IF SR1=1
1155 7034      RAL
1156 7700      SMA CLA /LOOP?
1157 5734      JMP I DERSLU /NO, RETURN TO TEST
1160 5446      JMP I TSTLDP

```

```

1161 0000      CHKSIM, 0
1162 1021      TAD OP1SEL /CHECK FOR SIMULATOR
1163 0057      AND K200
1164 7650      SNA CLA
1165 5371      JMP ,*4 /NO
1166 1761      TAD I CHKSIM /GET THE CONTROL WORD
1167 3055      DCA CONTWD /SAVE IT
1173 7410      SKP
1171 2361      TSZ CHKSIM
1172 2361      TSZ CHKSIM
1173 1361      TAD CHKSIM
1174 3046      DCA TSTLDP
1175 5761      JMP I CHKSIM

```

1176 0714
1177 0726
1200 PAGE

REAL TIME CLOCK TIMING TEST

```

1203 6160      RTCTIM, SIMCLR
1201 4104      JMS     PATCH /SETUP INTERRUPT SERVICE
1202 1215      RTCINT
1203 1377      TAD 1=5667 /SET UP A COUNT FOR 2999 CLOCK TICKS
1204 3047      DCA  TSTCNT /SAVE CLOCK TICK COUNTER
1205 6007      CAF   /CLEAR ALL FLAGS
1206 6137      CLSK   /WAIT FOR THE FIRST CLOCK FLAG
1207 5286      JMP   ,*1
1210 6136      CLCL   /CLEAR THE CLOCK FLAG

```

/DKC8=BA OPTION TEST 1 MAINDEG=08=DJOKA=B=L 1K PART 4 PAL10 V142A 16-JUN-75 9106 PAGE 2=17

1211 7301 CLA CLL IAC
1212 6135 CLLE
1213 6001 ION /LOAD CLOCK INTERRUPT ENABLE
1214 7214 JMP /TURN THE INTERRUPT ON
1215 6136 RTCINT, CLCL /CLEAR THE CLOCK FLAG
1216 7300 CLA CLL /CLEAR THE AC AND LINK
1217 2047 ISZ TSTCNT /DONE YET?
1220 5213 JMP RTCINT+2 /RETURN TO WAIT FOR NEXT FLAG
1221 7602 HLT CLA /WAS IT 30 SECONDS
1222 5200 JMP RTCTIM /DO TEST OVER OR DO ANOTHER TEST

/SERIAL LINE UNIT TIMING TEST

1223 6160 SLUTIM, SIMCLR
1224 4104 JMS PATCH /SETUP INTERRUPT SERVICE
1225 1271 SLUINT
1226 7402 HLT /SET THE SR IF SELECTED OR LOCATION 20
/TO THE BAUD RATE AND # OF STOP BITS
/TO BE TESTED:
1227 4435 SWHCHK
1230 0376 AND (17 /GO GET LOCATION 20 OR THE SR
1231 3304 DCA BAUDWD /MASK OUT THE BAUD RATE AND STOP BIT
1232 1304 TAD BAUDWD /SAVE THE BAUD RATE AND STOP BIT
1233 0064 AND K7 /GET THE WORD
1234 3305 DCA BAUDRT /MASK OUT THE BAUD RATE
1235 1304 TAD BAUDWD /SAVE IT
1236 2375 AND (18 /CHECK FOR THE NUMBER OF STOP BITS
1237 7640 SZA CLA /1 OR 2 STOP BITS
1240 7326 CLA CLL CML RTL /STOP BITS EQUAL 2
1241 3306 DCA STPBIT /SAVE THE STOP BITS
1242 1305 TAD BAUDRT /GET THE BAUD RATE (2 = 7)
1243 1374 TAD (BAUDTB /GET THE ADDRESS OF THE BAUD RATE TABLE
1244 3307 DCA BDPNTR /SAVE THE TABLE POINTER ADDRESS
1245 1707 TAD I BDPNTR /GET THE ADDRESS OF THE CONSTANTS
1246 1306 TAD STPBIT /ADD 0 FOR 1 SB OR 2 FOR 2 SB
1247 3307 DCA BDPNTR /SAVE THE POINTER TO THE CONSTANTS
1250 1307 SLUTR, TAD BDPNTR /ACTUAL TEST STARTS HERE
1251 3047 DCA TSTCNT /SAVE THE POINTER IN TEST COUNT
1252 1447 TAD I TSTCNT /GET THE FIRST CONSTANT
1253 3043 DCA CNT /SAVE IT
1254 2047 ISZ TSTCNT /ADD 1 TO THE WORKING POINTER
1255 1447 TAD I TSTCNT /GET THE SECOND CONSTANT
1256 3044 DCA CNT1 /DCA CNT1
1257 6007 CAF /CLEAR ALL FLAGS
1260 6046 TLS /LOAD AND TRANSMIT THE FIRST CHARACTER
1261 6041 TSF /THE FIRST FLAG COMES UP WITHIN USEC'S
1262 5261 JMP ,=1
1263 5266 JMP ,+3 /GO AND CLEAR FLAG AND TRANSMIT AGAIN
1264 6036 INTON, KRB /CLEAR THE RECEIVE FLAG
1265 7610 SKP CLA
1266 6046 TLS /LOAD AND TRANSMIT AND CLEAR FLAG
1267 6001 ION /TURN THE INTERRUPT ON
1270 5270 JMP ,

/DKC8=BA OPTION TEST 1 MAINDEG=08=DJOKA=B=L 1K PART 4 PAL10 V142A 16-JUN-75 9106 PAGE 2=18

1271 6031 SLUINT, KSF /SKIP ON THE RECEIVE FLAG
1272 7610 SKP CLA
1273 5264 JMP INTON /CLEAR THE RECEIVE FLAG AND TURN INT ON
1274 6041 TSF /SKIP IF TRANSMIT FLAG SET
1275 4427 ERROR /ILLEGAL INTERRUPT
1276 2043 ISZ CNT /ADD ONE TO THE FIRST COUNTER
1277 5266 JMP INTON+2
1302 2044 ISZ CNT1 /OVERFLOWED FIRST COUNT ADD 1 TO SECOND
1301 5266 JMP INTON+2 /GO DO ANOTHER 4295 INTERRUPTS
1302 7602 HLT CLA /WAS IT 30 SECONDS ???
1303 5223 JMP SLUTIM /GO DO IT AGAIN OR START ANOTHER TEST

1304 2000 BAUDWD, 0
1305 2000 BAUDRT, 0
1306 2000 STPBIT, 0
1307 2000 BDPNTR, 0

/POINTERS TO BAUD RATE TABLES

1310 1320 BAUDTB, BR110
1311 1324 BR150
1312 1330 BR300
1313 1334 BR600
1314 1340 BR1200
1315 1344 BR2400
1316 1350 BR4800
1317 1354 BR9600

/BAUD RATE CONSTANTS FOR 110 BAUD

1320 7266 BR110, -512 /10 BITS AT 11 CHAR/SEC=330 CHAR/30 SEC
1321 7777 -1
1322 7324 -554 /11 BITS AT 10 CHAR/SEC=300 CHAR/30 SEC
1323 7777 -1

/BAUD RATE CONSTANTS FOR 150 BAUD

1324 7076 BR150, -702 /10 BITS AT 15 CHAR/SEC=450 CHAR/30 SEC
1325 7777 -1
1326 7147 -531 /11 BITS AT 13.64 CHAR/SEC=429 CHAR/30 SEC
1327 7777 -1

/BAUD RATE CONSTANTS FOR 300 BAUD

1330 6174 BR300, -1604 /10 BITS AT 30 CHAR/SEC=900 CHAR/30 SEC
1331 7777 -1
1332 6316 -2462 /11 BITS AT 27.27 CHAR/SEC=818 CHAR/30 SEC
1333 7777 -1

/BAUD RATE CONSTANTS FOR 600 BAUD

1334 4370 BR600, -3410 /10 BITS AT 60 CHAR/SEC=1800 CHAR/30 SEC
1335 7777 -1
1336 4633 -3145 /11 BITS AT 54.45 CHAR/SEC=1637 CHAR/30 SEC

1337 7777

*1

/BAUD RATE CONSTANTS FOR 1200 BAUD

1340 0760	BR1200, =7020	/10 BITS AT 120 CHAR/SEC=3600 CHAR/30 SEC
1341 7777	=1	
1342 1467	=6311	/11 BITS AT 109,09 CHAR/SEC=3273 CHAR/30 SEC
1343 7777	=1	

/BAUD RATE CONSTANTS FOR 2400 BAUD

1344 1737	BR2400, =6041	/10 BIT AT 240 CHAR/SEC=7200 CHAR/30 SEC
1345 7776	=2	
1346 3156	=4622	/11 BITS AT 218,18 CHAR/SEC=6545 CHAR/30 SEC
1347 7776	=2	

/BAUD RATE CONSTANTS FOR 4800 BAUD

1350 3675	BR4800, =4103	/10 BITS AT 480 CHAR/SEC=14,400 CHAR/30 SEC
1351 7774	=4	
1352 6332	=1446	/11 BITS AT 436,36 CHAR/SEC=13,091 CHAR/30 SEC
1353 7774	=4	

/BAUD RATE CONSTANTS FOR 9600 BAUD

1354 7571	BR9600, =207	/10 BITS AT 960 CHAR/SEC=26,800 CHAR/30 SEC
1355 7770	=10	
1356 4664	=3114	/11 BITS AT 872,73 CHAR/SEC=26,182 CHAR/30 SEC
1357 7771	=7	

/THIS ROUTINE WILL WAIT FOR APPROXIMATELY 255MS BEFORE EXITING TO ALLOW FLAGS TO SETTLE,

1360 0000	DELAY, 0	
1361 1371	TAO M15	
1362 3044	DCA CNT1	
1363 3043	DCA CNT	
1364 2043	ISZ CNT	
1365 5364	JMP ,=1	
1366 2044	ISZ CNT1	
1367 5364	JMP ,=3	
1370 5760	JMP I DELAY	
1371 7763	M15, =15	

1374 1310		
1375 2010		
1376 2017		
1377 2111		

1400 PAGE

/INTERACTIVE SKIP CHAIN FOR SLU,RTC, AND PI/O TEST 42

1400 3325	INTSKP, DCA ACDRET	/SAVE THE AC
1401 7010	RAR	

1402 3326	DCA LINKRT	/SAVE THE LINK
1403 6102	SPL	/SKIP ON POWER LOW FLAG
1404 7610	SKP CLA	
1405 5777	JMP POWHAL	/POWER GOING DOWN
1406 6241	TSF	/SKIP ON SLU XMIT FLAG
1407 7610	SKP CLA	
1410 5327	JMP XMRSER	/XMIT FLAG SET GO SERVICE IT
1411 6031	KSF	/SKIP ON RECEIVE FLAG
1412 7610	SKP CLA	
1413 5776	JMP RECSER	/SERVICE THE RECEIVE FLAG AND COMPARE DATA
1414 6137	CLSK	/SKIP ON REAL TIME CLOCK FLAG
1415 7610	SKP CLA	
1416 5333	JMP RTCSER	/GO SERVICE THE RTC FLAG
1417 6571	DBSK	/SKIP ON P I/O DATA READY FLAG
1420 7610	SKP CLA	
1421 5224	JMP PIOSER	/GO SERVICE THE PARALLEL I/O FLAG
1422 4427	ERROR	/ILLEGAL INTERRUPT
1423 5445	JMP I TEST	/RESTART THE TEST

/12 BIT PARALLEL I/O INTERACTIVE SERVICE ROUTINE TEST 42

1424 1066	PIOSE, TAD M10	/SET UP A COUNTER OF M10 FOR
1425 3076	DCA PNOINT	/PARALLEL I/O NO INTERRUPT ERROR
1426 6572	DBRD	/READ THE 12 BIT P I/O DATA WORD
1427 6573	DBCF	/CLEAR THE DATA READY FLAG
1431 3052	DCA PIOREC	/SAVE THE WORD READ
1432 4427	ERROR	/SKIP AND CLEAR DATA ACCEPTED + DATA AVAIL.
1433 6570	DBST	/DBCF FAILED TO SET DATA ACCEPTED
1434 7610	SKP CLA	/SKIP ON DATA ACCEPTED
1435 4427	ERROR	
1436 4775	JMS CMPACL	/FIRST FAILED TO CLEAR DATA ACCEPTED
1437 1051	TAD PIOXHT	/COMPARE THE AC DATA AND LINK
1440 7041	CIA	/COMPARE THE XMITTED WITH WORD READ
1441 1052	TAD PIOREC	
1442 7640	SEA CLA	/ARE THEY EQUAL?
1443 4774	JMS PIOERR	/NO DATA ERROR
1444 7301	CLA CLL IAC	/GENERATE A RANDOM AC DATA WORD
1445 1323	TAD RAN1	
1446 1324	TAD RAN2	
1447 7106	CLL RTL	
1450 3323	DCA RAN1	
1451 1324	TAD RAN2	
1452 7012	RTY	
1453 1323	TAD RAN1	
1454 3324	DCA RAN2	
1455 1324	TAD RAN2	
1456 3071	DCA EXPACD	/SAVE THE EXPECTED AC DATA WORD
1457 7010	RAR	
1462 3072	DCA LINK	/SAVE THE EXPECTED LINK
1461 2051	ISZ PIOXHT	/ADD ONE TO THE WORD TO BE TRANSMITTED
1462 1051	TAD PIOXMT	/GET THE WORD
1463 6574	DBTD	/LOAD AND TRANSMIT IT
1464 7300	CLA CLL	
1465 5306	JMP AGLION	/GO GET THE AC DATA WORD AND LION

```

1466 1073 RTCSLU, TAD XMTFLG /CHECK ALL DEVICES TO BE INTERRUPTING
1467 1074 TAD RECFLG /
1470 1075 TAD RTCFLG /
1471 7650 SNA CLA /ARE THEY?
1472 5276 JMP RESET /YES RESET FLAGS TO INACTIVE
1473 2077 ISZ INACTV /BUMP DEVICE INACTIVE COUNTER
1474 5306 JMP ACION /CONTINUE THE TEST
1475 4773' JMS INACDV /ERROR A DEVICE IS INACTIVE
1476 7340 RESET, CLA CLL CMA
1477 3073 DCA XMTFLG /SET SLU XMIT FLAG TO INACTIVE
1500 7240 CLA CMA
1501 3074 DCA RECFLG /SET SLU REC FLAG TO INACTIVE
1502 7240 CLA CMA
1503 3075 DCA RTCFLG /SET RTC FLAG TO INACTIVE
1504 1372 TAD (+48) /RESET DEVICE INACTIVE COUNTER
1505 3077 DCA INACTV /TO -48
1506 4771' ACION, JMS RETURN /TO SETUP INTERRUPT RETURN
1507 1522 INTERA /SETUP AC AND LINK AND TURN INTERRUPT ON
1510 7300 CLA CLL
1511 1072 TAD LINK /GET THE LINK
1512 7004 RAL
1513 1071 TAD EXPACD /GET THE AC DATA WORD
1514 6001 ION /TURN THE INTERRUPT ON
1515 2076 ISZ PNOINT /ADD 1 TO P/I/O NO INTERRUPT COUNTER
1516 5722 JMP I INTERA /RETURN TO PROGRAM
1517 7300 CLA CLL
1520 4427 ERROR /ERROR PARALLEL I/O FAILED TO INTERRUPT
1521 5445 JMP I TEST /RESTART THE TEST

1522 0000 INTERA, F
1523 1234 RAN1, 1234
1524 5670 RAN2, 5670
1525 0000 ACQRET, 0
1526 2000 LINKRT, 0

/SERIAL LINE UNIT INTERACTIVE TRANSMITTER SERVICE ROUTINE TEST 42
1527 3073 XMTSER, DCA XMTFLG /SET TRANSMITTER ACTIVE FLAG
1530 6042 TCF /CLEAR THE TRANSMIT FLAG
1531 4775' JMS CMPACL /COMPARE THE AC DATA WORD AND LINK
1532 5266 JMP RTCSLU /GO CHECK FOR ACTIVE DEVICES

/REAL TIME CLOCK INTERACTIVE CLOCK SERVICE ROUTINE TEST 42
1533 3075 RTCSER, DCA RTCFLG /SET CLOCK ACTIVE FLAG
1534 6136 CLCL /CLEAR THE CLOCK FLAG
1535 4775' JMS CMPACL /COMPARE THE AC AND LINK
1536 1022 TAD OP2SEL /CHECK TO SEE IF RUNNING ON ACT LINE
1537 7700 SMA CLA /IS IT?
1540 5346 JMP ,+6 /NO
1541 2102 ISZ ACTCNT /1 SECOND YET?
1542 5346 JMP ,+4 /RESET ACT COUNTER
1543 1103 TAD H144


```

```

1544 3102 DCA ACTCNT /SAVE IT
1545 4136 JMS TSTGOD /GOOD PAS SO FAR
1546 2047 ISZ TSTCNT /INCREMENT PROGRAM TEST COUNTER
1547 5266 JMP RTCSLU /GO CHECK FOR ACTIVE DEVICES
1550 4470 JMS I DELAYR /DELAY FOR 200MS TO ALLOW FLAGS TO SETTLE
1551 6007 CAF /CLEAR ALL FLAGS BUT SET SLU INT ENA
1552 4136 JMS TSTGOD /GOOD AGAIN!!!
1553 4435 SWCHCK /CHECK SR21 TO LOOP ON TEST
1554 7006 RTL
1555 7710 SPA CLA /LOOP?
1556 5445 JMP I TEST /YES, DO TEST OVER
1557 5440 PRGEND /NO, END OF TEST


```

```

1551 1620
1552 7743
1553 1670
1554 1742
1555 1621
1556 1600
1557 2641
1600 1600
PAGE

```

```

/SERIAL LINE UNIT INTERACTIVE RECEIVER SERVICE ROUTINE TEST 42
1600 3074 RECSER, DCA RECFLG /SET RECEIVE FLAG TO ACTIVE
1601 6036 KRB /CLEAR AC AND FLAG AND READ BUFFER
1602 3054 DCA SLUREC /SAVE THE WORD READ
1603 4221 JMS CMPACL /COMPARE THE AC AND LINK
1604 1053 TAD SLUXMT /COMPARE THE WORD TRANSMITTED WITH WORD READ
1605 7041 CIA
1606 1054 TAD SLUREC /ARE THEY EQUAL?
1607 7640 SZA CLA /NO, DATA ERROR
1610 4317 JMS SLUERR /ADD ONE TO THE WORD TO BE TRANSMITTED
1611 1053 TAD SLUXMT /
1612 7001 IAC /MASK OUT FOR THE EIGHT BITS
1613 2056 AND K377 /SAVE THE NEW WORD
1614 3053 DCA SLUXMT /GET THE WORD AND TRANSMIT IT
1615 1053 TAD SLUXMT /LOAD AND TRANSMIT THE WORD
1616 6046 TLS
1617 7300 CLA CLL
1620 5777' JMP RTCSLU /GO CHECK FOR ACTIVE DEVICES AND RESET THE AC


```

```

/ROUTINE TO CHECK THAT THE AC AND LINK DIDN'T CHANGE DURING INTERACTION TEST 42
1621 0000 CMPACL, 0 /GET THE EXPECTED AC DATA
1622 1071 TAD EXPACD /GET THE DATA RETURNED
1623 7041 CIA
1624 1776' TAD ACQRET /ARE THEY EQUAL?
1625 7640 SZA CLA /NO, ERROR
1626 5234 JMP ACLERR


```

```

1627 1072      TAD      LINK      /GET EXPECTED LINK
1630 7041      CIA
1631 1775      TAD      LINKRT   /GET THE RETURN LINK
1632 7650      SNA      CLA      /ARE THEY EQUAL?
1633 5621      JMP I    CMPACL  /YES,RETURN TO TEST
1634 1221      ACLERR, TAD  CMPACL
1635 3237      DCA      ,*2
1636 7610      SKP      CLA
1637 7482      HLT/CMPACL
1640 4774      JMS      ACTCHK  /CHECK TO SEE IF RUNNING ON ACT LINE
1641 4435      SWHCHK
1642 7710      SPA      CLA      /CHECK SR0#1 TO INHIBIT ERROR HALT
1643 5263      JMP I    ACLLOP  /INHIBIT ERROR HALT,GO CHECK LOOP SWITCH
1644 7240      CLA      CMA
1645 1221      TAD
1646 7402      HLT      CMPACL
1647 7200      CLA
1650 1071      TAD      EXPACD  /THE AC CONTAINS AC DATA BEFORE INTERRUPT
1651 7402      HLT
1652 7200      CLA
1653 1776      TAD      ACDBET  /
1654 7402      HLT
1655 7200      CLA
1656 1072      TAD      LINK    /THE AC CONTAINS AC DATA AFTER INTERRUPT
1657 7402      HLT
1660 7200      CLA
1661 1775      TAD      LINKRT  /THE AC CONTAINS THE LINK BEFORE INTERRUPT
1662 7402      HLT
1663 4435      ACLLOP, SWHCHK  /THE AC CONTAINS LINK AFTER INTERRUPT
1664 7004      RAL
1665 7710      SPA      CLA      /CHECK SR 1 TO LOOP ON ERROR
1666 5446      JMP I    TSTLOP  /SCOPE LOOP
1667 5621      JMP I    CMPACL  /RETURN TO TEST

/INACTIVE DEVICE ERROR

1670 0000      INACDV, ?
1671 4774      JMS      ACTCHK  /CHECK TO SEE IF RUNNING ON THE ACT LINE
1672 4435      SWHCHK
1673 7710      SPA      CLA      /INHIBIT ERROR HALT?
1674 5312      JMP I    INACLP
1675 7240      CLA      CMA
1676 1270      TAD      INACDV
1677 7402      HLT
1700 7300      CLA      CLL
1701 1073      TAD      XMTFLG
1702 7640      SZA      CLA
1703 7402      HLT
1704 1074      TAD      REGFLG
1705 7640      SZA      CLA
1706 7402      HLT
1707 1075      TAD      RTFLG
1710 7640      SZA      CLA
1711 7402      HLT
1712 4435      INACLP, SWHCHK  /SLU XMIT FLAG IS INACTIVE
                                         /SLU RECEIVE FLAG IS INACTIVE
                                         /RTC FLAG IS INACTIVE
                                         /CHECK SR1#1 TO LOOP ON ERROR

```

```

1713 7004      RAL
1714 7710      SPA      CLA
1715 5446      JMP I    TSTLOP  /SCOPE LOOP
1716 5670      JMP I    INACDV  /RETURN TO THE TEST

```

```

/SLU DATA ERROR DURING INTERACTION TEST 42

1717 2000      SLUERR, ?
1720 4774      JMS      ACTCHK  /CHECK TO SEE IF RUNNING ON ACT LINE
1721 4435      SWHCHK
1722 7710      SPA      CLA
1723 5335      JMP I    SLULOP  /SR#1 INHIBIT ERROR HALT=CHECK LOOP SW
1724 7240      CLA      CMA
1725 1317      TAD      SLUERR
1726 7402      HLT
1727 7200      CLA
1732 1053      TAD      SLUXMT
1731 7422      HLT
1732 7200      CLA
1733 1054      TAD      SLUREC
1734 7402      HLT
1735 4435      SLULOP, SWHCHK  /AC = WORD THAT WAS READ
1736 7004      RAL      /CHECK SR1#1 TO LOOP ON ERROR
1737 7710      SPA      CLA
1740 5446      JMP I    TSTLOP  /SCOPE LOOP
1741 5717      JMP I    SLUERR  /RETURN TO TEST

```

```

/PARALLEL I/O DATA ERROR DURING INTERACTION TEST 42

1742 0000      PIOERR, ?
1743 4774      JMS      ACTCHK  /CHECK TO SEE IF RUNNING ON ACT LINE
1744 4435      SWHCHK
1745 7710      SPA      CLA
1746 5360      JMP I    PIOLOP  /INHIBIT ERROR HALT?
1747 7240      CLA      CMA  /YES, CHECK LOOP SWITCH
1750 1342      TAD      PIOERR
1751 7402      HLT
1752 7200      CLA
1753 1051      TAD      PIOXMT
1754 7402      HLT
1755 7200      CLA
1756 1052      TAD      PIOREC
1757 7402      HLT
1760 4435      PIOLOP, SWHCHK  /AC = THE WORD READ FROM P I/O
1761 7004      RAL      /LOOP ON ERROR IF SR1#1
1762 7710      SPA      CLA
1763 5446      JMP I    TSTLOP  /SCOPE LOOP
1764 5742      JMP I    PIOERR  /RETURN TO TEST

```

```

1774 0726
1775 1526
1776 1525
1777 1466

```

/DKC8=BA OPTION TEST 1 MAINDEG=080=DJDKA=B=M 1K PART 4 PAL10 V142A 16-JUN-75 9106 PAGE 2/25
2200 200

i

/DKC8-B-A OPTION TEST 1 MAINDEC-08-DJDKA-B-L 1K PART 4 PAL12 V142A 16-JUN-75 9106 PAGE 2-26

4000
4100

4200
4300

4400
4500

4600
4700

5000
5100

5200
5300

5400
5500

5600
5700

6000
6100

6200
6300

6400
6500

6600
6700

7000
7100

7200
7300

7400
7500

7600
7700

AC	0451	DBSS	6577	KJMP7	0665	RTCSLU	1466
ACDRET	1525	DBST	6570	KJMPRT	0672	RTCTIM	1208
ACLERR	1634	DBTD	6574	KRB	6036	RTF	6005
ACLION	1536	DELAY	1360	KRMF	0131	RTIMOK	0246
ACLLOP	1663	DELAYR	0070	KRS	6034	SAVADD	0124
ACTCHK	0726	DERPIO	1111	KRTF	0133	SAVCNT	0050
ACTCK2	0500	DERSLU	1134	KSF	6031	SAVLDC	0640
ACTCNT	0102	DONLDP	4424	KSFWAT	4432	SBE	6101
ACTFLG	0134	ENARTC	0146	KTEST	0666	SIMCHK	4436
ACTRET	0764	ENDPAS	0600	LINK	0072	SIMCLR	6160
ADDTIM	0563	ERROR	4427	LINKRT	1526	SIMCNT	0067
AERROR	0675	ERRPC	0743	LOADSM	6151	SIMINT	0444
AERSWH	0707	EXPACD	0071	LOOPFRQ	6163	SIMLSD	0414
BADPAS	0100	FLGCK1	0505	LOOSIM	4437	SIMWRD	0734
BAUDRT	1305	FLGCK2	0510	LOOPPC	4423	SKPCHN	0452
BAUDTB	1310	FLGCK3	0513	LOOPSW	0437	SKPDAV	6165
BAUDWD	1304	FLGCK4	0516	LOOPDN	0421	SKPFREQ	6162
BDFNTR	1307	FLGCK5	0521	M10	2066	SKPRDR	6157
BR110	1320	FLGRST	0667	M144	0103	SKPSR	6167
BR1200	1340	FRCNT	0290	M15	1371	SLUDAT	4433
BR120	1324	FROTAB	0321	M4	0265	SLUDER	4434
BR2400	1344	GOODPS	0101	M40	0374	SLUERR	1737
BR320	1330	GTF	6004	ONACTL	0765	SLUINT	1271
BR4800	1350	HLT	7402	OP11K4	0000	SLULOP	1735
BR620	1334	INACOV	1670	OP1SEL	0021	SLUREC	0054
BR9600	1354	INACUP	1712	OP2SEL	0022	SLUSTR	1290
C7	0670	INACTV	0077	PATCH	0104	SLUSWH	1154
CAF	6007	INTERA	1522	PCLOOM	0400	SLUTIM	1223
GAL	6103	INTFLG	0041	PIODAT	4426	SLUTOK	0317
CHKACT	0744	INTON	1264	PIODER	4430	SLUXYT	0053
CHKSIM	1161	INTRET	0530	PIODERH	1742	SPI	6045
CHKSWH	0007	INTSKP	1400	PIOLOF	1760	SPL	6102
CLCL	6136	K0	0636	PIOREC	0052	STPBIT	1386
CLKFLG	0042	K1	0125	PIOSER	1424	STRFRQ	6161
CLKSET	0752	K10	0671	PIOSWH	1127	SWCHWK	4435
CLKSNC	0135	K11	0673	PIOXMT	0051	SWITCH	0020
CLLE	6135	K12	0674	PNOINT	0076	TABFRQ	0300
CLRDET	6156	K125	0061	POWFAL	0641	TCF	6042
CLRS14	6150	K2	0126	PROENV	5440	TEST	0045
CLSK	6137	K200	0057	RAN1	1523	TEST40	0205
CLSKWT	4425	K252	0060	RAN2	1524	TEST41	0252
CMPACL	1621	K2525	0063	RECFLG	0074	TEST42	0331
CNT	0043	K3	0127	RECSEER	1630	TFL	6040
CNT1	0044	K377	0056	RESET	1476	TLS	6046
CONTWD	0055	K5252	0062	RETADU	3637	TPC	6044
DATBIO	1000	K7	0064	RETURN	0620	TSF	6041
DATSLU	1053	K7710	0150	RMP	6244	TSFWAT	4431
DBCEFL	6576	KCC	6032	RTCENA	4146	TSTCNT	0047
DBCF	6573	KCDF	0132	RTCFLG	0075	TSTOOD	0136
DBRD	6572	KCF	6030	RTCFRQ	0251	TSTLDP	0046
DBSE	6575	KIE	6035	RTCTINT	1215	WATKSF	0542
DBSK	6571	KJMP	0130	RTCSER	1533	WATTSF	0531

/DKC6-BA OPTION TEST 1 MAINDEC=0F=DJDKA=B=L 1K PART 4 PAL10 V142A 16-JUN-75 9106 PAGE 2-29

WTCLK 0553
XMTFLG 0273
XMTSER 1527

ERRORS DETECTED: 0
LINKS GENERATED: 26
RUN-TIME: 18 SECONDS
2K CORE USED