

IDENTIFICATION

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1,0 ABSTRACT

KMB-A OPTION TEST 2 IS A PROGRAM TO CHECKOUT THE PDP-BA OPTION BOARD #2 (M8317). THE DEVICES TESTED BY THE PROGRAM ARE THE MEMORY EXTENSION/TIME SHARE CONTROL LOGIC, POWER FAIL/AUTO-RESTARTS, AND THE BOOTSTRAP LOADERS. A OPTION 1 + 2 TEST MODULE (G5041) CAN BE USED IN CONJUNCTION WITH THE M8317 AND THE PROGRAM TO DECREASE THE TEST TIME AND TO ALLEVIATE OPERATOR INTERVENTION.

THE PROGRAM IS STRUCTURED SO THAT IT MAY RUN ON OR OFF THE PDP-BA ACT TEST LINE, WITH OR WITHOUT THE OPTION 1 + 2 TEST MODULE, OR ANY COMBINATION OF THE ABOVE WITH THE PDP-BA OPTION BOARD #2;

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

THE FOLLOWING HARDWARE IS REQUIRED FOR THE EXECUTION OF THIS PROGRAM:

PROCESSOR(S)

PDP-BA

MEMORY

MINIMUM OF 4K OF MEMORY FOR THE COMPLETE PROGRAM

MINIMUM OF 1K OF MEMORY FOR THE SEGMENTED 1K VERSIONS OF THE PROGRAM,

OPTIONS

IF OPTION BOARD #2 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-BA OPTION BOARD #2 (M8317)
2. ONE QUAD EXTENDER MODULE

SPECIAL

1. PDP-BA OPTION BOARD #2 (M8317)
2. OPTION 1 + 2 TEST MODULE (G5041)
3. ONE QUAD EXTENDER MODULE
4. TWO IC SOCKET CONNECTOR CABLES (PN=7008612)

2,2 STORAGE

THE 4K VERSION AND THE 1K VERSIONS OF THE KMB-A OPTION TEST 2 MUST RESIDE IN FIELD 0, THE 4K VERSION OF THE PROGRAM OCCUPIES LOCATIONS 0000 TO 5177 AND USES LOCATIONS 9200 TO 7777 AS A BUFFER AREA, THE 1K VERSIONS OF THE PROGRAM OCCUPIES FOR THE MOST PART LOCATIONS 0000 TO 1777, AND IT MUST RESIDE IN THE 1ST 1K.

2,3

PREREQUISITE SOFTWARE

PDP-8A CPU TEST

PDP-8A MEMORY TEST

IF 4K OF MEMORY = 2K TO 32K PDP-8A PROCESSOR EXERCISER

IF LESS THAN 4K = 1K TO 32K RANDOM MEMORY REFERENCE INSTRUCTION EXERCISER

3,0

RESTRICTIONS

1. ONCE THE PROGRAM HAS BEEN STARTED, BINARY LOADER WILL BE DESTROYED IF USED.

2. ALL OPTIONS ASSOCIATED WITH THE BOOTSTRAP LOADERS MUST BE UNPLUGGED FROM THE COMPUTER.

4,0

STANDARD TEST PROCEDURE

THE FOLLOWING PARAGRAPHS MUST BE FOLLOWED EXPLICITLY TO SETUP THE HARDWARE, LOAD THE PROGRAM, AND TO INITIALIZE THE PROGRAM.

4,2 HARDWARE SETUP

4,3 LOADING THE PROGRAM

4,4 PROGRAM INITIALIZATION

THE PROGRAM IS DIVIDED INTO FOUR 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 MEMORY EXTENSION/TIME SHARE TEST, PARAGRAPH 4,5, WHICH WILL INCLUDE THE MEMORY EXTENSION/TIME SHARE TESTS ENABLED AND DISABLED, THE BOOTSTRAP TEST, AND AUTO RESTART TEST. IF THE OPTION 1 + 2 TEST MODULE IS NOT USED, DO THE FOLLOWING TEST:

RUN MEMORY EXTENSION/TIME SHARE TEST = PARAGRAPH 4,5

RUN TIME SHARE DISABLE TEST = PARAGRAPH 4,6

RUN BOOTSTRAP/SIMULATOR TEST = PARAGRAPH 4,7

RUN AUTO RESTART/POWER FAIL TEST = PARAGRAPH 4,8

4,1

CHANGING IOT CODES

NOT APPLICABLE

4,2

HARDWARE SETUP

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

A. POWER THE COMPUTER DOWN

B. UNPLUG THE M8317 MODULE FROM THE COMPUTER

C. PLUG THE QUAD EXTENDER INTO THE SLOT THE M8317 OCCUPIED

D. PLUG THE M8317 MODULE INTO THE QUAD EXTENDER

E. SET ALL THE SWITCHES ON THE M8317 MODULE TO THE OFF POSITION

F. IF THE OPTION 1 + 2 TEST MODULE IS TO BE USED DO THE FOLLOWING, IF NOT GO TO STEP G IN THIS SECTION,

G. TAKE ONE END OF THE IC SOCKET CONNECTOR CABLE AND PLUG IT INTO E93 ON THE M8317 MODULE(OBSERVING PIN 1 ORIENTATION).

2. TAKE THE OTHER END OF THE CABLE AND PLUG IT INTO TS-1 (ABOVE E63) ON THE G5041 MODULE;
3. TAKE ONE END OF THE NEXT IC SOCKET CONNECTOR CABLE AND PLUG IT INTO E88 ON THE M8317 MODULE;
4. TAKE THE OTHER END OF THE CABLE AND PLUG IT INTO TS-2 (ABOVE E70) ON THE G5041 MODULE;
5. PLUG THE OPTION 1 + 2 TEST MODULE(G5041) INTO THE COMPUTER;
- G. POWER THE COMPUTER BACK UP;
- H. GO TO PARAGRAPH 4,3, LOADING THE PROGRAM,

4,3 LOADING THE PROGRAM

COMPUTERS WITH 4K OF MEMORY WILL USE THE BINARY PAPER TAPE LABELED MAINDEC-08-DJKMA-A-PB1; COMPUTERS WITH LESS THAN 4K OF MEMORY WILL USE THE FOUR 1K SEGMENTED RIM PAPER TAPES WHICH ARE LABELED AS FOLLOWS:

1. MAINDEC-08-DJKMA-A-PM1 = 1K VERSION PART 1
 2. MAINDEC-08-DJKMA-A-PM2 = 1K VERSION PART 2
 3. MAINDEC-08-DJKMA-A-PM3 = 1K VERSION PART 3
 4. MAINDEC-08-DJKMA-A-PM4 = 1K VERSION PART 4
- A. IF THE COMPUTER CONTAINS 4K OF MEMORY OR MORE, DO STEP B;
OTHERWISE, DO STEP C BELOW FOR COMPUTERS WITH LESS THAN 4K OF MEMORY;
 - B. LOAD THE BINARY TAPE MENTIONED ABOVE USING THE STANDARD BINARY LOADER TECHNIQUE, AFTER THE TAPE HAS BEEN SUCCESSFULLY LOADED GO TO PARAGRAPH 4,4, PROGRAM INITIALIZATION;
 - C. TO LOAD THE 1K SEGMENTED RIM PAPER TAPES MENTIONED ABOVE, DEPOSIT INTO LOCATIONS LISTED BELOW THE APPROPRIATE RIM LOADER FOR THE LOADING DEVICE TO BE USED,

HIGH SPEED READER		LOW SPEED READER	
ADDRESS	CONTENT	ADDRESS	CONTENT
0156	6014	0156	6032
0157	6011	0157	6031
0160	5357	0160	5357
0161	6010	0161	6036
0162	7100	0162	7106
0163	7000	0163	7006
0164	7510	0164	7510
0165	5374	0165	5357
0166	7000	0166	7006
0167	6011	0167	6031
0170	5367	0170	5367
0171	6010	0171	6034
0172	7420	0172	7420
0173	3776	0173	3776
0174	3376	0174	3376
0175	5357	0175	5356

- D. PLACE THE APPROPRIATE 1K SEGMENT INTO THE READER, "LOAD ADDRESS" TO 0156,
PRESS "INIT" AND THEN "RUN".
- E. WHEN THE TAPE HAS BEEN LOADED, STOP THE COMPUTER, GO TO PARAGRAPH 4,4,
PROGRAM INITIALIZATION.

4,4 PROGRAM INITIALIZATION

THE PROGRAM WHEN LOADED IS INITIALIZED TO RUN WITHOUT THE HARDWARE FRONT PANEL SWITCH REGISTER, WITHOUT OPTION 1 + 2 TEST MODULE, 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 FOR THE BITS LISTED BELOW:

NOTE! IF MEMORY SIZE IS LARGER OR SMALLER THAN LISTED ABOVE, IT SHOULD BE CHANGED IN LOCATION 0021,

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 2 = 1 HAS A M8317 OPTION 2 MODULE

BIT 4 = 0 THE PROGRAM WILL NOT USE THE OPTION 1 + 2 TEST MODULE TO TEST THE M8317,
BIT 4 = 1 THE PROGRAM WILL USE THE OPTION 1 + 2 TEST MODULE TO TEST THE M8317,

BITS 7-11 SPECIFIES THE POP-BAS'S MEMORY SIZE, ALL ZEROS INDICATES 1K OF MEMORY, AN ADDITION OF 1 TO THE NUMBER IN BITS 7-11 INCREASES MEMORY SIZE BY 1K,

GO TO PARAGRAPH 4,5, MEMORY EXTENSION/TIME SHARE TEST,

4,5

RUN MEMORY EXTENSION/TIME SHARE TEST.

THE TAPE(S) TO BE USED TO RUN THIS TEST ARE AS FOLLOWS:

COMPUTERS WITH AT LEAST 4K OF MEMORY

MAINDEC=08=DJKMA=A=PB1

COMPUTERS WITH LESS THAN 4K OF MEMORY

MAINDEC=08=DJKMA=A=PM1
MAINDEC=08=DJKMA=A=PM2

NOTE! IF OPTION 1 + 2 TEST MODULE IS SELECTED AND THE COMPUTER CONTAINS 4K OF MEMORY OR MORE, THIS TEST IS THE ONLY TEST REQUIRED TO BE RUN WITH THE 4K PROGRAM LISTED ABOVE,

A. LOAD ADDRESS TO ONE OF THE FOLLOWING ADDRESSES FOR THE TAPE(S) TO BE RUN:

ADDRESS 0200 (RESTART 0201 IF OPTION 1 + 2 TEST MODULE IS USED) =MAINDEC=08=DJKMA=A
ADDRESS 0200 =MAINDEC=08=DJKMA=A=PM1
ADDRESS 0200 =MAINDEC=08=DJKMA=A=PM2

B. SET THE SWITCH REGISTER OR PSEUDO SWITCH REGISTER, WHICHEVER WAS SELECTED, TO 0000.

C. PRESS "INIT" AND THEN "RUN".

D. SETTING THE SWITCH REGISTER OR PSEUDO SWITCH REGISTER, WHICHEVER WAS SELECTED, TO 0400 WILL CAUSE THE COMPUTER TO HALT AT THE END OF A PROGRAM PASS, THE LOCATION AT WHICH IT WILL HALT, WILL BE ONE OF THE FOLLOWING FOR THE TAPE THAT IS BEING RUN:

LOCATION 5040 = MAINDEC=08=DJKMA=A=PB1
LOCATION 1634 = MAINDEC=08=DJKMA=A=PM1
LOCATION 1634 = MAINDEC=08=DJKMA=A=PM2

E. THE PROGRAM WILL NOW RUN UNTIL AN ERROR IS ENCOUNTERED OR THE PROGRAM IS STOPPED BY THE OPERATOR OR SR3=1.

F. AN ERROR MAY RESULT IN AN ERROR HALT OR A JMP SELF.

4,6

RUN TIME SHARE DISABLE TEST

THE TAPE(S) TO BE USED TO RUN THIS TEST ARE AS FOLLOWS:

COMPUTERS WITH AT LEAST 4K OF MEMORY

MAINDEC=08=DJKMA=A=PB1

COMPUTERS WITH LESS THAN 4K OF MEMORY

MAINDEC=08=DJKMA=A=PM3

A. ON THE MH317 MODULE, SET SWITCH 1 TO THE ON POSITION ON THE SWITCH PACKAGE WHICH LIES ABOVE I.C. E87, SETTING OF THIS SWITCH WILL DISABLE THE TIME SHARE LOGIC.

B. LOAD ADDRESS TO ONE OF THE FOLLOWING ADDRESSES FOR THE TAPE TO BE RUN:

ADDRESS 4255 = MAINDEC=08=DJKMA=A=PB1
ADDRESS 1255 = MAINDEC=08=DJKMA=A=PM3

C. SET SWITCH REGISTER OR PSEUDO SWITCH REGISTER, WHICHEVER WAS SELECTED, TO 0000, PRESS "INIT" AND THEN "RUN".

D. THE PROGRAM SHOULD HALT ON A SUCCESSFULL PASS AT LOCATION 4275 FOR MAINDEC=08=DJKMA=A=PB1 AND AT LOCATION 1275 FOR MAINDEC=08=DJKMA=A=PM3

E. SET THE SWITCH THAT WAS SET IN STEP A ABOVE TO THE OFF POSITION.

F. GO TO PARAGRAPH 4,7, RUN BOOTSTRAP/SIMULATOR TEST.

4,7 RUN BOOTSTRAP/SIMULATOR TEST

IF A OPTION 1 + 2 TEST MODULE IS NOT USED WITH THE PROGRAM, GO TO PARAGRAPH 4,7,2, RUN BOOTSTRAP TEST,

IF A OPTION 1 + 2 TEST MODULE IS USED WITH THE PROGRAM AND THE COMPUTER CONTAINS LESS THAN 4K OF MEMORY, GO TO PARAGRAPH 4,7,1, RUN SIMULATOR TEST,

4,7,1, RUN SIMULATOR TEST

THE TAPE TO BE USED WITH THIS TEST IS MAINDEC-08-DJKMA-A-PH3,

THIS TEST USES THE OPTION 1 + 2 TEST MODULE TO CHECK THE EMA LINES, TIME SHARE DISABLE, AC LOW AND BATTERY EMPTY FLIP-FLOPS,

A, LOAD ADDRESS TO 0201

B, SET THE SWITCH REGISTER OR THE PSEUDO SWITCH REGISTER, WHICHEVER WAS SELECTED, TO 0000,

C, PRESS "INIT", AND THEN "RUN";

D, THE PROGRAM WILL NOW RUN UNTIL AN ERROR IS ENCOUNTERED, STOPPED BY THE OPERATOR, OR SWITCH REGISTER 3 SET TO A 1,

E, SETTING SWITCH REGISTER 3 TO A 1 WILL CAUSE THE COMPUTER TO HALT AT LOCATION 1640;

F, WHILE RUNNING THIS PROGRAM THE RUN LIGHT WILL BE BLINKING ON AND OFF,

4,7,2 RUN BOOTSTRAP TEST

THE TAPE(S) TO BE USED TO RUN THIS TEST ARE AS FOLLOWS:

COMPUTERS WITH AT LEAST 4K OF MEMORY

MAINDEC-08-DJKMA-A-PB1

COMPUTERS WITH LESS THAN 4K OF MEMORY

MAINDEC-08-DJKMA-A-PH3

NOTE: DISABLE OR UPLUG FROM THE COMPUTER ANY DEVICES ASSOCIATED WITH THE BOOTSTRAPS,

A, SET ALL THE SWITCHES ON THE M8317 MODULE TO THE OFF POSITION,

B, SET THE SWITCHES S1=6,S1=7,S1=8 ON THE SWITCH PACKAGE WHICH LIES ABOVE I,C, E79 ON THE M8317 MODULE TO THE ON POSITION;

C, SET THE SWITCHES ON THE M8317 MODULE TO THE BOOTSTRAP TO BE TESTED FROM THE TABLE BELOW;

NOTE: ONLY THE RK8E BOOTSTRAP CAN BE TESTED ON 1K COMPUTERS.

WHEN REFERENCING SWITCHES IN THE TABLE BELOW, S2 IS THE SWITCH PACKAGE LOCATED ABOVE I,C, E87, AND S1 IS LOCATED ABOVE I,C, E79,

BOOTSTRAP	S2 SWITCHES	S1 SWITCHES
	S2=5 S2=6 S2=7 S2=8	S1=1 S1=2 S1=3
HJ=LO PT RDR	ON ON ON OFF	ON ON ON
RK8E	ON OFF ON OFF	ON OFF ON
TC08	ON OFF OFF ON	OFF ON ON
RF08/DF320	OFF ON ON ON	ON OFF OFF
TABE	OFF ON ON OFF	ON OFF OFF

- D, LOAD ADDRESS TO ONE OF THE FOLLOWING ADDRESSES FOR THE TAPE THAT IS TO BE RUN:

ADDRESS 4465 = MAINDEC=08=DJKMA=A=PB1
ADDRESS 1465 = MAINDEC=08=DJKMA=A=PM3

- E, PRESS "INIT" AND THEN "RUN", THIS WILL CLEAR THE BOOTSTRAP LOCATIONS IN MEMORY THAT THE BOOTSTRAPS WILL LOAD INTO;
- F, THE PROGRAM WILL HALT AT LOCATION 4515 FOR MAINDEC=08=DJKMA=A=PB1 OR 1515 FOR MAINDEC=08=DJKMA=A=PM3;
- G, TOGGLE THE BOOT SWITCH OR BOOT KEY, THE MODULE SHOULD DO A BOOTSTRAP AND THE COMPUTER SHOULD BE RUNNING;
- H, HALT THE COMPUTER AND LOAD ADDRESS TO ONE OF THE FOLLOWING ADDRESSES FOR THE TAPE THAT IS BEING RUN:

ADDRESS 4400 = MAINDEC=08=DJKMA=A=PB1
ADDRESS 1400 = MAINDEC=08=DJKMA=A=PM3

- I, THE PROGRAM WILL HALT AT ADDRESS 4400 FOR MAINDEC=08=DJKMA=A=PB1 OR 1400 FOR MAINDEC=08=DJKMA=A=PM3;
- J, SET THE SWITCH REGISTER OR THE PSEUDO SWITCH REGISTER, WHICHEVER WAS SELECTED, TO THE BOOTSTRAP TO BE COMPARED FROM THE TABLE BELOW:

BOOTSTRAP	S,R, SETTINGS

HJ=LO PT RDR	0000
TC08	0001
RF08/DF320	0002
TABE	0003
RK8E	0004

- K, PRESS "INIT" AND THEN "RUN";
- L, THE PROGRAM SHOULD HALT AT LOCATION 4461 FOR MAINDEC=08=DJKMA=A=PB1 OR 1461 FOR MAINDEC=08=DJKMA=A=PM3 IF THE BOOTSTRAP COMPARED OK;
- M, DO STEPS A THROUGH L FOR EACH BOOTSTRAP
- N, GO TO PARAGRAPH 4,8; RUN AUTO RESTART/POWER FAIL TEST.

4.8

RUN AUTO RESTART/POWER FAIL TEST

THE TAPE(S) TO BE USED TO RUN THIS TEST ARE AS FOLLOWS:

COMPUTERS WITH AT LEAST 4K OF MEMORY

MAINDEC=08=DJKMA=A=PB1

COMPUTERS WITH LESS THAN 4K OF MEMORY

MAINDEC=08=DJKMA=A=PM4

THE BATTERY SUPPLY SHOULD BE FULLY CHARGED TO RUN THIS TEST

- A. SET ALL SWITCHES TO THE OFF POSITION ON THE M8317 MODULE,
- B. SET SWITCHES 1, 3, 6, 7, AND 8 TO THE ON POSITION ON THE SWITCH PACKAGE WHICH IS LOCATED ABOVE E79 ON THE M8317 MODULE,
- C. SET SWITCHES 5 AND 7 TO THE ON POSITION ON THE SWITCH PACKAGE WHICH IS LOCATED ABOVE E87 ON THE M8317 MODULE;
- D. SET THE SWITCHES ON THE M8317 MODULE TO THE AUTO RESTART TO BE TESTED FROM THE TABLE BELOW,

NOTE! ON 1K COMPUTERS THE ONLY RESTARTS THAT CAN BE TESTED ARE AT 0000 AND 0200.

AUTO RESTART	S2 SWITCHES(ABOVE E87)
0000	S2=2 S2=3 S2=4 OFF OFF OFF
0200	OFF ON OFF
2000	ON OFF OFF
4200	ON ON OFF

- E. LOAD ADDRESS TO 4600 FOR MAINDEC=08=DJKMA=A=PB1 OR TO 0201 FOR MAINDEC=08=DJKMA=A=PM4,
- F. PRESS "INIT" AND THEN "RUN" ,
- G. THE PROGRAM WILL NOW FILL A BUFFER AREA WITH A COMPLEMENTING 5252 DATA PATTERN, AND THEN HALT AT LOCATION 4640 FOR MAINDEC=08=DJKMA=A=PB1 OR AT 0227 FOR MAINDEC=08=DJKMA=A=PM4,
- H. NOW SET THE SWITCH REGISTER OR THE PSEUDO SWITCH REGISTER, WHICHEVER WAS SELECTED, TO THE AUTO RESTART TO BE TESTED FROM THE TABLE BELOW,

AUTO RESTART	S,R, SETTINGS
0000	0003
0200	0002
2000	0001
4200	0000

- J, PRESS "INIT" AND THEN "RUN".
- K, THE PROGRAM NOW STARTS COMPARING THE DATA THAT WAS PUT IN THE BUFFER AREA.
- L, THE OPERATOR AT THIS TIME MUST UNPLUG THE AC LINE CORD; WHEN THE LINE CORD HAS BEEN UNPLUGGED, THE PROGRAM SHOULD HALT AT LOCATION 4763 FOR MAINDEC=08=DUKMA=A=PB1, OR AT LOCATION 0352 FOR MAINDEC=08=DUKMA=A=PM4.
- M, WITH A MINIMAL AMOUNT OF DELAY, THE OPERATOR MUST PLUG THE AC LINE CORD BACK IN, AT THIS TIME THE M8317 SHOULD DO A AUTO RESTART TO THE AUTO RESTART SELECTED, THE PROGRAM THEN CHECKS FOR THE CORRECT AUTO RESTART AND THEN GOES BACK TO COMPARING DATA.
- N, STEPS L AND M SHOULD BE REPEATED SEVERAL TIMES FOR EACH OF THE AUTO RESTARTS.

5,0 ERRORS

5,1 MEMORY EXTENSION/TIME SHARE TEST ERRORS

ALL ERRORS DETECTED UNDER THIS TEST WILL RESULT IN A HALT, AN ERROR HALT OR A JMP SELF FOR THE TAPES LISTED BELOW!

MAINDEC=08=DUKMA=A=PB1
MAINDEC=08=DUKMA=A=PM1
MAINDEC=08=DUKMA=A=PM2

REFER TO THE APPROPRIATE LISTING FOR THE ERROR, THE TEST BEING EXERCISED AND FOR THE TEST SEQUENCE BEING EXECUTED.

5,1,1 MEMORY EXTENSION/TIME SHARE TEST ERROR RECOVERY

REFER TO THE APPROPRIATE SECTION BELOW FOR THE ACTION TO BE TAKEN!

ERROR HALT ERRORS

A ERROR HALT IS WHEN THE COMPUTER HALTS AT LOCATION 5133 FOR PAPER TAPE MAINDEC=08=DUKMA=A=PB1 OR AT LOCATION 1727 FOR PAPER TAPES MAINDEC=08=DUKMA=A=PM1 AND =PM2, THE CONTENTS OF THE ACCUMULATOR FOR THIS ERROR HALT WILL CONTAIN THE LOCATION AT WHICH THE ERROR WAS DETECTED BY THE PROGRAM, REFER TO THE APPROPRIATE PROGRAM LISTING FOR THE CAUSE OF THE ERROR, SET THE SWITCH REGISTER TO 7000 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.

HALT/JMP SELF ERRORS

ANY ERROR ENCOUNTERED DURING A TEST SEQUENCE WHICH RESULTS IN A HALT OR A JMP SELF, REPLACE THE HALT OR JMP SELF WITH A JMP TEST(X) (X=TEST BEING EXECUTED I.E., JMP TEST1, JMP TEST2, ETC.,).

5,2 TIME SHARE DISABLE TEST ERRORS

ANY ERRORS DETECTED BY THIS TEST WILL RESULT IN A HALT AT LOCATION 5133 FOR TAPE MAINDEC=08=DJKMA=A=PB1, OR AT LOCATION 1733 FOR TAPE MAINDEC=08=DJKMA=A=PM31. THE CONTENTS OF THE AC WILL CONTAIN THE ADDRESS WHERE THE ERROR WAS DETECTED BY THE PROGRAM.

5,2,1 TIME SHARE DISABLE TEST ERROR RECOVERY

SET THE SWITCH REGISTER OR PSEUDO SWITCH REGISTER WHICHEVER WAS SELECTED AT PROGRAM INITIALIZATION TO 7000 AND PRESS "INIT" AND "RUN", THE PROGRAM IS NOW IN A SCOPE LOOP.

5,3 BOOTSTRAP TEST ERRORS

BOOTSTRAP ERRORS WILL BE GENERALLY OF TWO TYPES, WHICH ARE:
1) FAILED TO DO A BOOTSTRAP; 2) BOOTSTRAP FAILED TO COMPARE.
ANY ERRORS DUE TO 2 ABOVE WILL RESULT IN A ERROR HALT AT LOCATION 5133 FOR MAINDEC=08=DJKMA=A=PB1 OR AT LOCATION 1733 FOR MAINDEC=08=DJKMA=A=PM31. THE CONTENTS OF THE AC WILL CONTAIN THE ADDRESS WHERE THE ERROR WAS DETECTED BY THE PROGRAM.

5,3,1 BOOTSTRAP TEST ERROR RECOVERY

FOR FAILURE TYPE 1 ABOVE, CHECK FOR CORRECT SWITCH SETTINGS ON THE M8317 MODULE AND TRY AGAIN, IF THIS STILL DOES NOT PRODUCE A BOOTSTRAP, USE A SCOPE AND THE LOGIC PRINTS TO TROUBLE SHOOT THE ERROR.

FOR FAILURE TYPE 2 ABOVE, PRESSING CONTINUE 3 MORE TIMES WILL RESULT IN 3 MORE HALTS, WHICH WILL GIVE THE ADDRESS WHICH DIDN'T COMPARE, THE EXPECTED CONTENT OF THAT ADDRESS AND THE ACTUAL CONTENT OF THAT ADDRESS, IF THE OPTION 1 + 2 TEST MODULE WAS UTILIZED WITH THE PROGRAM, SET THE SWITCH REGISTER OR PSEUDO SWITCH REGISTER WHICH EVER WAS SELECTED TO 7000 AND PRESS "INIT" AND THEN "RUN", THE PROGRAM MAY HALT ONE MORE TIME AND THEN REPEAT THE SEQUENCE, THE PROGRAM IS NOW IN A SCOPE LOOP DOING THE BOOTSTRAPS, IF THE TEST MODULE WAS NOT USED, REPEAT THE BOOTSTRAP SEQUENCE SEVERAL TIMES, USING THE SCOPE AND LOGIC PRINTS TO TROUBLE SHOOT WITH,

5,4 AUTO RESTART/POWER FAIL TEST ERRORS

ANY ERRORS ENCOUNTERED DURING THIS TEST MAY BE DO TO THE BATTERY BEING DISCHARGED, IMPROPER MODULE SWITCH SETUP, FAILURE TO DO A AUTO RESTART, A AUTO RESTART TO THE WRONG ADDRESS, OR A DATA COMPARE ERROR,

5,4,1 AUTO RESTART/POWER FAIL TEST ERROR RECOVERY

AFTER ASSURING THE MODULE TO BE SETUP CORRECTLY AND RETRYING THE TEST, USE A SCOPE AND THE LOGIC PRINTS TO TROUBLE SHOOT THE PROBLEM,

6,0 SWITCH REGISTER SETTINGS

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

6,1 ERROR RELATED SWITCHES

SR0#1 (4000) INHIBIT ERROR HALT

SR1#1 (2000) LOOP ON ERROR

SR2#1 (1000) LOOP ON TEST SUCH AS TEST1, TEST2, ETC.,

7,0 REVISIONS

NONE

8,0 PROGRAM DESCRIPTION

TEST 1 = CHECKS THE CUF AND RDF INSTRUCTIONS TO LOAD AND READ THE DATA FIELD REGISTER, A RIF INSTRUCTION IS ISSUED AFTER EACH DATA FIELD CHANGE TO CHECK THAT THE INSTRUCTION FIELD REMAINS A ZERO; THE INCLUSIVE OR FUNCTION OF THE DATA FIELD AND THE AC IS CHECKED WITH THE RUF INSTRUCTION,

TEST 2 = CHECKS THAT USER MODE CAN BE ENTERED AND EXITED BY DOING A SINT-SUP-JMP-HLT, THE USER INTERRUPT IS CHECKED TO BE SET BY SINT AND CLEARED BY CINT, GTF AND RIB INSTRUCTIONS ARE ISSUED TO CHECK THAT THE SAVE FIELD REGISTERS GOT LOADED AND THAT THE INSTRUCTIONS CAN READ THE SAVE FIELD REGISTERS,

TEST 3 = CHECKS THAT USH WILL TRAP IN USER MODE AND THAT IT WILL NOT AFTER A USER INTERRUPT, RIB,GTF,RIF AND RDF INSTRUCTIONS ARE ISSUED TO CHECK THAT THEY READ THE APPROPRIATE REGISTERS,

TEST 4 = CHECKS THAT AN IOT WILL TRAP IN USER MODE AND THAT IT WILL NOT AFTER A USER INTERRUPT, THE USER INTERRUPT IS CHECKED TO BE CLEARED BY CAF, RIB AND GTF INSTRUCTIONS ARE ALSO ISSUED AND CHECKED,

TEST 5 - CHECKS THAT THE CJF INSTRUCTION WILL CLEAR THE USER MODE FLIP-FLOP BY DOING A SUF-CJF-JOT, THE JOT INSTRUCTION SHOULD NOT TRAP, RIB AND GTF INSTRUCTIONS ARE ISSUED AND CHECKED,

TEST 6 - CHECKS THAT USER MODE IS NOT ENTERED UNTIL A JMS INSTRUCTION IS ISSUED BY DOING A ION-SUF-JOT-OSR-LAS-JMS-HLT, INTERRUPT REQUEST AND LINK ARE CHECKED WITH THE GTF INSTRUCTION,

TEST 7 - CHECKS THAT THE USER FLAG IN THE SAVE FIELD REGISTER CAN BE CLEARED, THIS IS DONE BY LEAVING THE USER INTERRUPT F/F SET AFTER A TRAP AND THEN TURNING THE INTERRUPT BACK ON,

TEST 8 - CHECKS THAT THE RTF INSTRUCTION WILL RESET THE USER MODE AFTER A INTERRUPT,

TEST 9 - CHECKS THAT THE RMF INSTRUCTION WILL RESET THE USER MODE AFTER A INTERRUPT,

TEST 10 - CHECKS THAT USER MODE, LINK, AND ION CAN BE SET BY THE AC AND THE RTF INSTRUCTION AND THAT IT CAN BE CLEARED BY RTF,

TEST 11 - USING THE USER INTERRUPT F/F AND INTERRUPT ENABLE, THE INSTRUCTION FIELD REGISTER CAN BE INDIRECTLY CHECKED TO HAVE SET BY CHECKING THE SAVE FIELD REGISTER AFTER A INTERRUPT, THE INSTRUCTION FIELD REGISTER IS CHECKED NOT TO CHANGE UNTIL A JMP OR JMS INSTRUCTION IS ISSUED, THE INTERRUPT INHIBIT F/F IS CHECKED NOT TO CLEAR BEFORE A JMP OR JMS IS ISSUED,

TEST 12 - USES THE USER INTERRUPT F/F TO CAUSE INTERRUPTS TO CHECK THAT THE CIF AND QDF INSTRUCTIONS WILL LOAD THE APPROPRIATE SAVE FIELD REGISTERS, A DCA INDIRECT IS CHECKED NOT TO CHANGE A LOCATION IN FIELD ZERO WHEN THE DATA FIELD IS NON ZERO, A JMS INDIRECT IS CHECKED NOT TO CHANGE A LOCATION IN FIELD ZERO WHEN THE INSTRUCTION FIELD IS NON ZERO,

TEST 13 - CHECKS THE MICRO PROGRAM INSTRUCTIONS CUPCIF (62X3), A DCA INDIRECT AND A JMS INSTRUCTION ARE ALSO ISSUED TO CHECK THAT THESE INSTRUCTIONS DO NOT DESTROY LOCATIONS IN FIELD ZERO, THE USER INTERRUPT F/F IS USED TO CAUSE INTERRUPTS,

TEST 14 - CHECKS THAT THE RTF INSTRUCTION CAN LOAD THE INSTRUCTION FIELD AND DATA FIELD, AND THAT THE RMF INSTRUCTION CAN RELOAD IT, THE USER INTERRUPT F/F IS USED TO CAUSE INTERRUPTS,

TEST 15 - SETS THE USER BUFFER F/F; THE IF AND DF ARE SET TO FIELD 6, THE PROGRAM THEN ISSUES A DCA, TAD, AND, AND ISZ INDIRECTS TO CHECK THAT THE PROGRAM DOESN'T INTERRUPT UNTIL A JMP INSTRUCTION IS ISSUED,

TEST 16 - REQUIRES MORE THAN 4K OF MEMORY TO BE RUN, THIS TEST IS A SIMPLE DATA TEST TO CHECK THAT THE DATA CAN BE DEPOSITED INTO EACH SELECTED EXTENDED FIELD, DATA IS DEPOSITED INTO THE LAST ADDRESS OF EACH 1K MEMORY SEGMENT IN THE EXTENDED MEMORY FIELD, THE USER INTERRUPT IS SET FOR THIS TEST, THE PROGRAM CHANGES THE DATA FIELD TO A EXTENDED FIELD, CHECKS THE DF, THEN TURNS THE INTERRUPT ON AND DOES A DCA INDIRECT TO THE LAST ADDRESS IN A 1K MEMORY SEGMENT OF THAT FIELD, THE PROGRAM THEN DOES THE SAME AS ABOVE ONLY DOING A TAD INDIRECT TO THE LAST ADDRESS OF A 1K MEMORY SEGMENT, THE DATA THAT IS PUT INTO THE LAST ADDRESS OF EACH EXTENDED 1K MEMORY SEGMENT CONTAINS THE FIELD IN BITS 6-8 AND THE NUMBER

OF THE 1K SEGMENT IN BITS 9-11.

TEST 17 • REQUIRES MORE THAN 4K OF MEMORY TO BE RUN, THIS TEST CHECKS THE RIF INSTRUCTION TO READ THE INSTRUCTION FIELD REGISTER, THE PROGRAM DEPOSITS THE FOLLOWING CODE INTO LOCATIONS 0000 TO 0003 OF EACH SELECTED EXTENDED FIELD1 RIF=ION=JMP I 3=T17RET=1, THE PROGRAM USES THE USER INTERRUPT F/F TO RETURN TO THE PROGRAM,

TEST 18 • IS ONLY EXECUTED IF THE OPTION 1 + 2 TEST MODULE IS SELECTED, THIS TEST CHECKS THAT THE CORRECT EMA LINE IS LOADED ONTO THE BUS DURING A DQA INDIRECT FOLLOWING A CDF 10, CDF 20 AND A CDF 40, THE TEST MODULE IS USED TO CAUSE A INTERRUPT FOLLOWING A EMA CHANGE ON THE BUS, THE TEST MODULE STORES THE EMA INTO A EMA CATCHER REGISTER AND THEN THE PROGRAM READS AND COMPARES IT;

TEST 19 • IS ONLY EXECUTED IF THE OPTION 1 + 2 TEST MODULE IS SELECTED, THIS TEST IS THE SAME AS TEST 18, ONLY IT CHECKS THAT THE CIF INSTRUCTION LOADS THE APPROPRIATE EMA LINES,

TEST 20 • IS ONLY EXECUTED IF THE OPTION 1 + 2 TEST MODULE IS SELECTED, THIS TEST CHECKS THAT THE TIME SHARE LOGIC CAN BE DISABLED, THIS IS DONE WITH THE TEST MODULE BY PULLING KMTS TIME SHARE DISABLE L LOW, THE PROGRAM THEN ISSUES A IOT, LAS, OSR AND CHECKS THAT THE PROGRAM DIDN'T INTERRUPT,

TEST 21 • USES THE OPTION 1 + 2 TEST MODULE TO CAUSE THE M8317 MODULE TO DO A BOOTSTRAP, AFTER EACH BOOTSTRAP, THE PROGRAM CHECKS THE BOOTSTRAPS TO COMPARE CORRECTLY,

TEST 22 • USES THE OPTION 1 + 2 TEST MODULE TO CAUSE A AUTO RESTART ON THE M8317 MODULE, AFTER EACH AUTO RESTART, THE PROGRAM CHECKS THAT THE AUTO RESTART OCCURED AT THE APPROPRIATE LOCATION,

TEST 23 • USES THE OPTION 1 + 2 TEST MODULE TO TEST THAT THE AC LOW AND BATTERY EMPTY F/F'S CAN BE SET, CAUSE A INTERRUPT, AND THAT THEY CAN BE CLEARED,

TIMDIS • IS A OPERATOR INTERVENTION TEST TO CHECK THAT THE TIME SHARE LOGIC CAN BE DISABLED,

ROTOMP • IS A OPERATOR INTERVENTION TEST TO CHECK THAT THE BOOTSTRAPS GOT LOADED CORRECTLY,

AUTO • IS A OPERATOR INTERVENTION TEST TO CHECK AUTO RESTARTS AND POWER FAIL,

9,0 FLOWCHARTS

NOT APPLICABLE

10,0 LISTING

ATTACHED

/KMB=A OPTION TEST 2 MAINDEC=88=DJKMA=A=L 4K PAL18 V142 18=DEC=74 15102 PAGE 1

/KMB=A OPTION TEST 2 MAINDEC=88=DJKMA=A=L 4K
/
/COPYRIGHT (C) 1974, DIGITAL EQUIPMENT CORPORATION
/
/PROGRAMMER: BRUCE HANSEN
/

//////////
/THE FOLLOWING LISTING WILL CORRESPOND TO THE PAPER TAPE LABELED MAINDEC=88=DJKMA=A=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 OCCURRED WHILE RUNNING THE 1K SEGMENTED PROGRAMS.
//////////

/KMB=A OPTION TEST 2 MAINDEC=88=DJKMA=A=L 4K PAL18 V142 18=DEC=74 15102 PAGE 2

/KMB=A OPTION TEST 2 MAINDEC=88=DJKMA=A=L 4K
/
/COPYRIGHT 1974, DIGITAL EQUIPMENT CORP., MAYNARD, MASS., 01754
/
/DOP=8A OPTION TEST 2 TESTS THE MEMORY EXTENTION/TIME SHARE CONTROL,
/POWER FAIL/AUTO RESTART, AND BOOTSTRAP LOADERS

6880	SKON#6880	
6887	CAF#6887	
7482	HLTB#7482	
<p>/SWITCH REGISTER SETTINGS</p>		
/SR0#1	INHIBIT ERROR HALT	
/SR1#1	LOOP ON ERROR	
/SR2#1	LOOP ON TEST	
/SR3#1	HALT AT COMPLETION OF A PROGRAM PASS	
<p>/MEMORY EXTENTION/TIME SHARE INSTRUCTIONS</p>		
6884	OTR#6884	/GET FLAGS: READS THE FOLLOWING MACHINE STATES /INTO THE INDICATED BITS OF THE ACI /AC0 LINE /AC3 INTERRUPT REQUEST /AC3 INTERRUPT ENABLE F/F /AC3 USER FLAG /AC0-11 SAVE FIELD REGISTER
6885	RTE#6885	/RESTURE THE FLAGS, RTE LOADS THE LINK FROM AC0, /LOADS THE USER BUFFER F/F, INSTRUCTION BUFFER AND /DATA FIELD WITH ACS, AC6#8, AC 9#11 AND INHIBITS /PROCESSOR INTERRUPTS UNTIL NEXT JMP OR JMS INSTRUCTION, /AT THE END OF THE JMP OR JMS, THE CONTENTS OF THE U.B. + I.B. /ARE LOADED INTO USER FIELD F/F, AND THE I.F.. INTERRUPT ENABLE /IS SET AND INTERRUPT INHIBIT AS CLEARED
6234	RIB#6234	/READ THE INTERRUPT BUFFER
6244	RMF#6244	/RESTURES MEMORY FLAGS
6284	CINT#6284	/CLEAR USER INTERRUPT FLIP-FLOP
6284	SINT#6284	/SKIP ON USER INTERRUPT FLIP-FLOP
6284	CUF#6284	/CLEAR USER BUFFER FLIP-FLOP
6274	SUF#6274	/SET USER BUFFER FLIP-FLOP (ENTER TIME SAME MODE)AND /INHIBITS PROCESSOR INTERRUPTS UNTIL THE NEXT JMP OR /JMS INSTRUCTION, AT THE END OF THE JMP OR JMS /INSTRUCTION, THE USER BUFFER IS LOADED INTO THE USER /FIELD F/F,
6281	CDF#6281	/CHANGE DATA FIELD

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2*1

6202 CIF#6202 /CHANGE INSTRUCTION FIELD
 6214 RIF#6214 /READ THE DATA FIELD INTO AC BITS 6-8
 6224 RIF#6224 /READ THE INSTRUCTION FIELD INTO AC BITS 6-8
 6203 CIF#0F#6203 /PERFORMS THE CIF AND CDF FUNCTIONS

/POWER FAIL INSTRUCTIONS

6102 SPL#6102 /SKIP ON AC LOW FLIP-FLOP
 6103 CAL#6103 /CLEAR AC LOW FLIP-FLOP
 6101 SBE#6101 /SKIP ON BATTERY EMPTY FLIP-FLOP

/OPTION BOARD 2 SIMULATOR IOTS

6150 CLR\$IM#9150 /CLEAR CONTROL REGISTERS
 6152 LDNG#2#9152 /LOAD CONTROL REGISTER 2
 6153 LDNG#3#9153 /LOAD CONTROL REGISTER 3
 6154 CLR#MA#9154 /CLEAR EMA CATCHER LOGIC
 6155 REDEMA#9155 /READ EMA CATCHER REGISTER
 6160 CLR#HOU#9160 /CLEAR TEST MODULE LOGIC
 6164 EXECUT#9164 /EXECUT AND CONTROL WORD 3 BIT 7 =1 ISSUE A POWER ON PULSE
 6165 EXECUT#9165 /EXECUT AND CONTROL WORD 3 BIT 7 =0 ISSUE A SWITCH SW PULSE
 6166 SKP#HMA#9166 /SKPENA AND CONTROL WORD 3 BIT 3 =1 EMA INTERRUPT AND SKIP ENABLE
 /SKP#EMA AND CONTROL WORD 3 BIT 3 =0 EMA INTERRUPT AND SKIP DISABLE

/OPTION BOARD2 SIMULATOR CONTROL WORD 2 BIT ASSIGNMENTS

/BITS 0 = 1 NOT USED
 /BITS 2 = 5 BOOT STRAP PROGRAM SELECT
 /BITS 9 = 11 AUTO-RESTART ADDRESS SELECT

/OPTION BOARD 2 SIMULATOR CONTROL WORD 3 BIT ASSIGNMENTS

/BIT 0 TIME SHARE 0=ENABLED 1=DISABLED
 /BIT 1 AC LOW (L) 1=PULLED LOW 0=FREE STATE
 /BIT 2 BATT EMPTY 1=BATT EMPTY PULLED LOW 0=FREE STATE
 /BIT 3 1=EMA INTERRUPT/SKIP ENABLE 0=EMA INTERRUPT SKIP DISABLE
 /BITS 4 = 8 NOT USED
 /BIT 7 1=POWER ON PULSE WITH EXECUT 0=SWITCH SW PULSE WITH EXECUT
 /BIT 9 1=DISABLES BOOTSTRAP WHILE RUNNING 0=ENABLES BOOTSTRAP WHILE RUNNING
 /BIT 9 = 11 AUTO-RESTART/BOOT STRAP ENABLE CODE

0000	*0		
0000	0000	INTSER; 0	/JMS I AUTHST PLACED HERE FOR SIMULATOR AUTO RESTART
0001	3035	DCA DATREC	
0010	6102	SPL	/SKIP ON AC LOW
0003	7410	SKP	
0004	5457	JMP I XPRWFL	/POWER GOING DOWN
0005	6101	SBE	/SKIP ON BATTERY EMPTY

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2*2

0006	7410	SKP	
0007	5460	JMP I XBAT	/GO HALT THE COMPUTER ,ITS ALL OVER
0010	6224	RIF	/READ THE INSTRUCTION FIELD
0011	7640	SEA CLA	
0012	4454	ERORH	/IF, IS NOT 0 AFTER A INTERRUPT
0013	6214	RDF	/READ THE DATA FIELD
0014	7640	SEA CLA	
0015	4454	ERORH	/IF, IS NOT 0 AFTER A INTERRUPT
0016	2000	ISE INTSER	/ADD 1 TO THE INTERRUPTED PC
0017	5400	JMP I INTSER	/RETURN TO THE PROGRAM

0020 *20

0020	0000	SHITCH; 0	/PSEUDO SWITCH REGISTER IF BIT 0=0 OF OP1SEL
0021	1003	OP1SEL; 1003	

0022 0000 DP2SEL; 0

/KMBE BOOT STRAP WILL LOAD INTO THE FOLLOWING LOCATIONS

0023	7402	RKB#, HLT	/2000
0024	7402	HLT	/6745
0025	7402	HLT	/0023
0026	7402	HLT	/7450
0027	7402	HLT	/5024
0030	7402	HLT	/0733
0031	7402	HLT	/5031
0032	7402	HLT	/TERMINATOR
0033	8000	CDFUHK; 2	
0034	0033	CHKDF, CDFCHK	
0035	8000	DATREG; 0	
0036	8000	SAVREG; 0	
0037	8000	FLDLIM; 0	
0040	8000	OPENLM; 0	
0041	8000	WRKFLU; 0	
0042	8000	DATMAT; 0	
0043	8000	WRKADU; 0	
0044	8000	HQHLIM; 0	
0045	6201	K6201; 6201	
0046	8000	SAVFLU; 0	
0047	8000	ADDNT; 0	
0050	6220	RADMAS; 6220	
0051	6200	GOUPS; 6200	
0052	5053	AUTHST; PRGRST	
0053	8000	TEST; 0	/SCOPE LOOP AND TEST LOOP ADDRESS

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2*3

```
        4454  ERRORM JMS I ,  
0054  5118          ERRORX  
        4455  LOOHN JMS I TSTLDP  
0055  5152          TESTAD  
        4456  SC0MLPR JMS I  
0056  5060          TESTAD  
        0057  5043  XPHWFL; POWFL  
0060  5067  XBAT; BATEHT  
0061  5017  PASENU; ENDPAS
```

/CONSTANTS USED BY THE PROGRAM

```
0062  7777  H1;   =1  
0063  7776  H2;   =2  
0064  7774  H4;   =4  
0065  7773  H5;   =5  
0066  7771  H7;   =7  
0067  7770  H10;  =10  
0070  7767  H11;  =11  
0071  7762  H16;  =16  
0072  7760  H20;  =20  
0073  7756  H22;  =22  
0074  7753  H25;  =25  
0075  7750  H30;  =30  
0076  7745  H33;  =33  
0077  7744  H34;  =34  
0100  7740  H40;  =40  
0101  7735  H43;  =43  
0102  7734  H44;  =44  
0103  7730  H50;  =50  
0104  7726  H52;  =52  
0105  7723  H55;  =55  
0106  7720  H60;  =60  
0107  7717  H61;  =61  
0118  7712  H66;  =66  
0111  7710  H70;  =70  
0112  7701  H77;  =77  
0113  7700  H100; =100  
0114  7653  H129; =129  
0115  7626  H152; =152  
0116  7500  H300; =300  
0117  7000  H1000; =1000  
0120  6771  H1007; =1007  
0121  6762  H1016; =1016  
0122  6753  H1025; =1025  
0123  6744  H1034; =1034  
0124  6735  H1043; =1043  
0125  6726  H1052; =1052  
0126  6717  H1061; =1061  
0127  6710  H1070; =1070  
0130  6700  H1100; =1100  
0131  3700  H4100; =4100
```

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2*4

```
H132  3000  H5000; =5000  
H133  2700  H5100; =5100  
  
H134  0007  K7;    7  
H135  0010  K10;   10  
H136  0037  K37;   37  
H137  0070  K70;   70  
H140  0077  K77;   77  
H141  0125  K125;  125  
H142  0152  K152;  152  
H143  0200  K200;  200  
H144  0400  K400;  400  
H145  1777  K1777; 1777  
H146  2000  K2000; 2000  
H147  7774  K7774; 7774  
H150  7707  K7707; 7707  
H151  7757  K7757; 7757  
H152  7677  K7677; 7677  
H153  4100  K4100; 4100  
  
H200  *200
```

```
*****  
/*TEST 1 - CHECKS THE COP AND RDF INSTRUCTIONS TO LOAD AND READ  
THE DATA FIELD, A RIF IS ISSUED AFTER EACH DATA FIELD CHANGE  
TO CHECK THAT THE INSTRUCTION FIELD REMAINS A ZERO,  
THE INCLUSIVE OR OF THE D,F, WITH THE AC IS CHECKED WITH THE RDF INSTRUCTION,  
SET TIME SHARE ENABLE SWITCH TO TIME SHARE ENABLE POSITION  
*****
```

```
0200  7800  NOR/JMS I AUTRST      /*IF SIMULATOR SELECTED THIS LOCATION WILL CHANGE TO JMS I AUTRST  
0201  6168  TEST1; CLSMOD  
0202  3777;  DCA  ACNLCK      /*CLEAR SIMULATOR TEST LOGIC  
0203  4456  SC0PLP      /*SETUP SCOP AND TEST LOOPING ADDRESS  
0204  6007  CAF      /*CLEAR ALL FLAGS  
0205  6244  CUF      /*CLEAR USER FLAG  
0206  7410  SKP      /*CUP SKIPPED  
0207  4454  ERROR      /*SKIP IF USER INTERRUPT FLIP-FLOP SET  
0210  6234  BINT      /*BINT SKIPPED OR CAF FAILED TO 0 USER INTERRUPT  
0211  7410  SKP      /*TURN THE INTERRUPT ON  
0212  4454  ERROR      /*BINT SKIPPED OR CAF FAILED TO 0 USER INTERRUPT  
0213  6001  IOV      /*TURN THE INTERRUPT ON  
0214  6201  GDF  00      /*CHANGE DATA FIELD TO FIELD 0  
0215  7410  SKP      /*COP SKIPPED  
0216  4454  ERROM      /*READ THE DATA FIELD  
0217  6214  RDF      /*RDF SKIPPED  
0220  7410  SKP      /*RDF HEAD BACK SOMETHING OTHER THAN D,F, 0  
0221  4454  ERROR      /*READ THE INSTRUCTION FIELD  
0222  7640  S24  CLA      /*RDF SKIPPED  
0223  4454  ERROR      /*RDF HEAD BACK SOMETHING OTHER THAN D,F, 0  
0224  6224  RIF      /*READ THE INSTRUCTION FIELD  
0225  7410  SKP      /*RIF SKIPPED
```

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A-L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-5

```

0227 7640 S2A CLA //WAS THE I,F, 0?
0230 4454 ERROR //RIF HEAD BACK SOMETHING OTHER THAN I,F, 0
0231 6271 CDF 7B //CHANGE DATA FIELD TO FIELD 7
0232 6214 RIF //READ THE DATA FIELD
0233 1111 TAD H70 //CHECK THAT DATA FIELD 7 WAS READ BACK
0234 7640 S2A CLA //INTO AC BITS 6,7 & 8
0235 4454 ERROR //ODF OR RDF TO FIELD 7 FAILED
0236 1150 TAD K7707 //CHECK THE INCLUSIVE OR FUNCTION OF RDF
0237 6214 RIF //READ THE DATA FIELD
0240 7640 CLA
0241 7640 S2A CLA
0242 4454 ERROR //THE INCLUSIVE OR OF THE OF WITH AC FAILED
0243 6224 RIF //READ THE INSTRUCTION FIELD
0244 7640 S2A CLA //IS IT STILL 0?
0245 4454 ERROR //THE INSTRUCTION FIELD CHANGED
0246 6221 CDF 2B //CHANGE TO DATA FIELD 2
0247 6214 RIF //READ THE DATA FIELD
0250 1072 TAD H2B //CHECK TO SEE IF DF 2 WAS READ BACK
0251 7640 S2A CLA //HAS IT DATA FIELD 2?
0252 4454 ERROR //NO, ODF 2B OR RDF FAILED
0253 1151 TAD K7757 //CHECK THE INCLUSIVE OR OF THE OF WITH THE AC
0254 6214 RIF //READ THE DATA FIELD
0255 7640 CLA
0256 7640 S2A CLA
0257 4454 ERROR //THE INCLUSIVE OR OF OF WITH AC FAILED
0258 6224 RIF //READ THE INSTRUCTION FIELD
0261 7640 S2A CLA //IS THE I,F, STILL 0?
0262 4454 ERROR //THE INSTRUCTION FIELD CHANGED
0263 6251 CDF 5B //CHANGE TO DATA FIELD 5
0264 6214 RIF //READ THE DATA FIELD
0265 1103 TAD H5B //WAS IT DATA FIELD 5?
0266 7640 S2A CLA //NO, ODF 5B OR RDF FAILED
0267 4454 ERROR //READ THE INSTRUCTION FIELD
0270 6224 RIF //IS THE I,F, STILL 0?
0271 7640 S2A CLA //NO, THE INSTRUCTION FIELD CHANGED
0272 4454 ERROR //CHANGE THE DATA FIELD TO 3
0273 6231 CDF 3B //READ THE DATA FIELD
0274 6214 RIF //
0275 1075 TAD H3B //IS IT EQUAL TO FIELD 3?
0276 7640 S2A CLA //NO, ODF 3B OR RDF FAILED
0277 4454 ERROR //READ THE INSTRUCTION FIELD
0278 6224 RIF //IS THE I,F, STILL EQUAL TO 3?
0280 7640 S2A CLA //NO, THE I,F, CHANGED
0281 4454 ERROR //CHANGE THE DATA FIELD TO FIELD 4
0282 6214 RIF //READ THE DATA FIELD
0283 1103 TAD H4B //WAS IT EQUAL TO FIELD 4?
0284 7640 S2A CLA //NO, ODF 4B OR RDF FAILED
0285 4454 ERROR //READ THE INSTRUCTION FIELD
0286 6214 RIF //IS IT STILL EQUAL TO 3?
0287 1067 TAD H1B //NO, THE I,F, CHANGED
0288 4454 ERROR //CHANGE THE DATA FIELD TO FIELD 1
0289 6224 RIF //READ THE DATA FIELD
0290 7640 S2A CLA
0291 4454 ERROR //IS IT EQUAL TO DATA FIELD 1
0292 6224 RIF //NO, ODF 1B OR RDF FAILED
0293 7640 S2A CLA //READ THE INSTRUCTION FIELD
0294 4454 ERROR //IS IT STILL EQUAL TO 1?
0295 6261 CDF 6B //NO, THE I,F, CHANGED
0296 6214 RIF //CHANGE DATA FIELD TO FIELD 6
0297 1106 TAD H6B //READ THE DATA FIELD
0298 7640 S2A CLA //IS THE D,F, EQUAL TO 6?
0299 4454 ERROR //NO, ODF 6B OR RDF FAILED
0300 6224 RIF //READ THE INSTRUCTION FIELD
0301 7640 S2A CLA //IS IT STILL EQUAL TO ZERO?
0302 4454 ERROR //NO, INSTRUCTION FIELD CHANGED
0303 6291 CDF 0B //CHANGE DATA FIELD TO FIELD 2
0304 6214 RIF //READ THE DATA FIELD
0305 7640 S2A CLA //IS IT EQUAL TO FIELD 2?
0306 4454 ERROR //NO, ODF 0B OR RDF FAILED
0307 6224 RIF //READ THE INSTRUCTION FIELD
0308 7640 S2A CLA //IS IT STILL EQUAL TO ZERO?
0309 4454 ERROR //NO, INSTRUCTION FIELD CHANGED,
0310 6224 RIF //LOOP ON TEST IF SR = 1020
0311 7640 S2A CLA
0312 4454 ERROR
0313 6211 CDF 1B
0314 6214 RIF
0315 1067 TAD H1B

```

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A-L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-6

```

0316 7640 S2A CLA //IS IT EQUAL TO DATA FIELD 1
0317 4454 ERROR //NO, ODF 1B OR RDF FAILED
0318 6224 RIF //READ THE INSTRUCTION FIELD
0319 7640 S2A CLA //IS IT STILL EQUAL TO 1?
0320 4454 ERROR //NO, THE I,F, CHANGED
0321 6261 CDF 6B //CHANGE DATA FIELD TO FIELD 6
0322 6214 RIF //READ THE DATA FIELD
0323 1106 TAD H6B //IS THE D,F, EQUAL TO 6?
0324 7640 S2A CLA //NO, ODF 6B OR RDF FAILED
0325 4454 ERROR //READ THE INSTRUCTION FIELD
0326 6224 RIF //IS IT STILL EQUAL TO 0?
0327 7640 S2A CLA //NO, INSTRUCTION FIELD CHANGED
0328 4454 ERROR //CHANGE DATA FIELD TO FIELD 2
0329 6291 CDF 0B //READ THE DATA FIELD
0330 7640 S2A CLA //IS IT EQUAL TO FIELD 2?
0331 4454 ERROR //NO, ODF 0B OR RDF FAILED
0332 6214 RIF //READ THE INSTRUCTION FIELD
0333 7640 S2A CLA //IS IT STILL EQUAL TO ZERO?
0334 6214 RIF //NO, INSTRUCTION FIELD CHANGED
0335 7640 S2A CLA //CHANGE DATA FIELD TO FIELD 2
0336 4454 ERROR //READ THE INSTRUCTION FIELD
0337 6224 RIF //IS IT STILL EQUAL TO ZERO?
0338 7640 S2A CLA //NO, INSTRUCTION FIELD CHANGED,
0339 4454 ERROR //LOOP ON TEST IF SR = 1020
0340 7640 S2A CLA
0341 4454 ERROR
0342 4455 LOOP

```

```

//TEST 2 - CHECKS THAT USER MODE CAN BE ENTERED AND EXITED BY DOING A
//ION-SUF-JMP-HLT, THE USER INTERRUPT IS CHECKED TO BE SET BY SINT AND
//CLEARED BY CINT, GTF AND RIB AND ISSUED TO CHECK THAT THE SAVE FIELD
//GOT LOADED AND THAT THE INSTRUCTIONS CAN READ THE SAVE FIELD,

```

```

0343 4456 TEST2; SCOPLP //SETUP SCOPE AND TEST LOOPING ADDRESS
0344 6007 CAF //CLEAR ALL FLAGS
0345 6284 CUF //CLEAR USER BUFFER F/F
0346 7410 SKP //CUF SKIPPED
0347 4454 ERROR //CLEAR USER INTERRUPT FLIP-FLOP
0350 6204 CINT //CINT SKIPPED
0351 7410 SKP //SKIP ON USER INTERRUPT FLIP-FLOP
0352 4454 ERROR //SINT SKIPPED OR USER INTERRUPT F/F SET
0353 6254 SINT //TURN THE INTERRUPT ON
0354 7410 SKP //SET USER INTERRUPT F/F, SET INT INHIBIT AT TP3
0355 4454 ERROR //LOAD UB INTO I,F, REGISTER, CLEAR INT INHIBIT F/F
0356 6001 IOV //SUF SKIPPED OR TRAPPED,
0357 6274 SUF //USER INTERRUPT FAILED TO SET OR HALT FAILED TO TRAP
0358 5362 J#P ,#2 //SUF FAILED TO TRAP
0359 5361 J#P , ' //SKIP ON USER INTERRUPT FLIP-FLOP
0360 7402 HLT //USER INTERRUPT NOT SET OR SINT FAILED TO SKIP,
0361 5363 J#P , ' //CLEAR USER INTERRUPT FLIP-FLOP
0362 7402 HLT //SKIP ON USER INTERRUPT FLIP-FLOP
0363 5363 J#P , ' //GINT FAILED TO 2 USER INTERRUPT FLIP-FLOP
0364 6254 SINT //CONTINUE THE TEST
0365 5365 J#P , ' //SKIP ON USER INTERRUPT FLIP-FLOP
0366 6204 CINT //USER INTERRUPT NOT SET OR SINT FAILED TO SKIP,
0367 6254 SINT //CLEAR USER INTERRUPT FLIP-FLOP
0368 7410 SKP //SKIP ON USER INTERRUPT FLIP-FLOP
0369 5371 J#P , ' //GINT FAILED TO 2 USER INTERRUPT FLIP-FLOP
0370 5776 J#P TST2CN //CONTINUE THE TEST
0371 5371 J#P , ' //GINT FAILED TO 2 USER INTERRUPT FLIP-FLOP
0372 5776 J#P TST2CN //CONTINUE THE TEST
0373 6482

```

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMHA=L 4K PAL10 V142 18-DEC-74 15182 PAGE 2*7

```

8377 5173
8400 PAGE

8480 5601 JMP I ,+1 /SIMULATOR RETURNS HERE AFTER A BOOTSTRAP
8481 3671 BOTMII /THIS LOCATION WILL CHANGE TO BOTRT1,BOTRT2,BOTRT3
8482 6004 TSTZCN, GTF /GET THE FLAGS
8483 7410 SKP
8484 5204 JMP I /GTF SKIPPED
8485 1113 TAD H100 /CHECK USER FLAG TO BE SET
8486 7640 S2A CLA /WAS THE CORRECT IF, D,F, AND USER FIELD FLIP-FLOP LOADED?
8487 5207 JMP I /NO, USER FIELD F/F NOT LOADED OR OTHER BITS SET
8488 7300 CLA CLL /OR GTF FAILED?
8489 4234 RIB /HEAD THE INTERRUPT BUFFER
8490 7410 SKP
8491 5213 JMP I /RIB SKIPPED
8492 1113 TAD H100 /CHECK FOR USER FLAG
8493 7640 S2A CLA
8494 5216 JMP I /RIB FAILED OR SAVE FIELDS CLEARED
8495 1152 TAD K7677 /CHECK THE INCLUSIVE OR OF SF WITH AC
8496 6234 RIB /HEAD THE INTERRUPT BUFFER
8497 7040 CLA
8498 7640 SEA CLA
8499 5223 JMP I /INCLUSIVE OR OF SAVE FIELD WITH AC FAILED
8500 7340 CLA CLL CLA /SET THE AC TO ALL ONES
8501 6204 GTF /GET THE FLAGS
8502 1113 TAD H100
8503 7640 S2A CLA
8504 5230 JMP I /GTF FAILED TO DO A JAM TRANSFER TO AC
8505 4455 LOOP /OR SAVE FIELDS CLEARED;
8506 4455 LOOP /LOOP ON TEST IF SR = 1000

```

```

***** /TEST 3: CHECKS THAT OSR WILL TRAP IN USER MODE AND THAT
***** /IT WILL NOT AFTER A INTERRUPT, RIB, GTF, RIF, RDF ARE CHECKED TO
***** /READ THE SAVE FIELDS AND I,F, AND D,F
***** /TEST3: SCOPLP /SETUP SCOPE AND TEST LOOPING ADDRESS
8432 4456 CAF /CLEAR ALL FLAGS
8433 6007 IOV /TURN THE INTERRUPT ON
8434 6001 SUF /SET USER BUFFER F/F, SET INT INH AT TP3
8435 6274 JMF ,+1 /ENTER USEH MODE
8436 5237 JMF /OSH SHOULD SET USEH INTERRUPT F/F + CAUSE A TRAP
8437 7404 OSR
8438 5240 JMF /OSH FAILED TO TRAP
8439 6254 SINT
8440 5242 JMF /SKIP ON USER INTERRUPT F/F
8441 6254 CINT /USER INTERRUPT F/F NOT SET
8442 6254 SINT /CLEAR USER INTERRUPT F/F
8443 6254 SINT /SKIP ON USER INTERRUPT F/F
8444 7410 SKP
8445 5246 JMF /CINT FAILED TO CLEAR USER INTERRUPT F/F
8446 6001 IOV /TURN THE INTERRUPT ON,
8447 6001 JMP ,+5 /CHECK THAT THE INTERRUPT HAD CLEARED THE USER FIELD F/F
8448 5251 JMF /OSH SHOULD NOT TRAP
8449 7640 OSR
8450 5253 SKP CLA
8451 7640 JMF /OSH TRAPPED AFTER A INTERRUPT OCCURED ABOVE
8452 7610 CLA
8453 5253 JMF /CHECK THE USER BUFFER AND I,F.,

```

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMHA=L 4K PAL10 V142 18-DEC-74 15182 PAGE 2*8

```

8454 6234 RIB /READ THE INTERRUPT BUFFER
8455 1113 TAD H100 /CHECK THE SAVE FIELD FOR USER FLAG
8456 7640 S2A CLA
8457 4454 ERORX
8458 7340 CLA CLL CLA /USER FLAG NOT SET OR OTHER BITS SET
8459 6004 GTF /SET THE AC TO ALL ONES
8460 1116 TAD H300 /GET THE FLAGS
8461 7640 S2A CLA /CHECK FOR INT ENA, AND USER FLAG
8462 6254 ERORX
8463 7640 S2A CLA /USER FLAG AND INT ENA NOT SET OR OTHER BITS SET
8464 6224 RIF /HEAD THE INSTRUCTION FIELD
8465 7640 SEA CLA
8466 4454 ERORX /THE INSTRUCTION FIELD IS NON ZERO
8467 6214 RDF
8468 6214 S2A CLA
8469 7640 CLA
8470 4454 ERORX /THE DATA FIELD IS NON ZERO,
8471 4454 LOOP /LOOP ON TEST IF SR = 1000

```

```

***** /TEST 4: CHECKS THAT AN IOT WILL TRAP OUT IN USER MODE AND NOT
***** /AFTER A USER INTERRUPT, THE USER INTERRUPT IS CHECKED TO BE
***** /CLEANED BY CAF, RIB AND GTF ARE ISSUED AND CHECKED,
***** /TEST4: SCOPLP /SETUP SCOPE AND TEST LOOPING ADDRESS

```

```

8472 4456 CAF /CLEAR ALL FLAGS
8473 6007 IOV /TURN THE INTERRUPT ON
8474 6274 SUF /SET THE USER BUFFER FLIP-FLOP
8475 5301 JMF ,+1 /TRANSFER USER BUFFER TO THE USER FIELD F/F
8476 6001 IOV /SHOULD TRAP HERE
8477 5302 JMF /THE IOT FAILED TO TRAP,
8478 6254 SINT /SKIP ON USER INTERRUPT FLIP-FLOP,
8479 5304 JMF /USER INTERRUPT F/F FAILED TO SET ON SINT FAILED
8480 6007 CAF /CLEAR USER INTERRUPT WITH INITIAIZE
8481 6254 SINT /SKIP ON USER INTERRUPT
8482 7410 SKP
8483 5310 JMF /CAF FAILED TO CLEAH USER INTERRUPT,
8484 6001 IOV /TURN THE INTERRUPT ON
8485 5313 JMF ,+1 /CHECK THAT THE INTERRUPT CLEARED UF F/F
8486 6001 IOV /IOT SHOULD NOT TRAP HERE
8487 7410 SKP
8488 5315 JMF /ION TRAPPED,
8489 6234 RIB /HEAD THE INTERRUPT BUFFER
8490 1113 TAD H100
8491 7640 S2A CLA
8492 4454 ERORX /USER FLAG NOT SET OR OTHER BITS SET
8493 7340 CLA CLL CLA /SET THE AC TO ALL ONES
8494 6004 GTF /GET THE FLAGS
8495 1116 TAD H300
8496 7640 S2A CLA
8497 4454 ERORX /USER FLAG AND INT ENA NOT SET OR GTF FAILED
8498 4454 LOOP /LOOP ON TEST IF SR = 1000

```

```

***** /TEST 5: CHECKS THAT CUF WILL CLEAR THE USER MODE BY DOING ION, SUF,
***** /CAF, JMP, IOT, THE IOT, SHOULD NOT TRAP, RIB AND GTF ARE

```

/ISSUED AND CHECKED,

```

0530 4456 TEST5: SCOPLP          /SETUP SCOPE AND TEST LOOPING ADDRESS
0531 6007 CAF                 /CLEAR ALL FLAGS
0532 6001 IOV                 /TURN THE INTERRUPT ON
0533 6274 SUF                 /SET THE USER BUFFER F/F
0534 5335 JMS     ,+1        /ENTER USER MODE
0535 7402 HLT                 /HLT FAILED TO TRAP
0536 9336 JMS     ,           /HLT FAILED TO TRAP
0537 6254 SINT                /SKIP ON USER INTERRUPT
0538 4454 ERROR               /USER INTERRUPT NOT SET
0539 6007 CAF                 /CLEAR ALL FLAGS
0540 6254 SINT                /SKIP ON USER INTERRUPT F/F
0541 7410 SKP                 /CAF FAILED TO CLEAR USER INTERRUPT
0544 4454 ERROR               /READ THE INTERRUPT BUFFER
0545 6234 RIS                 /CHECK FOR THE USER FLAG
0546 1113 TAD    M100
0547 7640 SEA    CLA
0550 4454 ERROR               /USER FLAG NOT SET OR OTHER BITS SET
0551 6001 IOV                 /TURN THE INTERRUPT BACK ON
0552 6274 SUF                 /SET USER FLAG
0553 6264 CUF                 /CLEAR USER FLAG
0554 7410 SKS
0555 5355 JMS     ,           /CUF TRAPPED BEFORE A JMP WAS ISSUED
0556 5357 JMS     ,+1        /ISSUE A JOT TO CHECK THAT PROGRAM DOESN'T TRAP,
0557 6001 IOV
0560 7410 SKP
0561 5361 JMS     ,           /CUF FAILED TO CLEAR USER BUFFER FLIP-FLOP
0562 6254 SINT                /SKIP ON USER INTERRUPT SET
0563 7410 SKP
0564 4454 ERROR               /SINT SKIPPED, USER INTERRUPT SHOULD NOT BE SET
0565 7342 CLA    CLL    CHA
0566 4004 GTF
0567 1116 TAD    M300
0570 7640 SEA    CLA
0571 4454 ERROR               /CHECK FOR INTERRUPT ENABLE + USER FLAG
0572 6234 RIS
0573 1113 TAD    M100
0574 7640 SEA    CLA
0575 4454 ERROR               /USER FLAG NOT SET OR OTHER BITS SET
0576 4455 LOOP                /LOOP ON TEST IF SR = 1000

*****  

/TEST 6 CHECKS THAT USER MODE IS NOT ENTERED UNTIL A JMS INSTRUCTION IS ISSUED BY DOING A  

/ION, SUF, IDT, OSR, LAS, JMS, HLT, INTERRUPT REQUEST AND LINK ARE CHECKED TO  

/BE SET AND CLEARED BY GTF,  

*****  

0577 4456 TEST6: SCOPLP          /SETUP SCOPE AND TEST LOOPING ADDRESS
0580 6007 CAF                 /CLEAR ALL FLAGS
0581 6001 IOV                 /TURN THE INTERRUPT ON
0582 6274 SUF                 /SET USER BUFFER F/F
0583 6001 IOV
0584 7410 SKP

```

```

0605 5205 JMS     ,           /ION TRAPPED, USER MODE NOT SET UNTIL A JMP, JMS
0606 7404 OSR
0607 7610 SKP    CLA
0610 5210 JMS     ,           /FOR THE SWITCH REGISTER WITH AC
0611 7604 LAS
0612 7610 SKP    CLA
0613 5213 JMS     ,           /LAS TRAPPED OR USEH MODE SET
0614 4215 JMS     ,+1        /SET USER BUFFER F/F
0615 7402 HLT/XXXX
0616 7402 HLT
0617 5217 JMS     ,           /SHOULD TRAP HERE + IF NOT USER FIELD F/F PROBABLY NOT SET
0620 6254 SINT
0621 4454 ERROR
0622 6234 RIS
0623 1113 TAD    M100
0624 7640 SEA    CLA
0625 4454 ERROR               /USER FLAG NOT SET OR OTHER FLAGS SET
0626 7340 CLA    CLL    CHA
0627 4004 GTF
0630 1130 TAD    M1100
0631 7640 SEA    CLA
0632 4454 ERROR               /CHECK FOR INTERRUPT REQUEST AND USER FLAG
0633 6204 CINT
0634 7360 CLA    CLL    CHA
0635 6004 GTF
0636 1131 TAD    M4100
0637 7640 SEA    CLA
0640 4454 ERROR               /CHECK FOR LINK AND USER FLAG
0641 7100 CLL
0642 6004 GTF
0643 1113 TAD    M100
0644 7640 SEA    CLA
0645 4454 ERROR               /IS IT SET?
0646 4455 LOOP                /USER FLAG SHOULD BE ONLY FLAG SET,  

/LOOP ON TEST IF SR = 1000

*****  

/TEST 7: CHECKS THAT THE USER FLAG IN THE SAVE FIELD CAN BE CLEARED,  

/THIS IS DONE BY LEAVING THE USER INTERRUPT F/F SET AFTER A TRAP AND  

/THEN TURNING THE INTERRUPT BACK ON,  

*****  


```

```

0647 4456 TEST7: SCOPLP          /SETUP SCOPE AND TEST LOOPING ADDRESS
0650 6007 CAF                 /CLEAR ALL FLAGS
0651 6001 IOV                 /TURN THE INTERRUPT ON
0652 6274 SUF                 /SET USER BUFFER FLIP-FLOP
0653 5254 JMS     ,+1        /ENTER USER MODE
0654 7402 HLT                 /HLT FAILED TO TRAP
0655 5255 JMS     ,           /HLT FAILED TO TRAP
0656 6254 SINT                /SKIP ON USER INTERRUPT
0657 4454 ERROR               /USER INTERRUPT NOT SET
0660 7240 CLA    CHA
0661 6004 GTF
0662 1130 TAD    M1400
0663 7640 SEA    CLA
0664 4454 ERROR               /CHECK FOR USER FLAG AND INTERRUPT REQUEST
                                         /IS IT THERE?
                                         /SHOULD ONLY BE INT, REG, AND USER FLAG

```

/KHS-A OPTION TEST 2 MAINDEV-08-DJKHAWAAL 4K PAL10 V142 18-DEC-74 15102 PAGE 2-11

```

0655 6801
0656 7000
0657 4454
0658 ERROR
0659 CLA CLL CMA
0660 GTF
0661 TAD H1000
0662 SKP
0663 7640
0664 4454
0665 ERROR
0666 6204
0667 6254
0668 SIWT
0669 SKP
0670 7410
0671 6204
0672 1117
0673 7640
0674 4454
0675 6204
0676 6254
0677 7410
0678 6204
0679 4454
0680 ERROR
0681 CLA CLL CMA
0682 GTF
0683 SKP
0684 6204
0685 7640
0686 4454
0687 6204
0688 4454
0689 4455

/TURN THE INTERRUPT ON
/*SHOULD INTERRUPT HERE
/FAILED TO INTERRUPT
/SET THE AC0 TO ALL ONE'S
/GET THE FLAGS
/CHECK FOR INTERRUPT REQUEST

/SHOULD ONLY BE INTERRUPT REQUEST SET
/CLEAR USER INTERRUPT REQUEST,
/SKIP ON USER INTERRUPT FLIP-FLOP

/CINT FAILED TO CLEAR USER INT F/F

/INTERRUPT REQUEST FAILED TO CLEAR
/LOOP ON TEST IF SR = 1000

*****  

/*TESTB: CHECKS THAT RTF WILL RESET THE USER MODE AFTER A  

/*USER INTERRUPT,  

*****  

0700 4456 TESTB: SCPLP
0701 6807 CAF
0710 6801 ION
0711 5274 SUF
0712 5313 JMP .+4
0713 7402 HALT
0714 5314 JMF .
0715 6254 SIWT
0716 4454 ERROR
0717 6204 CINT
0720 6254 SIWT
0721 7410 SKP
0722 4454 ERROR
0723 6234 RIF
0724 5113 TAD H100
0725 7640 SKP
0726 4454 ERROR
0727 7100 CLL
0730 1153 TAD K4100
0731 6805 RTF
0732 7618 SKP CLA
0733 5333 JMF .
0734 6224 RIF
0735 7640 S2A CLA
0736 5336 JMF .
0737 6214 RIF
0740 7640 S2A CLA
0741 5341 JMF .
0742 5343 JMF .+4
0743 7402 HALT
0744 5344 JMF .
0745 6254 SIWT

/SET AC0 +5 TO A 1 TO SET LINK + USER BUFFER
/RESTORE THE FLAGS = SET USER BUFFER F/F

/RIF SKIPPED
/READ THE INSTRUCTION FIELD
/IS IT NON ZERO
/RIF TRAPPED WITH OUT USER INT OR I.F., NON ZERO
/READ THE DATA FIELD

/RDF TRAPPED WITH OUT USER INT OR D.F., IS NON-ZERO
/SET USER FIELD F/F, USER MODE, AND TURN INT ENA ON
/RIF FAILED TO SET USER BUFFER F/F OR ION NOT SET
/HALT FAILED TO TRAP
/SKIP ON USER INTERRUPT F/F

```

/KMB-A OPTION TEST 2 MAINDEG-18-DJSMA-A-L 4K PAL14 V142 18-DEC-74 15142 PAGE 2 12

/KMB-A OPTION TEST 2 MAINDEU=0B=DJKMA=A=L 4K PAL1B V142 18-DEC-74 15102 PAGE 2-13

```

1027 6254 SINT           /SKIP ON USER INTERRUPT
1030 4454 ERROR          /USER INTERRUPT NOT SET
1031 7100 CLA
1032 6004 GTF
1033 1133 TAD M1100      /GET THE FLAGS
1034 7640 SEA CLA        /CHECK FOR INTERRUPT REQUEST AND USER FLAG
1035 4454 ERROR          /NO, INT REQUEST OR USER FLAG NOT SET OR RHF
1036 6001 I0V             /SET OTHER BITS IN THE IF AND OF
1037 5240 JMP ,+1         /TURN THE INTERRUPT BACK ON
1040 4454 ERROR          /INTERRUPT WITH INTERRUPT REQUEST SET
1041 6234 RIS
1042 7640 SEA CLA        /PROGRAM FAILED TO INTERRUPT
1043 4454 ERROR          /READ THE INTERRUPT BUFFER
1044 6254 SINT           /USER FLAG NOT CLEARED ON INTERRUPT
1045 4454 ERROR          /CHECK USER INTERRUPT TO BE SET
1046 6284 CINT           /USED INTERRUPT GOT CLEARED
1047 6254 SINT           /CLEAR USER INTERRUPT
1050 7418 SKP
1051 4454 ERROR          /SKIP ON USER INTERRUPT
1052 4455 LOOP           /USER INTERRUPT SET
1053 4455 LOOP           /LOOP ON TEST IF SR = 1000

*****  

/*TEST 15 - CHECKS THAT USER MODE AND LINK AND ION CAN BE SET BY THE AC AND  

/*THE RTE INSTRUCTION AND THAT IT CAN BE CLEAR BY RTE,
*****  

1053 4456 TEST10, SCOPLP   /SETUP SCOPE AND TEST LOOPING ADDRESS
1054 6007 CAP
1055 1133 TAD K4100      /CLEAR ALL FLAGS
1056 6005 RTP
1057 6005 RTF
1058 7620 SNC CLA        /SET THE LINK AND USER BIT INTO THE AC
1059 7402 HLT
1060 6000 SKON
1061 6000 HLT
1062 7402 HLT
1063 6000 SKON
1064 7418 SKP
1065 7402 HLT
1066 6001 I0V
1067 5270 JMP ,+1
1068 7402 HLT
1069 5271 JMP ,+1
1070 6254 SINT
1071 4454 ERROR          /RTE FAILED TO TRAP
1072 6254 SINT
1073 4454 ERROR          /SKIP ON USER INTERRUPT
1074 6004 GTF
1075 1133 TAD M1100      /GET THE FLAGS
1076 7640 SEA CLA        /CHECK LINK, INTERRUPT REQUEST AND USER FLAG
1077 4454 ERROR          /LINK, INT REQ OR USER FLAG NOT SET
1078 7300 CLA CLL        /CLEAR INTERRUPT REQUEST SET
1079 6005 RTP
1080 5303 JMP ,+1
1081 4454 ERROR          /SHOULD INTERRUPT
1082 6254 SINT
1083 4454 ERROR          /FAILED TO INTERRUPT
1084 6254 SINT
1085 4454 ERROR          /SKIP ON USER INTERRUPT
1086 6284 CINT           /USER INTERRUPT GOT CLEARED
1087 6284 CINT           /CLEAR USER INTERRUPT

```

/KMB-A OPTION TEST 2 MAINDEU=0B=DJKMA=A=L 4K PAL1B V142 18-DEC-74 15102 PAGE 2-14

```

1107 6234 RIS           /READ THE INTERRUPT BUFFER
1110 7640 SEA CLA        /THE SAVE FIELDS ARE NON ZERO
1111 4454 ERROR          /GET THE FLAGS
1112 6004 GTF
1113 7640 SEA CLA        /THE SAVE FIELDS ARE NON ZERO
1114 4454 ERROR          /LOOP ON TEST IF SR = 1000

*****  

/*TEST 11 - USING THE USER INTERRUPT FLIP-FLOP AND INTERRUPT ENABLE  

/*THE IF REGISTER CAN BE INDIRECTLY CHECKED TO SET BY CHECKING THE  

/*SAVE FIELD REGISTER AFTER A INTERRUPT, THE I,F IS CHECKED NOT TO CHANGE  

/*UNTIL A JMP OR JMS IS ISSUED, THE INT INHIBIT F/F IS CHECKED NOT  

/*TO CLEAR BEFORE A JMP OR JMS IS ISSUED,
*****  

1116 4456 TEST11, SCOPLP   /SETUP SCOPE AND TEST LOOPING ADDRESS
1117 6007 CAP
1118 6001 I0V
1119 6274 SFT
1120 5323 JMP ,+1
1121 6274 HLT
1122 5323 HLT
1123 7402 HLT
1124 5324 JMP ,+1
1125 4254 SINT
1126 4454 ERROR          /HLT FAILED TO TRAP IN USER MODE
1127 6004 GTF
1128 5324 SFT
1129 1130 TAD M1100      /GET THE FLAGS
1130 7640 SEA CLA        /CHECK FOR INTERRUPT REQUEST AND USER FLAG
1131 7640 SEA CLA        /USER FLAG OR INT REQUEST NOT SET
1132 4454 ERROR          /READ THE INTERRUPT BUFFER
1133 6234 RIS
1134 1113 TAD M100
1135 7640 SEA CLA        /USER FLAG GOT CLEARED
1136 4454 ERROR          /CHANGE INSTRUCTION FIELD TO FIELD 8
1137 6202 TST11A, CIF 00  /CLEAR THE LINK
1138 7300 CLA CLL        /TURN THE INTERRUPT ON
1139 6001 I0V
1140 6224 RIF
1141 6004 GTF
1142 7440 SEA
1143 7440 SEA
1144 7402 HLT
1145 5346 JMP ,+1
1146 4454 ERROR          /IS IT ZERO
1147 6004 GTF
1148 1117 TAD M1000      /THE IF IS NON ZERO OR INTERRUPTED
1149 7640 SEA CLA        /CLEAR INTERRUPT INHIBIT
1150 6004 GTF
1151 7640 SEA CLA        /PROGRAM FAILED TO INTERRUPT
1152 4454 ERROR          /GET THE FLAGS
1153 6234 RIS
1154 7640 SEA CLA        /CHECK FOR USER INTERRUPT REQUEST
1155 4454 ERROR          /INT REG NOT SET OR SAVE FIELD NON ZERO
1156 7248 TST11B, CLA CMA /READ THE INTERRUPT BUFFER
1157 3386 DCA CJHSB1     /IS THE SAVE FIELD #?
1158 6272 CIF 70          /NO, SAVE FIELD OR USER FIELD NON ZERO
1159 6001 I0V
1160 6224 RIF
1161 6001 I0V
1162 6224 RIF
1163 7440 SEA
1164 7402 HLT
1165 6224 RIF
1166 7440 SEA
1167 7402 HLT

```

/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMAA=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2*15

```

1155 4366 JMS ,*1
1156 7402 CJM501, HLT
1157 4454 ERROR
1158 7340 CLA CLL CML CMA
1159 6004 GTF
1160 1132 TAD H5000
1161 1111 TAD H70
1162 1111 TAD H70
1163 7640 SEA CLA
1164 4454 ERROR
1165 6234 RIS
1166 1111 TAD H70
1167 7640 SEA CLA
1168 4454 ERROR
1169 2777 ISE CJM501
1170 4454 ERROR
1171 7240 TST11G, CLA CMA
1172 3216 DCA CJM502
1173 6254 SIVT
1174 4454 ERROR
1175 7240 TAD H1000
1176 6254 DCA CJM502
1177 1111 SIVT
1178 7640 HLT
1179 4454 ERROR
1180 6252 CIF 50
1181 6001 IOV
1182 6224 RIF
1183 7440 SEA CLA
1184 7402 HLT
1185 4216 JMS ,*1
1186 7402 CJM502, HLT
1187 4454 ERROR
1188 7340 CLA CLL CMA
1189 6004 GTF
1190 1117 TAD H1000
1191 1103 TAD H50
1192 7640 SEA CLA
1193 4454 ERROR
1194 6234 RIS
1195 1103 TAD H50
1196 7640 SEA CLA
1197 4454 ERROR
1198 2216 ISE CJM502
1199 4454 ERROR
1200 7240 TST11G, CLA CMA
1201 3244 DCA CJM503
1202 6222 CIF 20
1203 6001 IOV
1204 6224 RIF
1205 7440 SEA CLA
1206 7402 HLT
1207 4244 JMS ,*1
1208 7402 CJM503, HLT
1209 4454 ERROR
1210 7362 CLA CLL CML CMA
1211 6004 GTF
1212 1132 TAD H5000
1213 1072 TAD H20
1214 7640 SEA CLA
1215 4454 ERROR
1216 6234 RIS
1217 7640 TAD H50
1218 4454 ERROR
1219 2777 ISE CJM502
1220 4454 ERROR
1221 6004 GTF
1222 1117 TAD H1000
1223 1103 TAD H50
1224 7640 SEA CLA
1225 4454 ERROR
1226 6234 RIS
1227 1103 TAD H50
1228 7640 SEA CLA
1229 4454 ERROR
1230 2216 ISE CJM502
1231 4454 ERROR
1232 7240 TST11H, CLA CMA
1233 3244 DCA CJM503
1234 6222 CIF 20
1235 6001 IOV
1236 6224 RIF
1237 7440 SEA CLA
1238 7402 HLT
1239 4244 JMS ,*1
1240 7402 CJM503, HLT
1241 4454 ERROR
1242 6224 RIF
1243 7402 HLT
1244 4244 JMS ,*1
1245 7402 CJM503, HLT
1246 4454 ERROR
1247 7362 CLA CLL CML CMA
1248 6004 GTF
1249 1132 TAD H5000
1250 1072 TAD H20
1251 7640 SEA CLA
1252 4454 ERROR
1253 6234 RIS
1254 7340 TAD H20
1255 1072 TAD H20
1256 7640 SEA CLA
1257 4454 ERROR
1258 2244 ISE CJM503
1259 4454 ERROR
1260 7240 TST11E, CLA CMA
1261 3272 DCA CJM504
1262 6212 CIF 10
1263 6001 IOV
1264 6224 RIF
1265 7440 SEA CLA
1266 7402 HLT
1267 4272 JMS ,*1
1268 7402 CJM504, HLT
1269 4454 ERROR
1270 7340 CLA CLL CMA
1271 6004 GTF
1272 1117 TAD H1000
1273 1067 TAD H10
1274 7640 SEA CLA
1275 4454 ERROR
1276 6234 RIS
1277 1067 TAD H10
1278 7640 SEA CLA
1279 4454 ERROR
1280 6234 RIS
1281 1067 TAD H10
1282 7640 SEA CLA
1283 4454 ERROR
1284 6234 RIS
1285 1067 TAD H10
1286 7640 SEA CLA
1287 4454 ERROR
1288 2272 ISE CJM504
1289 4454 ERROR
1290 7240 TST11F, CLA CMA
1291 3320 DCA CJM505
1292 6262 CIF 60
1293 6001 IOV
1294 6224 RIF
1295 7440 SEA CLA
1296 7402 HLT
1297 4320 JMS ,*1
1298 7402 CJM505, HLT
1299 4454 ERROR
1300 7360 CLA CLL CML CMA
1301 6004 GTF
1302 1132 TAD H5000
1303 1106 TAD H60
1304 7640 SEA CLA
1305 4454 ERROR
1306 6234 RIS
1307 1106 TAD H60
1308 7640 SEA CLA
1309 4454 ERROR
1310 2320 ISE CJM505
1311 4454 ERROR
1312 7240 TST11G, CLA CMA
1313 3346 DCA CJM506
1314 6232 CIF 30
1315 6001 IOV
1316 6224 RIF
1317 7440 SEA CLA
1318 4454 ERROR
1319 6234 RIS
1320 1106 TAD H60
1321 7640 SEA CLA
1322 4454 ERROR
1323 6004 GTF
1324 1132 TAD H5000
1325 1106 TAD H60
1326 7640 SEA CLA
1327 4454 ERROR
1328 6234 RIS
1329 1106 TAD H60
1330 7640 SEA CLA
1331 4454 ERROR
1332 6004 GTF
1333 1132 TAD H5000
1334 2320 ISE CJM505
1335 4454 ERROR
1336 7240 TST11H, CLA CMA
1337 3346 DCA CJM506
1338 6232 CIF 30
1339 6001 IOV
1340 6224 RIF

```

/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
/READ THE INTERRUPT BUFFER
/IN THE SF SET TO 1,0,F, 7 ONLY?
/SAVE FIELD IS NOT EQUAL TO FIELD 7
/CHECK THAT THE JMS DIDN'T GO TO FIELD 0
/THE JMS TO FIELD 7 WENT TO FIELD 0
/SET A LOCATION TO ALL ONE'S TO CHECK THAT A JMS TO FIELD 5 DIDN'T CHANGE FIELD 0
/SKIP ON USER INTERRUPT REQUEST
/USER INTERRUPT F/F GOT CLEARED
/CHANGE TO INSTRUCTION FIELD 5
/SET INTERRUPT ENABLE
/READ THE INSTRUCTION FIELD
/IS IT STILL ZERO
/THE IF IS NON ZERO OR IT INTERRUPTED
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION PRESET TO 1'S SHOULDN'T CHANGE
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO ALL ONE'S
/GET THE FLAGS
/CHECK FOR USER INTERRUPT REQUEST AND SAVE
/FIELDU REGISTER OF 50
/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
/READ THE INTERRUPT BUFFER
/CHECK THE INTERRUPT BUFFER FOR ISF 50
/SAVE FIELD IS NOT EQUAL TO 1,F, 5
/CHECK THAT JMS DIDN'T GO TO FIELD 0
/THE JMS TO 1,F, 5, WENT TO FIELD 0
/SET A LOCATION TO ALL ONE'S TO CHECK THAT A JMS TO FIELD 2 DIDN'T CHANGE FIELD 0
/CHANGE INSTRUCTION FIELD TO FIELD 2
/SET INTERRUPT ENABLE
/READ THE INSTRUCTION FIELD
/IS IT STILL EQUAL TO ZERO
/THE IF IS NON ZERO OR IT INTERRUPTED
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION PRESET TO 1'S SHOULDN'T CHANGE
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO 1'S
/GET THE FLAGS
/CHECK FOR LINK AND USER INTERRUPT REQUEST
/AND SAVE FIELD REGISTER OF 20
/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE

/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMAA=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2*16

```

1294 6234 RIS
1295 1072 TAD H20
1296 7640 SEA CLA
1297 4454 ERROR
1298 2244 ISE CJM503
1299 4454 ERROR
1300 7240 TST11E, CLA CMA
1301 3272 DCA CJM504
1302 6212 CIF 10
1303 6001 IOV
1304 6224 RIF
1305 7440 SEA CLA
1306 7402 HLT
1307 4272 JMS ,*1
1308 7402 CJM504, HLT
1309 4454 ERROR
1310 7360 CLA CLL CML CMA
1311 6004 GTF
1312 1117 TAD H1000
1313 1067 TAD H10
1314 7640 SEA CLA
1315 4454 ERROR
1316 6234 RIS
1317 1067 TAD H10
1318 7640 SEA CLA
1319 4454 ERROR
1320 2272 ISE CJM504
1321 4454 ERROR
1322 7240 TST11F, CLA CMA
1323 3320 DCA CJM505
1324 6262 CIF 60
1325 6001 IOV
1326 6224 RIF
1327 7440 SEA CLA
1328 7402 HLT
1329 4320 JMS ,*1
1330 7402 CJM505, HLT
1331 4454 ERROR
1332 7360 CLA CLL CML CMA
1333 6004 GTF
1334 1117 TAD H1000
1335 1067 TAD H10
1336 7640 SEA CLA
1337 4454 ERROR
1338 6234 RIS
1339 1067 TAD H10
1340 7640 SEA CLA
1341 4454 ERROR
1342 6224 RIF

```

/READ THE INTERRUPT BUFFER
/JUDGE THE INTERRUPT BUFFER CONTAIN 20
/IN, ERROR SAVE FIELD IS NOT EQUAL TO 20
/CHECK THAT JMS DIDN'T GO TO FIELD 0
/THE JMS TO FIELD 2 WENT TO FIELD 0
/SET A LOCATION TO ALL ONE'S TO CHECK THAT THE JMS TO FIELD 1 DIDN'T JMS TO FIELD 0
/CHANGE INSTRUCTION FIELD TO FIELD 1,
/TURN THE INTERRUPT ON
/READ THE INSTRUCTION FIELD
/IS IT STILL ZERO
/THE IF IS NON ZERO OR IT INTERRUPTED
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION PRESET TO ALL ONE'S SHOULDN'T CHANGE
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO ALL ONE'S
/GET THE FLAGS
/CHECK FOR USER INTERRUPT REQUEST AND
/SAVE FIELD OF 12
/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
/READ THE INTERRUPT BUFFER
/SAVE FIELD IS NOT EQUAL TO FIELD 12
/CHECK THAT THE JMS DIDN'T GO TO FIELD 0
/THE JMS TO FIELD 1 WENT TO FIELD 0
/SET A LOCATION TO ALL ONE'S TO CHECK THAT THE JMS TO FIELD 6 DIDN'T JMS TO FIELD 0
/CHANGE INSTRUCTION FIELD TO FIELD 6
/TURN THE INTERRUPT ON
/READ THE INSTRUCTION FIELD
/IS IT STILL ZERO
/THE IF IS NON ZERO OR IT INTERRUPTED
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION SET TO ALL ONE'S, IT SHOULDN'T CHANGE
/PROGRAM FAILED TO INTERRUPT
/SET THE AC AND LINK TO ALL ONE'S
/GET THE FLAG
/CHECK FOR LINK, USER INTERRUPT REQUEST
/AND SAVE FIELD OF 62
/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
/READ THE INTERRUPT BUFFER
/SAVE FIELD IS NOT EQUAL TO FIELD 62
/CHECK THAT THE JMS DIDN'T GO TO FIELD 0
/THE JMS TO FIELD 6 WENT TO FIELD 0
/SET A LOCATION TO ALL 1'S TO CHECK THAT THE JMS TO FIELD 3 DIDN'T JMS TO FIELD 0
/CHANGE INSTRUCTION FIELD TO FIELD 3
/TURN THE INTERRUPT ON
/READ THE INSTRUCTION FIELD

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A-L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-17

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1343 7448     SEA      /IS THE IF STILL ZERO
1344 7492     MFT      /THE IF IS NON ZERO OR IT INTERRUPTED
1345 4456     JMS    ,+1  /CLEAR INTERRUPT INHIBIT AND INTERRUPT
1346 7492     CJMHS00, MFT  /THIS LOCATION PRESSET TO ALL ONES; IT SHOULDN'T CHANGE
1347 4454     ERROR   /PROGRAM FAILED TO INTERRUPT
1350 7348     CLA CLL CMA  /SET THE AC TO ALL ONE'S
1351 6894     GTF      /GET THE FLAGS
1352 1117     TAD      H1000  /CHECK FOR USER INTERRUPT REQUEST AND
1353 1075     TAD      H30   /SAVE FIELD OF 3?
1354 7648     SEA CLA
1355 4454     ERROR   /GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
1356 6234     RIB      /READ THE INTERRUPT BUFFER
1357 1075     TAD      H30
1360 7640     SEA CLA
1361 4454     ERROR   /SAVE FIELD NOT EQUAL TO FIELD 3
1362 2346     ISE     CJMHS06  /JMS TO FIELD 3 WENT TO FIELD 0
1363 4454     ERROR   /GO TO NEXT SECTION
1364 5776,    JM#     TST11H

1376 1400
1377 1166
1378 1400
1400 7240     PAGE
1401 3210     TST11H, CLA CMA  /SET A LOCATION TO ALL ONES TO CHECK
1402 4242     DCA      CJMHS07  /THAT A JMS TO FIELD 4 DIDN'T JMS TO FIELD 0
1403 6891     CIF      40   /CHANGE INSTRUCTION FIELD TO FIELD 4
1404 6894     IOV
1405 7440     RIF
1406 7492     SEA
1407 4210     HLT
1408 7482     CJMHS07, MFT ,+1  /IS THE IF STILL ZERO
1409 4454     ERROR   /THE IF IS NON ZERO OR IT INTERRUPTED
1410 7348     CLA CLL CMA
1411 4454     ERROR   /THIS LOCATION PRESSET TO ALL ONE'S
1412 7360     CLA CLL CML CMA  /PROGRAM FAILED TO INTERRUPT
1413 6894     GTF      /SET THE AC AND LINK TO 1/S
1414 1132     TAD      H5000  /GET THE FLAGS
1415 1100     TAD      H40
1416 7640     SEA CLA
1417 4454     ERROR   /CHECK FOR USER INTERRUPT REQUEST AND LINK
1418 6234     RIB
1419 1100     TAD      H40
1420 7640     SEA CLA
1421 4454     ERROR   /GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
1422 7640     CLA CLL CMA  /READ THE INTERRUPT BUFFER
1423 4454     ERROR   /SAVE FIELD NOT EQUAL TO 40
1424 2210     ISE     CJMHS07
1425 4454     ERROR   /JMS TO FIELD 4 WENT TO FIELD 0
1426 7340     TST11I, CLA CLL CMA  /SETUP A LOCATION TO CHECK THAT A JMS TO
1427 3236     DCA      CJMHS10  /FIELD 0 GETS EXECUTED
1428 6202     CIF      00   /CHANGE INSTRUCTION FIELD TO FIELD 00
1429 6891     IOV
1430 6224     RIF
1431 7440     SEA
1432 7402     HLT
1433 4236     CJMHS10, MFT ,+1  /IS THE IF STILL ZERO
1434 7402     HLT
1435 4236     JMS    ,+1  /THE IF IS NON ZERO OR IT INTERRUPTED
1436 7402     CJMHS10, MFT  /CLEAR INTERRUPT ENABLE AND INTERRUPT
1437 4454     ERROR   /THIS LOCATION PREVIOUSLY SET TO 1/S
1438 6894     GTF      /PROGRAM FAILED TO INTERRUPT
1439 5776,    JM#     GTF      /GET THE FLAGS

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/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A-L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-18

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1441 1117     TAD      H1000  /CHECK FOR INTERRUPT REQUEST AND
1442 7640     SEA CLA  /SAVE FIELD OF 0
1443 4454     ERROR   /GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
1444 6234     RIB      /READ THE INTERRUPT BUFFER
1445 7640     SEA CLA
1446 4454     ERROR   /SAVE FIELD NON ZERO OR RIB FAILED
1447 2236     ISE     CJMHS10  /CHECK THAT THE JMS DID CHANGE LOCATION CJMHS10
1448 7610     SKP      CLA
1449 4454     ERROR   /JMS TO FIELD 0 FAILED TO STORE ITS PC IN CJMHS10
1450 6007     CAF
1451 4454     ERROR   /CLEAR ALL FLAGS INCLUDING USER INTERRUPT
1452 6007     GTF
1453 6004     GTF      /GET THE FLAGS
1454 7640     SEA CLA
1455 4454     ERROR   /INIT FAILED TO CLEAR USER INTERRUPT F/F
1456 4455     LOOP
1457 5777,    JM#     TEST12  /LOOP ON TEST IF SR = 1000

1577 1600
1600     PAGE

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*****TEST 12 - CHECKS THAT A CIF AND CDF WILL LOAD THE APPROPRIATE
/SAVE FIELD REGISTERS; A DCA INDIRECT IS CHECKED NOT TO CHANGE
/A LOCATION IN FIELD 0 WHEN THE DATA FIELD IS NON ZERO; A
/JMS IS CHECKED NOT TO CHANGE A LOCATION IN FIELD ZERO WHEN
/THE INSTRUCTION FIELD IS NON ZERO;
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1600 4456     TEST12, SCOPLP  /RETURN TEST AND SCOPE LOOPING ADDRESS
1601 6007     CAF
1602 6201     IOV
1603 6274     SUR
1604 5205     JMP    ,+1  /TURN THE INTERRUPT ON
1605 7402     MFT
1606 5206     JMF    ,+1  /SET USER BUFFER FLIP-FLOP
1607 6254     SJNT
1608 6254     SJNT
1609 4454     ERROR   /ENTER TIME SHARE MODE
1610 4454     ERROR   /PROGRAM FAILED TO ENTER USER MODE
1611 6004     GTF
1612 1130     TAD      M1100  /HLT FAILED TO TRAP
1613 7640     SEA CLA  /SKIP ON USER INTERRUPT
1614 4454     ERROR   /SJNT FAILED OR USER INTERRUPT NOT SET
1615 7340     TST12A, CLA CLL CMA  /GET THE FLAGS
1616 3033     DCA      COPCHK
1617 7340     CLA CLL CMA  /CHECK THAT THE DATA FIELD CHANGED
1620 3227     DCA      CJMHS1
1621 6261     CDF      60
1622 6212     CIF      10
1623 3434     DCA I    CHKCDF
1624 6001     IOV
1625 4626     JMS I ,+1  /GTF HEAD SOMETHING DIFFERENT THAN ABOVE
1626 1627     CKJHS1, HLT  /SET THE AC TO ALL ONES
1627 7402     CJMHS1, HLT  /STORE IT TO CHECK THAT THE DATA FIELD CHANGED
1628 4454     ERROR   /SET THE AC TO ALL ONES
1629 5776,    JM#     CJMHS1, HLT  /SAVE IT TO CHECK THE JMS TO ANOTHER FIELD
1630 4454     ERROR   /CHANGE DATA FIELD TO FIELD 6
1631 5776,    JM#     CJMHS1, HLT  /CHANGE INSTRUCTION FIELD TO FIELD 1
1632 4454     ERROR   /CHANGE ALINES TO CHECK THAT THE
1633 4454     ERROR   /DCA WENT TO ANOTHER FIELD THAN FIELD 0
1634 5776,    JM#     CJMHS1, HLT  /TURN THE INTERRUPT ON
1635 4454     ERROR   /CLEAR INTERRUPT INHIBIT AND INTERRUPT
1636 4454     ERROR   /THIS LOCATION PRESSET TO ONE/S TO CHECK JMS TO ANOTHER FIELD
1637 4454     ERROR   /PROGRAM FAILED TO INTERRUPT

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/KMB=A OPTION TEST 2 MAINDEQ=0B=DJKMA=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2-19

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1631 6804 GTF          /GET THE FLAGS
1632 1121 TAD          H1016 /CHECK FOR INT REQ, ISF OF 12 AND DSF OF 6
1633 7640 SEA CLA      /IN SAVE FIELD REGISTER
1634 4454 ERROR        /SAVE FIELD NOT EQUAL TO ABOVE
1635 6234 R19          /READ THE INTERRUPT BUFFER
1636 1871 TAD          H16   /CHECK FOR ISF OF 10 AND DSF OF 6
1637 7640 SEA CLA      /R19 FAILED OR SAVE FIELD NOT EQUAL TO 16
1638 4454 ERROR        /CHECK THAT THE DCA I WENT TO ANOTHER FIELD
1639 2033 ISE          CDFCHK /DCA I WENT TO FIELD 8 INSTEAD OF FIELD 6
1640 4454 ERROR        /CHECK THAT JMS I WENT TO ANOTHER FIELD
1641 2227 ISE          CKJMS1 /JMS I WENT TO FIELD 8 INSTEAD OF FIELD 1
1642 4454 ERROR        /SET LOCATION CDFCHK AND CKJMS2 TO ONES
1643 2227 TST12H, CLA CLL CMA /TO CHECK DCA I AND JMS I WENT TO
1644 4454 ERROR        /ANOTHER FIELD THAN FIELD 8
1645 7340 DCA CLL CMA   /CHANGE DATA FIELD TO FIELD 1
1646 3933 DCA CLL CMA   /CHANGE INSTRUCTION FIELD TO FIELD 6
1647 7340 DCA CLL CMA   /CHANGE EMA LINES TO FIELD 1
1648 3257 DCA CLL CMA   /CDFCHK SHOULD NOT CHANGE IN FIELD 8
1649 6211 CDF          10   /TURN THE INTERRUPT ON
1650 6262 CIF          60   /CLEAR INTERRUPT INHIBIT
1651 3434 DCA I CHKCDF /INDIRECT ADDRESS
1652 6004 DCA I CHKCDF /THIS LOCATION PRESET TO ONE'S TO CHECK JMS TO FIELD 6
1653 6004 DCA I CHKCDF /PROGRAM FAILED TO INTERRUPT
1654 6001 I0V          /SET THE AC TO ALL ONES
1655 4656 JMS I ,+1    /GET THE FLAGS
1656 4656 CKJMS2, HLT   /CHECK FOR INT REQ, ISF OF 62 AND DSF OF 1
1657 1657 CKJMS2, HLT   /THE SAVE FIELD NOT EQUAL TO ABOVE
1658 7402 CKJMS2, HLT   /HEAD THE INTERRUPT BUFFER
1659 4454 ERROR        /CHECK FOR I,S,F, OF 6 AND I,D,F, OF 1
1660 2257 CKJMS2, HLT   /THE SAVE FIELD NOT EQUAL TO ABOVE
1661 7340 CLA CLL CMA   /CHECK THAT DCA I WENT TO ANOTHER FIELD
1662 6004 CLA CLL CMA   /JMS I WENT TO FIELD 8 INSTEAD OF FIELD 16
1663 1126 TAD          H1061 /SET LOCATIONS CDFCHK AND CKJMS3 TO ONE'S
1664 7640 SEA CLA      /TO CHECK THAT DCA I AND JMS I WENT
1665 4454 ERROR        /TO ANOTHER FIELD THAN FIELD 8
1666 6234 R19          /CHANGE INSTRUCTIN FIELD TO FIELD 3
1667 1107 TAD          H51   /CHANGE DATA FIELD TO FIELD 4
1668 7640 SEA CLA      /CHANGE EMA LINES TO FIELD 4
1669 4454 ERROR        /TURN THE INTERRUPT ON
1670 2033 ISE          CDFCHK /CLEAR INTERRUPT INHIBIT
1671 4454 ERROR        /INDIRECT ADDRESS
1672 2257 CKJMS2, HLT   /THIS LOCATION PRESET TO ONE'S TO CHECK JMS TO FIELD 3
1673 4454 CKJMS2, HLT   /PROGRAM FAILED TO INTERRUPT
1674 2257 CKJMS2, HLT   /SET THE AC TO ALL ONES
1675 4454 CKJMS2, HLT   /GET THE FLAGS
1676 7340 CLA CLL CMA   /CHECK FOR INT REG, ISF OF 3 AND DSF OF 4
1677 3033 DCA CLL CMA   /THE SAVE FIELD REGISTER NOT EQUAL TO ABOVE
1678 7340 DCA CLL CMA   /TST12U, CLA CLL CMA
1679 3310 DCA CLL CMA   /DCA I CHKCDF
1680 6232 CIF          30   /CIF
1681 6241 CDF          40   /CDF
1682 3434 DCA I CHKCDF /DCA I ,+1
1683 6001 I0V          /CKJMS3
1684 4787 JMS I ,+1    /CKJMS3
1685 1710 CKJMS3, HLT   /CHANGE INSTRUCTIN FIELD TO FIELD 3
1686 7402 CKJMS3, HLT   /CHANGE DATA FIELD TO FIELD 4
1687 4454 CKJMS3, HLT   /CHANGE EMA LINES TO FIELD 4
1688 7340 CLA CLL CMA   /TURN THE INTERRUPT ON
1689 6004 GTF          /CLEAR INTERRUPT INHIBIT
1690 1123 TAD          H1034 /INDIRECT ADDRESS
1691 7640 SEA CLA      /THIS LOCATION PRESET TO ONE'S TO CHECK JMS TO FIELD 3
1692 4454 CKJMS3, HLT   /PROGRAM FAILED TO INTERRUPT
1693 7340 CLA CLL CMA   /SET THE AC TO ALL ONES
1694 6004 DCA CLL CMA   /GET THE FLAGS
1695 6001 DCA CLL CMA   /CHECK FOR INT REG, ISF OF 3 AND DSF OF 4
1696 4454 CKJMS3, HLT   /THE SAVE FIELD REGISTER NOT EQUAL TO ABOVE

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/KMB=A OPTION TEST 2 MAINDEQ=0B=DJKMA=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2-23

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1717 6234 R19          /HEAD THE INTERRUPT BUFFER
1720 1877 TAD          H34   /CHECK FOR ISF OF 3 AND DSF OF 4
1721 7640 SEA CLA      /THE SAVE FIELD REGISTER NOT EQUAL TO ABOVE
1722 4454 ERROR        /DCA I WENT TO FIELD 8 INSTEAD OF FIELD 4
1723 2033 CKJMS4, HLT   /JMS I WENT TO FIELD 8 INSTEAD OF FIELD 3
1724 4454 CKJMS4, HLT   /SET LOCATIONS CDFCHK AND CKJMS4 TO ONES,
1725 2310 CKJMS4, HLT   /TO CHECK THAT DCA I OR JMS I TO ANOTHER
1726 4454 CKJMS4, HLT   /FIELD DOESN'T GO TO FIELD 8
1727 7340 CLA CLL CMA   /CHANGE INSTRUCTION FIELD TO FIELD 5
1730 3033 DCA CLL CMA   /CHANGE DATA FIELD TO FIELD 2
1731 7340 DCA CLL CMA   /CHANGE EMA LINES TO FIELD 2
1732 3341 DCA CLL CMA   /TURN THE INTERRUPT ON
1733 6252 CIF          50   /CLEAR INTERRUPT INHIBIT
1734 6221 CDF          20   /INDIRECT ADDRESS
1735 3434 DCA I CHKCDF /THIS LOCATION PRESET TO ONE'S TO CHECK JMS TO FIELD 5
1736 6001 I0V          /PROGRAM FAILED TO INTERRUPT
1737 4740 JMS I ,+1    /SET THE AC TO ALL ONES
1740 1741 CKJMS4, HLT   /GET THE FLAGS
1741 7402 CKJMS4, HLT   /CHECK FOR INT, REQ., ISF OF 5, AND DSF OF 2
1742 4454 CKJMS4, HLT   /THE SAVE FIELD REGISTER NOT EQUAL TO ABOVE
1743 7340 CLA CLL CMA   /HEAD THE INTERRUPT BUFFER
1744 6004 GTF          /CHECK FOR ISF OF 5 AND DSF OF 2
1745 1125 TAD          H1052 /SAVE FIELD NOT EQUAL TO ABOVE
1746 7640 SEA CLA      /DCA I TO FIELD 2 WENT TO FIELD 8
1747 4454 CKJMS4, HLT   /JMS I TO FIELD 5 WENT TO FIELD 8
1750 6234 R19          /TST12E, CLA CLL CMA
1751 1104 TAD          H52   /DCA CLL CMA
1752 7640 SEA CLA      /DCA CLL CMA
1753 4454 CKJMS4, HLT   /DCA CLL CMA
1754 2033 CKJMS4, HLT   /CKJMS4
1756 2341 CKJMS4, HLT   /CKJMS4
1757 4454 CKJMS4, HLT   /CKJMS4
1760 5777 CKJMS4, HLT   /CKJMS4
1777 2001 CKJMS4, HLT   /CKJMS4
1780 PAGE          CKJMS4, HLT   /CKJMS4
2000 4452 CKJMS4, HLT   //AUTO RESTART HANDLER
2001 7340 CKJMS4, HLT   /SETUP LOCATIONS CDFCHK AND CKJMS5 TO ONES
2002 3033 CKJMS4, HLT   /TO CHECK THAT DCA I OR JMP I TO ANOTHER
2003 7240 CKJMS4, HLT   /FIELD DOESN'T GO TO FIELD 8
2004 3213 CKJMS4, HLT   /CHANGE DATA FIELD TO FIELD 5
2005 6251 CKJMS4, HLT   /CHANGE INSTRUCTION FIELD TO 2
2006 6222 CKJMS4, HLT   /CHANGE EMA LINES TO 5 (OF ON)
2007 3434 CKJMS4, HLT   /TURN INTERRUPT ENABLE ON
2010 6001 I0V          /CLEAR INTERRUPT INHIBIT
2011 4612 JMS I ,+1    /INDIRECT ADDRESS
2012 2033 CKJMS4, HLT   /THIS LOCATION PRESET TO ONE'S TO CHECK JMS TO FIELD 2
2013 7402 CKJMS4, HLT   /PROGRAM FAILED TO INTERRUPT
2014 4454 CKJMS4, HLT   /SET THE AC TO ALL ONES
2015 7340 CKJMS4, HLT   /GET THE FLAGS
2016 6004 CKJMS4, HLT   /CHECK FOR INT, REQ., ISF#2 AND DSF#5
2017 1122 CKJMS4, HLT   /CKJMS4
2020 7640 CKJMS4, HLT   /CKJMS4

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/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 4K PAL18 V142 18-DEC-74 15102 PAGE 2-21

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2021 4454      ERROR
2022 6234      R19
2023 1074      TAD H25
2024 7648      SEA CLA
2025 4454      ERROR
2026 2033      ISB CDFCHK
2027 4454      ERROR
2028 2213      ISB CKJMS5
2029 4454      ERROR
2030 7340      TST12F: CLA CLL CMA
2031 3033      DCA CDFCHK
2032 7240      CLA CMA
2033 3244      DCA CKJMS6
2034 6231      CDF #8
2035 6242      CIF #8
2036 3434      DCA I CHKCDF
2037 6001      IOV
2038 4643      JMS I ,*1
2039 2044      CKJMS6
2040 7402      CKJMS6, HALT
2041 4454      ERROR
2042 7340      CLA CLL CMA
2043 6004      GTF
2044 1124      TAD H1843
2045 7648      SEA CLA
2046 4454      ERROR
2047 8191      R19
2048 7648      TAD H43
2049 4454      SEA CLA
2050 7648      ERROR
2051 4454      ISB CDFCHK
2052 6234      CKJMS6
2053 6234      ERROR
2054 1191      TAD H43
2055 7648      SEA CLA
2056 4454      ERROR
2057 2033      ISB CDFCHK
2058 4454      CKJMS6
2059 2244      ERROR
2060 4454      CKJMS6
2061 2244      CLA CLL CMA
2062 4454      DCA CDFCHK
2063 7340      CKJMS7, HALT
2064 3033      CLA CLL CMA
2065 7240      CLA CLL CMA
2066 3275      DCA CKJMS7
2067 6271      CDF #8
2068 6262      CIF #8
2069 3434      DCA I CHKCDF
2070 6001      IOV
2071 4742      JMS I ,*1
2072 6001      CKJMS7
2073 4674      CKJMS7
2074 2875      CKJMS7
2075 7402      CKJMS7, HALT
2076 4454      ERROR
2077 7340      CLA CLL CMA
2078 6004      GTF
2079 1120      TAD H1807
2080 7648      SEA CLA
2081 4454      ERROR
2082 7648      R19
2083 6234      TAD H7
2084 1066      SEA CLA
2085 7648      CKJMS7
2086 4454      ERROR

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/SAVE FIELD NOT EQUAL TO ABOVE
/READ THE INTERRUPT BUFFER
/CHECK FOR ISR OF 2 AND DSF#5
/SAVE FIELD REGISTER NOT EQUAL TO ABOVE
/DCA I TO FIELD 5 WENT TO FIELD 8
/JMS I TO FIELD 2 WENT TO FIELD 8
/SET LOCATIONS CDFCHK AND CKJMS6 TO
/VONES TO CHECK THAT DCA I AND JMS I
/TO ANOTHER FIELD DOESN'T GO TO FIELD 8
/CHANGE DATA FIELD TO FIELD 3
/CHANGE INSTRUCTION FIELD TO FIELD 4
/CHANGE EMA LINES TO 3
/TURN THE INTERRUPT ON
/CLEAR INTERRUPT INHIBIT
/INDIRECT ADDRESS
/THIS LOCATION PRESET TO ONES TO CHECK JMS TO FIELD 4
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO ALL ONE'S
/GET THE FLAGS
/CHECK FOR INT, REQ., ISR#4, DSF#4,
/SAVE FIELD NOT EQUAL TO ABOVE
/READ THE INTERRUPT BUFFER
/SET THE AC TO ALL ONE'S
/GET THE FLAGS
/CHECK FOR ISR OF 4 AND DSF OF 3,
/SAVE FIELD NOT EQUAL TO ABOVE
/READ THE INTERRUPT BUFFER
/CHECK FOR ISR OF 4 AND DSF OF 3
/SAVE FIELD NOT EQUAL TO ABOVE
/DCA I WENT TO FIELD 8 INSTEAD OF FIELD 3
/JMS I WENT TO FIELD 8 INSTEAD OF FIELD 4
/SET CDFCHK AND CKJMS7 TO ONES TO
/CHECK FOR DCA I TO ANOTHER FIELD AND A
/JMS I TO ANOTHER FIELD
/CHANGE DATA FIELD TO FIELD 7
/CHANGE INSTRUCTION FIELD TO FIELD 8
/CHANGE EMA LINES TO 7
/TURN THE INTERRUPT ON
/CLEAR INTERRUPT INHIBIT
/INDIRECT ADDRESS
/THIS LOCATION HAS SET TO ONE'S BUT SHOULD CHANGE
/PROGRAM FAILED TO INTERRUPT
/GET THE FLAGS
/CHECK FOR INT, REQ., ISR#8, DSF#7
/SAVE FIELD NOT EQUAL TO ABOVE
/READ THE INTERRUPT BUFFER
/CHECK FOR DSF OF 7
/SAVE FIELD NOT EQUAL TO DSF OF 7

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 4K PAL18 V142 18-DEC-74 15102 PAGE 2-22

```

2110 2033      ISB CDFCHK
2111 4454      ERROR
2112 2275      ISB CKJMS7
2113 7410      SKP
2114 4454      ERROR
2115 7340      TST12H: CLA CLL CMA
2116 3033      DCA CDFCHK
2117 7340      CLA CLL CMA
2118 3327      DCA CKJMS8
2119 4261      CDF #8
2120 6272      CIF #8
2121 3434      DCA I CHKCDF
2122 6001      IOV
2123 4726      JMS I ,*1
2124 2127      CKJMS8
2125 7402      CKJMS8, HALT
2126 4454      ERROR
2127 7340      CLA CLL CMA
2128 6004      GTF
2129 1127      TAD H1870
2130 7648      SEA CLA
2131 4454      ERROR
2132 6004      R19
2133 1111      TAD H70
2134 7648      SEA CLA
2135 4454      ERROR
2136 6234      R19
2137 1111      TAD H70
2138 7648      SEA CLA
2139 4454      ERROR
2140 2033      ISB CDFCHK
2141 4454      CLA CLL CMA
2142 7410      SKP
2143 4454      ERROR
2144 4454      ISB CKJMS8
2145 2327      ERROR
2146 4454      TST12I: CLA CMA
2147 7240      DCA CDFCHK
2148 3033      CLA CLL CMA
2149 7340      DCA CKJMS9
2150 3361      CDF #8
2151 6262      CIF #8
2152 3434      DCA I CHKCDF
2153 6001      IOV
2154 4760      JMS I ,*1
2155 2161      CKJMS9, HALT
2156 7402      ERROR
2157 4454      CLA CLL CMA
2158 7340      GTF
2159 1117      TAD H1800
2160 7648      SEA CLA
2161 4454      ERROR
2162 6234      R19
2163 7648      SEA CLA
2164 4454      ERROR
2165 2033      ISB CDFCHK
2166 7648      SEA CLA
2167 4454      ERROR
2168 6234      R19
2169 7648      SEA CLA
2170 4454      ERROR
2171 2033      ISB CDFCHK
2172 4454      CKJMS9
2173 7410      SKP
2174 4454      ERROR
2175 4454      ISB CKJMS9
2176 2361      CKJMS9

```

/DCA I WENT TO FIELD 8 INSTEAD OF FIELD 7
/JMS I TO FIELD 8 WENT TO ANOTHER FIELD
/SET UP CDFCHK TO ONES TO CHECK THAT
/DCA I TO FIELD 8 WILL CLEAR IT AND SET
/LOCATION CKJMS8 TO 1/5 TO CHECK THAT
/JMS I TO FIELD 7 WON'T CLEAR IT
/CHANGE DATA FIELD TO FIELD 3
/CHANGE INSTRUCTION FIELD TO FIELD 7
/CLEAR LOCATION CDFCHK IF EMA LINES WENT TO ZERO
/TURN THE INTERRUPT ON
/CLEAR INTERRUPT INHIBIT
/INDIRECT ADDRESS
/THIS LOCATION PRESET TO 1/S, IT SHOULD NOT CHANGE
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO ALL ONES
/GET THE FLAGS
/CHECK FOR INT, REQ., ISR#7 AND DSF#8
/SAVE FIELD REGISTER NOT EQUAL TO ABOVE
/READ THE INTERRUPT BUFFER
/CHECK SAVE FIELDS FOR ISR OF 7 AND DSF OF 8
/SAVE FIELD NOT EQUAL TO ABOVE
/DCA I TO FIELD 8 WENT TO ANOTHER FIELD
/JMS I TO FIELD 7 WENT TO FIELD 8
/SETUP CDFCHK AND CKJMS9 TO ONES TO
/CHECK THAT DCA I AND JMS I TO FIELD 8
/MILL CHANGE THESE LOCATIONS
/CHANGE DATA FIELD TO FIELD 3
/CHANGE INSTRUCTION FIELD TO FIELD 8
/CLEAR LOCATION CDFCHK
/SET INTERRUPT ENABLE
/CLEAR INTERRUPT INHIBIT
/INDIRECT ADDRESS
/THIS LOCATION PRESET TO ONES, SHOULD CHANGE
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO ALL ONE'S
/GET THE FLAGS
/CHECK FOR INTERRUPT REQUEST
/SAVE FIELD NOT EQUAL TO ABOVE
/READ THE INTERRUPT BUFFER
/IS THE SAVE FIELD EQUAL TO 8
/SAVE FIELD NOT EQUAL TO ZERO
/DCA I TO FIELD 8 DID NOT GO TO FIELD 8

```

/KH8-A OPTION TEST 2 MAINDEQ=008=DJKHAA=L 4K      PAL10    V142     18-DEC-74      15102    PAGE 2-23
2177 7410      SKP
2280 4454      ERROR
2291 1150      TAD      K7787      /JMS I TO FIELD 2 DID NOT GO TO FIELD 0
2292 6224      RIF
2293 1137      TAD      K78
2294 7840      CMA
2295 7640      SEA CLA
2296 4454      ERROR
2297 6254      SINT
2298 4454      ERROR
2299 5887      CAF
2300 6254      SINT
2301 7410      SKP
2302 4454      ERROR
2303 4455      LOOP
2216 4456      TEST13; SCOPLP
2217 6807      CAF
2218 6202      CIF    00
2219 6201      CDF    00
2220 5233      JMF    ,+1
2221 6001      IOV
2222 6274      SUR
2223 5226      JMF    ,+1
2224 7402      HLT
2225 5227      JMF    ,
2226 6254      SINT
2227 4454      ERROR
2228 6234      RIB
2229 1113      TAD      M100
2230 7640      SEA CLA
2231 4454      ERROR
2232 6234      RIB
2233 1113      TAD      M100
2234 7640      SEA CLA
2235 4454      ERROR
2236 7240      TST13A; CLA CMA
2237 3033      DCA      CDFCHK
2238 7240      CLA CMA
2239 3246      DCA      JMSCK1
2240 6273      CIFCDF 78
2241 3434      DCA I   CHKCDF
2242 6001      IOV
2243 4246      JMS      JMSCK1
2244 7402      J18UK1; HLT
2245 4454      ERROR
2246 6234      RIB
2247 1112      TAD      M77
2248 7640      SEA CLA
2249 4454      ERROR
2250 2833      TSE      CDFCHK
2251 4454      ERROR
2252 6234      RIB
2253 1112      TAD      M77
2254 7640      SEA CLA
2255 4454      ERROR
2256 2246      LSA      IMECK1

*****  

/*TEST 13 = CHECKS THE MICRO PROGRAM INSTRUCTIONS CDF CIF (62X3), A DCA I  

/*AND JMS ARE ALSO ISSUED TO CHECK THAT THESE INSTRUCTIONS DO NOT DESTROY  

/*LOCATIONS IN FIELD 0; THE USER INTERRUPT F/F IS USED TO CAUSE INTERRUPTS,  

*****  

2216 4456      TEST13; SCOPLP
2217 6807      CAF
2218 6202      CIF    00
2219 6201      CDF    00
2220 5233      JMF    ,+1
2221 6001      IOV
2222 6274      SUR
2223 5226      JMF    ,+1
2224 7402      HLT
2225 5227      JMF    ,
2226 6254      SINT
2227 4454      ERROR
2228 6234      RIB
2229 1113      TAD      M100
2230 7640      SEA CLA
2231 4454      ERROR
2232 6234      RIB
2233 1113      TAD      M100
2234 7640      SEA CLA
2235 4454      ERROR
2236 7240      TST13A; CLA CMA
2237 3033      DCA      CDFCHK
2238 7240      CLA CMA
2239 3246      DCA      JMSCK1
2240 6273      CIFCDF 78
2241 3434      DCA I   CHKCDF
2242 6001      IOV
2243 4246      JMS      JMSCK1
2244 7402      J18UK1; HLT
2245 4454      ERROR
2246 6234      RIB
2247 1112      TAD      M77
2248 7640      SEA CLA
2249 4454      ERROR
2250 2833      TSE      CDFCHK
2251 4454      ERROR
2252 6234      RIB
2253 1112      TAD      M77
2254 7640      SEA CLA
2255 4454      ERROR
2256 2246      LSA      IMECK1

*****  

/*USER FLAG NOT SET OR SAVE FIELD NON ZERO
/*SETUP TWO LOCATIONS TO CHECK THAT A CIF,CDF
/*WENT TO ANOTHER FIELD BY DOING A DCA I AND JMS
2216 4456      TEST13; SCOPLP
2217 6807      CAF
2218 6202      CIF    00
2219 6201      CDF    00
2220 5233      JMF    ,+1
2221 6001      IOV
2222 6274      SUR
2223 5226      JMF    ,+1
2224 7402      HLT
2225 5227      JMF    ,
2226 6254      SINT
2227 4454      ERROR
2228 6234      RIB
2229 1113      TAD      M100
2230 7640      SEA CLA
2231 4454      ERROR
2232 6234      RIB
2233 1113      TAD      M100
2234 7640      SEA CLA
2235 4454      ERROR
2236 7240      TST13A; CLA CMA
2237 3033      DCA      CDFCHK
2238 7240      CLA CMA
2239 3246      DCA      JMSCK1
2240 6273      CIFCDF 78
2241 3434      DCA I   CHKCDF
2242 6001      IOV
2243 4246      JMS      JMSCK1
2244 7402      J18UK1; HLT
2245 4454      ERROR
2246 6234      RIB
2247 1112      TAD      M77
2248 7640      SEA CLA
2249 4454      ERROR
2250 2833      TSE      CDFCHK
2251 4454      ERROR
2252 6234      RIB
2253 1112      TAD      M77
2254 7640      SEA CLA
2255 4454      ERROR
2256 2246      LSA      IMECK1

*****  

/*CHANGE IF AND DF TO FIELD 7
/*TRY TO CLEAR CDFCHK IN FIELD 7
/*SET INTERRUPT ENABLE
/*CLEAR INTERRUPT INHIBIT AND INTERRUPT
/*THIS LOCATION RESET TO 7777
/*PROGRAM FAILED TO INTERRUPT
/*READ THE INTERRUPT BUFFER
/*CHECK SAVE FIELD FOR ISR OF 7 AND DSF OF 7
2216 4456      TEST13; SCOPLP
2217 6807      CAF
2218 6202      CIF    00
2219 6201      CDF    00
2220 5233      JMF    ,+1
2221 6001      IOV
2222 6274      SUR
2223 5226      JMF    ,+1
2224 7402      HLT
2225 5227      JMF    ,
2226 6254      SINT
2227 4454      ERROR
2228 6234      RIB
2229 1113      TAD      M77
2230 7640      SEA CLA
2231 4454      ERROR
2232 6234      RIB
2233 1113      TAD      M77
2234 7640      SEA CLA
2235 4454      ERROR
2236 2246      LSA      IMECK1

```

KMB-B-A OPTION TEST 2 MAINDEG=08=DJKMMA=4BL 4K PAL10 V142 18*DEC*74 15102 PAGE 2*24
 2257 4454 ERROM
 2260 6254 SINT
 2261 4454 ERROM
 2262 7248 TST13B; CLA GMA
 2263 3033 DCA CDFCHK
 2264 7240 CLA GMA
 2265 3272 DCA JMSCK2
 2266 6223 CICFCF 28
 2267 3434 DCA I CHKCFD
 2270 6001 IOV
 2271 4272 JMS JMSCK2
 2272 7402 JMSCK2; HLT
 2273 4454 ERROM
 2274 6234 RIS
 2275 1073 TAD M22
 2276 7640 SEA CLA
 2277 4454 ERROM
 2310 2033 ISB CDFCHK
 2311 4454 ERROM
 2312 2272 ISB JMSCK2
 2313 4454 ERROM
 2314 7248 TST13C; CLA GMA
 2315 3033 DCA CDFCHK
 2316 7240 CLA GMA
 2317 3314 DCA JMSCK3
 2318 6253 CICFCF 50
 2319 3434 DCA I CHKCFD
 2320 6001 IOV
 2321 4454 JMS JMSCK3
 2322 7402 HLT
 2323 4454 ERROM
 2324 6234 RIS
 2325 1165 TAD H55
 2326 7640 SEA CLA
 2327 4454 ERROM
 2328 2033 ISB CDFCHK
 2329 4454 ERROM
 2330 2314 ISB JMSCK3
 2331 4454 ERROM
 2332 7248 TST13D; CLA GMA
 2333 3033 DCA CDFCHK
 2334 7240 CLA GMA
 2335 3340 DCA JMSCK4
 2336 6243 CICFCF 48
 2337 3434 DCA I CHKCFD
 2338 6001 IOV
 2339 4340 JMS JMSCK4
 2340 7402 JMSCK4; HLT
 2341 4454 ERROM
 2342 6234 RIS
 2343 1182 TAD M44
 2344 7640 SEA CLA
 2345 4454 ERROM
 /JMS TO FIELD 7 WENT TO FIELD 8
 /SKIP ON USER INTERRUPT F/F
 /USER INTERRUPT F/F GOT CLEARED
 /SETUP TWO LOCATIONS TO CHECK THAT CICFCF 28
 /WENT TO ANOTHER FIELD THAN FIELD 8
 /CHANGE INSTRUCTION FIELD AND DATA FIELD TO 2
 /TRY TO CLEAR CDFCHK IN FIELD 2
 /SET INTERRUPT ENABLE
 /CLEAR INTERRUPT INHIBIT AND INTERRUPT
 /THIS LOCATIONS PRESET TO 7777
 /PROGRAM FAILED TO INTERRUPT
 /READ THE INTERRUPT BUFFER
 /CHECK SAVE FIELD FOR ISF#2 + DSF#2
 /SAVE FIELD INTO EQUAL OF CICFCF 28 FAILED
 /DCA I TO FIELD 2 WENT TO FIELD 8
 /JMS TO FIELD 2 WENT TO FIELD 8
 /SETUP TWO LOCATIONS TO CHECK THAT CICFCF 50
 /WENT TO ANOTHER FIELD THAN FIELD 8
 /CHANGE INSTRUCTION FIELD AND DATA FIELD TO FIELD 5
 /TRY TO CLEAR CDFCHK IN FIELD 5
 /SET INTERRUPT ENABLE
 /CLEAR INTERRUPT INHIBIT AND INTERRUPT
 /THIS LOCATIONS PRESET TO 7777
 /PROGRAM FAILED TO INTERRUPT
 /READ THE INTERRUPT BUFFER
 /CHECK FOR ISF OF 5 AND DSF OF 5
 /SAVE FIELD NOT EQUAL TO ISF,DSF OF 5
 /DCA I TO FIELD 5 WENT TO FIELD 8
 /JMS TO FIELD 5 WENT TO FIELD 8
 /SKIP ON USER INTERRUPT F/F
 /USER INTERRUPT F/F GOT CLEARED
 /SETUP TWO LOCATIONS TO ONE'S TO CHECK
 /THAT CICFCF TO FIELD 4 WENT TO ANOTHER
 /FIELD THAN FIELD 8
 /CHANGE INSTRUCTION FIELD AND DATA FIELD TO FIELD 4
 /TRY TO CLEAR CDFCHK IN FIELD 4
 /SET INTERRUPT ENABLE
 /CLEAR INTERRUPT INHIBIT AND INTERRUPT
 /THIS LOCATION PRESET TO ONE'S
 /PROGRAM FAILED TO INTERRUPT
 /READ THE INTERRUPT BUFFER
 /CHECK ISF FOR 4 AND DSF FOR 4
 /SAVE FIELD NOT EQUAL TO 44

/KMB-A OPTION TEST 2 MAINDEG=08=DJ<MA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-25

```

2346 2033      ISE      CDFCHK
2347 4454      ERROR
2350 2340      ISE      JMSCK4
2351 4454      ERROR
2352 6254      SINT
2353 4454      ERROR
2354 7340      TST13E, CLA GLL CMA
2355 3033      DGA      CDFCHK
2356 7240      CLA CMA
2357 3264      DGA      JMSCK5
2360 6233      CIFCDF 38
2361 3434      DGA I   CHKCDF
2362 6001      IOV
2363 4364      JMS      JMSCK5
2364 7402      JMSCK5, HLT
2365 4454      ERROR
2366 6234      RIS
2367 1876      TAD    H33
2370 7640      SEA CLA
2371 4454      ERROR
2372 2033      ISE      CDFCHK
2373 4454      ERROR
2374 2364      ISE      JMSCK5
2375 4454      ERROR
2376 6254      SINT
2377 4454      ERROR
2400 7240      TST13F, CLA CMA
2401 3033      DGA      CDFCHK
2402 7240      CLA CMA
2403 3210      DGA      JMSCK6
2404 6263      CIFCDF 60
2405 3434      DGA I   CHKCDF
2406 6001      IOV
2407 4210      JMS      JMSCK6
2410 7402      JMSCK6, HLT
2411 4454      ERROR
2412 6234      RIS
2413 1110      TAD    H66
2414 7640      SEA CLA
2415 4454      ERROR
2416 2033      ISE      CDFCHK
2417 4454      ERROR
2420 2210      ISE      JMSCK6
2421 4454      ERROR
2422 6254      SINT
2423 4454      ERROR
2424 7240      TST13G, CLA CMA
2425 3033      DGA      CDFCHK
2426 7240      CLA CMA
2427 3234      DGA      JMSCK7
2430 6213      CIFCDF 10
2431 3434      DGA I   CHKCDF
2432 6001      IOV
2433 4234      JMS      JMSCK7
2434 7402      JMSCK7, HLT

```

/CHANGE INSTRUCTION AND DATA FIELD TO FIELD 3
/TRY TO CLEAR CDFCHK IN FIELD 3
/SET INTERRUPT ENABLE
/CLEAN INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION PRESET TO ONES
/PROGRAM FAILED TO INTERRUPT
/READ THE INTERRUPT BUFFER
/CHECK FOR ISF OF 3 AND DSF OF 3
/SAVE FIELD NOT EQUAL TO ABOVE OR CIFCDF 30 FAILED
/JMCA I TO FIELD 3 WENT TO FIELD 0
/JMS TO FIELD 3 WENT TO FIELD 0
/SKIP ON USER INTERRUPT F/F
/USER INTERRUPT F/F GOT CLEARED
/SETUP TWO LOCATIONS TO CHECK THAT
/CIFCDF 60 WENT TO ANOTHER FIELD
/THEN FIELD ZERO
/CHANGE INSTRUCTION AND DATA FIELD TO FIELD 6,
/TRY TO CLEAR CDFCHK IN FIELD 6
/SET INTERRUPT ENABLE
/CLEAN INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATIONS PRESET TO ONES
/PROGRAM FAILED TO INTERRUPT
/READ THE INTERRUPT BUFFER
/CHECK FOR ISF OF 6 AND DSF OF 6
/SAVE FIELD NOT EQUAL ABOVE OR CIFCDF 60 FAILED
/JMCA I TO FIELD 6 WENT TO FIELD 0
/JMS TO FIELD 6 WENT TO FIELD 0
/SKIP ON USER INTERRUPT F/F
/USER INTERRUPT GOT CLEARED
/SETUP 2 LOCATIONS TO CHECK THAT
/CIFCDF 10 WENT TO ANOTHER FIELD
/THAN FIELD 0
/CHANGE INSTRUCTION FIELD + DATA FIELD TO FIELD 1
/TRY TO CLEAR CDFCHK IN FIELD 1
/SET INTERRUPT ENABLE
/CLEAN INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION PRESET TO ONES

/KMB-A OPTION TEST 2 MAINDEG=08=DJ<MA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-26

```

2435 4454      ERROR
2436 6234      RIS
2437 1070      TAD    H11
2440 7640      SEA CLA
2441 4454      ERROR
2442 2033      ISE      CDFCHK
2443 4454      ERROR
2444 2234      ISE      JMSCK7
2445 4454      ERROR
2446 6254      SINT
2447 4454      ERROR
2450 7240      TST13H, CLA CMA
2451 3033      DGA      CDFCHK
2452 7240      CLA CMA
2453 3260      DGA      JMSCK8
2454 6203      CIFCDF 08
2455 3434      DGA I   CHKCDF
2456 6001      IOV
2457 4260      JMS      JMSCK8
2460 7402      JMSCK8, HLT
2461 4454      ERROR
2462 6234      RIS
2463 7640      SEA CLA
2464 4454      ERROR
2465 2033      ISE      CDFCHK
2466 7410      SKP
2467 4454      ERROR
2470 2260      ISE      JMSCK8
2471 7410      SKP
2472 4454      ERROR
2473 6264      CINT
2474 6254      SINT
2475 7410      SKP
2476 4454      ERROR
2477 4455      LOOP

```

/PROGRAM FAILED TO INTERRUPT
/READ THE INTERRUPT BUFFER
/CHECK FOR ISF OF 1 AND DSF OF 1
/SAVE FIELD NOT EQUAL ABOVE OR CIFCDF 10 FAILED
/JMCA I TO FIELD 1 WENT TO FIELD 0
/JMS TO FIELD 1 WENT TO FIELD 0
/SKIP ON USER INTERRUPT F/F
/USER INTERRUPT F/F GOT CLEARED
/SET UP 2 LOCATIONS TO CHECK THAT
/CIFCDF 10 WENT TO FIELD 0 INSTEAD
/OF ANOTHER FIELD
/CHANGE INSTRUCTION AND DATA FIELD TO 0
/CLEAR CDFCHK IN FIELD 0
/SET INTERRUPT ENABLE
/THIS LOCATIONS PRESET TO ONES
/PROGRAM FAILED TO INTERRUPT
/READ THE INTERRUPT BUFFER
/SAVE FIELD IS NOT EQUAL TO 0
/JMCA I FAILED TO CLEAR CDFCHK IN FIELD 0
/JMS FAILED TO CHANGE JMSCK8 IN FIELD 0
/CLEAR USER INTERRUPT F/F
/SKIP ON USER INTERRUPT F/F
/INT FAILED TO CLEAR USER INTERRUPT F/F
/LOOP ON TEST IF SR 2 = 1000

/TEST 14 - CHECKS THAT RTF CAN LOAD THE IF AND OF AND THAT RMF CAN
/RELOAD IT!

```

2500 4456      TEST14, SCDFLP
2501 6007      CAR
2502 6001      IOV
2503 6274      SUR
2504 5305      JMS ,01
2505 7402      HALT
2506 5306      JMS
2507 6254      SINT
2510 4454      ERROR
2511 6234      RIS
2512 1113      TAD    H100
2513 7640      SEA CLA
2514 4454      ERROR
2515 1141      TST14A, TAD K125

```

/SETUP SCDFLP AND TEST LOOPING ADDRESS
/CLEAR ALL FLAGS
/SET INTERRUPT ENABLE
/SET USER BUFFER
/LOAD THE UB INTO THE IF
/HALT SHOULD TRAP
/HALT FAILED TO TRAP
/SKIP ON USER INTERRUPT
/USER INTERRUPT NOT SET
/READ THE INTERRUPT BUFFER
/CHECK FOR USER FLAG
/USER FLAG OR INT REQ NOT SET

/KMB-A OPTION TEST 2 MAINDEQ=UB=DJKMA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-27

```

2510 6005        RTF
2517 7300        CLA CLL
2520 6214        RDP
2521 1103        TAD    M50
2522 7640        SEA CLA
2523 7402        HLT
2524 5325        JMP    ,+1
2525 4454        ERROR
2526 6254        SINT
2527 4454        ERROR
2530 6234        R1B
2531 1114        TAD    M125
2532 7640        SEA CLA
2533 4454        ERROR
2534 6244        RMF
2535 6214        RDP
2536 1103        TAD    M50
2537 7640        SEA CLA
2540 4454        ERROR
2541 6001        IOV
2542 5343        JMP    ,+1
2543 4454        ERROR
2544 6254        SINT
2545 4454        ERROR
2546 6234        R1B
2547 1114        TAD    M125
2550 7640        SEA CLA
2551 4454        ERROR
2552 1142        TAD    K152
2553 6005        RTF
2554 7300        CLA CLL
2555 6214        RDP
2556 1072        TAD    M20
2557 7640        SEA CLA
2560 7402        HLT
2561 5362        JMP    ,+1
2562 4454        ERROR
2563 6254        SINT
2564 4454        ERROR
2565 6234        R1B
2566 1115        TAD    M152
2567 7640        SEA CLA
2570 4454        ERROR
2571 6244        RMF
2572 6214        RDP
2573 1072        TAD    M20
2574 7640        SEA CLA
2575 4454        ERROR
2576 7000        NOP
2577 6001        IOV
2580 5201        JMP    ,+1
2581 4454        ERROR
2582 6254        SINT
2583 4454        ERROR
2584 6234        R1B

```

/RMF FAILED TO LOAD DATA FIELD TO 5
 /ENTER USER MODE,CLEAR INT INHIBIT, AND INTERRUPT
 /FAILED TO INTERRUPT , RTF OR JMP FAILED
 /SKIP ON USER INTERRUPT F/F
 /SINT FAILED OR USER INTERRUPT F/F CLEARED
 /CHECK FOR USER FLAG, ISF OF 2 AND DSF OF 5

/SAVE FIELD NOT EQUAL TO ABOVE
 /LOAD THE UB, IB, + DF WITH THE SAVE FIELD
 /READ THE DATA FIELD
 /CHECK THAT RMF LOADED THE DF

/RMF FAILED TO LOAD DF TO FIELD 5
 /SET INTERRUPT ENABLE
 /LOAD THE IF, CLEAR INTERRUPT INHIBIT, ENTER USER MODE
 /FAILED TO INTERRUPT OR RMF JMP FAILED
 /SKIP ON USER INTERRUPT FLIP-FLOP
 /USER INTERRUPT FLIP-FLOP NOT SET
 /READ THE INTERRUPT BUFFER
 /CHECK FOR USER FLAG, ISF OF 2 AND DSF OF 5

/RMF FAILED TO LOAD THE ABOVE
 /LOAD THE UB, IB, + DF WITH UF, ISF OF 5 AND DSF OF 2
 /AND SET INTERRUPT ENABLE
 /READ THE DATA FIELD
 /CHECK THAT A DF SET TO FIELD 2

/RTF FAILED TO LOAD DF WITH 2
 /ENTER USER MODE CLEAR INTERRUPT INHIBIT
 /FAILED TO INTERRUPT
 /SKIP ON USER INTERRUPT
 /USER INTERRUPT NOT SET
 /READ THE INTERRUPT BUFFER
 /CHECK FOR USER FLAG, ISF OF 5 AND DSF OF 2

/SAVE FIELD NOT EQUAL TO ABOVE
 /RESTORE MEMORY FIELDS
 /READ THE DATA FIELD
 /CHECK THAT RMF LOADED DF TO FIELD 2

/RMF FAILED TO LOAD DF TO FIELD 2
 /SET INTERRUPT ENABLE
 /CLEAR INTERRUPT INHIBIT, LOAD IF, ENTER USER MODE
 /FAILED TO INTERRUPT
 /SKIP ON USER INTERRUPT
 /USER INTERRUPT NOT SET
 /READ THE INTERRUPT BUFFER

/KMB-A OPTION TEST 2 MAINDEQ=UB=DJKMA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-28

```

2605 1115        TAD    M152
2606 7640        SEA CLA
2607 4454        ERROR
2610 6254        TST14U, SINT
2611 4454        ERROR
2612 1140        TAD    K77
2613 6005        RTF
2614 7300        CLA CLL
2615 6214        RDP
2616 1111        TAD    M70
2617 7640        SEA CLA
2620 7402        HLT
2621 5222        JMP    ,+1
2622 4454        ERROR
2623 6234        R1B
2624 1112        TAD    M77
2625 7640        SEA CLA
2626 4454        ERROR
2627 6254        SINT
2630 4454        ERROR
2631 6244        RMF
2632 6214        RDP
2633 1111        TAD    M70
2634 7640        SEA CLA
2635 4454        ERROR
2636 6224        R1F
2637 7640        SEA CLA
2640 4454        ERROR
2641 6001        IOV
2642 5243        JMP    ,+1
2643 4454        ERROR
2644 6234        R1B
2645 1112        TAD    M77
2646 7640        SEA CLA
2647 4454        ERROR
2650 6254        TST14U, SINT
2651 4454        ERROR
2652 6005        RTF
2653 5254        JMP    ,+1
2654 4454        ERROR
2655 6234        R1B
2656 7640        SEA CLA
2657 4454        ERROR
2660 6244        RMF
2661 6001        IOV
2662 5263        JMP    ,+1
2663 4454        ERROR
2664 6234        R1B
2665 7640        SEA CLA
2666 4454        ERROR
2667 6264        CINT
2670 6254        SINT
2671 7610        SKP    CLA
2672 4454        ERROR
2673 4455        LOOP

```

/CHECK SF FOR USER FLAG, ISF OF 5 AND DSF OF 2

/RMF FAILED TO LOAD THE ABOVE
 /SKIP ON USER INTERRUPT FLIP-FLOP
 /USER INTERRUPT FLIP-FLOP GOT CLEARED;
 /LOAD DATA FIELD AND IB TO FIELD 7
 /RESTORE THE FLAGS AND SET INTERRUPT ENABLE

/HEAD THE DATA FIELD
 /CHECK FOR DATA FIELD SET TO FIELD 7

/RTF FAILED TO SET DF TO FIELD 7
 /CLEAR INTERRUPT INHIBIT AND INTERRUPT
 /PROGRAM FAILED TO INTERRUPT ON USER INTERRUPT
 /READ THE INTERRUPT BUFFER
 /CHECK FOR UF#0, ISF#7 AND DSF#7

/SAVE FIELD NOT EQUAL TO ABOVE
 /SKIP ON USER INTERRUPT
 /USER INTERRUPT GOT CLEARED
 /RESTORE MEMORY FIELDS
 /CHECK THAT RMF RESTORED THE DF

/RMF FAILED TO LOAD DF TO 7
 /CHECK INSTRUCTION FIELD TO BE SET 0

/IF IS NON ZERO AFTER A RMF
 /SET INTERRUPT ENABLE
 /CLEAR INTERRUPT INHIBIT AND INTERRUPT
 /PROGRAM FAILED TO INTERRUPT;
 /READ THE INTERRUPT BUFFER
 /CHECK FOR ISF AND DSF = TO 7

/RMF FAILED TO RESTORE IF AND DF TO 7
 /SKIP ON USER INTERRUPT FLIP-FLOP
 /USER INTERRUPT CLEARED
 /RESTORE THE FLAGS, SET IBDF TO ZERO
 /CLEAR INTERRUPT INHIBIT AND INTERRUPT
 /PROGRAM FAILED TO INTERRUPT
 /READ THE INTERRUPT BUFFER

/THE ISF OR DSF IS NON ZERO
 /RESTORE MEMORY FIELDS
 /SET INTERRUPT ENABLE
 /CLEAR INTERRUPT INHIBIT AND INTERRUPT
 /PROGRAM FAILED TO INTERRUPT
 /READ THE INTERRUPT BUFFER

/RMF FAILED TO RELOAD IF AND DF TO ZERO
 /CLEAR USER INTERRUPT FLIP-FLOP
 /SKIP ON USER INTERRUPT FLIP-FLOP

/SINT FAILED TO CLEAR USER INTERRUPT
 /LOOP ON TEST IF SR = 1000

```

*****  

/TEST 19 - SETS THE UB TO A 1, THE IF AND OF TO FIELD 6, THE PROGRAM  

/THEN ISSUES AND, TAD, INT, AND DCA INDIRECTS TO CHECK THAT THE  

/PROGRAM DOESN'T INTERRUPT UNTIL A JUMP INSTRUCTION IS ISSUED,  

*****  

2674 4456 TEST19, SCOPLP          /SETUP SCOPE AND TEST LOOPING ADDRESS  

2675 6007 CAF                /CLEAR ALL FLAGS  

2676 6203 CIFCOF             /CHANGE DATA AND INSTRUCTION FIELD TO 0  

2677 5308 JMP    ,+1           /CLEAR INTERRUPT INHIBIT  

2700 6244 CUF                /CLEAR USER FLAG  

2701 6234 CINT               /CLEAR USER INTERRUPT FLIP-FLOP  

2702 6001 ION                /SET INTERRUPT ENABLE  

2703 6274 SUF                /SET USER BUFFER FLIP-FLOP  

2704 5305 JMP    ,+1           /CLEAR INTERRUPT INHIBIT  

2705 7402 HLT                /FAILED TO ENTER USER MODE  

2706 5306 JMP    ,+1           /HLT FAILED TO TRAP  

2707 6234 SINT               /SKIP ON USER INTERRUPT FLIP-FLOP  

2710 4454 ERROR              /USER INTERRUPT FLIP-FLOP NOT SET  

2711 6234 RIS                /READ THE INTERRUPT BUFFER  

2712 1113 TAD    H100          /CHECK FOR USER FLAG  

2713 7640 SEA CLA             /USER FLAG NOT SET  

2714 4454 ERROR              /CHANGE IB AND OF TO FIELD 6 AND SET INTERRUPT INHIBIT  

2715 6203 CIFCOF 60          /SET INTERRUPT ENABLE, THE PROGRAM  

2716 6001 ION                /SHOULDNT INTERRUPT UNTIL A JMP OR JMS IS ISSUED,  

                           /CHECK THAT PROGRAM DOESN'T INTERRUPT  

2717 7000 NOP                /PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED  

2720 7410 SKP                /JMP A AND I TO NEXT LOCATION  

2721 7402 HLT                /PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED  

2722 3723 DCA I ,+1           /JMP A DCA I TO NEXT LOCATION  

2723 7410 SKP                /PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED  

2724 7402 HLT                /JMP A TAD I TO NEXT LOCATION  

2725 1726 TAD I ,+1           /PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED  

2726 7410 SKP                /JMP A AND I TO THE NEXT LOCATION  

2727 7402 HLT                /PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED  

2730 8731 AND I ,+1           /JMP A AND I TO THE NEXT LOCATION  

2731 7410 SKP                /PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED  

2732 7402 HLT                /JMP A INT I TO THE NEXT LOCATION  

2733 2734 ISB I ,+1           /PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED  

2734 7410 SKP                /JMP A AND I TO THE NEXT LOCATION  

2735 7402 HLT                /PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED  

2736 5337 JMP    ,+1           /CLEAR INTERRUPT INHIBIT AND INTERRUPT  

2737 4454 ERROR              /PROGRAM FAILED TO INTERRUPT  

2740 6234 RIS                /READ THE INTERRUPT BUFFER  

2741 1110 TAD    H66            /CHECK FOR ISF AND DSF OF 6  

2742 7640 SEA CLA             /SAVE FIELD NOT EQUAL TO 66  

2743 4454 ERROR              /SKIP ON USER INTERRUPT F/F  

2744 6254 SINT               /USER INTERRUPT F/F NOT SET  

2745 4454 ERROR              /CLEAR AC AND LINK  

2746 7300 CLA CLL             /SET IB AND OF TO 0  

2747 6203 CIFCOF             /SET INTERRUPT ENABLE  

2750 6001 ION                /CLEAR INTERRUPT INHIBIT  

2751 5352 JMP    ,+1           /PROGRAM FAILED TO INTERRUPT  

2752 4454 ERROR              /PROGRAM FAILED TO INTERRUPT

```

```

2753 6254 SINT               /SKIP ON USER INTERRUPT  

2754 4454 ERROR              /USER INTERRUPT NOT SET  

2755 6204 CINT               /CLEAR USER INTERRUPT  

2756 7340 CLA CLL GMA          /SET THE AC TO ONES AND LINK TO 0  

2757 6004 GTF                /GET THE FLAGS  

2760 7640 SEA CLA             /THE LINK, INT REQ, OR SAVE FIELD NON ZERO  

2761 4454 ERROR              /LOOP ON TEST IF SR = 1000  

2762 4455 LOOP

```

```

*****  

/TEST 19 - IS A DATA TEST TO CHECK THAT DATA CAN BE DEPOSITED INTO EACH  

/SELECTED EXTENDED FIELD, DATA IS DEPOSITED INTO THE LAST ADDRESS OF  

/EACH 1K MEMORY SEGMENT IN THE EXTENDED MEMORY FIELD, THE USER INTERRUPT  

/IS SET FOR THIS TEST, THE PROGRAM CHANGES THE DATA FIELD TO THE NEW FIELD  

/CHECKS, IT THEN TURNS THE INTERRUPT ON AND DOES A DCA I TO THE LAST  

/ADDRESS IN A 1K MEMORY SEGMENT OF THAT FIELD, THE PROGRAM THEN DOES THE  

/SAME AS ABOVE, ONLY DOING A TAD I TO THE LAST ADDRESS OF A 1K MEMORY  

/SEGMENT, THE DATA THAT IS PUT INTO THE LAST ADDRESS OF EACH EXTENDED  

/1K MEMORY SEGMENT CONTAINS THE FIELD IN BITS 6-8 AND THE 1K SEGMENT IN  

/BITS 9-11,
*****  


```

```

2763 4456 TEST19, SCOPLP          /SETUP TEST AND SCOPE LOOPING ADDRESS  

2764 6007 CAF                /CLEAR ALL FLAGS  

2765 6001 ION                /TURN THE INTERRUPT ON  

2766 1021 TAD    DP1SEL          /GET MEMORY SIZE FROM LOCATION 21  

2767 0130 AND    K37              /MASK OFF THE MEMORY BITS  

2770 7104 CLL                /ROTATE BITS LEFT ONCE TO SETUP FOR FIELD  

2771 3036 DCA    SAVES2          /LIMIT AND LAST ADDRESS IN LAST FIELD  

2772 1036 TAD    SAVES2          /GET THE NUMBER  

2773 0137 AND    K70              /MASK OFF BITS 6-8 FOR FIELD LIMIT  

2774 3037 DCA    FDOLIM          /SAVE THE NUMBER AS THE LAST SELECTED FIELD  

2775 1036 TAD    SAVES2          /GET THE ROTATED NUMBER  

2776 0134 AND    K7              /MASK OFF ADDRESS BITS  

2777 7112 CLL    RTR              /ROTATE THE NUMBER 4 PLACES TO THE RIGHT  

3000 7012 RTR  

3001 1145 TAD    K1777          /ADD 1K TO THE NUMBER  

3002 3040 DCA    UPRLM            /SAVE THIS NUMBER AS THE LAST ADDRESS IN LAST FIELD  

3003 1037 TAD    FDOLIM          /GET THE FIELD LIMIT  

3004 7650 SNA    CLA              /IS THE LAST FIELD # TO FIELD 0  

3005 5777 JMP    TEST18          /YES, ABORT THIS TEST, GO CHECK FOR SIMULATOR EMA TEST  

3006 4776 JMS    ACTLIN          /CHECK FOR ACT LINE AND 32K OF MEMORY  

3007 6001 ION                /TURN THE INTERRUPT ON  

3010 6274 SUF                /SET USER BUFFER F/F  

3011 5212 JMP    ,+1           /SHOULD TRAP HERE  

3012 7402 HLT                /HALT FAILED TO TRAP  

3013 5213 JMP    ,+1           /SKIP ON USER INTERRUPT  

3014 6254 SINT               /USER INTERRUPT NOT SET  

3015 4454 ERROR              /CLEAR AC TO ALL ONES  

3016 7340 CLA CLL GMA          /GET THE FLAGS  

3017 6004 GTF                /CHECK FOR USER FLAG AND INT REQ  

3020 1130 TAD    H1000          /SAVE FIELD NOT EQUAL TO ABOVE  

3021 7640 SEA CLA             /CLEAR AC AND LINK  

3022 4454 ERROR

```

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-31

```

3023 3041      DCA    WRKFLO   /CLEAR WORKING FIELD
3024 3042      DCA    DATPAT   /CLEAR DATA PATTERN
3025 3143      BEGT19, TAD  K1777  /GET UPPER ADDRESS OF 1K FIELD
3026 3043      DCA    WRKADD   /SET FIRST ADDRESS EQUAL TO 1777
3027 3041      TAD    WRKFLO   /GET THE WORKING FIELD
3028 3135      TAD    K10     /ADD A FIELD TO IT
3029 3041      DCA    WRKFLO   /GET THE WORKING FIELD
3030 3041      TAD    WRKFLO   /NEGATE IT
3031 3041      CIA    FLDLIM   /COMPARE IT TO THE FIELD LIMIT
3032 3035      SPA    ENOTST   /IS THE NEW FIELD GREATER THAN FIELD LIMIT
3033 5344      JHP    ENOTST   /YES END OF TEST
3034 7640      SEA    CLA     /IS NEW FIELD EQUAL TO LAST FIELD
3035 7240      CLA    CLA     /NO, THE LAST ADDRESS IN THIS FIELD WILL BE 7777
3036 7450      SNA    CLA     /YES, THE LAST ADDRESS WILL BE EQUAL TO UPERLM
3037 1040      TAD    UPERLM   /SAVE THE LAST ADDRESS IN THIS FIELD
3038 3044      DCA    HGHLMH   /GET THE HIGH LIMIT
3039 1044      TAD    HGHLMH   /COMPLEMENT IT
3040 7840      CLA    RTL     /ROTATE 3 PLACES TO THE RIGHT
3041 7844      RAL    K7774   /ADD IN 4K ADDRESS CONSTANT
3042 1147      TAD    ADDCNT   /SAVE IT
3043 3047      DCA    WRKFLO   /GET THE NEW FIELD
3044 1841      TAD    WRKFLO   /ADD 1 TO IT
3045 7801      IAC    DCAFAT   /SAVE THE WORD AS THE DATA PATTERN
3046 7306      CLL    RTL     /SKIP ON USER INTERRUPT
3047 7844      RAL    K7774   /USER INTERRUPT GOT CLEARED
3048 1147      TAD    ADDCNT   /GET THE NEW FIELD
3049 3047      DCA    WRKFLO   /PUT QDF TO NEW FIELD IN NEXT ADDRESS
3050 1241      TAD    WRKFLO   /CHANGE DATA FIELD TO NEW FIELD
3051 6254      T16LCU, SINT  RDP    /READ THE DATA FIELD
3052 5214      DCA    CIA     /NEGATE IT
3053 7041      CIA    TAD    /GET THE NEW FIELD
3054 7642      SEA    CLA     /CDF TO NEW FIELD FAILED
3055 1041      TAD    DATPAT   /GET THE DATA PATTERN
3056 6001      ION    TAD    /TURN THE INTERRUPT ON
3057 1041      TAD    WRKFLO   /PUT THE WORD UP IN NEW FIELD AND INTERRUPT
3058 1845      TAD    X6201   /PROGRAM FAILED TO INTERRUPT
3059 3262      DCA    ,*1    /PUT QDF TO NEW FIELD IN NEXT ADDRESS
3060 7402      COPNEW, HLT/CDF  RDP    /CHANGE DATA FIELD TO NEW FIELD
3061 5214      DCA    CIA     /READ THE DATA FIELD
3062 7041      CIA    TAD    /NEGATE IT
3063 1241      TAD    WRKFLO   /GET THE NEW FIELD
3064 7642      SEA    CLA     /CDF TO NEW FIELD FAILED
3065 1041      TAD    DATPAT   /GET THE DATA PATTERN
3066 6001      ION    TAD    /TURN THE INTERRUPT ON
3067 4454      ERROR   TAD    WRKADD   /PUT THE WORD UP IN NEW FIELD AND INTERRUPT
3068 1042      TAD    DATPAT   /PROGRAM FAILED TO INTERRUPT
3069 6001      ION    TAD    /PUT THE WORD UP IN NEW FIELD AND INTERRUPT
3070 3443      DCA    I    /COPNEW, HLT/CDF
3071 4454      ERROR   TAD    WRKFLO   /CHANGE DATA FIELD TO NEW FIELD
3072 1041      TAD    WRKFLO   /READ THE DATA FIELD
3073 7041      CIA    TAD    /NEGATE IT
3074 7112      CLL    RTL     /GET THE NEW FIELD
3075 7010      RAR    TAD    /SAVE THE WORKING FIELD IN BITS 9-11
3076 7840      RAR    TAD    /READ THE INTERRUPT BUFFER
3077 3046      DCA    SAVWFD   /NEGATE IT
3078 6234      RIB    CLA     /GET THE EXPECTED WORKING SAVE FIELD
3079 7041      CIA    TAD    /SAVE FIELD NOT EQUAL TO EXPECTED FIELD
3080 6254      SINT  CLA     /SKIP ON USER INTERRUPT F/F
3081 4454      ERROR   TAD    /USER INTERRUPT GOT CLEARED
3082 1262      TAD    COPNEW   /GET THE CDF INSTRUCTION TO THE NEW FIELD
3083 3311      DCA    ,*1    /PUT IT IN THE NEXT LOCATION

```

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-32

```

3111 7402      HLT/CDF   /CDF TO NEW FIELD
3112 5214      RDP      /READ THE DATA FIELD
3113 7041      CIA      /NEGATE IT
3114 1041      TAD    WRKFLO   /GET THE WORKING FIELD
3115 7640      SEA    CLA     /CDF TO NEW FIELD FAILED
3116 4454      ERROR   TAD    /TURN THE INTERRUPT ON
3117 6001      ION    TAD    /GET DATA PATTERN FROM NEW FIELD
3118 1443      TAD    I    WRKADD   /PROGRAM FAILED TO INTERRUPT
3119 4454      ERROR   TAD    /READ THE INTERRUPT BUFFER
3120 6234      RIB    CIA     /NEGATE IT
3121 7841      CIA    TAD    /GET THE EXPECTED SAVE FIELD
3122 1046      TAD    SAVWFD   /ARE THEY EQUAL
3123 7841      CIA    TAD    /NO, EXPECTED SAVE FIELD NOT EQUAL TO FIELD READ
3124 1046      TAD    DATREC   /GET THE DATA PATTERN
3125 7640      SEA    CLA     /NEGATE IT
3126 4454      ERROR   TAD    /GET THE WORD RECEIVED
3127 1042      TAD    DATPAT   /ARE THEY EQUAL?
3128 7041      CIA    TAD    /NO, DATA ERROR IN WRKFLO
3129 1853      TAD    DATREC   /GET NEXT ADDRESS IN THIS FIELD?
3130 7041      CIA    TAD    /YES
3131 7640      SEA    CLA     /NO, GO GET NEXT FIELD IF ANY LEFT
3132 4454      ERROR   TAD    /GET THE WORKING ADDRESS
3133 2047      ISB    ADDCNT   /ADD 3K TO IT
3134 7610      SKP    CLA     /SAVE NEW 1K UPPER ADDRESS BOUNDARY
3135 5225      JMP    BEGT16   /ADD ANOTHER 1K TO DATA WORD
3136 1043      TAD    WRKADD   /GO LOAD AND COMPARE THIS ADDRESS
3137 1146      TAD    K2800   /CLEAR USER INTERRUPT
3138 3843      DCA    WRKADD   /SKIP ON USER INTERRUPT
3139 2042      ISB    DATPAT   /CINT FAILED TO CLEAR USER INTERRUPT
3140 3255      JHP    T16LCU   /LOOP ON TEST IF SR = 1000
3141 6204      ENDST, CINT  SINT  /TEST17
3142 5254      SINT  CLA     /JMP TEST17
3143 7610      SKP    CLA     /CINT FAILED TO CLEAR USER INTERRUPT
3144 4454      ERROR   LOOP   /LOOP ON TEST IF SR = 1000
3145 57751     JHP    TEST17   /TEST17
3146 5000      SINT  CLA     /TEST17
3147 4454      ERROR   TEST17  /TEST17
3148 4455      LOOP   TEST17  /TEST17
3149 57751     JHP    TEST17  /TEST17
3150 3280      PAGE   TEST17  /TEST17
3151 5000      PAGE   TEST17  /TEST17
3152 3321      PAGE   TEST17  /TEST17
3153 3200      PAGE   TEST17  /TEST17

```

```

*****TEST 17 = CHECKS THE RIF INSTRUCTION TO READ THE INSTRUCTION FIELD
*****REGISTER, THE PROGRAM DEPOSITS THE FOLLOWING CODE INTO LOCATIONS 0000-
*****0004 OF EACH SELECTED EXTENDED FIELD! RIFION: JMP I 3-T17RET+1,
*****/THE PROGRAM USES THE USER INTERRUPT TO RETURN TO THE PROGRAM.
*****=====
3200 4456      TEST17, SCOPLP   /SETUP TEST AND SCOPE LOOP ADDRESS
3201 6007      DAF      /CLEAR ALL FLAGS
3202 6001      ION    /TURN THE INTERRUPT ON
3203 6274      SUR    /SET USER BUFFER F/F
3204 5205      JHP    ,*1   /ENTER TIME SHARE MODE
3205 7402      HLT    /RAISE INTERRUPT REQUEST AND INTERRUPT
3206 5206      JHP    /HALT FAILED TO TRAP

```

/KMB-A OPTION TEST 2 MAINDEQ=08=0JKMA=A=L 4K PAL18 V142 18-DEC-74 15102 PAGE 2-33

```

3207 6254 SINT           /SKIP ON USER INTERRUPT FLIP + FLOP
3210 4454 ERROR          /USER INTERRUPT F/F NOT SET
3211 7348 CLA CLL CLA   /SET THE AD TO ALL ONES
3212 6084 GTF             /GET THE FLAGS
3213 1138 TAD             M1120
3214 7640 SEA             CLA
3215 4454 ERROR          /USER FLAG OR USER INT NOT SET
3216 3841 DCA             WRKFLO
3217 3843 BEGT17: DCA     WRKADD
3218 1041 TAD             WRKFLO
3219 1135 TAD             K10
3220 3041 DCA             WRKFLO
3221 1041 TAD             WRKFLO
3222 3313 DCA             CLA
3223 1147 TAD             K7774
3224 3847 DCA             ADDCNT
3225 1041 TAD             WRKFLO
3226 7112 CLL             NTR
3227 7710 RAR
3228 1041 TAD             WRKFLO
3229 3844 DCA             HGLIM
3230 1041 TAD             WRKFLO
3231 3313 DCA             PTRNTR
3232 1147 TAD             K6281
3233 3847 DCA             ADDCNT
3234 1041 TAD             WRKFLO
3235 7112 CLL             NTR
3236 7810 RAR
3237 1041 TAD             WRKFLO
3238 3844 DCA             HGLIM
3239 1041 TAD             WRKFLO
3240 1045 TAD             K6281
3241 3245 DCA             CDF
3242 6201 CLL             T17CDF
3243 1713 TAD             PTRNTR
3244 7402 T17CDF: HLT/CDF
3245 3443 DCA             WRKADD
3246 1443 TAD             WRKADD
3247 3246 DCF             P0
3248 6201 CIA
3249 7041 TAD             PTRNTR
3250 1713 TAD             PTRNTR
3251 4454 SEA             CLA
3252 5245 ERROR          /WHICH DO NOT COMPARE BETWEEN 2 FIELDS
3253 4454 DCF             ADDCNT
3254 2313 ISE             PTRNTR
3255 2843 ISE             WRKADD
3256 2847 ISE             ADDCNT
3257 5245 JMP             T17CDF=1
3258 3043 DCA             WRKADD
3259 7326 CLA CLL CML RTL
3260 1246 TAD             T17CDF
3261 3266 DCA             ,+1
3262 7402 HLT/CDF CIP
3263 5443 JMF             WRKADD
3264 4454 ERROR          /GO TO THE NEW FIELD
3265 6234 T17RET: R13
3266 7041 CIA
3267 1041 TAD             HGLIM
3268 7640 SEA             CLA
3269 4454 ERROR          /ARE THEY EQUAL
3270 5217 JMF             BEGT17

```

/KMB-A OPTION TEST 2 MAINDEQ=08=0JKMA=A=L 4K PAL18 V142 18-DEC-74 15102 PAGE 2-34

```

3276 1035 TAD             DATREC
3277 7841 CIA
3278 1041 TAD             WRKFLO
3279 7640 SEA             CLA
3280 4454 ERROR          /GET THE I,F, THAT WAS READ IN NEW FIELD
3281 6254 DCF             ADDCNT
3282 6224 ISE             PTRNTR
3283 6801 IOV
3284 5403 JMP             1 3
3285 3278 T17RET=1
3286 6000 POINTH: 0
3287 3307 TABLE: ,+1
3288 6224 RIF
3289 6801 IOV
3290 5403 JMP 1 3
3291 3278 T17RET=1
3292 6000 POINTH: 0
3293 6204 ENDT17: CINT
3294 6254 SINT
3295 7610 SKP             CLA
3296 4454 ERROR          /CLEAR USER INTERRUPT F/F
3297 4455 LOOP            /SKIP ON USER INTERRUPT F/F
3298 4455 JMF             BEGT17

```

```

***** TEST 18 * IS ONLY EXECUTED WHEN THE SIMULATOR IS SELECTED (BIT 4 OF LOCATION 21 SET TO A 1).
***** TEST 18 CHECKS THAT THE EMA IS LOADED ONTO THE BUS DURING A DCA 1 FOLLOWING
***** A CDF 101 CDF 201 CDF 40, THE SIMULATOR IS USED TO CAUSE A INTERRUPT
***** FOLLOWING A EMA CHANGE ON THE BUS, THE SIMULATOR STORES THE EMA INTO A
***** EMA CATCHER REGISTER AND THEN THE PROGRAM READS AND COMPARES IT.
***** ****

```

```

3301 4456 TEST18: SCOPLP
3302 6007 CAF             /SETUP TEST AND SCOPE LOOPING ADDRESS
3303 1021 TAD             OP1SEL
3304 6143 AND             K200
3305 7650 SNA             CLA
3306 5661 JMP             I PASEND
3307 4331 JMF             EMACLR
3308 5345 JMF             TST18A
3309 6000 EHAGLH: 0
3310 1144 TAD             K400
3311 6153 LODH03
3312 6154 CLREMA
3313 6166 SKPEMA
3314 7610 SKP             CLA
3315 4454 ERROR          /LOAD CONTROL REGISTER 3 FOR INT AND SKIP ENABLE
3316 6155 REDEMA
3317 1066 TAD             H7
3318 7640 SEA             CLA
3319 4454 ERROR          /CLEANING THE REGISTER SET IT TO 7
3320 5731 JMF             EMACLR
3321 6211 TST18A: CDF 10
3322 6001 IOV
3323 3750 DCA             ,+1

```

/KMB-A OPTION TEST 2 MAINDEQ=08=DJXMA=A=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2-35

```

3350 7402 HLT
3351 6166 SKPEMA
3352 4454 ERROR
3353 6234 R13
3354 1062 TAD M1
3355 7649 SEA CLA
3356 4454 ERROR
3357 6155 REDEMA
3358 1062 TAD M1
3359 7649 SEA CLA
3360 4454 ERROR
3361 4331 JMS EMACLR
3362 6221 CDF 20
3363 6001 IOV
3364 3767 DCA I ,+1
3365 7402 HLT
3366 6166 SKPEMA
3367 4454 ERROR
3368 6241 REDEMA
3369 1062 TAD M1
3370 7649 SEA CLA
3371 4454 ERROR
3372 6155 REDEMA
3373 1063 TAD M2
3374 7649 SEA CLA
3375 4454 ERROR
3376 4331 JMS EMACLR
3377 6241 CDF 40
3378 6001 IOV
3379 3762 DCA I ,+1
3380 7402 HLT
3381 6166 SKPEMA
3382 4454 ERROR
3383 6155 REDEMA
3384 1064 TAD M4
3385 7649 SEA CLA
3386 4454 ERROR
3387 6155 REDEMA
3388 1062 TAD M1
3389 7649 SEA CLA
3390 4454 ERROR
3391 6155 REDEMA
3392 1062 TAD M1
3393 7649 SEA CLA
3394 4454 ERROR
3395 6155 REDEMA
3396 1062 TAD M1
3397 7649 SEA CLA
3398 4454 ERROR
3399 6155 REDEMA
3400 1062 TAD M1
3401 3762 DCA I ,+1
3402 7402 HLT
3403 6166 SKPEMA
3404 4454 ERROR
3405 6155 REDEMA
3406 1064 TAD M4
3407 7649 SEA CLA
3408 4454 ERROR
3409 6155 REDEMA
3410 4454 JMS I ,+1
3411 4612 EMACLR
3412 3331 CLRSM
3413 6150 CLRSM
3414 4455 LOOP

```

/TEST 19 - IS A CONTINUATION OF TEST 18 ONLY TESTING THAT THE CIF
/INSTRUCTION LOADS THE APPROPRIATE EMA LINE, THE TEST WILL BE FOR CIF 10
/CIF 201 AND CIF 40, THE SIMULATOR IS USED FOR INTERRUPTS AND TO READ
/THE EMA LINES,

```

3415 4456 TEST19, SCOPLP
3416 6007 CAF
3417 6168 CLRMO
3420 6211 CDF 10
3421 3741 DCA I ENA1
3422 6221 CDF 20
3423 3742 DCA I ENA2
3424 6241 CDF 40
3425 3743 DCA I ENA3
3426 6201 CDF 00

```

/SETUP TEST AND SCOPE LOOPING ADDRESS
/CLEAR ALL FLAGS
/CLEAR SIMULATOR MODULE
/CHANGE DATA FIELD TO FIELD 1
/CLEAR THE FIRST TEST LOCATION
/CHANGE DATA FILED TO FIELD 2
/CHANGE DATA FIELD TO FIELD 4
/CLEAR A LOCATION IN FIELD 4
/CHANGE DATA FIELD BACK TO FIELD 0

/KMB-A OPTION TEST 2 MAINDEQ=08=DJXMA=A=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2-36

```

3427 4740 JMS I CLRERG
3428 6212 TST19A, CIF 10
3429 6001 IOV
3430 5232 ENA1F1, JMS
3431 7402 HLT
3432 6166 SKPEMA
3433 4454 ERROR
3434 6234 R13
3435 1067 TAD M10
3436 7649 SEA CLA
3437 4454 ERROR
3438 6155 REDEMA
3439 1062 TAD M1
3440 7649 SEA CLA
3441 4454 ERROR
3442 6155 REDEMA
3443 1062 TAD M1
3444 7649 SEA CLA
3445 4454 ERROR
3446 4740 TST19B, JMS I CLRERG
3447 6222 CIF 20
3448 6001 IOV
3449 5251 ENA1F2, JMS
3450 7402 HLT
3451 6166 SKPEMA
3452 4454 ERROR
3453 6155 REDEMA
3454 1063 TAD M2
3455 7649 SEA CLA
3456 4454 ERROR
3457 6241 CLRERG
3458 6242 CIF 40
3459 6001 IOV
3460 5264 ENA1F3, JMS
3461 7402 HLT
3462 6166 SKPEMA
3463 4454 ERROR
3464 6155 REDEMA
3465 1064 TAD M4
3466 7649 SEA CLA
3467 4454 ERROR
3468 6155 REDEMA
3469 1064 TAD M4
3470 7649 SEA CLA
3471 4454 ERROR
3472 4740 JMS I CLRERG
3473 6155 REDEMA
3474 4740 JMS I CLRERG
3475 6150 CLRSM
3476 4455 LOOP

```

/LOAD CONTROL WORD AND CLEAR EMA CATCHER REGISTER
/CHANGE INSTRUCTION FIELD TO 1
/TURN THE INTERRUPT ON
/CLEAR INT INHIBIT AND INTERRUPT
/PROGRAM FAILED TO INTERRUPT
/SKIP ON EMA CATCHER F/F SET
/EMA CATCHER F/F NOT SET
/READ THE INTERRUPT BUFFER
/IS THE SAVE FIELD EQUAL TO IF OF 1
/SAVE FIELD NOT EQUAL TO IF OF 1
/READ THE EMA CATCHER REGISTER
/IS THE EMA CATCHER REGISTER EQUAL TO 1
/NO, EMA CATCHER REGISTER NOT EQUAL TO 1
/LOAD CONTROL WORD, CLEAR EMA CATCHER REGISTER
/CHANGE INSTRUCTION FIELD TO FIELD 2
/TURN THE INTERRUPT ON
/CLEAR INT INHIBIT AND INTERRUPT
/PROGRAM FAILED TO INTERRUPT OR EMA DID NOT CHANGE
/SKIP ON EMA CATCHER F/F SET
/EMA CATCHER REGISTER NOT SET
/READ THE EMA CATCHER REGISTER
/IS THE EMA CATCHER REGISTER EQUAL TO 2
/NO, EMA WASN'T SET TO 2
/LOAD CONTROL WORD, CLEAR EMA REGISTER
/CHANGE INSTRUCTION FIELD TO FIELD 4
/TURN THE INTERRUPT ON
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/PROGRAM FAILED TO INTERRUPT
/SKIP ON EMA CATCHER F/F SET
/EMA CATCHER REGISTER NOT SET
/READ THE EMA CATCHER REGISTER
/IS THE EMA CATCHER REGISTER SET TO 4
/NO, EMA WASN'T SET TO 4
/LOAD CONTROL WORD CLEAR CATCHER F/F'S
/CLEAR SIMULATOR CONTROL WORDS
/LOOP ON TEST IF SR = 1000

/TEST 20 - IS EXECUTED WHEN THE SIMULATOR IS SELECTED, TEST 20 CHECKS
/THAT THE TIME SHARE LOGIC CAN BE DISABLED; THIS IS DONE WITH THE
/SIMULATOR BY PULLING KMTS TIME SHARE DISA, L LOW, THE PROGRAM THEN
/TRIES TO LOAD THE USER BUFFER AND THEN DOES A IOI, LAS, OSR AND CHECKS
/THAT THE PROGRAM DIDN'T INTERRUPT,

```

3477 4456 TEST20, SCOPLP
3478 6007 CAF
3479 6168 CLRMO
3480 7330 CLA CLL CML RAR
3481 6155 LOOK63

```

/SETUP TEST AND SCOPE LOOPING ADDRESS
/CLEAR ALL FLAGS
/CLEAR SIMULATOR LOGIC
/SET BIT 0 TO A ONE
/LOAD CONTROL REGISTER 3 WITH TIME SHARE DISABLE

/KMB=A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-37

3504	7300	CLA	CLL	
3505	6001	104		/TURN THE INTERRUPT ON
3506	6274	SUF		/TRY TO SET USER BUFFER
3507	5310	JMP	,+1	/TRY TO ENTER TIME SHARE MODE
3510	7404	DSR		/SHOULD TRAP HERE IF TIME SHARE NOT DISABLED
3511	7410	SKP		
3512	4454	ERROR		/TIME SHARE NOT DISABLED=PROGRAM INTERRUPTED
3513	7604	LAS		/SHOULD TRAP HERE IF TIME SHARE NOT DISABLED
3514	7410	SKP		
3515	4454	ERROR		/LAS TRAPPED WITHOUT TIME SHARE ENABLED
3516	6001	104		/ISSUE A IOT
3517	7610	SKP	CLA	
3520	4454	ERROR		/IOT TRAPPED WITHOUT TIME SHARE ENABLED
3521	6007	CAF		/CLEAR ALL FLAGS
3522	7610	SKP	CLA	
3523	4454	ERROR		/CAF TRAPPED
3524	6150	CLRSIM		/CLEAR THE SIMULATOR CONTROL REGISTERS
3525	6001	104		/TURN INTERRUPT ENABLE ON
3526	6274	SUF		/SET THE USER BUFFER F/F
3527	5330	JMP	,+1	/ENTER TIME SHARE MODE
3531	7402	MLT		/SHOULD TRAP HERE
3531	5331	JMP	,	/HALT FAILED TO TRAP IN USER MODE
3532	6254	SINT		/SKIP ON USER INTERRUPT F/F SET
3533	4454	ERROR		/USER INTERRUPT F/F NOT SET
3534	6007	CAF		/CLEAR USER INTERRUPT F/F
3535	4455	LOOP		/LOOP ON TEST IF SR = 1000
3536	5737	JMP	I ,+1	
3537	3627	TEST21		
3540	3331	CLRREG; EMACLR		
3541	3432	EHAI1; EMAIF1		
3542	3451	EHAI2; EMAIF2		
3543	3464	EHAI3; EMAIF3		

/THE FOLLOWING LOCATIONS CONTAIN THE CONTENTS OF THE TABE CASSETTE BOOTSTRAP

3544	4000	TABADU; 4000	/BOOTSTRAP WILL START LOADING INTO THIS ADDRESS
3545	7740	TABCHMP=TABEND=1	
3546	1237	TABCHMP; 1237	
3547	1206	1206	
3550	6704	6704	
3551	6706	6706	
3552	6703	6703	
3553	5204	5204	
3554	7264	7264	
3555	6702	6702	
3556	7610	7610	
3557	3211	3211	
3560	3636	3636	
3561	1205	1205	
3562	6704	6704	
3563	6706	6706	
3564	6701	6701	

/KMB=A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-38

3605	5216	5216	
3606	7002	7002	
3607	7430	7430	
3607	1636	1636	
3671	7022	7022	
3672	3636	3636	
3673	7420	7420	
3674	2236	2236	
3675	2235	2235	
3676	5215	5215	
3677	7346	7346	
3680	7002	7002	
3681	3235	3235	
3682	5201	5201	
3683	7737	7737	
3684	3557	3557	
3685	7730	TABEND; 7730	
3686	0000	0000	/TERMINATOR
3687	4301	BOOTTB; PTBADD	
3610	4343	TCBADD	
3611	4363	DSKADD	
3612	3544	TABAADD	
3613	3615	RKBADD	
3614	0000	0	

/THE FOLLOWING LOCATIONS CONTAIN THE CONTENTS OF THE RKB8 BOOTSTRAP

3615	0023	RKBADU; 0023	/BOOTSTRAP WILL LOAD INTO THIS ADDRESS
3616	7771	RKBCHMP=RKBEND=1	/NUMBER OF LOCATIONS TO COMPARE
3617	2000	RKBCHMP; 2000	
3620	6745	6745	
3621	0023	0023	
3622	7650	7650	
3623	5024	5024	
3624	6743	6743	
3625	5031	RKBEND; 5031	
3626	0000	0000	/TERMINATOR

/THE FOLLOWING TEST CHECKS THE BOOTSTRAP TO LOAD AND TO COMPARE CORRECTLY

3637	4456	TEST21; SCOPLP	/SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
3638	1377	TAD (JMS I AUTRST	/SETUP LOCATIONS 0 AND 256
3631	3000	DC4	INTSER

/KMB-A OPTION TEST 2 MAINDEG=08=DJKMA=A-L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-39

```

3632 1377 TAD (JMS I AUTRST
3633 3778 DCA TEST1=1
3634 1373 TAD INOBOOT /SET UP A LOCATION IN CASE LOGIC DID A AUTO RESTART
3635 3052 DCA AUTRST /SAVE IT
3636 3241 JMP ,43
3637 0000 NOBOOT, 0
3640 4454 ERROR
3641 6160 CLRMOO
3642 4774 JMS SETUP /PROGRAM DID A AUTO-RESTART INSTEAD OF A BOOT
3643 1373 NXTBOT: TAD (BOTSEL /CLEAR SIMULATOR TEST LOGIC
3644 1347 TAD SIMBOT /GO SETUP FOR ROOTSTRAPS
3645 3351 DCA CONTW2 /GET THE ADDRESS OF THE BOOT SELECT TABLE
3646 1372 TAD (BOTENA /GET THE BOOTSTRAP TO BE EXECUTED
3647 3352 DCA CONTW3 /SAVE THE ADDRESS OF BOOTSTRAP SELECT
3648 7346 CLA CLL CHA RTL /GET THE ADDRESS OF THE BOOTSTRAP ENABLE BITS
3649 3394 DCA BTSUBT /SAVE THE ADDRESS OF BOOT ENABLE CODE
3650 6168 BTTS1, CLRMOO /SETUP TO DO 3 BOOTSTRAP COMBINATIONS
3651 3394 DCA BTSUBT /SAVE SUB-TEST COUNT
3652 6168 BTTS1, CLRMOO /CLEAR SIMULATOR MODULE
3653 4771 JMS CLEARB /CLEAR BOOTSTRAP LOCATIONS IN MEMORY
3654 1822 TAD OP2SEL /CHECK FOR THE ACT LINE
3655 7710 SPA CLA /IS PROGRAM RUNNING ON ACT LINE?
3656 6305 6329 /YES,USABLE ACT UNTIL BOOTSTRAP IS COMPLETED
3657 1751 TAD I CONTW2 /GET THE BOOTSTRAP SELECT ADDRESS
3660 6132 LO0H02 /LOAD SIMULATOR CONTROL REGISTER 2
3661 7300 CLA CLL
3662 1355 TAD ROOTR1 /GET BOOT STRAP RETURN ADDRESS FOR BOOT RETURN
3663 3793 DCA I ADD481 /PUT IT INTO LOCATION 481
3664 1752 TAD I CONTW3 /GET BOOTSTRAP ENABLING CODE
3665 6153 LO0H03 /LOAD SIMULATOR CONTROL REGISTER 3
3666 7300 CLA CLL
3667 6164 EXECUT
3670 5270 JMP .

```

/LOAD THE BOOTSTRAP
 /PROGRAM FAILED TO BOOTSTRAP ON 1 OF THE FOLLOWING CONDITIONS
 /00001 SW-SW ENABLE BOOT WHEN RUNNING
 /00002 SW-SW ENABLE BOOT WHEN RUNNING
 /00003 SW-SW ENABLE BOOT WHEN RUNNING
 /CLEAR SIMULATOR LOGIC
 /BOOTSTRAP SHOULD RETURN HERE VIA SIMULATOR
 /CHECK FOR THE ACT LINE
 /IS THE PROGRAM ON THE ACT LINE?
 /YES, ENABLE THE ACT LINE

```

3671 6160 BOTHT1, CLRMOO
3672 7381 CLA CLL IAC
3673 1822 TAD OP2SEL
3674 7510 SPA
3675 6305 6329
3676 7300 CLA CLL
3677 1347 TAD SIMBOT
3678 4778 JMS BOTCHP+2
3679 2352 1SE CONTW3
3680 2354 1SE BTSUBT
3681 5252 JMP BTTS1
3682 4767 JMS GOODBD
3683 1865 TAD H9
3684 3354 DCA BTSUBT
3685 6160 BTTS2, CLRMOO
3686 4771 JMS CLEARB
3687 1822 TAD OP2SEL
3688 7710 SPA CLA
3689 6305 6329
3690 1751 TAD I CONTW2
3691 6152 LO0H02

```

/SAVE SW-TEST COUNT
 /CLEAR SIMULATOR MODULE
 /CLEAR BOOTSTRAP LOCATIONS IN MEMORY
 /CHECK FOR THE ACT LINE
 /IS IT ON THE ACT LINE?
 /YES, DISABLE ACT LINE UNTIL BOOT IS DONE
 /GET THE BOOTSTRAP SELECT ADDRESS
 /LOAD CONTROL REGISTER 2

/KMB-A OPTION TEST 2 MAINDEG=08=DJKMA=A-L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-40

```

3716 7300 CLA CLL
3717 1356 TAD ROOTR2 /GET BOOT RETURN ADDRESS FOR BOOT RETURN
3720 3753 DCA I ADD481 /PUT IT IN LOCATION 481
3721 1752 TAD I CONTW3 /GET BOOT STRAP ENABLE CODE
3722 6153 LO0H03 /LOAD CONTROL REGISTER 3
3723 7300 CLA CLL
3724 6164 EXECUT
3725 7602 HALT CLA

```

/LOAD THE BOOTSTRAP
 /IF PROGRAM HALTED IT FAILED TO DO 1 OF FOLLOWING
 /00011 SW-SW DISABLE BOOT WHEN RUNNING
 /00032 POWER ON DISABLE BOOT WHEN RUNNING
 /00013 SW-SW DISABLE BOOT WHEN RUNNING
 /00034 POWER ON DISABLE BOOT WHEN RUNNING
 /00015 SW-SW DISABLE BOOT WHEN RUNNING
 /CLEAR SIMULATOR LOGIC

```

3726 6160 BOTHT2, CLRMOO
3727 7301 CLA CLL IAC
3728 1022 TAD OP2SEL
3729 7510 SPA
3730 6305 6329
3731 7300 CLA CLL
3732 1347 TAD SIMBOT
3733 4778 JMS BOTCHP+2
3734 2352 1SE CONTW3
3735 2354 1SE BTSUBT
3736 5307 JMP BTTS2
3737 4767 JMS GOODBD
3738 2347 1SE SIMBOT
3739 2350 1SE CNTBOT
3740 5243 JMP NXTBOT
3741 4455 LOOP
3742 5766 JMP TEST22

```

/GET THE BOOTSTRAP BEING EXECUTED
 /GO COMPARE THE BOOTSTRAP THAT WAS LOADED
 /ADD 3 TO ROOTSTRAP ENABLE ADDRESS
 /DONE WITH THE SUB-TEST 7
 /NO, DO NEXT ENABLING CODE
 /SIGNAL ACT LINE IF SELECTED
 /ADD 1 TO THE BOOTSTRAP SELECT
 /DONE ALL 5 ROOTSTRAPS?
 /NO, GO DO NEXT BOOTSTRAP
 /LOOP ON TEST IF SR = 1020
 /GO TO THE NEXT TEST

```

3743 0000 SIMBOT, 0
3750 0000 CNTBOT, 0
3751 0000 CONTW2, 0
3752 0000 CONTW3, 0
3753 0401 ADD481, 0401
3754 0000 BTSUBT, 0

```

/BOOTSTRAP RETURN ADDRESSES

```

3755 3674 BOOTR1, BOTHT1
3756 3726 BOOTR2, BOTHT2

```

```

3766 4041
3767 5101
3770 4402
3771 4463
3772 4155
3773 4150
3774 4517
3775 3637
3776 0200
3777 4452
3778 4800

```

PAGE

/THE CAPSB CASSETTE BOOT STRAP WILL LOAD INTO THE FOLLOWING LOCATIONS,

4000 7402	CAPS8:	HLT	/1237
4001 7402		HLT	/1206
4002 7402		HLT	/6784
4003 7402		HLT	/6786
4004 7402		HLT	/6783
4005 7402		HLT	/5204
4006 7402		HLT	/7204
4007 7402		HLT	/6782
4010 7402		HLT	/7418
4011 7402		HLT	/3211
4012 7402		HLT	/3436
4013 7402		HLT	/1285
4014 7402		HLT	/5784
4015 7402		HLT	/6786
4016 7402		HLT	/6781
4017 7402		HLT	/5216
4020 7402		HLT	/7002
4021 7402		HLT	/7430
4022 7402		HLT	/1436
4023 7402		HLT	/7022
4024 7402		HLT	/3436
4025 7402		HLT	/7420
4026 7402		HLT	/2236
4027 7402		HLT	/2235
4030 7402		HLT	/5215
4031 7402		HLT	/7346
4032 7402		HLT	/7002
4033 7402		HLT	/3235
4034 7402		HLT	/5201
4035 7402		HLT	/7737
4036 7402		HLT	/3597
4037 7402		HLT	/7730
4040 7402		HLT	/TERMINATOR

 /TEST 22 CHECKS THAT THE AUTO RESTART OCCURS AT THE APPROPRIATE ADDRESS, THIS
 /TEST USES THE SIMULATOR TO SELECT AND CAUSE A AUTO RESTART,

4041 4456	TEST22:	SCDPLP	/SETUP TEST AND SCOPE LOOP ADDRESS
4042 1377		TAD	(JMS I AUTRST /SETUP LOCATIONS 0 AND 280
4043 3008		DCA	INPSER /
4044 1377		TAD	(JMS I AUTRST /
4045 3776		DCA	TEST1=1 /
4046 1375		TAD	(RSTAUT /GET THE AUTO RESTART ADDRESS
4047 3052		DCA	AUTRST /SAVE IT
4050 1374		TAD	(NOAUTO /GET BOOT STRAP ADDRESS
4051 3653		DCA I	,+2 ,+2
4052 9255		JMP	,+3

4053 0401		2421	
4054 4454		NOAUT0:	ERRDN
4055 4773		JMS	SETUP
4056 6160		AUTTST:	CLRMOD /CLEAR SIMULATOR MODULE
4057 1372		TAD	(RESADD /GET THE ADDRESS OF AUTO RESTART TABLE
4060 1333		TAD	AUTSEL /GET THE PROGRAM AUTO - RESTART TO BE EXECUTED
4061 3335		DCA	ADDRES /SAVE THE TABLE ADDRESS
4062 1371		TAD	(SELAUT /GET THE CONTROL WORD 2 TABLE ADDRESS
4063 1334		TAD	AUTO IN THE RESTART TO BE EXECUTED
4064 3336		DCA	CONW2 /SAVE THIS ADDRESS TO GET THE CONTROL WORD
4065 1022		TAD	OP2SEL /CHECK TO SEE IF PROGRAM IS ON ACT LINE
4066 7710		SPA	CLA /DISABLE ACT LINE UNTIL AUTO RESTART IS DONE
4067 6305		6320	/GET THE CONTROL WORD
4070 1736		TAD I	CONW2 /LOAD CONTROL REGISTER 2
4071 6152		LOADR2	
4072 7300		CLL	
4073 1347		TAD	AUTENA /GET THE ENABLE CONTROL WORD
4074 6153		LOADR3	/LOAD CONTROL REGISTER 3
4075 7300		CLA	CLL /EXECUTE A AUTO RESTART
4076 6164		EXECUT	/SHOULD DO A AUTO RESTART HERE.PRESS CONT FOR RETRY
4077 7602		HLT	/TRY
4100 5256		JMP	/A AUTO RESTART SHOULD COME HERE
4101 8000		RSTAUT:	2 /CLEAR SIMULATOR LOGIC
4102 6160		CLRMOD	/SET BIT 11 TO A ONE
4103 7301		CLA CLL JAC	/CHECK FOR THE ACT LINE
4104 1022		OP2SEL	/IS IT RUNNING ON ACT LINE
4105 7518		SPA	/YES, ENABLE ACT LINE
4106 6305		6320	/SET THE AC TO MINUS 1
4107 7340		CLA CLL CHA	/GET THE PC FROM THE AUTO RESTART
4110 1381		TAD RSTAUT	/NEGATE IT
4111 7041		CLA	/GET THE EXPECTED AUTO RESTART PC
4112 1735		TAD I ADDRES	/ARE THEY EQUAL?
4113 7650		SNA CLA	/YES GO DO NEXT ADDRESS
4114 5325		JMP GODAUT	/EXPECTED AUTO RESTART ADDRESS NOT EQUAL TO
4115 4454		ERROR	/RETURN ADDRESS, PRESS CONT TO GET EXP AND ACT ADDRESS
4116 1735		TAD I ADDRES	/
4117 7402		HLT	/AC EQUALS EXPECTED AUTO RESTART ADDRESS
4120 7340		CLA CLL CHA	
4121 1381		TAD RSTAUT	/AC EQUALS ACTUAL AUTO RESTART ADDRESS
4122 7402		HLT	/DO SAME RESTART OVER AGAIN
4123 7200		CLA	/ADD 1 TO PROGRAM SELECT RESTART
4124 5256		JMP AUTTST	/DONE ALL FOUR AUTO RESTARTS?
4125 2334		ISA AUTSEL	/NO, GO DO NEXT ONE
4126 2333		ISA AUTCNT	/SIGNAL ACT LINE OF A GOOD PASS IF ON IT
4127 5256		JMP AUTTST	/LOOP ON TEST IF SR = 1000
4128 4778		JMS GOODBD	
4131 4455		LOOP	
4132 5767		JMP TEST23	
4133 8000		AUTCNT: 0	
4134 8000		AUTSEL: 2	
4135 8000		ADDRES: 0	
4136 8000		CONW2: 0	

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A-L 4K PAL10 V142 18-DEC-74 15182 PAGE 2-43

4137 4200 RESADU 4200
4140 2000 2000
4141 0200 2200
4142 0000 0000

4143 1676 SELAUT 1676 /AUTO RESTART AT 4200
4144 1674 1674 /AUTO RESTART AT 2000
4145 1672 1672 /AUTO RESTART AT 200
4146 1670 1670 /AUTO RESTART AT 0000

4147 0037 AUTENA 0037 /POWER ON TRIGGERED AUTO RESTART

/CONTROL WORD 2 BOOTSTRAP SELECT

4150 1672 BOTSEL 1672 /H1=LOW PAPER TAPE SELECT
4151 1132 1132 /TC08 BOOTSTRAP SELECT
4152 0742 0742 /RF08/DF32D BOOTSTRAP SELECT

4153 0042 0042 /TAPE CASSETTE BOOTSTRAP SELECT
4154 1292 1292 /RKB-5 BOOTSTRAP SELECT

/CONTROL WORD 3 BOOTSTRAP ENABLES (POWER ON OR SWITCH SW)

4155 0001 BOTENA 0001 /SW=SH ENABLE BOOT WHEN RUNNING
4156 0003 0003 /SW=SH ENABLE BOOT WHEN RUNNING
4157 0007 0007 /SW=SH ENABLE BOOT WHEN RUNNING
4158 0011 0011 /SW=SH DISABLE BOOT WHEN RUNNING
4161 0032 0032 /POWER ON DISABLE BOOT WHEN RUNNING
4162 0013 0013 /SW=SH DISABLE BOOT WHEN RUNNING
4163 0033 0033 /POWER ON DISABLE BOOT WHEN RUNNING
4164 0017 0017 /SW=SH DISABLE BOOT WHEN RUNNING

4167 4201
4170 5101
4171 4143
4172 4137
4173 4517
4174 4254
4175 4101
4176 0200
4177 4452
4200 PAGE

/TEST 29- YES THE SIMULATOR TO CHECK THAT AC LOW AND BATTERY EMPTY F/F'S
/CAN SKIP AND INTERRUPT AND THAT THEY CAN BE CLEARED,

4200 4452 JMS I AUTRST /AUTO RESTART HANDLER
4201 4456 TEST29; SCOPLP /SETUP TEST AND SCOPE LOOP ADDRESS
4202 1377 TAD (ACLBAT
4203 3052 DCA AUTRST
4204 6007 CAF /CLEAR ALL FLAGS

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A-L 4K PAL10 V142 18-DEC-74 15182 PAGE 2-44

4205 6168 CLRMOO /CLEAR SIMULATOR MODULE
4206 37761 DCA ACNL0K /
4207 6101 SBE /SKIP ON BATTERY EMPTY
4210 7410 SK# /
4211 4454 ERROR /BATTERY EMPTY IS SET
4222 6102 SPL /SKIP ON AC LOW
4213 7410 SK# /
4214 4454 ERROR /AC LOW F/F IS SET
4215 1253 TAD K3000 /SET BITS 2 & 3 TO A 1
4216 6153 LOORG3 /LOAD REGISTER 3 TO PULL AC LOW AND BATTERY EMPTY LOW
4217 7300 CLA CLL /
4220 6001 IOV /
4221 5222 JMP .+1 /TURN THE INTERRUPT ON
4222 4454 ERROR /AC LOW NOT SET OR FAILED TO INTERRUPT
4223 7610 SK# CLA /
4224 4454 ERROR /AC LOW NOT SET BUT BATTERY EMPTY IS
4225 6102 SPL /SKIP ON AC LOW AS A LEVEL
4227 5101 SBE /AC LOW AS A LEVEL DID NOT SKIP
4230 4454 ERROR /SKIP ON BATTERY EMPTY
4231 1254 TAD K1000 /BATTERY EMPTY NOT SET WITH BATTERY EMPTY HELD LOW
4232 6153 LOORG3 /SET CONTROL BIT 3 HIGH
4233 7340 CLA CLL CMA /LOAD THE CONTROL REGISTER
4234 37761 DCA ACNL0K /
4235 6001 IOV /
4236 5237 JMP .+1 /TURN THE INTERRUPT ON
4237 4454 ERROR /BATTERY EMPTY NOT SET OR FAILED TO INT
4240 4454 ERROR /AC LOW SET BUT BATTERY EMPTY ISN'T
4241 6103 LOORG3 /OK, BATTERY EMPTY SET, LET AC LOW GO HIGH
4242 6101 SBE /SKIP ON BATTERY EMPTY
4243 7410 SK# /
4244 4454 ERROR /AC LOW FAILED TO CLEAR BATTERY EMPTY
4245 6102 SPL /SKIP ON AC LOW
4246 7410 SK# /
4247 4454 ERROR /AC LOW AS A LEVEL STILL SKIPPED
4250 6100 CLRMOO /CLEAR SIMULATOR TEST MODULE
4251 4455 LOOP /LOOP ON TEST IF SR = 1000
4252 5461 JMP I PASEND /END OF PROGRAM

4253 3000 K3000; 3000
4254 1000 K1000; 1000

/TIMEIS - IS AN OPERATOR INTERVENTION TEST; THE OPERATOR MUST SET THE
/TIME SHARE ENABLE SWITCH TO THE TIME SHARE DISABLE POSITION; THE PROGRAM
/TRIES TO SET THE USER FLAG AND CHECKS THAT LAB, OSM, IOI, AND HALT
/DO NOT TRAP AND THAT HLT HALTS,

4255 4456 TIMIS; SCOPLP /SETUP TEST AND SCOPE LOOPING ADDRESS
4256 6007 CAF /CLEAR ALL FLAGS
4257 6264 CUF /CLEAR USER BUFFER F/F
4260 6204 CINT /CLEAR USER INTERRUPT F/F

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-45

4261	6081	ION	/TURN THE INTERRUPT ON
4262	6274	SUF	/TRY TO SET THE USEH BUFFER P/P
4263	5264	JMP	,+1 /TRY TO ENTER TIME SHARE MODE
4264	7404	DSR	/SHOULD TRAP HERE IF TIME SHARE NOT DISABLED
4265	7610	SKP	CLA
4266	4454	ERROR	/TIME SHARE NOT DISABLED=PROGRAM INTERRUPTED
4267	7604	LAS	/SHOULD TRAP HERE IF TIME SHARE NOT DISABLED
4270	7610	SKP	CLA
4271	4454	ERROR	/LAS TRAPPED WITHOUT TIME SHARE ENABLED
4272	6254	SINT	/SKIP ON USER INTERRUPT
4273	7610	SKP	CLA
4274	4454	ERROR	/IOT TRAPPED OR USEH INTERRUPT SET
4275	7402	HLT	/PROGRAM SHOULD HALT HERE FOR COMPLETION
4276	7610	SKP	CLA
4277	4454	ERROR	/OF TIME SHARE DISABLE TEST
4280	5255	JMP	TIMDIS /RETRY THE TEST

/THE FOLLOWING LOCATIONS CONTAINS THE CONTENTS OF THE HI-LOW PAPER TAPE
/BOOTSTRAP

4301	7737	PTPADU,	7737	/BOOTSTRAP WILL START LOADING INTO THIS ADDRESS
4302	7741	PTCMP=PTPEND=1		/NUMBER OF LOCATIONS TO COMPARE
4303	6014	PTPUMP,	6014	
4304	6776		6776	
4305	7326		7326	
4306	1337		1337	
4307	2376		2376	
4310	5348		5348	
4311	6011		6011	
4312	5356		5356	
4313	3361		3361	
4314	1361		1361	
4315	3371		3371	
4316	1345		1345	
4317	3357		3357	
4320	1345		1345	
4321	3367		3367	
4322	6032		6032	
4323	6031		6031	
4324	5357		5357	
4325	6036		6036	
4326	7106		7106	
4327	7006		7006	
4330	7510		7510	
4331	5374		5374	
4332	7006		7006	
4333	6031		6031	
4334	5367		5367	
4335	6034		6034	
4336	7420		7420	
4337	3776		3776	
4340	3376		3376	

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-46

4341	5356	PTPENU,	5356	
4342	6000		6000	/TERMINATOR

/THE FOLLOWING LOCATIONS CONTAIN THE CONTENTS OF THE TCBS BOOTSTRAP

4343	7613	TCPADU,	7613	/BOOTSTRAP WILL START LOADING INTO THIS ADDRESS
4344	7767	TCPCHP=TCBEND=1		
4345	6774	TCPCHP,	6774	
4346	1222		1222	
4347	6766		6766	
4350	6771		6771	
4351	5216		5216	
4352	1223		1223	
4353	5215		5215	
4354	6008		6008	
4355	8220	TCPENU,	8220	
4356	7754		7754	
4357	7776		7776	/BOOTSTRAP WILL ALSO LOAD INTO 7754 + 7755
4360	7577		7577	/NUMBER OF LOCATIONS TO COMPARE
4361	7577		7577	
4362	6000		6000	/TERMINATOR

/THE FOLLOWING LOCATIONS CONTAINS THE CONTENTS OF THE RF38/DF32D BOOTSTRAP

4363	7750	DSKADU,	7750	/BOOTSTRAP WILL START LOADING INTO THIS ADDRESS
4364	7773	RFDFCP=RFDPE=1		/NUMBER OF LOCATIONS TO COMPARE
4365	7600	RFDFCP,	7600	
4366	6003		6003	
4367	6622		6622	
4370	5352		5352	
4371	5752	RFDPEU,	5752	
4372	6000		6000	/TERMINATOR

4376	5173			
4377	5168			
	4400	PAGE		

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=====
/TO RUN THE OPERATOR INTERVENTION BOOT STRAP COMPARE TEST,DO THE FOLLOWING!
/1: RUV CLRBOT TO CLEAR THE BOOTSTRAP LOCATIONS IN MEMORY
/2: DISABLE ALL OPTIONS ASSOCIATED WITH THE BOOTSTRAP
/3: SET THE APPROPRIATE SELECT AND ENABLE SWITCHES FOR THE BOOTSTRAP
/4: SET THE HALT KEY
/5: TOGGLE THE BOOT KEY OR SWITCH
/6: START THE BOOT COMPARE TEST (BOTCHP)
/7: THE PROGRAM WILL HALT
/8: SET THE APPROPRIATE SWITCH REGISTER OR PSEUDO SWITCH REGISTER
/   TO THE BOOTSTRAP TO COMPARE AND PRESS CONTINUE,
/   SR#00008=HI-LOW PAPER TAPE READER BOOTSTRAP
/   SR#0001=TCBS BOOTSTRAP
/   SR#0002=RF38/DF32D BOOTSTRAP
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        / SR8080#TABLE CASSETTE BOOTSTRAP
        / SR8080#RK8E BOOTSTRAP
        /9, THE PROGRAM SHOULD HALT AT ADDRESS BOOTOK IF NO ERRORS
*****  

4480 7482  BOTUMP; HLT      /SET THE SR FOR THE APPROPRIATE BOOTSTRAP COMPARE
4481 5284  JMP   ,43       /SIMULATOR BOOTSTRAP CHECK ENTERS HERE
4482 0000  Z          .  

4483 5213  JMP   ,+10      /GET THE HARDWARE OPTIONS
4484 1021  TAD   OP1SEL    /IS THE HARDWARE SR BIT SET
4485 7780  SNA   CLA       /NO, USE THE PSEUDO SWITCH REGISTER
4486 5211  JMP   ,43       /USE THE HARDWARE SWITCH REGISTER
4487 7684  LAS   .  

4488 7410  SKP   .  

4489 1020  TAD   SWITCH    /GET THE PSEUDO SWITCH REGISTER
4490 0134  AND   K7       /MASK OFF BITS 9-11
4491 1377  TAD   (BOOTTB  /ADD IT TO THE BOOTSTRAP TABLE ADDRESS
4492 3366  DCA   SAVSTR    /SAVE IT
4493 1766  TAD   I SAVSTR  /GET THE ADDRESS FROM THE TABLE
4494 3367  DCA   BOTADD    /SAVE IT
4495 1767  TAD   I BOTADD  /GET THE BOOTSTRAP STARTING ADDRESS
4496 3370  DCA   BOTSAO    /THIS IS THE BOOTSTRAP STARTING ADDRESS
4497 2367  ISE   BOTADD    /GET THE WORD COUNT
4498 1767  TAD   I BOTADD  /SAVE IT
4499 3371  DCA   BOTCNT    /BOTAD is THE STARTING ADDRESS OF BOOT COMPARE
4500 2367  ISE   BOTAD0    /GET THE CONTENTS THAT BOOTSTRAP LOADED
4501 1770  COMMAH, TAD I BOTSAO  /NEGATE IT
4502 7841  CIA   .  

4503 1767  TAD   I BOTADD  /GET THE EXPECTED BOOTSTRAP CONTENTS
4504 7680  SNA   CLA       /ARE THEY EQUAL
4505 5243  JMP   GOODCP    /YES, GO GET NEXT WORD
4506 4454  ERROR  .  

4507 1378  TAD   BOTSAO    /BOOTSTRAP COMPARE ERROR, PRESS "CONT" TO
4508 7402  HLT   .  

4509 5200  CLA   .  

4510 1767  TAD   I BOTADD  /AC+EXPECTED CONTENTS OF BOOTSTRAP
4511 7402  HLT   .  

4512 7300  GOOUCH, CLA CLL   /AC+ACTUAL CONTENTS OF BOOTSTRAP
4513 2370  ISE   BOTSAO    /  

4514 7000  NOP   .  

4515 2367  ISE   BOTADD    /  

4516 7000  NOP   .  

4517 2371  ISE   BOTCNT    /END UP COMPARE
4518 5225  JMP   COMPAR    /NO, GO GET NEXT WORD
4519 1767  TAD   I BOTADD  /CONTINUE FOR TCOB
4520 7448  SEA   .  

4521 5220  JMP   COMPAR+5  /  

4522 1021  TAD   OP1SEL    /GET HARDWARE OPTIONS
4523 0143  AND   K200
4524 7640  SEA   CLA       /HAS THE SIMULATOR BEING USED
4525 5602  JMP   I BOTCMP#2 /YES, RETURN TO SIMULATOR BOOTSTRAP CHECK

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4481 7482  BOOTOK; HLT      /BOOT STRAP COMPARED OK
4482 5200  JMP   BOTCMP    /DO AGAIN
*****  

/THE FOLLOWING SECTIONS WILL CLEAR THE LOCATIONS THAT THE BOOT STRAP WILL LOAD INTO,  

/THIS SHOULD BE DONE BEFORE EACH BOOTSTRAP IS ATTEMPTED,
*****  

4483 0000  CLEARB; B      /SIMULATOR ENTERS HERE
4484 7610  SKP   CLA       /GET MEMORY SIZE TO SEE WHAT BOOTS TO CLEAR
4485 4317  CLRBOT; JMS  SETUP    /GET THE NUMBER TO START CLEARING BOOT
4486 1365  TAD   BOTCLR    /GET THE ADDRESS OF BOOT STRAP TABLE
4487 1377  TAD   (BOOTTB  /SAVE IT
4488 3366  DCA   SAVSTR    /GET THE ADDRESS FROM TABLE
4489 1766  TAD   I SAVSTR  /END OF CLEARING BOOTSTRAP LOCATIONS
4490 7450  SNA   .  

4491 9311  JMP   BOTEND    /SAVE IT
4492 3367  DCA   BOTADD    /GET THE BOOTSTRAP STARTING ADDRESS
4493 1767  TAD   I BOTADD  /SAVE IT
4494 3370  DCA   BOTSAO    /GET THE WORD COUNT
4495 2367  ISE   BOTADD    /SAVE IT
4496 1767  TAD   I BOTADD  /RETURN TO SIMULATOR BOOTSTRAP TEST
4497 3371  DCA   BOTCNT    /END OF CLEARING BOOTSTRAPS
4498 3770  DCA   I BOTSAO  /DO IT AGAIN
4499 2370  ISE   BOTSAO    /  

4500 7000  NOP   .  

4501 2371  ISE   BOTCNT    /  

4502 5382  JMP   ,4       /  

4503 2366  ISE   SAVSTR    /  

4504 5271  JMP   CLRBOT+4  /  

4505 1021  BOTENU, TAD OP1SEL    /  

4506 0143  AND   K200
4507 7640  SEA   CLA       /  

4508 5663  JMP   I CLEARB  /  

4509 7482  HLT   .  

4510 5285  JMP   CLRBOT    /  


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4511 3776/  SETUP1; B      /GET THE HARDWARE CONFIGURATION
4512 3775/  DCA   AUTSEL    /MOVE FIELD BITS INTO BITS 6-8
4513 3775/  DCA   SIMBOT    /MASK OUT FIELD BITS
4514 1021  TAD   OP1SEL    /IS MEMORY SIZE GREATER THAN 4K
4515 7184  CLL   RAL       /NO, GO GET THE MEMORY SIZE
4516 0137  AND   K70
4517 7650  SNA   CLA       /YES THAN DO ALL BOOT'S
4518 5341  JMP   SETUP2    /GET BOOTSTRAP SELECT
4519 3775/  SETUP1; DCA  SIMBOT  /SUBTRACT 5
4520 1775/  TAD   SIMBOT    /SAVE IT
4521 1065  TAD   M5       /GET BOOT NUMBER
4522 3774/  DCA   CNTBOT    /SAVE IT
4523 1775/  TAD   SIMBOT    /GET AUTO RESTART SELECT
4524 3365  DCA   BOTCLR    /  

4525 1776/  TAD   AUTSEL    /  


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/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2-49

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4536 1064 TAD M4
4537 3773 I DCA AUTCNT
4540 5717 JMP I SETUP
4541 1821 SETUP2 TAD DP1SEL
4542 0372 AND K200
4543 7430 SNA
4544 5384 JHP SET1K
4545 1082 TAD M1
4546 7458 SNA
4547 5360 JHP SET2K
4548 1862 TAD M1
4549 7690 SNA CLA
4550 5343 JHP SET3K
4551 5327 TAD SETUP1
4552 7305 SET1K, CLA CLL IAC RAL
4553 3776 I DCA AUTSEL
4554 7307 CLA CLL IAC RTL
4555 5327 JMP SETUP1
4556 7301 SET2K, CLA CLL IAC
4557 3776 I DCA AUTSEL
4558 5356 JMP ,+4
4559 7329 SET3K, CLA CLL CML IAC RAL
4560 5327 JMP SETUP1

4561 0000 BOTCLH, 0
4562 0000 SAVSTH, 0
4563 0000 BOTADU, 0
4564 0000 BOTSAU, 0
4565 0000 BOTONT, 0
4566 0000 KK3, 3

4567 4133
4568 3750
4569 3747
4570 4134
4571 3687
4572 0000
4573 4600
4574 4600
4575 4600
4576 4600
4577 4600
4578 4600
4579 4600
4580 4600
4581 4600
4582 4600
4583 4600
4584 4600
4585 4600
4586 4600
4587 4600
4588 4600
4589 4600
4590 4600
4591 4600
4592 4600
4593 4600
4594 4600
4595 4600
4596 4600
4597 4600
4598 4600
4599 4600
4600 4600

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PAGE

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*****+
/AUTO = IS AN OPERATOR INTERVENTION TEST TO CHECK POWER-FAIL/AUTORESTART,
/WHEN THE PROGRAM IS STARTED, IT FILLS LOCATIONS 5200 TO 7777 (4K) OR 5200 TO 5777 (3K) WITH A
/COMPLEMENTING DATA PATTERN (5252 - 2525), AND THEN HALTS; THE OPERATOR
/AT THIS TIME MUST SET THE APPROPRIATE AUTO RESTART SWITCHES ON THE
/MODULE; HE THEN MUST SIGNIFY TO THE PROGRAM VIA FRONT PANEL SWITCH
/REGISTER OR THE PSEUDO SWITCH REGISTER, WHICHEVER IS SELECTED, THE
/AUTO RESTART TO BE TESTED (0000=RESTART AT 4200) 0001=RESTART AT 2000)
/0002=RESTART AT 0200) 0003=RESTART AT 0000), THE OPERATOR THEN PURESSES
/"CONTINUE", THE PROGRAM THEN STARTS COMPARING DATA, WAITING FOR THE

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/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2-52

```

/OPERATOR TO PULL THE LINE CORD, WHEN THE AC LINE CORD IS PULLED, THE
/PROGRAM SHOULD HALT AT LOCATION ACDOWN, THE OPERATOR SHOULD THEN PLUG
/THE LINE CORD BACK IN, AT THIS TIME THE PROGRAM SHOULD DO A AUTO RESTART
/TO THE ADDRESS SELECTED, THE PROGRAM THEN CHECKS FOR THE CORRECT
/AUTO RESTART AND THEN GOES BACK TO COMPARING DATA, THE ABOVE SEQUENCE
/OF UNPLUGGING AND PLUGGING LINE CORD SHOULD BE DONE SEVERAL TIMES FOR EACH
/AUTO RESTART
//HANNING=THE BATTERY SUPPLY SHOULD BE FULLY CHARGED/////////
*****+

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4680 4456 AUTO, SCOPLP /SETUP TEST AND SCOPE LOOP ADDRESS
4681 6007 CAF
4682 1021 TAD DP1SEL /CLEAR ALL FLAGS
4683 0143 AND K200 /GET THE HARDWARE CONFIGURATION
4684 7640 SEA CLA
4685 6160 CLRMOD
4686 1377 TAD (OPRINT /SIMULATOR SELECTED CLEAR TEST MODULE
4687 3252 DCA AUTRST /GET THE ADDRESS FOR THE INTERRUPT ROUTINE
4688 1376 TAD (BUFFER /SAVE IT
4689 3313 DCA FILIT /GET THE ADDRESS OF TEST BUFFER
4690 1021 TAD DP1SEL /SAVE IT
4691 0352 AND K34 /GET HARDWARE CONFIGURATION
4692 7650 SEA CLA /CHECK TO SEE IF MORE THAN 4K
4693 5222 JHP ,+5 /IS IT GREATER THAN 4K?
4694 1314 TAD DP1SEL /YES, THAN FIELD 8 EQUALS 4K
4695 1021 AND K1 /NO, THAN IT MUST BE 3K OR 4K
4696 0353 DCA CLA /CHECK FOR 3K OR 4K
4697 7650 SNA CLL CML RTR /IS IT 3K OR 4K?
4698 7332 TAD (BUFFER /ONLY 3K ADD 2000 TO COUNTER
4699 3314 DCA BUPCNT
4700 1314 TAD BUPCNT /GET THE NUMBER OF WORDS TO FILL THE BUFFER
4701 3315 DCA CNTBUF /SAVE IT
4702 1317 TAD K5252 /THE FIRST WORD IN THE BUFFER WILL BE 5252
4703 3316 DCA BUPPAT /SAVE THE WORD
4704 1316 TAD BUPPAT /GET THE WORD
4705 3713 DCA I FILIT /PUT IT IN THE BUFFER
4706 1316 TAD BUPPAT /GET THE WORD
4707 7840 CLA /COMPLEMENT IT
4708 3316 DCA BUPPAT
4709 2313 ISE FILIT /INCREMENT BUFFER ADDRESS
4710 2313 ISE CNTBUF /DONC?
4711 3215 JMP ,+7 /NO KEEP FILLING THE BUFFER
4712 5230 JMP /SET THE SWITCH REGISTER OR PSEUDO S,R
4713 7482 HALT /TO THE AUTO-RESTART TO BE EXECUTED
4714 1020 TAD DP1SEL /GET THE HARDWARE CONFIGURATION
4715 7580 SMA /IS THE HARDWARE S,R, BEING USED
4716 5246 JMP ,+3 /NO USE THE PSEUDO SWITCH REGISTER
4717 7684 LAS
4718 7412 SKP
4719 1020 TAD SWITCH
4720 0328 AND K3 /MASK OFF BITS 10 AND 11
4721 1375 TAD (RESADD /ADD THE AUTO RESTART TABLE ADDRESS TO IT
4722 3321 DCA MANRST /SAVE IT
4723 1721 TAD I MANRST /GET THE AUTO RESTART TO BE EXECUTED
4724 3321 DCA MANRST /SAVE IT FOR COMPARISON AFTER RESTART

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/KMB-A OPTION TEST 2 MAINEQ=08=DJKMA=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-51

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4654 1376 STRCHMP, TAD (BUFFER      /GET THE BUFFER ADDRESS
4655 3313 DCA FILLIT    /SAVE IT
4656 1314 TAD BUPCNT   /GET THE BUFFER SIZE
4657 3315 DCA CNTBUF   /SAVE IT
4660 1317 TAD K5252    /SETUP INITIAL PATTERN
4662 6801 CMPBUF, 104 TAD I FILLIT   /TURN THE INTERRUPT ON
4663 1713 CIA          /GET THE WORD FROM BUFFER
4664 7841 CIA          /NEGATE IT
4665 1316 TAD BUPPAT   /GET THE WORD EXPECTED
4666 7650 SNA CLA       /WORD COMPARED GO INCREMENT COUNTER
4667 5303 JMP BUFGOOD  /DATA WORDS DIDN'T COMPARE. PRESS
4670 4454 ERROR        /CONT" FOR ADDRESS AND GOOD AND BAD DATA
4671 1313 TAD FILLIT    /AC = GOOD DATA WORD
4672 7402 HLT          /AC = BAD DATA WORD = PRESS "CONT" TO
4673 7300 CLA CLL       /TRY THE COMPLETE TEST
4674 1316 TAD BUPPAT   /DO THE TEST OVER
4675 7402 HLT          /GET THE DATA PATTERN
4676 7308 CLA CLL       /AC = GOOD DATA WORD
4677 1713 TAD I FILLIT   /AC = BAD DATA WORD = PRESS "CONT" TO
4678 7402 HLT          /TRY THE COMPLETE TEST
4679 7300 CLA CLL       /DO THE TEST OVER
4680 3453 JMP I TEST    /GET THE DATA PATTERN
4683 1316 BUFGOOD, TAD BUPPAT   /NEGATE IT
4684 7240 SNA          /SAVE IT FOR NEXT COMPARE
4685 3316 DCA BUPPAT   /INCREMENT ADDRESS TO COMPARE
4686 2313 ISZ FILLIT    /THIS IS NEEDED FOR ISZ OVERFLOW
4687 7000 NOP          /DONE COMPLETE BUFFER?
4689 2315 ISZ CNTBUF   /NO CONTINUE
4711 5262 JMP CMBUF   /RE-INITIALIZE COMPARE LOOP AND COMPARE
4712 5254 JMP STRCHP
4713 0000 FILLIT, 0
4714 5200 BUFCONT, 5200-7777*1
4715 0000 CMBUF, 0
4716 0000 BUPPAT, 0
4717 5252 K5252, 5252
4720 0003 K3, 3
4721 0000 MNRST, 0
4722 0000 OPRRET, 0
4723 7340 CLA CLL CHA
4724 1322 TAD OPRRET   /PROGRAM COMES HERE FROM AN AUTO RESTART
4725 7041 CIA          /GET THE ADDRESS FROM AUTO RESTART
4726 1321 TAD MNRST    /NEGATE IT
4727 7650 SNA CLA      /GET EXPECTED RESTART
4730 5337 JMP RESET   /ARE THEY EQUAL?
4731 4454 ERROR        /YES RESET AC AND LINK AND RETURN TO COMPARE
4732 1321 TAD MNRST    /THE AUTO RESTART ADDRESS SELECTED BY
4733 7402 HLT          /OPERATOR DOES NOT COMPARE WITH AUTO
4734 7340 CLA CLL CHA  /AUTO RESTART THAT RETURNED, PRESS "CONT"
4735 1321 TAD MNRST    /FOR EXPECTED AND ACTUAL RETURN ADDRESS
4736 7402 HLT          /GET THE EXPECTED AUTO RESTART ADDRESS
4737 7300 CLA CLL     /AC = EXPECTED AUTO RESTART ADDRESS

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/KMB-A OPTION TEST 2 MAINEQ=08=DJKMA=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-52

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4735 1322 TAD OPRRET   /GET ACTUAL
4736 7402 HLT          /AC = ADDRESS RETURNED FROM AUTO RESTART
4737 7300 RESET, CLA CLL
4740 1377 TAD OPRINT   /SETUP RETURN ADDRESS FOR POWER FAIL
4741 3052 DCA AUTRST   /SAVE IT
4742 1773 TAD PC
4743 3351 DCA RETPRG
4744 1773 TAD LINK
4745 7804 RAL          /PUT IT IN THE LINK
4746 1035 TAD DATREC   /GET THE AC
4747 6801 104          /TURN THE INTERRUPT ON
4750 5751 JMP I RETPRG
4751 0000 RETTHRU, 0
4752 0034 K34, 34
4753 0001 K1, 1
4754 0000 OPRINT, 0
4755 1372 TAD (JMS I AUTRST  /OPERATOR INTERVENTION AUTO RESTART
4756 3000 DCA INTSER
4757 1372 TAD (JMS I AUTRST
4760 3771 DCA TEST1=1
4761 1370 TAD OPRRET   /SETUP FOR A AUTO RESTART
4762 3052 DCA AUTRST
4763 7402 AQDOWN, HLT   /WAIT FOR LINE CORD TO BE PLUGGED IN
4764 5453 JMP I TEST    /RETRY TEST

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4770 4722
4771 0200
4772 4452
4773 5051
4774 5052
4775 4137
4776 5200
4777 4754
5000 0000 PAGE

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5000 0000 ACTLIN, 0
5001 1022 TAD OP2SEL
5002 7700 SMA CLA
5003 5600 JMP I ACTLIN  /IS THE PROGRAM RUNNING ON ACT LINE?
5004 1037 TAD FLDLIM  /NO, RETURN
5005 1111 TAD H7E
5006 7640 S2A CLA
5007 5602 JMP I ACTLIN  /IS THE FIELD LIMIT EQUAL TO FIELD 7?
5008 1040 TAD UPERLM  /NO, RETURN TO TEST
5009 0000

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/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-53

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5011 7001     IAC      /ADD 1 TO IT
5012 7640     SMA      /WAS IT 7777
5013 5600     JMF I ACTLIN /NO, RETURN
5014 7352     CLA CLL CMA RTR /SET LAST ADDRESS = 5777
5015 3040     DCA      /SAVE IT
5016 5600     JMF I ACTLIN /RETURN TO PROGRAM

5017 1022     ENDPAS, TAD  OP2SEL /CHECK FOR ACT LINE
5020 7700     SMA      CLA /IS THE PROGRAM RUNNING ON ACT LINE
5021 5234     JMF ENDING /AND GO CHECK FOR SR 3 TO HALT AT END OF A PASS
5022 1021     TAD  OP1SEL /GET THE HARDWARE CONFIGURATION
5023 0143     AND K200 /CHECK FOR THE SIMULATOR
5024 7640     SMA      CLA /WAS THE SIMULATOR SELECTED
5025 5234     JMF ENDING /YES, ALREADY NOTIFIED PROM OF GOOD PAS
5026 2242     ISB  PROGPAS /CHECK 1/2 SECOND COUNT
5027 5234     JMF ENDING /NOT 1/2 SECOND YET
5028 1377     TAD  (*144 /RESET THE COUNTER
5031 3242     DCA  PROGPAS
5032 6272     CIF  78 /CHANGE INSTRUCTION FIELD TO 7
5033 4451     JMS I GOODPS /SIGNAL THE PROM
5034 4341     ENDING, JMS SHCHK /CHECK SR 3 TO HALT ON A PROGRAM PASS
5035 7000     RTN
5036 7004     RAU
5037 7710     SPA  CLA
5040 7402     HLT
5041 5776     JMF  0201 /END OF A COMPLETE PROGRAM PASS
                           /RESTART THE PROGRAM

5042 7634     PROGPAS, *144

5043 7010     POWHAL, RAR
5044 3251     DCA  LINK
5045 1000     TAD  INTSER
5046 3252     DCA  PC
5047 6103     CAL
5050 4452     JMS I AUTRST /CLEAR AC LOW F/F
                           /RETURN TO THE PROGRAM

5051 0000     LINK, 0
5052 0000     PG, 0
5053 0000     PRGHST, 0 /SKIP ON AC LOW AS A LEVEL
5054 6102     SPL
5055 7610     SKP  CLA
5056 5254     JMF  *2
5057 5453     JMF I TEST /RETURN TO TEST BEING EXECUTED AND START OVER

5060 0000     TESTAU, 0
5061 7340     CLA CLL CMA
5062 1260     TAD  TESTAD
5063 3053     DCA  TEST
5064 1375     TAD  (*PRGRST
5065 3052     DCA  AUTRST


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/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 4K PAL10 V142 18-DEC-74 15102 PAGE 2-54

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5066 5660     JMF I TESTAD

5067 1021     BATEMT, TAD  OP1SEL /GET HARDWARE CONFIGURATION
5070 0143     AND K200
5071 7650     SMA  CLA
5072 5277     JMF DEAD /MACHINE GOING DOWN = STOP EVERYTHING
5073 3373     DCA  ACNLOK
5074 2000     ISB  INTSER
5075 2000     ISB  INTSER
5076 5400     JMF I INTSER
5077 7402     DEAU, HLT I TEST /ITS ALL OVER NOW = GOOD-BYE
5080 5453     JMF I TEST

5101 0000     GOODBY, 0
5102 1022     TAD  OP2SEL /GET HARDWARE CONFIGURATION
5103 7700     SMA  CLA /IS THE PROGRAM RUNNING ON ACT LINE
5104 5701     JMS I GOODBD /NO RETURN TO PROGRAM
5105 6272     CIF  78 /CHANGE INSTRUCTION FIELD TO FIELD 7
5106 4451     JMS I GOODPS /SIGNAL ACT LINE PROGRAM STILL RUNNING
5107 5701     JMS I GOODBD /RETURN TO PROGRAM

5110 0000     ERRORX, 0 /ERROR ROUTINE
5111 7300     CLA  CLL
5112 1022     TAD  OP2SEL /CHECK FOR ACT LINE
5113 7700     SMA  CLA
5114 5326     JMF CHKINH
5115 1021     TAD  OP1SEL
5116 0143     AND K200
5117 7640     SMA  CLA
5118 6160     CLRHD0 /TURN THE INTERRUPT OFF
5121 6002     IOP
5122 7248     CLA  CMA
5123 1310     TAD  ERRORX
5124 6272     CIF  78
5125 5450     JMF I BADPAS /GO TO ROM FOR ERROR
5126 4341     CHKINH, JMS SHCHK /CHECK FOR SR 0(1) TO INHIBIT ERROR HALT
5127 7710     SPA  CLA /IS SH 0 SET TO A ONE
5128 5334     JMF ERLPSW /YES, GO CHECK SR 1 TO LOOP ON ERROR
5129 7340     CLA CLL CMA /SUBTRACT ONE FROM JMS ERROR PC
5130 1310     TAD  ERRORX /AC CONTAINS THE ADDRESS WHERE THE ERROR
5131 7402     HLT /HAS BEEN DETECTED BY THE PROGRAM, REFER
                           TO THE PROGRAM LISTING FOR ERROR
                           /EXPLANATION AND THE TEST DESCRIPTION,
                           /CHECK THE SWITCH REGISTER TO LOOP ON ERROR

5134 4341     ERLPSW, JMS SHCHK /IS SH 1 SET TO A ONE TO LOOP ON TEST
5135 7004     RAU
5136 7710     SPA  CLA
5137 5453     JMF I TEST /YES GO LOOP ON THE TEST
5138 5710     JMS I ERRORX /NO, RETURN TO THE PROGRAM

5141 0000     SHCHK, 0
5142 7300     CLA  CLL

```

/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2-55

5143 1021 TAD DP1SEL /GET THE HARDWARE STATUS WORD
5144 7700 SMA CLA /IS THE HARDWARE FRONT PANEL SELECTED
5145 5350 JMF ,43 /NO, USE THE PSEUDO SWITCH REGISTER
5146 7684 LAS
5147 5741 JMF I SWCHK /RETURN
5148 1022 TAD SWITCH /THE PSEUDO SWITCH REGISTER
5149 5741 JMF I SWCHK /RETURN

5152 0000 TSTLDP, 0 /ROUTINE TO CHECK SH 2 TO LOOP ON TEST
5153 4341 JMS SWCHK /GO GET THE SWITCH REGISTER
5154 7056 RTL
5155 7700 SMA CLA
5156 5752 JMF I TSTLDP /GO TO NEXT TEST
5157 5453 JMF I TEST /LOOP ON SAME TEST

5160 0000 ACLBAT, 0 /LOOK AT RETURN FOR AC LOW OR BATTERY EMPTY
5161 1373 TAD ACNLOK
5162 7640 SEA CLA
5163 5366 JMF ,43
5164 2000 ISB INTSER
5165 5400 JMF I INTSER
5166 3373 DCA ACNLOK
5167 6101 SBE /SKIP ON BATTERY EMPTY
5170 5364 JMF ,44
5171 2000 ISB INTSER
5172 5364 JMF ,46
5173 0000 ACNLOK, 0

5175 5053
5176 2201
5177 7634
5200 PAGE

5200 0000 BUFFER, 0 /BUFFER IS FROM 5200 TO 7777 FOR 4K
/BUFFER IS FROM 5200 TO 5777 FOR 3K

0200 *200

5

/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2-56

0000 11111111 11111111 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 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1300 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 00000000 00000000
1500 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000001
1600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 10000000 00000001
2000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
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 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
3000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
3100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 00000000 00000001
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 00000001 11111111

4000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
 4100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
 4200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
 4300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
 4400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
 4500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
 4600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
 4700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
 5000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
 5100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
 5200 100000000 000000000 000000000 000000000 000000000 000000000 000000000 000000000 000000000
 5300 000000000 000000000 000000000 000000000 000000000 000000000 000000000 000000000 000000000
 5400
 5500
 5600
 5700
 5800
 5900
 6000
 6100
 6200
 6300
 6400
 6500
 6600
 6700
 7000
 7100
 7200
 7300
 7400
 7500
 7600
 7700

ACDOWN	4763	CJ4S04	1272	CD00UP	0051	M1272	0127
ACLBAT	5160	CJ4S05	1320	STF	0004	M11	0070
ACNLOK	5173	CJ4S06	1346	HGHLM	0044	M102	0130
ACTLIV	5000	CJ4S07	1410	HLT	7402	M125	0114
ADD401	3793	CJ4S10	1436	INTSER	0008	M152	0115
ADDQNT	3047	CKJH51	1627	JMSCK1	2246	M16	0071
ADDRES	4135	CKJH52	1657	JMSCK2	2272	M2	0063
AUTCNT	4133	CKJH53	1713	JMSCK3	2314	M28	0072
AUTENA	4147	CKJH54	1741	JMSCK4	2348	M22	0073
AUTO	4688	CKJH55	2013	JMSCK5	2364	M25	0074
AUTHST	0052	CKJH56	2044	JMSCK6	2410	M30	0075
AUTSEL	4134	CKJH57	2075	JMSCK7	2434	M308	0116
AUTTST	4056	CKJH58	2127	JMSCK8	2460	M33	0076
BADPAS	0050	CKJH59	2161	K1	4753	M34	0077
RATEMT	5067	CLEARAB	4463	K10	0135	M4	0054
REGT16	3025	CLRSBT	4465	K1000	4294	M48	0102
REGT17	3217	CLREMA	6154	K129	0141	M4102	0131
ROOTDK	4461	CLRENG	3540	K152	0142	M43	0101
ROOTRI	3755	CLRMD0	6160	K1777	0145	M44	0102
ROOTR2	3756	CLRSMH	6150	K200	0143	M5	0005
ROUTTB	3687	CN#BUF	4662	K2000	0146	M50	0103
ROTAD0	4567	CNTBOT	3750	K3	4720	M5002	0132
ROTCLR	4565	CNTBOT	4715	K3000	4293	M5102	0133
ROTCHP	4400	COVPAR	4225	K34	4792	M52	0104
ROTQNT	4571	COVW1	3751	K37	0136	M55	0105
ROTENA	4155	COVW3	3752	K400	0144	M60	0106
ROTEND	4511	COVW4	4136	K4100	0153	M61	0107
ROTHT1	3671	CUF	6264	K5252	4717	M66	0110
ROTHT2	3726	DATPAT	8042	K6201	0045	M7	0066
ROTSAO	4578	DATHEC	0035	K7	0134	M70	0111
ROTSCL	4150	DEAD	5077	K70	0137	M77	0112
RTSUR1	3754	DSKADD	4363	K7677	0152	MANRST	4721
RTTST1	3652	EHA1	3541	K77	0140	NOAUTO	4054
RTTST2	3707	EHA2	3542	K7707	0150	NOBOOT	3637
RUFONT	4714	EHA3	3543	K7797	0151	NXTBOT	3643
RUFER	5200	EMAGLR	3331	K7774	0147	OP1SEL	0021
RUFGRD	4703	EMA1F1	3432	KK3	4572	OP23K	0000
RUFPAT	4716	EMA1F2	3451	LINK	5051	OP25EL	0022
CAF	6007	EMA1F3	3464	LDRKG2	6152	OPRINT	4734
CAL	6103	ENDING	5034	LDRKG3	6153	OPRRET	4722
CAPSS	4000	ENDPAS	5017	LOOP	4455	PASEND	0061
CDF	6201	ENDT17	3314	M1	0062	PC	5052
CDFCHK	0033	ENDT8	3144	M10	0067	POINTR	3313
CDFNEW	3062	ERLPW8	5134	M100	0113	POWFAL	5043
CHKCDF	0034	ERROR	4454	M1000	0117	PRGPAS	5042
CHKINH	5126	ERRONX	5110	M1007	0120	PRGRST	5053
CIF	6202	EXECUT	6164	M1016	0121	PTPAOD	4381
CIPCFD	6203	FILLIT	4713	M1025	0122	PTPC4P	4303
CINT	6204	FLDLIM	8037	M1034	0123	PTPEND	4341
CJMH51	1166	G00AUT	4129	M1043	0124	RDF	6214
CJMH52	1216	G00D0D	5101	M1052	0125	REDEWA	6155
CJMH53	1244	G00DCP	4443	M1061	0126	RESADD	4137

/KMB*A OPTION TEST 2 MAINDEG=08=DJKMAA=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2=59

HESET 4737	TEST16 2763	TST19H 3446
HEYTRG 4751	TEST17 3200	TST19V 3461
RFDPCP 4365	TEST18 3321	TST2CN 0402
RFDPEP 4371	TEST19 3415	TSTLPH 5192
RIB 6234	TEST20 0343	UPERLH 0048
RIF 6224	TEST20 3477	WRKADU 0043
RKBADD 3615	TEST21 3027	WRKFNU 0041
RKHOMP 3617	TEST22 4041	XSAT 0040
RKBE 0023	TEST23 4201	XPHWFL 0037
RKBEND 3625	TEST13 0432	
RMF 6244	TEST4 0474	
RSTAUT 4101	TESTD 0530	
RTF 6005	TEST6 0577	
SAVESE 0036	TEST7 0647	
SAVSTR 4566	TEST8 0706	
SAVWFO 0046	TESTW 0776	
SBE 6101	TESTAD 0868	
SCOPLP 4456	TIM01S 4255	
SELAUT 4143	TST11A 1137	
SET1K 4554	TST11B 1156	
SET2K 4560	TST11C 1204	
SET3K 4563	TST11D 1234	
SETUP 4517	TST11E 1262	
SETUP1 4527	TST11F 1318	
SETUP2 4541	TST11G 1356	
SIMBOT 3747	TST11H 1480	
SINT 6254	TST11I 1426	
SKON 6000	TST12A 1615	
SKRCHA 6166	TST12B 1645	
SPL 6102	TST12C 1676	
STHQMP 4654	TST12D 1727	
SUF 6274	TST12E 2001	
SWCHK 5141	TST12F 2032	
SWITCH 3020	TST12G 2003	
T16LCD 3055	TST12H 2115	
T17DF 3246	TST12I 2147	
T17RET 3271	TST13A 2236	
TAHADD 3544	TST13B 2262	
TAHOMP 3546	TST13C 2304	
TAHENO 3605	TST13D 2330	
TABLE 3306	TST13E 2354	
TCHADD 4343	TST13F 2402	
TCHOMP 4345	TST13G 2424	
TCHENM 4355	TST13H 2453	
TEST 0053	TST14A 2515	
TEST1 0201	TST14B 2552	
TEST10 1053	TST14C 2610	
TEST11 1116	TST14D 2652	
TEST12 1600	TST15A 3345	
TEST13 2216	TST15B 3364	
TEST14 2500	TST15C 3377	
TEST15 2674	TST15A 3432	

/KMB*A OPTION TEST 2 MAINDEG=08=DJKMAA=L 4K PAL10 V142 18=DEC=74 15102 PAGE 2=60

ERRORS DETECTED: 0
LINKS GENERATED: 38
RUN-TIME: 23 SECONDS
3K CORE USED

/KMB=A OPTION TEST 2 MAINDEC=08=DJKMA=A=L 1K PART 1 PAL10 V142 18-DEC-74 15104 PAGE 1
/KMB=A OPTION TEST 2 MAINDEC=08=DJKMA=A=L 1K PART 1
/
/COPYRIGHT (C) 1974, DIGITAL EQUIPMENT CORPORATION
/
/PROGRAMMER: BRUCE HANSEN
/

/THE FOLLOWING LISTING WILL CORRESPOND TO THE PAPER TAPE LABELED MAINDEC-08-DJKHMA-PHI,
/4K 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.

/KMB-A OPTION TEST 2 MAINDEC=08=DJKMA=A=L 1K PART 1 PAL10 V142 18-DEC-74 15184 PAGE 2
/KMB-A OPTION TEST 2 MAINDEC=08=DJKMA=A=L 1K PART 1
/
/COPYRIGHT 1974, DIGITAL EQUIPMENT CORP., MAYNARD, MASS., 01754
/PDM-HA OPTION TEST 2 TESTS THE MEMORY EXTENTION/TIME SHARE CONTROL,
/POWER FAIL/AUTO RESTART, AND BOOTSTRAP LOADERS

6000	SKONE#9000	
6007	CAP#6007	
7402	HLT#7402	
/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	
/MEMORY EXTENTION/TIME SHARE INSTRUCTIONS		
6004	GTF#6004	/GET FLAGS, READS THE FOLLOWING MACHINE STATES /INTO THE INDICATED BITS OF THE ACI /AC0 LINE /AC2 INTERRUPT REQUEST /AC4 INTERRUPT ENABLE F/F /AC9 USER FLAG /AC6-#11 SAVE FIELD REGISTER
6005	RTF#6005	/RESTORE THE FLAGS, RTF LOADS THE LINK FROM AC0, /LOADS THE USER BUFFER F/F, INSTRUCTION BUFFER AND /DATA FIELD WITH AC5, AC6-#8, AC 9-#11 AND INHIBITS /PROCESSOR INTERRUPTS UNTIL NEXT JMP OR JMS INSTRUCTION, /AT THE END OF THE JMP OR JMS, THE CONTENTS OF THE U.B. + I.B. /ARE LOADED INTO USER FIELD F/F, AND THE I.F., INTERRUPT ENABLE /IS SET AND INTERRUPT INHIBIT IS CLEARED
6234	RIB#6234	/READ THE INTERRUPT BUFFER
6244	RHFR#6244	/RESTURES MEMORY FLAGS
6204	CINT#6204	/CLEAR USER INTERRUPT FLIP-FLOP
6254	SINT#6254	/SKIP ON USER INTERRUPT FLIP-FLOP
6264	CUFB#6264	/CLEAR USER BUFFER FLIP-FLOP
6274	SUFB#6274	/SET USER BUFFER FLIP-FLOP (ENTER TIME SAME MODE)AND /INHIBITS PROCESSOR INTERRUPTS UNTIL THE NEXT JMP OR /JMS INSTRUCTION, AT THE END OF THE JMP OR JMS /INSTRUCTION, THE USER BUFER IS LOADED INTO THE USER /FIELD F/F,
6281	CUFB#6281	/CHANGE DATA FIELD

6202 CIF#6202 /CHANGE INSTRUCTION FIELD
 6214 RDP#6214 /READ THE DATA FIELD INTO AC BITS 6=8
 6224 RIF#6224 /READ THE INSTRUCTION FIELD INTO AC BITS 6=8
 6203 CIFCDP#6203 /PERFORMS THE CIF AND CDP FUNCTIONS

 /POWER FAIL INSTRUCTIONS
 6102 SPL#6102 /SKIP ON AC LOW FLIP-FLOP
 6103 CAL#6103 /CLEAR AC LOW FLIP-FLOP
 6101 SBE#6101 /SKIP ON BATTERY EMPTY FLIP-FLOP

 /OPTION BOARD 2 SIMULATOR IOTS
 6150 CLRSHM#6150 /CLEAR CONTROL REGISTERS
 6152 LODRG2#6152 /LOAD CONTROL REGISTER 2
 6153 LODRG3#6153 /LOAD CONTROL REGISTER 3
 6154 CLREMA#6154 /CLEAR EMA CATCHER LOGIC
 6155 REDEMA#6155 /READ EMA CATCHER REGISTER
 6160 CLRMDU#6160 /CLEAR TEST MODULE LOGIC
 6164 EXECUT#6164 /EXECUT AND CONTROL WORD 3 BIT 7 #1 ISSUE A POWER ON PULSE
 6166 SKPEMA#6166 /EXECUT AND CONTROL WORD 3 BIT 7 #0 ISSUE A SWITCH SW PULSE
 /SKPEMA AND CONTROL WORD 3 BIT 3 #1 EMA INTERRUPT AND SKIP ENABLE
 /SKPEMA AND CONTROL WORD 3 BIT 3 #0 EMA INTERRUPT AND SKIP DISABLE

/OPTION BOARD 2 SIMULATOR CONTROL WORD 2 BIT ASSIGNMENTS

/
 /BITS 0 = 1 NOT USED
 /BITS 2 = 0 ROOT STRAP PROGRAM SELECT
 /BITS 9 = 11 AUTO-RESTART ADDRESS SELECT

/OPTION BOARD 2 SIMULATOR CONTROL WORD 3 BIT ASSIGNMENTS

/
 /BIT 0 TIME SHARE 0=ENABLED 1=DISABLED
 /BIT 1 AC LOW (L) 1=PULLED LOW 0=FREE STATE
 /BIT 2 BATT EMPTY 1=BATT EMPTY PULLED LOW 0=FREE STATE
 /BIT 3 1=EMA INTERRUPT/SKIP ENABLE 0=EMA INTERRUPT SKIP DISABLE
 /BIT 4 = 5 NOT USED
 /BIT 7 1=POWER ON PULSE WITH EXECUT 0=SWITCH SW PULSE WITH EXECUT
 /BIT 8 1=DISABLES BOOTSTRAP WHILE RUNNING 0=ENABLES BOOTSTRAP WHILE RUNNING
 /BIT 9 = 11 AUTO-RESTART/BOOT STRAP ENABLE CODE

0000	*0		
0000	0000	INTSER, 0	/JMS I AUTHST PLACED HERE FOR SIMULATOR AUTO RESTART
0001	3035	DCA	
0002	6102	SPL	/SKIP ON AC LOW
0003	7410	SKP	
0004	5457	JMP I XPHRFL	/POWER GOING DOWN
0005	6101	SBE	/SKIP ON BATTERY EMPTY

0006	7410	SKP	
0007	5460	JMP I XBAT	/GO HALT THE COMPUTER ,ITS ALL OVER
0010	6224	RIF	/READ THE INSTRUCTION FIELD
0011	7640	SEA CLA	
0012	4454	ERROR	/IFI, IS NOT 0 AFTER A INTERRUPT
0013	6214	RDF	/READ THE DATA FIELD
0014	7640	SEA CLA	
0015	4454	ERRON	/IFI, IS NOT 0 AFTER A INTERRUPT
0016	2000	ISZ INTSER	/ADD 1 TO THE INTERRUPTED PC
0017	5400	JMP I INTSER	/RETURN TO THE PROGRAM

0020	*20		
0020	0000	SWITCH, 0	/PSEUDO SWITCH REGISTER IF BIT 0=0 OF OPSEL
0021	1000	OP1SEL, 1000	/BIT 0=0 USE LOC 20 AS A PSEUDO S,R, /BIT 0=1 USE HARDWARE FRONT PANEL S,R, /BIT 1=1 HAS 8A OPTION 1 /BIT 2=1 HAS 8A OPTION 2 /BIT 3=1 HAS 8A CPU SIMULATOR /BIT 4=1 HAS 8A OPTION 1 + 2 TEST MODULE /BIT 5=1 PROGRAM ON RA XOR /BIT 6=1 HAS POP-BE TYPE CPU /BITS 7=11 MEMORY SIZE = 0/16 * 1K, 37=32K, /MEMORY SIZE CAN BE INCREASED IN 1K INCREMENTS /BY ADDING A 1 TO THE NUMBER IN BITS 7=11,

0022 0000 OP2SEL, 0 /RK&E BOOT STRAP WILL LOAD INTO THE FOLLOWING LOCATIONS

0023	7402	RKBET, HLT	/2000
0024	7402	HLT	/6745
0025	7402	HLT	/0023
0026	7402	HLT	/7650
0027	7402	HLT	/5024
0030	7402	HLT	/6733
0031	7402	HLT	/0031
0032	7402	HLT	/TERMINATOR
0033	0000	CDFCHK, 0	
0034	0033	CHRCDF, CDFCHK	
0035	0000	DATNEU, 0	
0036	0000	SAVE54, 0	
0037	0000	FLDLIM, 0	
0040	0000	UPCHLM, 0	
0041	0000	WRKFLU, 0	
0042	0000	DATPAT, 0	
0043	0000	WRKADU, 0	
0044	0000	HGHLM, 0	
0045	6201	K6201, 6201	
0046	0000	SAVHFU, 0	
0047	0000	ADCOUNT, 0	
0050	6520	BADPAGE, 6520	
0051	6500	GOODPAGE, 6500	
0052	1647	AUTHST, PROGRT	
0053	0000	TEST, 0	/SCOPE LOOP AND TEST LOOP ADDRESS

```

        4454   ERROR  JMS I    ERRORX
0054 1784           L0OP#  JMS I    TSTL0P
        4455           SC0PLH# JMS I    TESTAD
        4456           SQ0PLH# JMS I    TESTAD
        1654           TESTAD

0057 1637   XPMHFLI; POWFAL
0060 1663   XBATI; BATENT
0061 1617   PASENU; ENDPAS

```

/CONSTANTS USED BY THE PROGRAM

```

0062 7777   M1;    #1
0063 7776   M2;    #2
0064 7774   M4;    #4
0065 7773   M5;    #5
0066 7771   M7;    #7
0067 7770   M10;   #10
0070 7767   M11;   #11
0071 7762   M16;   #16
0072 7760   M20;   #20
0073 7756   M22;   #22
0074 7753   M25;   #25
0075 7750   M30;   #30
0076 7745   M33;   #33
0077 7744   M34;   #34
0103 7740   M40;   #40
0101 7735   M43;   #43
0102 7734   M44;   #44
0103 7730   M50;   #50
0104 7726   M52;   #52
0105 7723   M55;   #55
0106 7720   M60;   #60
0107 7717   M61;   #61
0110 7712   M66;   #66
0111 7710   M70;   #70
0112 7701   M77;   #77
0113 7700   M100;  #100
0114 7653   M129;  #129
0115 7626   M152;  #152
0116 7500   M300;  #300
0117 7000   M1000; #1000
0120 6771   M1007; #1007
0121 5762   M1016; #1016
0122 6753   M1025; #1025
0123 6744   M1034; #1034
0124 6735   M1043; #1043
0125 6726   M1052; #1052
0126 6717   M1061; #1061
0127 6710   M1070; #1070
0130 6700   M1100; #1100
0131 3700   M4100; #4100

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0132 3000   M5000; #5000
0133 2700   M5100; #5100

0134 2807   K7;    7
0135 0010   K10;   10
0136 0037   K37;   37
0137 0070   K70;   70
0140 0077   K77;   77
0141 0125   K125;  125
0142 0152   K152;  152
0143 0200   K200;  200
0144 0400   K400;  400
0145 1777   K1777; 1777
0146 2800   K2800; 2800
0147 7774   K7774; 7774
0150 7707   K7707; 7707
0151 7757   K7757; 7757
0152 7677   K7677; 7677
0153 4100   K4100; 4100

0200   #200

```

```

*****  

/TEST 1 = CHECKS THE CDF AND R0F INSTRUCTIONS TO LOAD AND READ  

/ THE DATA FIELD. A RIF IS ISSUED AFTER EACH DATA FIELD CHANGE  

/ TO CHECK THAT THE INSTRUCTION FIELD REMAINS A ZERO,  

/ THE INCLUSIVE OR OF THE D,F, WITH THE AC IS CHECKED WITH THE R0F INSTRUCTION.  

/SET TIME SHARE ENABLE SWITCH TO TIME SHARE ENABLE POSITION
*****
```

```

0200 7000   NOP/JMS I AUTRST          /IF SIMULATOR SELECTED THIS LOCATION WILL CHANGE TO JMS I AUTRST
0201 6160   TEST1; CLRND0          /CLEAR SIMULATOR TEST LOGIC
0202 3777;  DCA  ACNLDK          /SETUP SCOPE ADDRESS AND TEST LOOPING ADDRESS
0203 4456   SC0PLP              /SETUP SC0PLP ADDRESS
0204 6007   CAF                 /CLEAR ALL FLAGS
0205 6264   CUF                 /CLEAR USER FLAG
0206 7410   SKP                 /CLEAR SKIP FLAG
0207 4454   ERROR               /CAF SKIPPED
0208 6254   SIVI                /CAF IF USER INTERRUPT FLIP-FLOP SET
0211 7410   SKP                 /CAF IF USER INTERRUPT FLIP-FLOP SET
0212 4454   ERROR               /SINT SKIPPED OR CAF FAILED TO 0 USER INTERRUPT
0213 6001   IO4                 /TURN THE INTERRUPT ON
0214 6201   CDF  00              /CHANGE DATA FIELD TO FIELD 0
0215 7410   SKP                 /CLEAR SKIP FLAG
0216 4454   ERROR               /CAF SKIPPED
0217 6214   R0F                 /READ THE DATA FIELD
0220 7410   SKP                 /CAF SKIPPED
0221 4454   ERROR               /R0F SKIPPED
0222 7640   SEA  CLA              /WAS IF FIELD 0?
0223 4454   ERROR               /R0F HEAD BACK SOMETHING OTHER THAN D,F, 0
0224 6224   RIF                 /READ THE INSTRUCTION FIELD
0225 7410   SKP                 /RIF SKIPPED
0226 4454   ERROR               /RIF SKIPPED

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0227 7640 S2A CLA /WAS THE I,F, #?
 0230 4454 ERROM /IF READ BACK SOMETHING OTHER THAN I,F, #
 0231 6271 CDF 70 /CHANGE DATA FIELD TO FIELD 7
 0232 6214 RDP /READ THE DATA FIELD
 0233 1111 TAD H70 /CHECK THAT DATA FIELD 7 WAS READ BACK
 0234 7640 S2A CLA /INTO AC BITS A7, A8
 0235 4454 ERROM /CDF OR RDP TO FIELD 7 FAILED
 0236 1150 TAD K7707 /CHECK THE INCLUSIVE OR FUNCTION OF RDP
 0237 6214 RDP /READ THE DATA FIELD
 0240 7040 CLA
 0241 7640 S2A CLA /THE INCLUSIVE OR OF THE DF WITH AC FAILED
 0242 4454 ERROM /READ THE INSTRUCTION FIELD
 0243 6224 RIF /IS IT STILL B?
 0244 7640 S2A CLA /THE INSTRUCTION FIELD CHANGED
 0245 4454 ERROM /CHANGE TO DATA FIELD 2
 0246 6221 CDF 20 /READ THE DATA FIELD
 0247 6214 RDP /CHECK TO SEE IF DF 2 WAS READ BACK
 0250 1072 TAD H20 /HAS IT DATA FIELD 2?
 0251 7640 S2A CLA /NO, CDF 20 OR RDP FAILED
 0252 4454 ERROM /CHECK THE INCLUSIVE OR OF THE DF WITH THE AC
 0253 1151 TAD K7757 /READ THE DATA FIELD
 0254 6214 RDP
 0255 7040 CLA
 0256 7640 S2A CLA /THE INCLUSIVE OR OF DF WITH AC FAILED
 0257 4454 ERROM /READ THE INSTRUCTION FIELD
 0258 6224 RIF /IS THE IF STILL B?
 0261 7640 S2A CLA /THE INSTRUCTION FIELD CHANGED
 0262 4454 ERROM /CHANGE TO DATA FIELD 5
 0263 6251 CDF 50 /READ THE DATA FIELD
 0264 6214 RDP
 0265 1103 TAD H50 /HAS IT DATA FIELD 5?
 0266 7640 S2A CLA /NO, CDF 50 OR RDP FAILED
 0267 4454 ERROM /READ THE INSTRUCTION FIELD
 0270 6224 RIF /IS THE I,F, STILL B?
 0271 7640 S2A CLA /NO, THE INSTRUCTION FIELD CHANGED
 0272 4454 ERROM /CHANGE THE DATA FIELD TO 3
 0273 6231 CDF 30 /READ THE DATA FIELD
 0274 6214 RDP
 0275 1075 TAD H30 /
 0276 7640 S2A CLA /IS IT EQUAL TO FIELD 3?
 0277 4454 ERROM /NO, CDF 30 OR RDP FAILED
 0300 6224 RIF /READ THE INSTRUCTION FIELD
 0301 7640 S2A CLA /IS THE I,F, STILL EQUAL TO 3?
 0302 4454 ERROM /NO, THE I,F, CHANGED
 0303 5241 CDF 40 /CHANGE THE DATA FIELD TO FIELD 4
 0304 6214 RDP /READ THE DATA FIELD
 0305 1100 TAD H40 /
 0306 7640 S2A CLA /IS IT EQUAL TO DFL 4?
 0307 4454 ERROM /NO, CDF 40 OR RDP FAILED
 0310 6224 RIF /READ THE INSTRUCTION FIELD
 0311 7640 S2A CLA /IS IT STILL EQUAL TO 4?
 0312 4454 ERROM /NO, THE I,F, CHANGED
 0313 5211 CDF 10 /CHANGE THE DATA FIELD TO FIELD 1
 0314 6214 RDP /READ THE DATA FIELD
 0315 1067 TAD H10

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMAB=L 1K PART 1 PAL10 V142 18-DEC-74 15184 PAGE 2-6
 0316 7640 SDA CLA /IS IT EQUAL TO DATA FIELD 1
 0317 4454 ERORH /NO, QDF 18 OR RDF FAILED
 0320 6224 RIF /READ THE INSTRUCTION FIELD
 0321 7640 SDA CLA /IS IT STILL EQUAL TO 2
 0322 4454 ERORH /NO, THE I.F. CHANGED
 0323 6261 CDF 60 /CHANGE DATA FIELD TO FIELD 6
 0324 6214 RDF /READ THE DATA FIELD
 0325 1106 TAD H00 /IS THE D.F. EQUAL TO 67
 0326 7640 SDA CLA /NO, QDF 60 OR RDF FAILED
 0327 4454 ERORH /READ THE INSTRUCTION FIELD
 0328 6224 RIF /IS IT STILL EQUAL TO ZERO?
 0329 7640 SDA CLA /NO, INSTRUCTION FIELD CHANGED
 0330 4454 ERORH /CHANGE DATA FIELD TO FIELD 7
 0331 6201 CDF H0 /READ THE DATA FIELD
 0332 6214 RDF /IS IT EQUAL TO FIELD 7?
 0333 6201 SDA CLA /NO, QDF 60 OR RDF FAILED
 0334 6214 RIF /READ THE INSTRUCTION FIELD
 0335 7640 SDA CLA /IS IT STILL EQUAL TO ZERO?
 0336 4454 ERORH /NO, INSTRUCTION FIELD CHANGED
 0337 6224 RIF /READ THE INSTRUCTION FIELD
 0340 7640 SDA CLA /IS IT STILL EQUAL TO ZERO?
 0341 4454 ERORH /NO, INSTRUCTION FIELD CHANGED;
 0342 4455 LOOP /LOOP ON TEST IF SR = 1000

 /TEST 2 - CHECKS THAT USER MODE CAN BE ENTERED AND EXITED BY DOING A
 /JMP=SUF JUMP=HLT, THE USER INTERRUPT IS CHECKED TO BE SET BY SINT AND
 /CLEARED BY CINT, GTF AND RIB ARE ISSUED TO CHECK THAT THE SAVE FIELD
 /GOT LOADED AND THAT THE INSTRUCTIONS CAN READ THE SAVE FIELD;

 0343 4456 TEST2; SC0PLP /SETUP SCOPE AND TEST LOOPING ADDRESS
 0344 6007 CAF /CLEAR ALL FLAGS
 0345 6264 CUF /CLEAR USER BUFFER F/F
 0346 7410 SKP
 0347 4454 ERORH /QDF SKIPPED
 0350 6204 CINT /CLEAR USER INTERRUPT FLIP-FLOP
 0351 7410 SKP
 0352 4454 ERORH /CINT SKIPPED
 0353 6254 SINT /SKIP ON USER INTERRUPT FLIP-FLOP
 0354 7410 SKP
 0355 4454 ERORH /SINT SKIPPED OR USER INTERRUPT F/F SET
 0356 6001 IOV /TURN THE INTERRUPT ON
 0357 6274 SUF /SET USER BUFFER F/F, SET INT INHIBIT AT TP3
 0358 5362 JMP ,42 /LOAD UB INTO I.F. REGISTER, CLEAR INT INHIBIT
 0361 5361 JMP ,
 0362 7402 HALT /USER INTERRUPT FAILED TO SET OR HALT FAILED TO
 0363 5363 JMP ,
 0364 6254 SINT /SKIP ON USER INTERRUPT FLIP-FLOP
 0365 5365 JMP ,
 0366 6204 CINT /USER INTERRUPT NOT SET OR SINT FAILED TO SKIP
 0367 6254 SINT /CLEAR USER INTERRUPT FLIP-FLOP
 0370 7410 SKP /SKIP ON USER INTERRUPT FLIP-FLOP
 0371 5371 JMP ,
 0372 5770 JMP TSTCON /CINT FAILED TO 2 USER INTERRUPT FLIP-FLOP
 /CONTINUE THE TEST

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0377 1767
0400 PAGE

0400 7200 NOP
0401 7200 NOP
0402 6204 TSTZCN, GTF /GET THE FLAGS
0403 7410 SKP
0404 5204 JMP /GTF SKIPPED
0405 1113 TAD M100 /CHECK USER FLAG TO BE SET
0406 7640 S2A CLA /WAS THE CORRECT IF, D,F, AND USER FIELD FLIP=FLOP LOADED?
0407 5207 JMP /NO, USER FIELD F/F NOT LOADED OR OTHER BITS SET
0410 7300 CLA CLL /OR GTF FAILED;
0411 6234 RIB /HEAD THE INTERRUPT BUFFER
0412 7410 SKP
0413 5213 JMP /RIB SKIPPED
0414 1113 TAD M100 /CHECK FOR USER FLAG
0415 7640 S2A CLA
0416 5216 JMP /RIB FAILED OR SAVE FIELDS CLEARED
0417 1152 TAD K7677 /CHECK THE INCLUSIVE OR OF SF WITH AC
0420 6234 RIB /HEAD THE INTERRUPT BUFFER
0421 7040 CLA
0422 7640 S2A CLA
0423 5223 JMP /INCLUSIVE OR OF SAVE FIELD WITH AC FAILED
0424 7340 CLA CLL CLA /SET THE AC TO ALL ONES
0425 6004 GTF /GET THE FLAGS
0426 1113 TAD M100
0427 7640 S2A CLA
0430 5230 JMP /GTF FAILED TO DO A JAM TRANSFER TO AC
0431 4455 LOOP /OR SAVE FIELDS CLEARED,
0432 4456 TEST3, SCOPLP /LOOP ON TEST IF SR = 1000

***** /TEST 3: CHECKS THAT OSR WILL TRAP IN USER MODE AND THAT
//IT WILL NOT AFTER A INTERRUPT, RIB, GTF, RIF, RDF ARE CHECKED TO
//READ THE SAVE FIELDS AND I,F, AND D,F.

0432 4456 TEST3, SCOPLP /SETUP SCOPE AND TEST LOOPING ADDRESS
0433 6007 CAF /CLEAN ALL FLAGS
0434 6001 IOV /TURN THE INTERRUPT ON
0435 6274 SUF /SET USER BUFFER F/F, SET INT INH AT TR3
0436 5237 JMP .+1 /ENTER USER MODE
0437 7404 OSR /OSR SHOULD SET USER INTERRUPT F/F + CAUSE A TRAP
0440 5240 JMP /OSR FAILED TO TRAP
0441 5254 SINT /SKIP ON USER INTERRUPT F/F
0442 5242 JMP /USER INTERRUPT F/F NOT SET
0443 6204 CINT /CLEAR USER INTERRUPT F/F
0444 6254 SINT /SKIP ON USER INTERRUPT F/F
0445 7410 SKP
0446 5246 JMP /CINT FAILED TO CLEAR USER INTERRUPT F/F
0447 6001 IOV /TURN THE INTERRUPT ON
0450 5251 JMP .+1 /CHECK THAT THE INTERRUPT HAD CLEARED THE USER FIELD F/F
0451 7404 OSR /OSR SHOULD NOT TRAP
0452 7610 SKP CLA
0453 5253 JMP /OSR TRAPPED AFTER A INTERRUPT OCCURED ABOVE
0454 4455 LOOP /CHECK THE USER BUFFER AND I,F.,

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0454 6234 RIB /HEAD THE INTERRUPT BUFFER
0455 1113 TAD M100 /CHECK THE SAVE FIELD FOR USER FLAG
0456 7640 S2A CLA
0457 4454 ERROR /USER FLAG NOT SET OR OTHER BITS SET
0458 7340 CLA CLL CLA /SET THE AC TO ALL ONES
0461 6004 GTF /GET THE FLAGS
0462 1116 TAD M300 /CHECK FOR INT ENA, AND USER FLAG
0463 7640 S2A CLA
0464 4454 ERROR /USER FLAG AND INT ENA NOT SET OR OTHER BITS SET
0465 6224 RIF /READ THE INSTRUCTION FIELD
0466 7640 S2A CLA
0467 4454 ERROR /THE INSTRUCTION FIELD IS NON ZERO
0470 6214 RDF
0471 7640 S2A CLA
0472 4454 ERROR /THE DATA FIELD IS NON ZERO,
0473 4455 LOOP /LOOP ON TEST IF SR = 1000

***** /TEST 4: CHECKS THAT AN IOT WILL TRAP OUT IN USER MODE AND NOT
//AFTER A USER INTERRUPT, THE USER INTERRUPT IS CHECKED TO BE
//CLEANED BY CAF, RIB AND GTF ARE ISSUED AND CHECKED;
//*****
```

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0474 4456 TEST4, SCOPLP /SETUP SCOPE AND TEST LOOPING ADDRESS
0475 6007 CAF /CLEAN ALL FLAGS
0476 6001 IOV /TURN THE INTERRUPT ON
0477 6274 SUF /SET THE USER BUFFER FLIP=FLOP
0478 5301 JMP .+1 /TRANSFER USER BUFFER TO THE USER FIELD F/F
0481 6001 IOV /SHOULD TRAP HERE
0482 5302 JMP /THE IOT FAILED TO TRAP,
0483 6254 SINT /SKIP ON USER INTERRUPT FLIP=FLOP,
0484 5304 JMP /USER INTERRUPT F/F FAILED TO SET ON SINT FAILED
0485 6007 CAF /CLEAR USER INTERRUPT WITH INITIIZE
0486 6254 SINT /SKIP ON USER INTERRUPT
0487 7410 SKP
0488 5310 JMP /CAF FAILED TO CLEAR USER INTERRUPT,
0489 6001 IOV /TURN THE INTERRUPT ON
0490 5313 JMP .+1 /CHECK THAT THE INTERRUPT CLEARED OF F/F
0491 6001 IOV /IOT SHOULD NOT TRAP HERE
0492 7410 SKP
0493 5315 JMP /ION TRAPPED,
0494 6234 RIB /READ THE INTERRUPT BUFFER
0495 1113 TAD M100
0496 7640 S2A CLA
0497 4454 ERROR /USER FLAG NOT SET OR OTHER BITS SET
0498 7340 CLA CLL CLA /SET THE AC TO ALL ONES
0499 6004 GTF /GET THE FLAGS
0500 1116 TAD M300
0501 7640 S2A CLA
0502 4454 ERROR /USER FLAG AND INT ENA NOT SET OR GTF FAILED
0503 4455 LOOP /LOOP ON TEST IF SR = 1000

***** /TEST 5: CHECKS THAT CUF WILL CLEAR THE USER MODE BY DOING ION, SUF,
//QUF, JMP, IOT, THE IOT, SHOULD NOT TRAP, RIB AND GTF ARE
```

/ISSUED AND CHECKED,

```

0530 4456 TEST7: SCOPLP           /SETUP SCOPE AND TEST LOOPING ADDRESS
0531 6007 CAF                  /CLEAR ALL FLAGS
0532 6001 IOV                  /TURN THE INTERRUPT ON
0533 6274 SUF                  /SET THE USER BUFFER F/F
0534 5335 JMP     ,+1          /ENTER USER MODE
0535 7402 HLT                  /HLT FAILED TO TRAP
0536 5336 JMP     '           /HLT FAILED TO TRAP
0537 6234 SINT                 /SKIP ON USER INTERRUPT
0540 4454 ERROR                /USER INTERRUPT NOT SET
0541 6007 CAF                  /CLEAR ALL FLAGS
0542 6234 SINT                 /SKIP ON USER INTERRUPT F/F
0543 7410 SKP
0544 4454 ERROR                /CAF FAILED TO CLEAR USER INTERRUPT
0545 6234 R13
0546 1113 TAD     M100
0547 7640 SEA     CLA
0550 4454 ERROR                /USER FLAG NOT SET OR OTHER BITS SET
0551 6001 IOV
0552 6274 SUF
0553 6264 CUF
0554 7410 SKP
0555 5355 JMP     ,+1          /CUF TRAPPED BEFORE A JMP WAS ISSUED
0556 5357 JMP     ,+1          /ISSUE A IOT TO CHECK THAT PROGRAM DOESN'T TRAP
0557 6001 IOV
0560 7410 SKP
0561 5361 JMP     '
0562 6254 SINT
0563 7410 SKP
0564 4454 ERROR                /CUF FAILED TO CLEAR USER BUFFER FLIP-FLOP
0565 7340 CLA CLL CMA
0566 6004 GTF
0567 1116 TAD     M100
0570 7640 SEA     CLA
0571 4454 ERROR                /CHECK FOR INTERRUPT ENABLE + USER FLAG
0572 6234 R13
0573 1113 TAD     M100
0574 7640 SEA     CLA
0575 4454 ERROR                /READ THE INTERRUPT BUFFER
0576 4455 LOOP                 /USER FLAG NOT SET OR OTHER BITS SET
                                /LOOP ON TEST IF SR = 1000

*****  

/TEST #6 CHECKS THAT USER MODE IS NOT ENTERED UNTIL A JMS INSTRUCTION IS ISSUED BY DOING A  

/IOV, SUF, IOI, OSR, LAS, JMS, HLT. INTERRUPT REQUEST AND LINK ARE CHECKED TO  

/BE SET AND CLEARED BY GTF.
*****
```

```

0577 4456 TEST7: SCOPLP           /SETUP SCOPE AND TEST LOOPING ADDRESS
0580 6007 CAF                  /CLEAR ALL FLAGS
0581 6001 IOV                  /TURN THE INTERRUPT ON
0582 6274 SUF                  /SET USER BUFFER F/F
0583 6001 IOV
0584 7410 SKP
```

```

0605 5205 JMP     '
0606 7404 OSR
0607 7610 SKP     CLA
0610 5212 JMP     '
0611 7604 LAS
0612 7610 SKP     CLA
0613 5213 JMP     '
0614 4215 JMS     ,+1
0615 7402 HLT/XXXX
0616 7402 HLT
0617 5217 JMP     '
0620 6254 SINT
0621 4454 ERROR                /USER FLAG NOT SET OR OTHER FLAGS SET
0622 6234 R13
0623 1113 TAD     M100
0624 7640 SEA     CLA
0625 4454 ERROR                /SET THE AC TO ALL ONES
0626 7340 CLA CLL CMA
0627 6004 GTF
0630 1130 TAD     M1100
0631 7640 SEA     CLA
0632 4454 ERROR                /CHECK FOR INTERRUPT REQUEST AND USER FLAG
0633 6204 CINT
0634 7360 CLA CLL CML CMA
0635 6004 GTF
0636 1131 TAD     M4100
0637 7640 SEA     CLA
0640 4454 ERROR                /SHOULD ONLY BE LINK AND USER FLAG SET
0641 7100 CLL
0642 6004 GTF
0643 1113 TAD     M100
0644 7640 SEA     CLA
0645 4454 ERROR                /IS IT SET?
0646 4455 LOOP                 /USER FLAG SHOULD BE ONLY FLAG SET,
                                /LOOP ON TEST IF SR = 1000

*****  

/TEST 7: CHECKS THAT THE USER FLAG IN THE SAVE FIELD CAN BE CLEARED,  

/THIS IS DONE BY LEAVING THE USER INTERRUPT F/F SET AFTER A TRAP AND  

/THEN TURNING THE INTERRUPT BACK ON.
*****
```

```

0647 4456 TEST7: SCOPLP           /SETUP SCOPE AND TEST LOOPING ADDRESS
0650 6007 CAF                  /CLEAR ALL FLAGS
0651 6001 IOV                  /TURN THE INTERRUPT ON
0652 6274 SUF                  /SET USER BUFFER FLIP-FLOP
0653 5254 JMP     ,+1          /ENTER USER MODE
0654 7402 HLT                  /HLT FAILED TO TRAP
0655 5255 JMP     '           /HLT FAILED TO TRAP
0656 6234 SINT
0657 4454 ERROR                /SKIP ON USER INTERRUPT
0660 7240 CLA CMA
0661 6004 GTF
0662 1130 TAD     M1100
0663 7640 SEA     CLA
0664 4454 ERROR                /CHECK FOR USER FLAG AND INTERRUPT REQUEST
                                /IS IT THERE?
                                /SHOULD ONLY BE INT, REG, AND USER FLAG
```

```

0665 6001    IOV          /TURN THE INTERRUPT ON
0666 7000    NOP          /SHOULD INTERRUPT HERE
0667 4454    ERROR        /FAILED TO INTERRUPT
0670 7340    CLA CLL CMA   /SET THE AD TO ALL ONES
0671 6004    GTF          /GET THE FLAGS
0672 1117    TAD          H1000
0673 7640    SEA          CLA
0674 4454    ERROR        /CHECK FOR INTERRUPT REQUEST
0675 6204    CINT         /SHOULD ONLY BE INTERRUPT REQUEST SET
0676 6254    SINT         /CLEAR USER INTERRUPT REQUEST
0677 7410    SKP          /SKIP ON USER INTERRUPT FLIP-FLOP
0700 4454    ERROR        /CINT FAILED TO CLEAR USER INT F/F
0701 7340    CLA CLL CMA
0702 6004    GTF
0703 7640    SEA          CLA
0704 4454    ERROR
0705 4455    LOOP         /INTERRUPT REQUEST FAILED TO CLEAR
                           /LOOP ON TEST IF SR = 1000

*****  

/TEST8- CHECKS THAT RTF WILL RESET THE USER MODE AFTER A  

/USER INTERRUPT.
*****  

0706 4456    TEST8, SCOPLP   /SETUP SCOPE AND TEST LOOPING ADDRESS
0707 6007    CAF          /CLEAR ALL FLAGS
0710 6001    IOV          /TURN THE INTERRUPT ON
0711 6274    SUR          /SET USER BUFFER FLIP-FLOP
0712 5313    JMP          ,+1
0713 7402    HLT          /HALT FAILED TO TRAP OR USER FIELD FAILED TO SET
0714 5314    JMP          /
0715 6254    SINT         /SKIP ON USER INTERRUPT F/F
0716 4454    ERROR        /USER INTERRUPT FAILED TO SET
0717 6204    CINT         /CLEAR USER INTERRUPT FLIP-FLOP
0720 6254    SINT
0721 7410    SKP
0722 4454    ERROR        /CINT FAILED TO CLEAR USER INTERRUPT
0723 6234    RIS          /READ THE INTERRUPT BUFFER
0724 1113    TAD          H100
0725 7640    SEA          CLA
0726 4454    ERROR        /USER FLAG NOT SET OR PICKED UP BITS
0727 7100    CLL
0730 1153    TAD          K4100
0731 6005    RTF          /RESET THE FLAGS + SET USER BUFFER F/F
0732 7610    SKP          CLA
0733 5333    JMP          /
0734 6224    RIF          /RTF SKIPPED
0735 7640    SEA          CLA
0736 5336    JMP          /IS IT NON ZERO
0737 6214    RUF          /HIF TRAPPED WITH OUT USER INT OR I,F, NON ZERO
0740 7640    SEA          CLA
0741 5341    JMP          /
0742 5343    JMP          ,+1
0743 7402    HLT          /HIF FAILED TO SET USER BUFFER F/F OR ION NOT SET
0744 5344    JMP          /
0745 6254    SINT         /HIFT FAILED TO TRAP
                           /SKIP ON USER INTERRUPT F/F

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0746 4454    ERROR        /USER INTERRUPT NOT SET
0747 6004    GTF          /GET THE FLAGS
0750 1133    TAD          H5100
0751 7642    SEA          CLA
0752 4454    ERROR        /CHECK FOR LINK, INTERRUPT REQUEST AND USER FLAG
0753 7100    CLL
0754 6001    IOV          /THE LINK, OR INTERRUPT REQUEST OR USER FLAG NOT SET
0755 5356    JMP          ,+1
0756 4454    ERROR        /CLEAR THE LINK BUT LEAVE INTERRUPT REQUEST UP
0757 6004    GTF          /TURN THE INTERRUPT ON
0758 6004    TAD          /SHOULD INTERRUPT AT TP4
0759 5336    JMP          /PROGRAM FAILED TO INTERRUPT WITH INT REQUEST SET
0760 1117    TAD          H1000
0761 7640    SEA          CLA
0762 4454    ERROR        /GET THE FLAGS
0763 6254    SINT         /IS IT THE ONLY BIT SET
0764 4454    ERROR        /NO, OTHER BITS SET RESIDES INT REG OR INT REQ NOT SET
0765 6204    CINT         /SKIP ON USER INTERRUPT F/F
0766 6254    SINT         /USER INTERRUPT NOT SET
0767 7610    SKP          CLA
0770 4454    ERROR        /CLEAR USER INTERRUPT F/F
0771 7340    CLA CLL CMA   /SET THE AD TO ALL ONES
0772 6004    GTF          /GET THE FLAGS
0773 7640    SEA          CLA
0774 4454    ERROR        /SHOULD BE ALL ZEROS
0775 4455    LOOP         /THE SAVE FIELD OR STATUS IS NON-ZERO
                           /LOOP ON TEST IF SR = 1000

*****  

/TEST8- CHECKS THAT RMF WILL RESET THE USER MODE AFTER A USER  

/INTERRUPT.
*****  


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```

0776 4456    TEST8, SCOPLP   /SETUP SCOPE AND TEST LOOPING ADDRESS
0777 7000    NOP          /////////////////
1000 6007    CAF          //CLEAR ALL FLAGS
1001 6001    IOV          //TURN THE INTERRUPT ON
1002 6274    SUR          //SET USER BUFFER FLIP-FLOP
1003 5204    JMP          ,+1
1004 7402    HLT          //HLT FAILED TO TRAP OR NOT IN USER MODE
1005 5205    JMP          //HLT FAILED TO TRAP
1006 6254    SINT         //SKIP ON USER INTERRUPT
1007 4454    ERROR        //SINT FAILED OR USER INTERRUPT NOT SET
1010 6204    CINT         //CLEAR USER INTERRUPT FLIP-FLOP
1011 6254    SINT         //SKIP ON USER INTERRUPT
1012 7410    SKP
1013 4454    ERROR        /CINT FAILED TO CLEAR USER INTERRUPT
1014 6234    RIS          /READ THE INTERRUPT BUFFER
1015 1113    TAD          H100
1016 7640    SEA          CLA
1017 4454    ERROR        /USER FLAG NOT SET OR OTHER BITS SET
1020 6001    IOV          /TURN THE INTERRUPT ON
1021 6244    RMF          /RESTORE IB, DF AND UB
1022 7610    SKP          CLA
1023 5223    JMP          /RMF SKIPPED
1024 5225    JMP          /ENTER USER MODE
1025 7402    HLT          /RMF + JMP FAILED TO SET USER FIELD OR RMF FAILED
1026 5226    JMP          /HLT FAILED TO TRAP

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1027 6234      SINT          /SKIP ON USER INTERRUPT
1030 4454      ERROM         /USER INTERRUPT NOT SET
1031 7180      RIB           /GET THE FLAGS
1032 6004      GTF           /CHECK FOR INTERRUPT REQUEST AND USER FLAG
1033 1130      TAD H1100     /WHERE THEY SET
1034 7640      SEA CLA       /NO, INT REQUEST OR USER FLAG NOT SET OR RMF
1035 4454      ERROM         /SET OTHER BITS IN THE I/F AND OF
1036 6001      IOV           /TURN THE INTERRUPT BACK ON
1037 5240      JMP ,+1        /INTERRUPT WITH INTERRUPT REQUEST SET
1040 4454      ERROM         /PROGRAM FAILED TO INTERRUPT
1041 6234      RIB           /READ THE INTERRUPT BUFFER
1042 7640      SEA CLA       /USER FLAG NOT CLEARED ON INTERRUPT
1043 4454      ERROM         /CHECK USER INTERRUPT TO BE SET
1044 6234      SINT          /USED INTERRUPT GOT CLEARED
1045 4454      ERROM         /CLEAN USER INTERRUPT
1046 6204      CIF           /SKIP ON USER INTERRUPT
1047 6254      SINT          /USER INTERRUPT SET
1050 7410      SKP           /LOOP ON TEST IF SR = 1000
1051 4454      ERROM         /TEST 10W CHECKS THAT USER MODE AND LINK AND ION CAN BE SET BY THE AC AND
1052 4455      LOOP          /THE RTF INSTRUCTION AND THAT IT CAN BE CLEAR BY RTF,
1053 4456      TEST10, SC0PLP   /***** TEST 10W *****
1054 6007      CAF           /SETUP SCOPE AND TEST LOOPING ADDRESS
1055 1153      TAD K4100     /CLEAN ALL FLAGS
1056 6005      RTF           /SET THE LINK AND USER BIT INTO THE AC
1057 7620      SNL CLA       /RESTORE THE FLAGS
1058 7402      HLT           /CHECK THE LINK
1059 6000      SKON          /LINK NOT SET BY RTF
1060 7402      HLT           /RTF FAILED TO SET INTERRUPT ENABLE
1061 6000      SKON          /RTF FAILED TO SET INTERRUPT ON AND TURN OFF
1062 7402      HLT           /RTF FAILED TO SET INTERRUPT ON AND TURN OFF
1063 6000      SKON          /SKON FAILED TO CLEAR INTERRUPT ENABLE
1064 7410      HLT           /TURN THE INTERRUPT ON
1065 6001      IOV           /ENTER USER MODE
1066 5270      JMP ,+1        /RTF FAILED TO SET U,B OR JMP FAILED TO LOAD I,F
1067 5270      HLT           /HLT FAILED TO TRAP
1068 5271      JMP ,+1        /SKIP ON USER INTERRUPT
1069 5271      SINT          /USER INTERRUPT NOT SET
1070 6254      GTF           /GET THE FLAGS
1071 4454      ERROM         /CHECK LINK, INTERRUPT REQUEST AND USER FLAG
1072 6254      TAD H9100     /LINK, INT REQ OR USER FLAG NOT SET
1073 4454      ERROM         /LEAVE INTERRUPT REQUEST SET
1074 6004      GTF           /RESTORE THE FLAGS TO ?
1075 1133      SEA CLA       /SHOULD INTERRUPT
1076 7640      SEA CLA       /FAILED TO INTERRUPT
1077 4454      ERROM         /SKIP ON USER INTERRUPT
1078 6204      CIF           /USER INTERRUPT GOT CLEARED
1079 4454      ERROM         /CLEAN USER INTERRUPT
1080 6204      CIF           /TEST 10W *****

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1107 6234      RIB           /READ THE INTERRUPT BUFFER
1110 7640      SEA CLA       /THE SAVE FIELDS ARE NON ZERO
1111 4454      ERROM         /GET THE FLAGS
1112 6004      GTF           /THE SAVE FIELDS ARE NON ZERO
1113 7640      SEA CLA       /LOOP ON TEST IF SR = 1000
1114 4454      ERROM         /TEST 11 - USING THE USER INTERRUPT FLIP-FLOP AND INTERRUPT ENABLE
1115 4455      LOOP          /THE IF REGISTER CAN BE INDIRECTLY CHECKED TO SET BY CHECKING THE
1116 4456      TEST11, SC0PLP   /SAVE FIELD REGISTER AFTER A INTERRUPT; THE I,F IS CHECKED NOT TO CHANGE
1117 6007      CAF           /UNTIL A JMP OR JMS IS ISSUED, THE INT INHIBIT F/F IS CHECKED NOT
1118 6001      IOV           /TO CLEAR BEFORE A JMP OR JMS IS ISSUED,
1119 4455      LOOP          /***** TEST 11 *****
1120 6001      IOV           /SETUP SCOPE AND TEST LOOPING ADDRESS
1121 6274      SUF           /CLEAN ALL FLAGS
1122 5323      JMP ,+1        /TURN THE INTERRUPT ON
1123 7402      HLT           /SET USER BUFFER F/E
1124 5324      JMP ,+1        /ENTER USER MODE
1125 6254      SINT          /FAILED TO ENTER USER MODE
1126 4454      ERROM         /HLT FAILED TO TRAP IN USER MODE
1127 6004      GTF           /SKIP ON USER INTERRUPT
1128 1130      TAD H1100     /USER INTERRUPT FLIP-FLOP NOT SET
1129 7640      SEA CLA       /GET THE FLAGS
1130 1130      TAD H1100     /CHECK FOR INTERRUPT REQUEST AND USER FLAG
1131 7640      SEA CLA       /USER FLAG OR INT REQUEST NOT SET
1132 4454      ERROM         /READ THE INTERRUPT BUFFER
1133 6234      RIB           /USER FLAG GOT CLEARED
1134 1113      TAD H1000     /CHANGE INSTRUCTION FIELD TO FIELD 0
1135 7640      SEA CLA       /CLEAR THE LINK
1136 4454      ERROM         /TURN THE INTERRUPT ON
1137 6202      TST11A, CIF 00  /READ THE INSTRUCTION FIELD
1138 7300      CLA CLL       /IS IT ZERO
1139 6001      IOV           /THE IF IS NON ZERO OR INTERRUPTED
1140 6224      RIF           /CLEAR INTERRUPT INHIBIT
1141 7440      SEA           /PROGRAM FAILED TO INTERRUPT
1142 7402      HLT           /GET THE FLAGS
1143 5340      JMP ,+1        /CHECK FOR USER INTERRUPT REQUEST
1144 6224      RIF           /INT REG NOT SET OR SAVE FIELD NON ZERO
1145 4454      ERROM         /HEAD THE INTERRUPT BUFFER
1146 4454      ERROM         /IS THE SAVE FIELD 0?
1147 6004      GTF           /NO, SAVE FIELD OR USER FIELD NON ZERO
1148 1117      TAD H1000     /SET A LOCATION TO ALL ONE'S TO CHECK THAT
1149 7640      SEA CLA       /THE JMS TO FIELD 7 DIDN'T JMS TO FIELD 2
1150 4454      ERROM         /CHANGE INSTRUCTION FIELD TO FIELD 7
1151 6234      RIB           /SET INTERRUPT ENABLE
1152 7640      SEA CLA       /READ THE INSTRUCTION FIELD
1153 6234      RIB           /IS IT STILL ZERO
1154 7640      SEA CLA       /THE IF IS NON ZERO OR IT INTERRUPTED
1155 4454      ERROM         /TEST 11B *****
1156 7240      TST11B, CLA CMA  /THE JMS TO FIELD 7 DIDN'T JMS TO FIELD 2
1157 3366      DCA 72          /CHANGE INSTRUCTION FIELD TO FIELD 7
1158 6272      CIF 72          /SET INTERRUPT ENABLE
1159 6001      IOV           /READ THE INSTRUCTION FIELD
1160 6224      RIF           /IS IT STILL ZERO
1161 7440      SEA           /THE IF IS NON ZERO OR IT INTERRUPTED
1162 6224      RIF           /TEST 11B *****
1163 7440      SEA           /THE JMS TO FIELD 7 DIDN'T JMS TO FIELD 2
1164 7402      HLT           /CHANGE INSTRUCTION FIELD TO FIELD 7

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1165 4366 JMS ,+1
1166 7402 CJM501, HLT
1167 4454 ERROR
1170 7360 CLA CLL CML CHA
1171 6004 GTF
1172 1132 TAD M5000
1173 1111 TAD M70
1174 7640 S2A CLA
1175 4454 ERROR
1176 6234 R13
1177 1111 TAD M70
1200 7640 S2A CLA
1201 4454 ERROR
1202 2777 ISB CJM501
1203 4454 ERROR
1204 7240 TST110, CLA CHA
1205 3245 DCA CJM502
1206 6254 S1V7
1207 4454 ERROR
1210 6252 CIF 50
1211 6001 IOV
1212 6224 RIF
1213 7440 S2A
1214 7402 HLT
1215 4246 JMS ,+1
1216 7402 HLT
1217 4454 ERROR
1220 7340 CLA CLL CML CHA
1221 6004 GTF
1222 1117 TAD M1000
1223 1103 TAD M50
1224 7400 S2A CLA
1225 4454 ERROR
1226 6234 R13
1227 1103 TAD M50
1230 7640 S2A CLA
1231 4454 ERROR
1232 2216 ISB CJM502
1233 4454 ERROR
1234 7240 TST110, CLA CHA
1235 3244 DCA CJM503
1236 6222 CIF 20
1237 6001 IOV
1240 6224 RIF
1241 7440 S2A
1242 7402 HLT
1243 4244 JMS ,+1
1244 7402 HLT
1245 4454 ERROR
1246 7360 CLA CLL CML CHA
1247 6004 GTF
1250 1132 TAD M5000
1251 1072 TAD M20
1252 7640 S2A CLA
1253 4454 ERROR

```

/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
/HEAD THE INTERRUPT BUFFER
/IN THE SF SET TO 1,S,F, 7 ONLY?

/SAVE FIELD IS NOT EQUAL TO FIELD 7
/CHECK THAT THE JMS DIDN'T GO TO FIELD 8
/THE JMS TO FIELD 7 WENT TO FIELD 8
/SET A LOCATION TO ALL ONE'S TO CHECK THAT A
/JMS TO FIELD 5 DIDN'T CHANGE FIELD 8
/SKIP ON USER INTERRUPT REQUEST
/USER INTERRUPT F/F GOT CLEARED
/CHANGE TO INSTRUCTION FIELD 5
/SET INTERRUPT ENABLE
/READ THE INSTRUCTION FIELD
/IS IT STILL ZERO
/THE IF IS NON ZERO OR IT INTERRUPTED
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION PRESET TO 1/S shouldn't change
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO ALL ONE'S
/GET THE FLAGS
/CHECK FOR USER INTERRUPT REQUEST AND SAVE
/FIELD REGISTER OF 50

/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
/HEAD THE INTERRUPT BUFFER
/CHECK THE INTERRUPT BUFFER FOR ISF 50

/SAVE FIELD IS NOT EQUAL TO I,F, 5
/CHECK THAT JMS DIDN'T GO TO FIELD 0
/THE JMS TO I,F, 5, WENT TO FIELD 0
/SET A LOCATION TO ALL ONE'S TO CHECK THAT A JMS
/TO FIELD 2 DIDN'T CHANGE FIELD 0
/CHANGE INSTRUCTION FIELD TO FIELD 2
/SET INTERRUPT ENABLE
/READ THE INSTRUCTION FIELD
/IS IT STILL EQUAL TO ZERO
/THE IF IS NON ZERO OR IT INTERRUPTED
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION PRESET TO 1/S shouldn't change
/PROGRAM FAILED TO INTERRUPT
/SET THE AC AND LINK TO 1/S
/GET THE FLAGS
/CHECK FOR LINK AND USER INTERRUPT REQUEST
/AND SAVE FIELD REGISTER OF 20

/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE

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1254 6234 R13
1255 1072 TAD M20
1256 7640 S2A CLA
1257 4454 ERROR
1260 2244 ISB CJM503
1261 4454 ERROR
1262 7240 TST114, CLA CHA
1263 3272 DCA CJM504
1264 6212 CIF 10
1265 6001 IOV
1266 6224 RIF
1267 7440 S2A
1270 7402 HLT
1271 4272 JMS ,+1
1272 7402 HLT
1273 4454 ERROR
1274 7340 CLA CLL CML CHA
1275 6004 GTF
1276 1117 TAD M1000
1277 1067 TAD M10
1300 7640 S2A CLA
1301 4454 ERROR
1302 6234 R13
1303 1067 TAD M10
1304 7640 S2A CLA
1305 4454 ERROR
1306 2272 ISB CJM504
1307 4454 ERROR
1310 7240 TST115, CLA CHA
1311 3320 DCA CJM505
1312 6262 CIF 60
1313 6001 IOV
1314 6224 RIF
1315 7440 S2A
1316 7402 HLT
1317 4320 JMS ,+1
1320 7402 CJM505, HLT
1321 4454 ERROR
1322 7360 CLA CLL CML CHA
1323 6004 GTF
1324 1132 TAD M5000
1325 1106 TAD M60
1326 7640 S2A CLA
1327 4454 ERROR
1330 6234 R13
1331 1106 TAD M60
1332 7640 S2A CLA
1333 4454 ERROR
1334 2320 ISB CJM505
1335 4454 ERROR
1336 7240 TST116, CLA CHA
1337 3340 DCA CJM506
1340 6232 CIF 30
1341 6001 IOV
1342 6224 RIF

```

/HEAD THE INTERRUPT BUFFER

/DOES THE INTERRUPT BUFFER CONTAIN 20
/NO, ERROR SAVE FIELD IS NOT EQUAL TO 20
/CHECK THAT JMS DIDN'T GO TO FIELD 0
/THE JMS TO FIELD 2 WENT TO FIELD 0
/SET A LOCATION TO ALL ONE'S TO CHECK THAT THE
/JMS TO FIELD 4 DIDN'T JMS TO FIELD 0
/CHANGE INSTRUCTION FIELD TO FIELD 1,
/TURN THE INTERRUPT ON
/READ THE INSTRUCTION FIELD
/IS IT STILL ZERO
/THE IF IS NON ZERO OR IT INTERRUPTED
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION PRESET TO ALL ONE'S shouldn't change
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO ALL ONE'S
/GET THE FLAGS
/CHECK FOR USER INTERRUPT REQUEST AND
/SAVE FIELD OF 10

/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
/HEAD THE INTERRUPT BUFFER

/SAVE FIELD IS NOT EQUAL TO FIELD 10
/CHECK THAT THE JMS DIDN'T GO TO FIELD 0
/THE JMS TO FIELD 1 WENT TO FIELD 0
/SET A LOCATION TO ALL ONE'S TO CHECK THAT THE
/JMS TO FIELD 6 DIDN'T JMS TO FIELD 0
/CHANGE INSTRUCTION FIELD TO FIELD 6
/TURN THE INTERRUPT ON
/READ THE INSTRUCTION FIELD
/IS IT STILL ZERO
/THE IF IS NON ZERO OR IT INTERRUPTED
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION SET TO ALL ONE'S, IT shouldn't change
/PROGRAM FAILED TO INTERRUPT
/SET THE AC AND LINK TO ALL ONE'S
/GET THE FLAG
/CHECK FOR LINK, USER INTERRUPT REQUEST
/AND SAVE FIELD OF 60

/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
/HEAD THE INTERRUPT BUFFER

/SAVE FIELD IS NOT EQUAL TO FIELD 60
/CHECK THAT THE JMS DIDN'T GO TO FIELD 0
/THE JMS TO FIELD 6 WENT TO FIELD 0
/SET A LOCATION TO ALL 1/S TO CHECK THAT THE
/JMS TO FIELD 3 DIDN'T JMS TO FIELD 0
/CHANGE INSTRUCTION FIELD TO FIELD 3
/TURN THE INTERRUPT ON
/READ THE INSTRUCTION FIELD

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1343 7440      S2A
1344 7492      HLT
1345 4346      JMS ,+1
1346 7402      CJM506, HLT
1347 4454      ERROM
1350 7340      CLA CLL CMA
1351 6084      GTF
1352 1117      TAD M1000
1353 1873      TAD M30
1354 7640      SEA CLA
1355 4454      ERROM
1356 6234      RIB
1357 1075      TAD M30
1360 7640      SEA CLA
1361 4454      ERROM
1362 2346      ISZ CJM506
1363 4454      ERROM
1364 5776!     JMP TST11H

1376 1400
1377 1166
1378 1400      PAGE
1380 7240      TST11H; CLA CMA
1381 3210      DCA CJM507
1382 6242      CIF 4B
1383 6081      IOV
1384 6224      RIF
1385 7440      SEA
1386 7402      HLT
1387 4210      JMS ,+1
1388 7402      CJM507; HLT
1389 4454      ERROM
1390 7360      CLA CLL CMA CMA
1391 6084      GTF
1392 1132      TAD M5000
1393 1100      TAD M40
1394 7640      SEA CLA
1395 4454      ERROM
1396 2210      ISZ CJM507
1397 4454      ERROM
1398 7340      TST11H; CLA CLL CMA
1399 3230      DCA CJM510
1400 6202      CIF 00
1401 6081      IOV
1402 6224      RIF
1403 7440      SEA
1404 7402      HLT
1405 4236      JMS ,+1
1406 7402      CJM510; HLT
1407 4454      ERROM
1408 6084      GTF

/IS THE IF STILL ZERO
/THE IF IS NON ZERO OR IT INTERRUPTED
/CLEAN INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION PRESET TO ALL ONES, IT SHOULDN'T CHANGE
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO ALL ONE'S
/GET THE FLAGS
/CHECK FOR USER INTERRUPT REQUEST AND
/SAVE FIELD OF 30
/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
/READ THE INTERRUPT BUFFER
/SAVE FIELD NOT EQUAL TO FIELD 3
/JMS TO FIELD 3 WENT TO FIELD 0
/GO TO NEXT SECTION

/SET A LOCATION TO ALL ONES TO CHECK
/THAT A JMS TO FIELD 4 DIDN'T JMS TO FIELD 0
/CHANGE INSTRUCTION FIELD TO FIELD 4
/SET INTERRUPT ENABLE
/READ THE INSTRUCTION FIELD
/IS THE IF STILL ZERO
/THE IF IS NON ZERO OR IT INTERRUPTED
/THIS LOCATION PRESET TO ALL ONE'S
/PROGRAM FAILED TO INTERRUPT
/SET THE AC AND LINK TO 1'S
/GET THE FLAGS
/CHECK FOR USER INTERRUPT REQUEST AND LINK
/AND SAVE FIELD OF 4B
/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
/READ THE INTERRUPT BUFFER
/SAVE FIELD NOT EQUAL TO 4B
/JMS TO FIELD 4 WENT TO FIELD 0
/SETUP A LOCATION TO CHECK THAT A JMS TO
/FIELD 0 GETS EXECUTED
/CHANGE INSTRUCTION FIELD TO FIELD 0B
/TURN THE INTERRUPT ON
/READ THE INSTRUCTION FIELD
/IS THE IF STILL ZERO
/THE IF IS NON ZERO OR IT INTERRUPTED
/CLEAN INTERRUPT ENABLE AND INTERRUPT
/THIS LOCATION PREVIOUSLY SET TO 1'S
/PROGRAM FAILED TO INTERRUPT
/GET THE FLAGS

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1441 1117      TAD M1000
1442 7640      SEA CLA
1443 4454      ERROM
1444 6234      RIB
1445 7640      SEA CLA
1446 4454      ERROM
1447 2236      ISZ CJM510
1448 7610      SKP CLA
1449 4454      ERROM
1450 6087      CAF
1451 6084      GTF
1452 6084      SEA CLA
1453 7640      CLA
1454 4454      ERROM
1455 4455      LOOP
1456 4455      JMP I PASEND

/CHECK FOR INTERRUPT REQUEST AND
/SAVE FIELD OF 0
/GTF FAILED OR READ SOMETHING OTHER THAN ABOVE
/HEAD THE INTERRUPT BUFFER
/SAVE FIELD NON ZERO OR RIB FAILED
/CHECK THAT THE JMS DID CHANGE LOCATION CJM510
/JMS TO FIELD 0 FAILED TO STORE ITS PC IN CJM510
/CLEAR ALL FLAGS INCLUDING USER INTERRUPT
/GET THE FLAGS
/INIT FAILED TO CLEAR USER INTERRUPT F/F
/LOOP ON TEST IF SR = 1000
/END OF 1ST 1K SEGMENT

1600      PAGE

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```

1600 8000      ACTLIN; 0
1601 1022      TAD OP2SEL
1602 7700      SMA CLA
1603 5600      JMP I ACTLIN
1604 1037      TAD FLDLIM
1605 1111      TAD M70
1606 7640      SEA CLA
1607 5600      JMP I ACTLIN
1608 1040      TAD I UPERLM
1609 7001      IAC
1610 7640      SEA CLA
1611 5600      JMP I ACTLIN
1612 7640      CLA CLL CMA RTR
1613 5600      JMP I ACTLIN
1614 7352      CLA CLL CMA RTR
1615 3040      DCA UPERLM
1616 5600      JMP I ACTLIN

/IS THE PROGRAM RUNNING ON ACT LINE?
/NO, RETURN
/GET THE FIELD LIMIT

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```

1617 1022      ENDPAS; TAD OP2SEL
1618 7700      SMA CLA
1619 5230      JMP ENDING
1620 2236      ISZ PROGAPS
1621 5230      JMP ENDING
1622 1377      TAD (+144
1623 3236      DCA PROGPAS
1624 6272      CIF 70
1625 4451      JMS I GOODPS
1626 4335      ENDING; JMS SWCHK
1627 7000      HLT
1628 7004      RAL
1629 7710      SPA CLA
1630 7402      HLT
1631 5776!     JMP 0200

/IS THE PROGRAM RUNNING ON ACT LINE
/NO GO CHECK FOR SR 3 TO HALT AT END OF A PASS
/CHECK 1/2 SECOND COUNT
/NOT 1/2 SECOND YET
/RESET THE COUNTER

```

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1632 7004      ENDING; JMS SWCHK
1633 7710      SPA CLA
1634 7402      HLT
1635 5776!     JMP 0200

/CHANGE INSTRUCTION FIELD TO 7
/SIGNAL THE PROM
/CHECK SR 3 TO HALT ON A PROGRAM PASS
/END OF A COMPLETE PROGRAM PASS
/RESTART THE PROGRAM

```

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 1 PAL10 V142 18-DEC-74 15104 PAGE 2-19
1636 7634 PRGMAY, *144

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1637 7010 POWHAL, RAR
1640 3245 DCA LINK
1641 1800 TAD INTSER
1642 3249 DCA PC
1643 5103 CAL
1644 4452 JMS I AUTRST /CLEAR AC LOW F/F
1645 0000 LINK, B
1646 2000 PG, B
1647 0000 PRGHST, 0
1650 6102 SPA /SKIP ON AC LOW AS A LEVEL
1651 7610 SKP CLA
1652 5250 JMP ,*2
1653 5453 JMP I TEST /RETURN TO TEST BEING EXECUTED AND START OVER
1654 2000 TESTAD, 0
1655 7340 CLA CLL CHA
1656 1254 TAD TESTAD
1657 3053 DCA TEST
1658 1375 TAD (PRGRST
1659 3052 DCA AUTRST
1660 5654 JMP I TESTAD
1663 1021 BATENT, TAD OP1SEL /GET HARDWARE CONFIGURATION
1664 0143 AND K200
1665 7650 SNA CLA
1666 5273 JMP DEAD /MACHINE GOING DOWN + STOP EVERYTHING
1667 3367 DCA ACNLOK
1673 2000 ISZ INTSER
1671 2000 ISZ INTSER
1672 5400 JMP I INTSER
1673 7402 DEAD, HLT /ITS ALL OVER NOW + GOOD-BYE
1674 5453 JMP I TEST
1675 0000 GOODUB, 0
1676 1022 TAD OP2SEL /GET HARDWARE CONFIGURATION
1677 7700 SMA CLA /IS THE PROGRAM RUNNING ON ACT LINE
1678 5675 JMP I GOODBD /NO RETURN TO PROGRAM
1679 6272 CIF ,70 /CHANGE INSTRUCTION FIELD TO FIELD 7
1680 4451 JMS I GOODPS /SIGNAL ACT LINE PROGRAM STILL RUNNING
1683 5675 JMP I GOODBD /RETURN TO PROGRAM
1684 0000 ERRORX, 0 /ERROR ROUTINE
1685 7300 CLA CLL
1686 1022 TAD OP2SEL /CHECK FOR ACT LINE
1687 7700 SMA CLA
1688 5322 JMP CHKINH

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/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 1 PAL10 V142 18-DEC-74 15104 PAGE 2-28

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1711 1021 TAD OP1SEL
1712 0143 AND K200
1713 7640 SEA CLA
1714 6160 CLRMD
1715 6002 IUF
1716 7240 CLA CHA
1717 1304 TAD ERRORX
1720 6272 CIF ,70
1721 5450 JMP I BADPAS /GO TO ROM FOR ERROR
1722 4335 CHKINH, JMS SWCHK /CHECK FOR SR 0(1) TO INHIBIT ERROR HALT
1723 7710 SPA CLA /IS SR 0 SET TO A ONE
1724 5330 JMP ERLPSW /YES, GO CHECK SR 1 TO LOOP ON ERROR
1725 7340 CLA CLL CHA
1726 1304 TAD ERRORX /SUBTRACT ONE FROM JHS ERROR PC
1727 7402 HLT /AC CONTAINS THE ADDRESS WHERE THE ERROR
1730 4335 ERLPSH, JMS SWCHK /HAS BEEN DETECTED BY THE PROGRAM, REFER
1731 7004 HAD /TO THE PROGRAM LISTING FOR ERROR
1732 7710 SPA CLA /EXPLANATION AND THE TEST DESCRIPTION,
1733 5453 JMP I TEST /CHECK THE SWITCH REGISTER TO LOOP ON ERROR
1734 5704 JMP I ERRORX /NO, RETURN TO THE PROGRAM
1735 0000 SWCHK, 0
1736 7300 CLA CLL /GET THE HARDWARE STATUS WORD
1737 1021 TAD OP1SEL /IS THE HARDWARE FRONT PANEL SELECTED
1740 7700 SMA CLA /NO, USE THE PSEUDO SWITCH REGISTER
1741 5344 JMP ,*3
1742 7604 LAS
1743 5735 JMP I SWCHK /RETURN
1744 1020 TAD SWITCH /THE PSEUDO SWITCH REGISTER
1745 5735 JMP I SWCHK /RETURN
1746 0000 TSTL0P, 0 /ROUTINE TO CHECK SH 2 TO LOOP ON TEST
1747 4335 JMS SWCHK /GO GET THE SWITCH REGISTER
1750 7000 HLT
1751 7700 SPA CLA
1752 5746 JMP I TSTL0P /GO TO NEXT TEST
1753 5453 JMP I TEST /LOOP ON SAME TEST
1754 0000 AQLBAT, 0
1755 1367 TAD AGNLOK /LOOK AT RETURN FOR AC LOW OR BATTERY EMPTY
1756 7640 SEA CLA
1757 5362 JMP ,*3
1760 2000 ISZ INTSER
1761 5400 JMP I INTSER
1762 3367 DCA ACNLOK
1763 6101 SBE
1764 5360 JMP ,*4 /SKIP ON BATTERY EMPTY
1765 2000 ISZ INTSER
1766 5360 JMP ,*6

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/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 1 PAL10 V142 18*DEC*74 15104 PAGE 2*21

1767 0900 ACNLUOKI 0
1775 1647
1776 0200
1777 7634
2000 PAGE

0200 *200

5

/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 1 PAL10 V142 18*DEC*74 15104 PAGE 2*22

0000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 00000000 00000000
0200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11103011
0400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0700 11111111 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 11111111
1200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 00000000 00000000
1400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 00000000 00000000
1500 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
1600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 00000000 00000000

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

ACLBAT	1754	K4100	0153	H7	0066	TSTLDP	1746
ACNLOK	1767	K6201	0045	H70	0111	UPEHLH	0040
ACTLTH	1600	K7	0134	H77	0112	WRKADD	0043
AUDUNT	0047	K70	0137	OP1SEL	0021	WRKFLO	0041
AUTNST	0052	K7577	0152	OP2KL1	0000	XBAT	0060
BADPAS	0050	K77	0143	OP2SEL	0022	XPHWFL	0057
RATEHT	1663	K7707	0150	PASENU	0061		
CAP	6007	K7757	0151	PC	1646		
GAL	5153	K7774	0147	POWFAL	1637		
CUP	6201	L1VK	1645	PRGPAS	1636		
CDFCHK	0033	LOCM92	0152	PRGHST	1647		
CHKCDF	0034	LOCM93	0153	RUF	6214		
CHKINH	1722	LODP	4455	PEDEMA	6155		
CIF	6202	M1	0062	RIB	6234		
CIFCDF	6203	M10	0067	RIF	6224		
CINT	6204	M100	0113	RK8E	0023		
CJMSH1	1366	M1000	0117	RMP	6244		
CJMSH2	1216	M1007	0120	RTF	6005		
CJMSH3	1244	M1010	0121	SAVES4	0036		
CJMSH4	1272	M1029	0122	SAWFU	0046		
CJMSH5	1328	M1034	0123	SRE	6181		
CJMSH6	1340	M1043	0124	SCOPLU	4456		
CJMSH7	1410	M1052	0125	SINT	6294		
CJMSH8	1436	M1059	0126	SKON	6000		
CLRHEA	6154	M1070	0127	SKPEHA	6166		
CLRHOD	6160	M11	0070	SPL	6102		
CLHSIM	6150	M1100	0132	SUF	6274		
COF	6264	M120	0114	SWCHK	1735		
DATPAT	0042	M192	0115	SWITCH	0020		
DATHEC	0035	M18	0071	TEST	0053		
DEAD	1673	M2	0063	TEST1	0201		
ENDING	1630	M20	0072	TEST10	1093		
ENDPAS	1617	M22	0073	TEST11	1116		
ERLPWU	1730	M29	0074	TEST2	0343		
ERROR	4454	M30	0075	TEST3	0432		
ERRURX	1704	M400	0116	TEST4	0474		
EXECUT	6164	M33	0076	TEST5	0530		
FLDLIM	2037	M34	0077	TEST6	0577		
GOODBD	1675	M4	0064	TEST7	0647		
GOODPS	0051	M40	0100	TEST8	0706		
GTF	6004	M4100	0131	TEST9	0776		
HGHLM	0044	M43	0181	TESTAU	1654		
HLT	7402	M44	0182	TST11A	1137		
INTSER	0000	M5	0065	TST11B	1156		
K10	0135	M50	0103	TST11C	1204		
K125	0141	M5000	0132	TST11U	1234		
K152	0142	M5100	0133	TST11L	1262		
K1777	0145	M52	0184	TST11F	1318		
K200	0143	M59	0185	TST11G	1336		
K2000	0146	M60	0186	TST11H	1480		
K37	0136	M61	0187	TST11I	1426		
K400	0144	M60	0110	TST2CN	0402		

/KMB=A OPTION TEST 2 MAINDEC=0B=DJKMA=L 1K PART 1 PAL10 V142 18-DEC-74 15104 PAGE 2-25

ERRORS DETECTED 0
LINKS GENERATED 5
RUN-TIME 18 SECONDS
3K CORE USED

/KMB=A OPTION TEST 2 MAINDEC=0B=DJKMA=L 1K PART 2 PAL10 V142 18-DEC-74 15105 PAGE 1

/KMB=A OPTION TEST 2 MAINDEC=0B=DJKMA=L 1K PART 2
/
/COPYRIGHT (C) 1974, DIGITAL EQUIPMENT CORPORATION
/PROGRAMMER: BRUCE HANSEN
/

//////////
/THE FOLLOWING LISTING WILL CORRESPOND TO THE PAPER TAPE LABELED MAINDEC=0B=DJKMA=L-PM2,
/1K PART 2, THIS PAPER TAPE AND LISTING WILL BE THE SECOND OF FOUR 1K SEGMENTED
/PAPER TAPE AND LISTINGS FOR COMPUTERS WITH LESS THAN 4K OF MEMORY,
//////////

/KMB-A OPTION TEST 2 MAINDEG=08=0JXKHA=A=L 1K PART 2 PAL102 V142 18-DEC-74 15105 PAGE 2

/KMM-A OPTION TEST 2 MAINDEC-08-DJKMA-A=L 1K PART 2
/COPYRIGHT 1974, DIGITAL EQUIPMENT CORP., MAYNARD, MASS., B1754
/PDP-8A OPTION TEST 2 TESTS THE MEMORY EXTENTION/TIME SHARE CONTROL,
/POWER FAIL/AUTO RESTART, AND BOOTSTRAP LOADERS

```

6000 SKDN#6000
6007 CAF#6007
7402 HLT#7402

;SWITCH REGISTER SETTINGS

/SR0#3 IN4BIT ERROR HALT
/SR1#3 LOOP ON ERROR
/SR2#3 LOOP ON TEST
/SR3#3 HALT AT COMPLETION OF A PROGRAM PASS

;MEMORY EXTENTION/TIME SHARE INSTRUCTIONS

5004 GTF#6004          ;GET FLAGS, READS THE FOLLOWING MACHINE STATES
                        ;INTO THE INDICATED BITS OF THE ACI
                        ;AC0 LINE
                        ;AC2 INTERRUPT REQUEST
                        ;AC4 INTERRUPT ENABLE F/F
                        ;AC5 USER FLAG
                        ;AC6+11 SAVE FIELD REGISTER

5005 RTF#6005          ;RESTORE THE FLAGS, RTF LOADS THE LINK FROM ACB,
                        ;LOADS THE USER BUFFER F/F, INSTRUCTION BUFFER AND
                        ;DATA FIELD WITH AC5, AC6+8, AC 9+11 AND INHIBITS
                        ;PROCESSOR INTERRUPTS UNTIL NEXT JMP OR JMS INSTRUCTION,
                        ;AT THE END OF THE JMP OR JMS, THE CONTENTS OF THE U.B., + I.B.,
                        ;ARE LOADED INTO USER FIELD F/F, AND THE I.F., INTERRUPT ENABLE
                        ;IS SET AND INTERRUPT INHIBIT IS CLEARED

5234 RIB#6234           ;READ THE INTERRUPT BUFFER

5244 RMF#6244           ;RESTORES MEMORY FLAGS

5204 CINT#6224           ;CLEAR USEM INTERRUPT FLIP-FLOP

5254 SINT#6224           ;SKIP ON USER INTERRUPT FLIP-FLOP

5264 CUFB#6264           ;CLEAR USEM BUFFER FLIP-FLOP

5274 SUFB#6274           ;SET USEM BUFFER FLIP-FLOP (ENTER TIME SAME MODE)AND
                        ;INHIBITS PROCESSOR INTERRUPTS UNTIL THE NEXT JMP OR
                        ;JMS INSTRUCTION, AT THE END OF THE JMP OR JMS
                        ;INSTRUCTION, THE USER BUFR IS LOADED INTO THE USER
                        ;FIELD F/F

6201 CDF#6201           ;CHANGE DATA FIELD

```

/KMB-A OPTION TEST 2 MAINDEC=08=0J/MA=A-L 1K PART 2 PAL12 V142 18=UECA=74 15125 PAGE 2-1

6202	CIF#6202	/CHANGE INSTRUCTION FIELD
6214	RDF#6214	/READ THE DATA FIELD INTO AC BITS 6-8
6224	RIF#6224	/READ THE INSTRUCTION FIELD INTO AC BITS 6-8
6203	CIFCDF#6203	/PERFORMS THE CIF AND CDF FUNCTIONS
 /POWER FAIL INSTRUCTIONS		
6102	SPL#6102	/SKIP ON AC LOW FLIP-FLOP
6103	CAL#6103	/CLEAR AC LOW FLIP-FLOP
6101	SBE#6101	/SKIP ON BATTERY EMPTY FLIP-FLOP
 /OPTION BOARD 2 SIMULATOR IOTIS		
6150	CLRYIM#6150	/CLEAR CONTROL REGISTERS
6152	LOADRG#6152	/LOAD CONTROL REGISTER 2
6153	LOADGJ#6153	/LOAD CONTROL REGISTER 3
6154	CLREMA#6154	/CLEAR EMA CATCHER LOGIC
6155	REDEMA#6155	/READ EMA CATCHER REGISTER
6160	CLRMOU#6160	/CLEAR TEST MODULE LOGIC
6164	EXECUT#6164	/EXECUT AND CONTROL WORD 3 BIT 7 #1 ISSUE A POWER ON PULSE
		/EXECUT AND CONTROL WORD 3 BIT 7 #0 ISSUE A SWITCH SW PULSE
6166	SKPEMA#6166	/SKPHEMA AND CONTROL WORD 3 BIT 3 #1 EMA INTERRUPT AND SKIP ENABLE
		/SKPHEMA AND CONTROL WORD 3 BIT 3 #0 EMA INTERRUPT AND SKIP DISABLE

OPTION BOARD 2 SIMULATOR CONTROL WORD 2 BIT ASSIGNMENTS

/BITS 0 - 1 NOT USED
/BITS 2 - 8 BOOT STRAP PROGRAM SELECT
/BITS 9 - 11 AUTO-RESTART ADDRESS SELECT

OPTION BOARD 2 SIMULATOR CONTROL WORD 4 BIT ASSIGNMENTS

```

/BIT 0 TIME SHARE 0=ENABLED 1=DISABLED
/BIT 1 AC LOW (L) 1=PULLED LOW 0=FREE STATE
/BIT 2 BATT EMPTY 1=BATT EMPTY PULLED LOW 0=FREE STATE
/BIT 3 1=EHA INTERRUPT/SKIP ENABLE 0=EHA INTERRUPT SKIP DISABLE
/BITS 4 - 5 NOT USED
/BIT 7 1=POWER ON PULSE WITH EXECUT 0=SWITCH SW PULSE WITH EXECUT
/BIT 8 1=DISABLES BOOTSTRAP WHILE RUNNING 2=ENABLES BOOTSTRAP WHILE RUNNING
/BIT 9 AUTO=RESTART/BOOT STRAP ENABLE CODE

```

• 3

0000 0000 INTSER: 2 /JMS I AUTHST PLACED HERE FOR SIMULATOR AUTO RESTART
0001 3035 DCA DATREC
0002 6102 SPL
0003 7410 SKP /SKIP ON AC LOW
0004 5457 JMS: I XPOWERFL /POWER GOING DOWN
0005 6101 SBE /SKIP ON BATTERY EMPTY

```

0006 7410      SKP
0007 5460      JMP I XBAT      /GO HALT THE COMPUTER ,ITS ALL OVER
0010 6224      HLT
0011 7640      SDA CLA      /READ THE INSTRUCTION FIELD
0012 4454      ERRORH
0013 6214      RDP
0014 7640      SEA CLA      /READ THE DATA FIELD
0015 4454      ERRORH
0016 2000      ISE INTSER   /ADD 1 TO THE INTERRUPTED PC
0017 5400      JMP I INTSER   /RETURN TO THE PROGRAM

0020 1020      #20
0020 1000      SWITCH; 0
0021 1000      OPSEL1; 1020  /PSEUDO SWITCH REGISTER IF BIT 8#0 OF OPSEL
                                /BIT 0=0 USE LOC 22 AS A PSEUDO S,R,
                                /BIT 0=1 USE HARDWARE FRONT PANEL S,R,
                                /BIT 1=1 HAS BA OPTION 1
                                /BIT 2=1 HAS BA OPTION 2
                                /BIT 3=1 HAS BA CPU SIMULATOR
                                /BIT 4=1 HAS BA OPTION 1 + 2 TEST MODULE
                                /BIT 5=1 PROGRAM ON BA XOR
                                /BIT 6=1 HAS PDP-8E TYPE CPU
                                /BITS 7#11 MEMORY SIZE 0'S = 1K, 37#32K,
                                /MEMORY SIZE CAN BE INCREASED IN 1K INCREMENTS
                                /BY ADDING A 1 TO THE NUMBER IN BITS 7#11

0022 1000      OPSEL1; 0
                                /MAKE BOOT STRAP WILL LOAD INTO THE FOLLOWING LOCATIONS

0023 7402      RKSE; HLT      /2000
0024 7402      HLT
0025 7402      HLT
0026 7402      HLT      /9745
0027 7402      HLT      /0023
0028 7402      HLT      /7650
0029 7402      HLT      /9824
0030 7402      HLT      /6733
0031 7402      HLT      /9931
0032 7402      HLT      /TEHM[NATOR]
0033 0000      CDFCHK; 0
0034 0033      CKUDCF; CDFCHK
0035 0000      DATHEC; 0
0036 0000      SAVS2; 0
0037 0000      FLDLIM; 0
0040 0000      OPENLM; 0
0041 0000      WRKFLD; 0
0042 0000      DATPAT; 0
0043 0000      WRKADU; 0
0044 0000      RGHLIM; 0
0045 6201      K6201; 6201
0046 0000      SAVAFU; 0
0047 0000      ADOUNT; 0
0050 6520      BADMAS; 6520
0051 6500      COUPUS; 6500
0052 1647      AUTKST; PRGRST
0053 0000      TEST; 0      /SCOPE LOOP AND TEST LOOP ADDRESS

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4454  ERREUR JMS I ,    ERRORX
0054 1704      LOOPE JMS I ,    TSTLOP
0055 1745      SCOPLMR JMS I ,    TESTAD
0056 1654      TESTAD

0057 1637      XPRWRF; POWFAL
0060 1663      XBAT; BATEMT
0061 1617      PASENU; ENDPAS

/CONSTANTS USED BY THE PROGRAM

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```

0062 7777      M1;    #1
0063 7776      M2;    #2
0064 7774      M4;    #4
0065 7773      M5;    #5
0066 7771      M7;    #7
0067 7770      M10;   #10
0070 7767      M11;   #11
0071 7762      M15;   #15
0072 7760      M20;   #20
0073 7756      M22;   #22
0074 7753      M25;   #25
0075 7750      M30;   #30
0076 7745      M33;   #33
0077 7744      M34;   #34
0100 7740      M40;   #40
0101 7735      M43;   #43
0102 7734      M44;   #44
0103 7730      M50;   #50
0104 7726      M52;   #52
0105 7723      M55;   #55
0106 7720      M60;   #60
0107 7717      M61;   #61
0110 7712      M66;   #66
0111 7710      M70;   #70
0112 7701      M77;   #77
0113 7700      M100;  #100
0114 7653      M129;  #129
0115 7620      M152;  #152
0116 7500      M300;  #300
0117 7000      M1000; #1000
0120 6771      M1007; #1007
0121 6762      M1016; #1016
0122 6753      M1025; #1025
0123 6744      M1034; #1034
0124 6735      M1043; #1043
0125 6726      M1052; #1052
0126 6717      M1061; #1061
0127 6710      M1070; #1070
0130 6700      M1080; #1080
0131 3700      M4100; #4100

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0132 3800 H5000, #5000
0133 2700 H5100, #5100

0134 0007 K7, 7
0135 0219 K10, 10
0136 0037 K57, 37
0137 0078 K70, 70
0140 0077 K71, 77
0141 0129 K129, 129
0142 0192 K152, 152
0143 0208 K200, 200
0144 0400 K400, 400
0145 1777 K1777, 1777
0146 2000 K2000, 2000
0147 7774 K7774, 7774
0150 7707 K7707, 7707
0151 7757 K7757, 7757
0152 7677 K7677, 7677
0153 4100 K4100, 4100

0200 *200

```

```
*****  
/TEST 12 - CHECKS THAT A CIF AND CDF WILL LOAD THE APPROPRIATE  
/SAVE FIELD REGISTERS; A DCA INDIRECT IS CHECKED NOT TO CHANGE  
/A LOCATION IN FIELD B WHEN THE DATA FIELD IS NON ZERO, A  
/JMS I IS CHECKED NOT TO CHANGE A LOCATION IN FIELD ZERO WHEN  
/THE INSTRUCTION FIELD IS NON ZERO;  
*****
```

```

0200 4456 TEST12; SCOPLP      /SETUP TEST AND SCOPE LOOPING ADDRESS
0201 6007 CAF          /CLEAR ALL FLAGS
0202 6001 ION          /TURN THE INTERRUPT ON
0203 6274 SUF          /SET USER BUFFER FLIP-FLOP
0204 5205 JMF ,+1      /ENTER TIME SHARE MODE
0205 7402 HLT          /PROGRAM FAILED TO ENTER USER MODE
0206 5206 JMP          /HLT FAILED TO TRAP
0207 6254 SINT          /SKIP ON USER INTERRUPT
0210 4454 ERROR        /SINT FAILED OR USER INTERRUPT NOT SET
0211 6004 GTF          /GET THE FLAGS
0212 1138 TAD M1000      /CHECK FOR USER INTERRUPT AND USER FLAG
0213 7640 SEA CLA       /SEA CLA
0214 4454 ERROR        /ERROR
0215 7340 TST12A; CLA CLL CMA /GTF HEAD SOMETHING DIFFERENT THAN ABOVE
0216 3033 DCA           /SET THE AC TO ALL ONES
0217 7340 CLA CLL CMA /STORE IT TO CHECK THAT THE DATA FIELD CHANGED
0220 3227 DCA           CKJMS1 /SET THE AC TO ALL ONES
0221 6261 CUF 68        /SAVE IT TO CHECK THE JMS TO ANOTHER FIELD
0222 6212 CIF 10        /CHANGE DATA FIELD TO FIELD 6
0223 3434 DCA I CKDCDF /CHANGE INSTRUCTION FIELD TO FIELD 1
0224 6001 ION          /CHANGE EMA LINES TO CHECK THAT THE
0225 4626 JMS I ,+1      /JCA WENT TO ANOTHER FIELD THAN FIELD 0
0226 6227 CKJMS1        /TURN THE INTERRUPT ON
0227 *200              /CLEAR INTERRUPT INHIBIT AND INTERRUPT

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0227 7402 CKJMS1; HLT   /THIS LOCATION PRESSET TO ONE'S TO CHECK JMS TO ANOTHER FIELD
0230 4454 ERROR        /PROGRAM FAILED TO INTERRUPT
0231 6004 GTF          /GET THE FLAGS
0232 1121 TAD M1018     /CHECK FOR INT REQ, ISF OF 12 AND DSF OF 6
0233 7640 SEA CLA       /IN SAVE FIELD REGISTER
0234 4454 ERROR        /SAVE FIELD NOT EQUAL TO ABOVE
0235 6234 R13          /READ THE INTERRUPT BUFFER
0236 1071 TAD M16        /CHECK FOR ISF OF 12 AND DSF OF 6
0237 7640 SEA CLA       /RIB FAILED OR SAVE FIELD NOT EQUAL TO 16
0240 4454 ERROR        /CHECK THAT THE DCA I WENT TO ANOTHER FIELD
0241 2033 ISE CDFCHK    /JCA I WENT TO FIELD 0 INSTEAD OF FIELD 6
0242 4454 ERROR        /CHECK THAT JMS I WENT TO ANOTHER FIELD
0243 2227 ISE CKJMS1    /JMS I WENT TO FIELD B INSTEAD OF FIELD 1
0244 4454 ERROR        /SET LOCATION CDFCHK AND CKJMS2 TO ONE'S
0245 7340 TST12B; CLA CLL CMA /TO CHECK DCA I AND JMS I WENT TO
0246 3033 DCA           CDFCHK1 AND CKJMS2 TO ONE'S
0247 7340 CLA CLL CMA /AND OTHER FIELD THAN FIELD 0
0250 3257 DCA           CKJMS2 /CHANGE DATA FIELD TO FIELD 1
0251 6211 CUF 10        /CHANGE INSTRUCTION FIELD TO FIELD 6
0252 6262 CIF 68        /CHANGE EMA LINES TO FIELD 1
0253 3434 DCA I CKDCDF /CDFCHK SHOULD NOT CHANGE IN FIELD 0
0254 6001 ION          /TURN THE INTERRUPT ON
0255 4656 JMS I ,+1      /CLEAR INTERRUPT INHIBIT
0256 6257 CKJMS2        /INDIRECT ADDRESS
0257 7402 CKJMS2; HLT   /THIS LOCATION PRESSET TO ONE'S TO CHECK JMS TO FIELD 6
0260 4454 ERROR        /PROGRAM FAILED TO INTERRUPT
0261 7340 CLA CLL CMA /SET THE AC TO ALL ONES
0262 6004 GTF          /GET THE FLAGS
0263 1126 TAD M1061     /CHECK FOR INT REQ, ISF OF 68 AND DSF OF 1
0264 7640 SEA CLA       /THE SAVE FIELD NOT EQUAL TO ABOVE
0265 4454 ERROR        /READ THE INTERRUPT BUFFER
0266 6234 R13          /CHECK FOR I,S,F, OF 6 AND I,D,F, OF 1
0267 1107 TAD M61        /THE SAVE FIELD NOT EQUAL TO ABOVE
0270 7640 SEA CLA       /CHECK THAT DCA I WENT TO ANOTHER FIELD
0271 4454 ERROR        /JCA I WENT TO FIELD 0 INSTEAD OF FIELD 1
0272 2033 ISE CDFCHK    /CHECK THAT JMS I WENT TO ANOTHER FIELD
0273 4454 ERROR        /JMS I WENT TO FIELD B INSTEAD OF FIELD 16
0274 2257 ISE CKJMS2    /SET LOCATIONS CDFCHK AND CKJMS3 TO ONE'S
0275 4454 ERROR        /TO CHECK THAT DCA I AND JMS I WENT
0276 7340 TST12C; CLA CLL CMA /TO ANOTHER FIELD THAN FIELD 0
0277 3033 DCA           CDFCHK
0280 7340 CLA CLL CMA
0281 3310 DCA           CKJMS3
0282 6232 CIF 38
0283 6241 CDF 48
0284 3434 DCA I CKDCDF
0285 6001 ION
0286 4707 JMS I ,+1
0287 6310 CKJMS3
0290 7402 CKJMS3; HLT   /THIS LOCATION PRESSET TO ONE'S TO CHECK JMS TO FIELD 3
0291 4454 ERROR        /PROGRAM FAILED TO INTERRUPT
0292 7340 CLA CLL CMA /SET THE AC TO ALL ONES
0293 6004 GTF          /GET THE FLAGS
0294 1123 TAD M1034     /CHECK FOR INT REG, ISF OF 3 AND DSF OF 4

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0315 7640     SEA CLA
0316 4454     ERROR
0317 6234     R13
0320 1077     TAD M34
0321 7640     SEA CLA
0322 4454     ERROR
0323 2033     ISB CDFCHK
0324 4454     ERROM
0325 2310     ISB CKJMS3
0326 4454     ERROM
0327 7340     TST12U; CLA CLL CMA
0330 3035     DCA CDFCHK
0331 7340     CLA CLL CMA
0332 3341     DCA CKJMS4
0333 6252     CIF 50
0334 5221     CUF 20
0335 3434     DCA I CHKCDF
0336 6001     104
0337 4740     JMS I ,+1
0340 5341     CKJMS4
0341 7402     CKJMS4; HLT
0342 4454     ERROR
0343 7340     CLA CLL CMA
0344 6004     GTF
0345 1125     TAD M1052
0346 7640     SEA CLA
0347 4454     ERROM
0350 6234     R13
0351 1104     TAD M52
0352 7640     SEA CLA
0353 4454     ERROR
0354 2033     ISB CDFCHK
0355 4454     ERROM
0356 2341     ISB CKJMS4
0357 4454     ERROM
0360 5777;    JMP TST12E
0377 10401    PAGE
0380 10400
0400 7000     NOP
0401 7340     TST12E; CLA CLL CMA
0402 3035     DCA CDFCHK
0403 7240     CLA CMA
0404 3213     DCA CKJMS5
0405 6251     CUF 50
0406 6222     CIF 20
0407 3434     DCA I CHKCDF
0408 6001     104
0411 4612     JMS I ,+1
0412 0443     CKJMS5
0413 7492     CKJMS5; HLT
0414 4454     ERROM
0415 7340     CLA CLL CMA
0416 6004     GTF

```

/THE SAVE FIELD REGISTER NOT EQUAL TO ABOVE
/READ THE INTERRUPT BUFFER
/CHECK FOR ISF OF 3 AND DSF OF 4

/THE SAVE FIELD REGISTER NOT EQUAL TO ABOVE
/DCA I WENT TO FIELD 0 INSTEAD OF FIELD 4

/JMS I WENT TO FIELD 0 INSTEAD OF FIELD 3
/SET LOCATIONS CDFCHK AND CKJMS4 TO ONES,
/TO CHECK THAT DCA I OR JMS I TO ANOTHER
/FIELD DOESN'T GO TO FIELD 0

/CHANGE INSTRUCTION FIELD TO FIELD 5
/CHANGE DATA FIELD TO FIELD 2
/CHANGE EMA LINES TO FIELD 2
/TURN THE INTERRUPT ON
/CLEAR INTERRUPT INHIBIT
/INDIRECT ADDRESS
/THIS LOCATION PRESET TO ONES TO CHECK JMS TO FIELD 5
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO ALL UNES
/GET THE FLAGS
/CHECK FOR INT, REQ., ISF OF 5, AND DSF OF 2

/THE SAVE FIELD REGISTER NOT EQUAL TO ABOVE
/READ THE INTERRUPT BUFFER
/CHECK FOR ISF OF 5 AND DSF OF 2

/SAVE FIELD NOT EQUAL TO ABOVE
/DCA I TO FIELD 2 WENT TO FIELD 0

/JMS I TO FIELD 5 WENT TO FIELD 0

/SETUP LOCATIONS CDFCHK AND CKJMS5 TO ONES
/TO CHECK THAT DCA I OR JMP I TO ANOTHER
/FIELD DOESN'T GO TO FIELD 0

/CHANGE DATA FIELD TO FIELD 5
/CHANGE INSTRUCTION FIELD TO 2
/CHANGE EMA LINES TO 5 (DF ON)
/TURN INTERRUPT ENABLE ON
/CLEAR INTERRUPT INHIBIT
/INDIRECT ADDRESS
/THIS LOCATION PRESET TO ONES TO CHECK JMS TO FIELD 2
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO ALL UNES
/GET THE FLAGS

```

0417 1122     TAD M1025
0420 7640     SEA CLA
0421 4454     ERROR
0422 6234     R13
0423 1074     TAD M25
0424 7640     SEA CLA
0425 4454     ERROR
0426 2033     ISB CDFCHK
0427 4454     ERROM
0428 2213     ISB CKJMS5
0431 4454     ERROM
0432 7340     TST12F; CLA CLL CMA
0433 3035     DCA CDFCHK
0434 7240     CLA CMA
0435 3244     DCA CKJMS6
0436 6231     CUF 30
0437 6242     CIF 40
0440 3434     DCA I CHKCDF
0441 6001     104
0442 4643     JMS I ,+1
0443 0444     CKJMS6
0444 7402     CKJMS6; HLT
0445 4454     ERROM
0446 7340     CLA CLL CMA
0447 6004     GTF
0450 1124     TAD M1043
0451 7640     SEA CLA
0452 4454     ERROR
0453 6234     R13
0454 1101     TAD M43
0455 7640     SEA CLA
0456 4454     ERROR
0457 2033     ISB CDFCHK
0460 4454     ERROM
0461 2244     ISB CKJMS6
0462 4454     ERROM
0463 7340     TST12G; CLA CLL CMA
0464 3035     DCA CDFCHK
0465 7240     CLA CMA
0466 3275     DCA CKJMS7
0467 6271     CUF 70
0470 6202     CIF 60
0471 3434     DCA I CHKCDF
0472 6001     104
0473 4674     JMS I ,+1
0474 0475     CKJMS7; HLT
0475 7402     ERROM
0476 4454     CLA CLL CMA
0477 7340     GTF
0500 6004     TAD M1007
0501 1120     TAD M1007
0502 7640     SEA CLA
0503 4454     ERROR
0504 6234     R13
0505 1060     TAD M7

```

/CHECK FOR INT, REQ., ISF#2 AND DSF#5

/THE SAVE FIELD REGISTER NOT EQUAL TO ABOVE
/READ THE INTERRUPT BUFFER
/CHECK FOR ISF OF 2 AND DSF#5

/SAVE FIELD REGISTER NOT EQUAL TO ABOVE
/DCA I TO FIELD 5 WENT TO FIELD 0

/JMS I TO FIELD 2 WENT TO FIELD 0
/SET LOCATIONS CDFCHK AND CKJMS6 TO
/ONES TO CHECK THAT DCA I AND JMS I
/TO ANOTHER FIELD DOESN'T GO TO FIELD 0

/CHANGE DATA FIELD TO FIELD 3
/CHANGE INSTRUCTION FIELD TO FIELD 4
/CHANGE EMA LINES TO 3
/TURN THE INTERRUPT ON
/CLEAR INTERRUPT INHIBIT
/INDIRECT ADDRESS
/THIS LOCATION PRESET TO ONES TO CHECK JMS TO FIELD 4
/PROGRAM FAILED TO INTERRUPT
/SET THE AC TO ALL ONE'S
/GET THE FLAGS
/CHECK FOR INT, REQ., ISF OF 4 AND DSF OF 3,

/SAVE FIELD NOT EQUAL TO ABOVE
/READ THE INTERRUPT BUFFER
/CHECK FOR ISF OF 4 AND DSF OF 3

/SAVE FIELD NOT EQUAL TO ABOVE
/DCA I WENT TO FIELD 0 INSTEAD OF FIELD 3

/JMS I WENT TO FIELD 0 INSTEAD OF FIELD 4
/SET CDFCHK AND CKJMS7 TO ONES TO
/CHECK FOR DCA I TO ANOTHER FIELD AND A
/JMS I TO ANOTHER FIELD

/CHANGE DATA FIELD TO FIELD 7
/CHANGE INSTRUCTION FIELD TO FIELD 0
/CHANGE EMA LINES TO 7
/TURN INTERRUPT ON
/CLEAR INTERRUPT INHIBIT
/INDIRECT ADDRESS
/THIS LOCATION WAS SET TO ONE'S BUT SHOULD CHANGE
/PROGRAM FAILED TO INTERRUPT

/GET THE FLAGS
/CHECK FOR INT, REQ., ISF#0, DSF#7

/SAVE FIELD NOT EQUAL TO ABOVE
/READ THE INTERRUPT BUFFER
/CHECK FOR DSF OF 7

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 1K PART 2

0586	7648	SEA CLA	
0587	4454	ERRM	/SAVE FIELD NOT EQUAL TO DSF OF 7
0588	2833	ISE CDFCHK	/DCA I WENT TO FIELD 8 INSTEAD OF FIELD 7
0589	4454	ERRM	
0590	2275	ISA CKJMS7	
0591	7410	SKP	
0592	4454	ERRM	/JMS I TO FIELD 8 WENT TO ANOTHER FIELD
0593	7348	TST12H, CLA CLL CMA	/SET UP CDFCHK TO ONES TO CHECK THAT
0594	3833	DCA CDFCHK	/DCA I TO FIELD 8 WILL CLEAR IT AND SET
0595	7348	CLA CLL CMA	/LOCATION CKJMS8 TO 1'S TO CHECK THAT
0596	3327	DCA CKJMS8	/JMS I TO FIELD 7 WON'T CLEAR IT
0597	6201	CDF 00	/CHANGE DATA FIELD TO FIELD 8
0598	6272	CIF 70	/CHANGE INSTRUCTION FIELD TO FIELD 7
0599	3434	DCA I CHKCDF	/CLEAR LOCATION CDFCHK IF EHA LINES WENT TO ZERO
0600	6001	IOV	/TURN THE INTERRUPT ON
0601	4720	JMS I ,+1	/CLEAR INTERRUPT INHIBIT
0602	0527	CKJMS8, HLT	/INITIATE ADDRESS
0603	7402	ERRM	/THIS LOCATION PRESET TO 1'S; IT SHOULD NOT CHANGE
0604	4454	CLA CLL CMA	/PROGRAM FAILED TO INTERRUPT
0605	7340	GTF	/SET THE AC TO ALL ONES
0606	6004	SEA CLA	/GET THE FLAGS
0607	1127	TAD M1070	/CHECK FOR INT, REQ., ISF#7 AND DSF#0
0608	7640	SEA CLA	
0609	4454	ERRM	/SAVE FIELD REGISTER NOT EQUAL TO ABOVE
0610	6234	R13	/READ THE INTERRUPT BUFFER
0611	1111	TAD M70	/CHECK SAVE FIELDS FOR ISF OF 7 AND DSF OF 0
0612	7640	SEA CLA	
0613	4454	ERRM	
0614	2033	ISE CDFCHK	
0615	7410	SKP	
0616	4454	ERRM	/DCA I TO FIELD 8 WENT TO ANOTHER FIELD
0617	2327	ISE CKJMS8	/JMS I TO FIELD 7 WENT TO FIELD 8
0618	4454	ERRM	/SETUP CDFCHK AND CKJMS9 TO ONES TO
0619	7240	CLA CMA	/CHECK THAT DCA I AND JMS I TO FIELD 8
0620	3833	DCA CDFCHK	/WILL CHANGE THESE LOCATIONS
0621	7340	CLA CLL CMA	
0622	3361	DCA CKJMS9	
0623	6201	CDF 00	
0624	6202	CIF 00	
0625	3434	DCA I CHKCDF	
0626	6001	IOV	
0627	4760	JMS I ,+1	
0628	0561	CKJMS9, HLT	
0629	7402	ERRM	
0630	4454	CLA CLL CMA	
0631	7340	GTF	
0632	6004	SEA CLA	
0633	1117	TAD M1000	
0634	7640	SEA CLA	
0635	4454	ERRM	
0636	6234	R13	
0637	7640	SEA CLA	
0638	4454	ERRM	
0639	2033	ISE CDFCHK	
0640	7410	SKP	

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/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 1K PART 2

0655	4454	ERRM	/DCA I TO FIELD 2 DID NOT GO TO FIELD 8
0656	2361	ISE CKJMS9	
0657	7410	SKP	
0658	4454	ERRM	
0659	1150	TAD K7737	/JMS I TO FIELD 2 DID NOT GO TO FIELD 8
0660	6224	R13	/CHECK THE INCLUSIVE OR OF R13 WITH AC
0661	1137	TAD K70	
0662	7040	CLA CMA	
0663	7640	SEA CLA	
0664	4454	ERRM	
0665	6254	SINT	/THE INCLUSIVE OR OF R13 WITH AC FAILED
0666	4454	ERRM	/SKIP ON USER INTERRUPT
0667	6254	CAF	/USER INTERRUPT FLIP-FLOP GOT CLEARED
0668	5807	SINT	/CLEAR ALL FLAGS
0669	6254	CAF	/SKIP ON USER INTERRUPT
0670	7410	SKP	
0671	4454	ERRM	
0672	2033	ISE CDFCHK	
0673	7410	SKP	
0674	4455	LOOP	

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/TEST 13 - CHECKS THE MICRO PROGRAM INSTRUCTIONS CDF CIF (62X3), A DCA I
AND JMS ARE ALSO ISSUED TO CHECK THAT THESE INSTRUCTIONS DO NOT DESTROY
LOCATIONS IN FIELD 0, THE USER INTERRUPT F/F IS USED TO CAUSE INTERRUPTS,

0616	4456	TEST14, SCOPLP	/SETUP TEST AND SCOPLE LOOPING ADDRESS
0617	6007	CAF	/CLEAR ALL FLAGS
0618	6202	CIF 00	/INITIALIZE THE IF AND DF TO FIELD 0
0619	6201	CDF 00	/
0620	5223	JMP ,+1	/LOAD THE IF BY A JMP
0621	6001	IOV	/TURN THE INTERRUPT ON
0622	6274	SUF	/SET THE USER BUFFER F/F
0623	6001	IOV	/ENTER USER MODE
0624	5225	JMP ,+1	/PROGRAM FAILED TO TRAP
0625	7402	HLT	/HALT FAILED TO TRAP
0626	5227	JMP ,	/SKIP ON USER INTERRUPT FLIP-FLOP
0627	6254	SINT	/USER INTERRUPT FLIP-FLOP NOT SET
0628	4454	ERRM	/HEAD THE INTERRUPT BUFFER
0629	6254	CAF	
0630	7240	CLA CMA	
0631	3833	DCA CDFCHK	
0632	7240	CLA CMA	
0633	3246	DCA JMSCK1	
0634	5223	CIFCDF 70	
0635	3434	DCA I CHKCDF	
0636	6001	IOV	
0637	4246	JMS JMSCK1	
0638	7402	CKJMS8, HLT	
0639	4454	ERRM	
0640	6234	R13	
0641	1112	TAD M77	
0642	7640	SEA CLA	
0643	4454	ERRM	
0644	2033	ISE CDFCHK	
0645	7410	SKP	

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0646	4454	ERRM	
0647	6234	R13	
0648	1112	TAD M77	
0649	7640	SEA CLA	
0650	4454	ERRM	
0651	4454	ERRM	
0652	2033	ISE CDFCHK	
0653	7410	SKP	
0654	4454	ERRM	
0655	2033	ISE CDFCHK	
0656	7410	SKP	

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0655	4454	ERROM		/JMS TO FIELD 7 WENT TO FIELD 0
0656	2246	ISE	JMSCK1	
0657	4454	ERROM		/JMS TO FIELD 7 WENT TO FIELD 0
0658	5254	SINT		/SKIP ON USER INTERRUPT F/F
0659	4454	ERROM		/USER INTERRUPT F/F GOT CLEARED
0660	7240	TST13B; CLA CMA		/SETUP TWO LOCATIONS TO CHECK THAT CIFCDF 20
0661	4454	ERROM		/WENT TO ANOTHER FIELD THAN FIELD 0
0662	3033	DCA	CDFCHK	
0663	3033	CLA CMA		/CHANGE INSTRUCTION FIELD AND DATA FIELD TO 2
0664	7240	DCA		/TRY TO CLEAR CDFCHK IN FIELD 2
0665	3272	ISE	JMSCK2	/SET INTERRUPT ENABLE
0666	6223	CIFCDF	20	/CLEAR INTERRUPT INHIBIT AND INTERRUPT
0667	3434	DCA I	CHKCDF	/THIS LOCATIONS PRESET TO 7777
0668	6001	ION		/PROGRAM FAILED TO INTERRUPT
0669	4722	JRS	JMSCK2	/READ THE INTERRUPT BUFFER
0670	7402	HLT		/CHECK SAVE FIELD FOR ISF#2 & DSF#2
0671	4454	ERROM		
0672	7402	JMSCK2;		/SAVE FIELD NOT EQUAL TO CIFCDF 20 FAILED
0673	4454	ERROM		/JMS TO FIELD 2 WENT TO FIELD 0
0674	6234	RIB		
0675	1873	TAO	H22	
0676	7640	SEA CLA		
0677	4454	ERROM		
0678	2033	ISE	CDFCHK	
0679	4454	ERROM		
0680	2272	ISE	JMSCK2	
0681	4454	ERROM		
0682	3033	DCA	CDFCHK	
0683	3033	CLA CMA		
0684	7240	TST13U; CLA CMA		
0685	3033	DCA	CDFCHK	
0686	7240	CLA CMA		
0687	3314	DCA	JMSCK3	
0688	6253	CIFCDF	50	
0689	3434	DCA I	CHKCDF	
0690	6001	ION		
0691	4314	JRS	JMSCK3	
0692	7402	HLT		
0693	4454	ERROM		
0694	6234	RIB		
0695	1105	TAO	H55	
0696	7640	SEA CLA		
0697	4454	ERROM		
0698	2033	ISE	CDFCHK	
0699	4454	ERROM		
0700	2114	ISE	JMSCK3	
0701	4454	ERROM		
0702	6254	SINT		
0703	4454	ERROM		
0704	7240	TST13U; CLA CMA		
0705	3033	DCA	CDFCHK	
0706	7240	CLA CMA		
0707	3340	DCA	JMSCK4	
0708	6243	CIFCDF	40	
0709	3434	DCA I	CHKCDF	
0710	6001	ION		
0711	4340	JRS	JMSCK4	
0712	7402	HLT		
0713	4454	ERROM		
0714	6234	RIB		
0715	1102	TAO	M44	

0744	7640	SEA CLA		/SAVE FIELD NOT EQUAL TO 44
0745	4454	ERROM		/JMS TO FIELD 4 WENT TO FIELD 0
0746	2033	ISE	CDFCHK	
0747	4454	ERROM		
0748	2340	ISE	JMSCK4	
0749	4454	ERROM		
0750	6254	SINT		
0751	4454	ERROM		
0752	6254	ERROM		
0753	4454	ERROM		
0754	7340	TST13E; CLA CLL CMA		
0755	3033	DCA	CDFCHK	
0756	7240	CLA CMA		
0757	3364	DCA	JMSCK5	
0758	6233	CIFCDF	30	
0759	3434	DCA I	CHKCDF	
0760	6001	ION		
0761	4340	JRS	JMSCK5	
0762	7402	HLT		
0763	4454	ERROM		
0764	7402	JMSCK5;		
0765	4454	ERROM		
0766	6234	RIB		
0767	1876	TAO	M33	
0768	7640	SEA CLA		
0769	4454	ERROM		
0770	2033	ISE	CDFCHK	
0771	4454	ERROM		
0772	2364	ISE	JMSCK5	
0773	4454	ERROM		
0774	2364	ISE	JMSCK5	
0775	4454	ERROM		
0776	6254	SINT		
0777	4454	ERROM		
0778	7240	TST13F; CLA CMA		
0779	3033	DCA	CDFCHK	
0780	7240	CLA CMA		
0781	3210	DCA	JMSCK6	
0782	5265	CIFCDF	60	
0783	3434	DCA I	CHKCDF	
0784	6001	ION		
0785	4210	JRS	JMSCK6	
0786	7402	HLT		
0787	4454	ERROM		
0788	6234	RIB		
0789	1110	TAO	M66	
0790	7640	SEA CLA		
0791	4454	ERROM		
0792	2033	ISE	CDFCHK	
0793	4454	ERROM		
0794	2230	ISE	JMSCK6	
0795	4454	ERROM		
0796	6254	SINT		
0797	4454	ERROM		
0798	7240	TST13U; CLA CMA		
0799	3033	DCA	CDFCHK	
0800	7240	CLA CMA		
0801	3033	DCA	JMSCK7	
0802	6233	CIFCDF	10	
0803	3434	DCA I	CHKCDF	
0804	6001	ION		
0805	4340	JRS	JMSCK7	
0806	7402	HLT		
0807	4454	ERROM		
0808	6234	RIB		
0809	1110	TAO	M44	
0810	7640	SEA CLA		
0811	4454	ERROM		
0812	6234	RIB		
0813	1110	TAO	M66	
0814	7640	SEA CLA		
0815	4454	ERROM		
0816	2033	ISE	CDFCHK	
0817	4454	ERROM		
0818	2230	ISE	JMSCK6	
0819	4454	ERROM		
0820	6254	SINT		
0821	4454	ERROM		
0822	6234	ERROM		
0823	4454	ERROM		
0824	7240	TST13U; CLA CMA		
0825	3033	DCA	CDFCHK	
0826	7240	CLA CMA		
0827	3234	DCA	JMSCK7	
0828	6233	CIFCDF	10	
0829	3434	DCA I	CHKCDF	
0830	6001	ION		

/KMB-A OPTION TEST 2 MAINDEU=08=DJKMA=A=L 1K PART 2

```

1033 4234      JHS   JHSCK7
1034 7402      JHSCK7, HLT
1035 4454      ERROM
1036 5234      RIB
1037 1070      TAD   H11
1040 7640      S2A CLA
1041 4454      ERROR
1042 2033      ISZ   CDFCHK
1043 4454      ERROM
1044 2234      ISZ   JHSCK7
1045 4454      ERROM
1046 5254      SINT
1047 4454      ERROR
1050 7240      TST13H, CLA CHA
1051 3033      DCA   CDFCHK
1052 7240      CLA CHA
1053 3260      DCA   JHSCK8
1054 6203      CDFCDF BB
1055 3434      DCA I CHKCDF
1056 6001      IOV
1057 4260      JHS   JHSCK8
1060 7402      JHSCK8, HLT
1061 4454      ERROR
1062 6234      RIB
1063 7640      S2A CLA
1064 4454      ERROR
1065 2033      ISZ   CDFCHK
1066 7410      SKP
1067 4454      ERROR
1070 2260      ISZ   JHSCK8
1071 7410      SKP
1072 4454      ERROR
1073 6204      CINT
1074 6254      SINT
1075 7410      SKP
1076 4454      ERROR
1077 4455      LOOP

```

/*****
/TEST 14 = CHECKS THAT RTF CAN LOAD THE IF AND OF AND THAT RMF CAN
/RELOAD IT;
/*****

```

1100 4456      TEST14, SCOPLP
1101 6007      CAF
1102 6001      IOV
1103 6274      SUF
1104 5305      JMP   ,+1
1105 7402      HLT
1106 5306      JMP   ,
1107 6254      SINT
1108 4454      ERROM
1111 6234      RIB
1112 1113      TAD   H100
1113 7640      S2A CLA

```

/SETUP SCOPE AND TEST LOOPING ADDRESS
/CLEAR ALL FLAGS
/SET INTERRUPT ENABLE
/SET USER BUFFER
/LOAD THE UB INTO THE IF
/HALT SHOULD TRAP
/HLT FAILED TO TRAP
/SKIP ON USER INTERRUPT
/USER INTERRUPT NOT SET
/HEAD THE INTERRUPT BUFFER
/CHECK FOR USER FLAG

/KMB-A OPTION TEST 2 MAINDEU=08=DJKMA=A=L 1K PART 2

```

1114 4454      ERROR
1115 1141      TST14A, TAD   K125
1116 6005      RTF
1117 7300      CLA CLL
1120 6214      RDP
1121 1183      TAD   H50
1122 7640      S2A CLA
1123 7402      HLT
1124 5325      JMP   ,+1
1125 4454      ERROR
1126 6254      SINT
1127 4454      ERROR
1130 6234      RIB
1131 1114      TAD   H125
1132 7640      S2A CLA
1133 4454      ERROR
1134 6244      RMF
1135 6214      RDP
1136 1103      TAD   H50
1137 7640      S2A CLA
1140 4454      ERROR
1141 6001      IOV
1142 5343      JMP   ,+1
1143 4454      ERROR
1144 6254      SINT
1145 4454      ERROR
1146 6234      RIB
1147 1114      TAD   H125
1150 7640      S2A CLA
1151 4454      ERROR
1152 1142      TST14B, TAD   K152
1153 6005      RTF
1154 7300      CLA CLL
1155 6214      RDP
1156 1072      TAD   H20
1157 7640      S2A CLA
1160 7402      HLT
1161 5302      JMP   ,+1
1162 4454      ERROR
1164 6254      SINT
1165 6234      RIB
1166 1115      TAD   H152
1167 7640      S2A CLA
1170 4454      ERROR
1171 6244      RMF
1172 6214      RDP
1173 1072      TAD   H20
1174 7640      S2A CLA
1175 4454      ERROR
1176 7000      NOP
1177 6001      IOV
1180 9201      JMP   ,+1
1201 4454      ERROR
1202 6254      SINT

```

/USER FLAG OR INT REQ NOT SET
/LOAD THE UB, IB, + OF WITH USER FLAG; IF OF 2 + DF OF 5
/AND SET INTERRUPT ENABLE
/READ THE DATA FIELD TO CHECK THAT FIELD 5 GOT LOADED

/RTF FAILED TO LOAD DATA FIELD TO 5
/ENTER USER MODE, CLEAR INT INHIBIT, AND INTERRUPT
/FAILED TO INTERRUPT, RTF OR JMP FAILED
/SKIP ON USER INTERRUPT F/F
/SINT FAILED OR USER INTERRUPT F/F CLEARED
/CHECK FOR USER FLAG, ISF OF 2 AND DSF OF 5

/SAVE FIELD NOT EQUAL TO ABOVE
/LOAD THE UB, IB, + OF FROM THE SAVE FIELD
/HEAD THE DATA FIELD
/CHECK THAT RMF LOADED THE OF

/RMF FAILED TO LOAD OF TO FIELD 5
/SET INTERRUPT ENABLE
/LOAD THE IF, CLEAR INTERRUPT INHIBIT, ENTER USER MODE
/FAILED TO INTERRUPT OR RMF JMP FAILED
/SKIP ON USER INTERRUPT FLIP-FLOP
/USER INTERRUPT FLIP-FLOP NOT SET
/HEAD THE INTERRUPT BUFFER
/CHECK FOR USER FLAG, ISF OF 2 AND DSF OF 5

/RMF FAILED TO LOAD THE ABOVE
/LOAD THE UB, IB, + OF WITH UF, ISF OF 5 AND DSF OF 2
/AND SET INTERRUPT ENABLE
/HEAD THE DATA FIELD
/CHECK FOR A DF SET TO FIELD 2

/RTF FAILED TO LOAD OF WITH 2
/ENTER USER MODE CLEAR INTERRUPT INHIBIT
/FAILED TO INTERRUPT
/SKIP ON USER INTERRUPT
/USER INTERRUPT NOT SET
/HEAD THE INTERRUPT BUFFER
/CHECK FOR USER FLAG, ISF OF 5 AND DSF OF 2

/SAVE FIELD NOT EQUAL TO ABOVE
/RESTORE MEMORY FIELDS
/HEAD THE DATA FIELD
/CHECK THAT RMF LOADED OF TO FIELD 2

/RMF FAILED TO LOAD OF TO FIELD 2

/SET INTERRUPT ENABLE
/CLEAR INTERRUPT INHIBIT, LOAD IF, ENTER USER MODE
/FAILED TO INTERRUPT
/SKIP ON USER INTERRUPT

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/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATION PRESET TO ONES
/PROGRAM FAILED TO INTERRUPT
/HEAD THE INTERRUPT BUFFER
/CHECK FOR ISF OF 1 AND DSF OF 1

/SAVE FIELD NOT EQUAL ABOVE OR CDFCDF 10 FAILED
/JUCA I TO FIELD 1 WENT TO FIELD 0

/JHS TO FIELD 1 WENT TO FIELD 0
/SKIP ON USER INTERRUPT F/F
/USER INTERRUPT F/F GOT CLEARED
/SET UP 2 LOCATIONS TO CHECK THAT
/CDFCDF 00 WENT TO FIELD 0 INSTEAD
/OF ANOTHER FIELD

/CHANGE INSTRUCTION AND DATA FIELD TO 0
/CLEAR CDFCHK IN FIELD 0
/SET INTERRUPT ENABLE
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/THIS LOCATIONS PRESET TO ONES
/PROGRAM FAILED TO INTERRUPT
/HEAD THE INTERRUPT BUFFER

/SAVE FIELD IS NOT EQUAL TO 0

/JUCA I FAILED TO CLEAR CDFCHK IN FIELD 0

/JHS FAILED TO CHANGE JHSCK8 IN FIELD 0
/CLEAR USER INTERRUPT F/F
/SKIP ON USER INTERRUPT F/F

/CINT FAILED TO CLEAR USER INTERRUPT F/F
/LOOP ON TEST IF SR 2 ≠ 1000

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/KMB-A OPTION TEST 2 MAINDEG=0B=DJKMA=A+L 1K PART 2 PAL10 V142 18-DEC-74 15105 PAGE 2-14

1203 4454 ERROM
1204 6234 R13
1205 1115 TAD M152
1206 7640 SEA CLA
1207 4454 ERROM
1208 6254 TST14G, SINT
1209 4454 ERROM
1210 1140 TAD K77
1211 6009 RTF
1212 7300 CLA CLL
1213 6214 RUF
1214 1111 TAD M70
1215 7640 SEA CLA
1216 7402 HLT
1217 5222 JMP ,+1
1218 4454 ERROM
1219 6234 R13
1220 1112 TAD M77
1221 7640 SEA CLA
1222 4454 ERROM
1223 6234 R13
1224 1112 TAD M77
1225 7640 SEA CLA
1226 4454 ERROM
1227 6254 SINT
1228 4454 ERROM
1229 6244 RMF
1230 6214 RDF
1231 1111 TAD M70
1232 7640 SEA CLA
1233 4454 ERROM
1234 6224 RIF
1235 7640 SEA CLA
1236 4454 ERROM
1237 6001 104
1238 5243 JMP ,+1
1239 4454 ERROM
1240 6234 R13
1241 1112 TAD M77
1242 7640 SEA CLA
1243 4454 ERROM
1244 6234 R13
1245 1112 TAD M77
1246 7640 SEA CLA
1247 4454 ERROM
1248 6254 TST14U, SINT
1249 4454 ERROM
1250 6001 104
1251 5243 JMP ,+1
1252 6234 R13
1253 4454 ERROM
1254 6234 R13
1255 7640 SEA CLA
1256 4454 ERROM
1257 6244 RMF
1258 6001 104
1259 5263 JMP ,+1
1260 4454 ERROM
1261 6234 R13
1262 7640 SEA CLA
1263 4454 ERROM
1264 6234 R13
1265 7640 SEA CLA
1266 4454 ERROM
1267 6204 CINT
1268 6254 SINT
1269 7610 SKP CLA

/RMF FAILED TO LOAD THE ABOVE
/SKIP ON USER INTERRUPT FLIP-FLOP
/USER INTERRUPT FLIP-FLOP GOT CLEARED,
/LOAD DATA FIELD AND IB TO FIELD 7
/RESTORE THE FLAGS AND SET INTERRUPT ENABLE

/READ THE DATA FIELD
/CHECK FOR DATA FIELD SET TO FIELD 7

/RMF FAILED TO SET DF TO FIELD 7
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/PROGRAM FAILED TO INTERRUPT ON USER INTERRUPT
/READ THE INTERRUPT BUFFER
/CHECK FOR UF=0, ISF=7 AND DSF=7

/SAVE FIELD NOT EQUAL TO ABOVE
/SKIP ON USER INTERRUPT
/USER INTERRUPT GOT CLEARED
/RESTORE MEMORY FIELDS
/CHECK THAT RMF RESTORED THE DF

/RMF FAILED TO LOAD DF TO 7
/CHECK INSTRUCTION FIELD TO BE SET 0

/IF IS NON ZERO AFTER A RMF
/SET INTERRUPT ENABLE
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/PROGRAM FAILED TO INTERRUPT
/READ THE INTERRUPT BUFFER
/CHECK FOR ISF AND DSF = TO 7

/RMF FAILED TO RESTORE IF AND DF TO 7
/SKIP ON USER INTERRUPT FLIP-FLOP
/USER INTERRUPT CLEARED
/RESTORE THE FLAGS, SET IB+DF TO ZERO
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/PROGRAM FAILED TO INTERRUPT
/READ THE INTERRUPT BUFFER

/THE ISF OR DSF IS NON ZERO
/RESTORE MEMORY FIELDS
/SET INTERRUPT ENABLE
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/PROGRAM FAILED TO INTERRUPT
/READ THE INTERRUPT BUFFER

/RMF FAILED TO RELOAD IF AND DF TO ZERO
/CLEAR USER INTERRUPT FLIP-FLOP
/SKIP ON USER INTERRUPT FLIP-FLOP

/KMB-A OPTION TEST 2 MAINDEG=0B=DJKMA=A+L 1K PART 2 PAL10 V142 18-DEC-74 15105 PAGE 2-15

1272 4454 ERROM
1273 4455 LOOP
/CINT FAILED TO CLEAR USER INTERRUPT
/LOOP ON TEST IF SR = 1000

/TEST 12 - SETS THE DB TO A 1, THE IF AND OF TO FIELD 6, THE PROGRAM
/THEN ISSUES ANU, TAD, ISZ, AND DCA INDIRECTS TO CHECK THAT THE
/PROGRAM DOESN'T INTERRUPT UNTIL A JUMP INSTRUCTION IS ISSUED,

1274 4456 TEST13, SCOPLP
1275 6007 CAF
1276 6203 CIFCDF
1277 5300 JMP ,+1
1278 6264 CUF
1279 6204 CINT
1280 6001 104
1281 5274 SUP
1282 6274 JMP ,+1
1283 5305 HLT
1284 5305 JMP ,+1
1285 7402 HLT
1286 5305 JMP
1287 6254 SINT
1288 4454 ERROM
1289 6234 R13
1290 1113 TAD M100
1291 7640 SEA CLA
1292 4454 ERROM
1293 6283 CIFCDF 60
1294 6001 104
1295 7000 NOP
1296 7410 SKP
1297 7402 HLT
1298 3723 DCA I ,+1
1299 7410 SKP
1300 7402 HLT
1301 1726 TAD I ,+1
1302 7410 SKP
1303 7402 HLT
1304 2731 AND I ,+1
1305 7410 SKP
1306 7402 HLT
1307 2734 ISZ I ,+1
1308 7410 SKP
1309 7402 HLT
1310 5337 JMP ,+1
1311 4454 ERROM
1312 6234 R13
1313 1118 TAD M66
1314 7640 SEA CLA
1315 4454 ERROM
1316 6254 SINT
1317 4454 ERROM
1318 6254 SINT
1319 4454 ERROM
1320 6203 CIFCDF
1321 6001 104
1322 7300 CLA CLL
1323 6203 CIFCDF
1324 6001 104
1325 7402 HLT
1326 2731 AND I ,+1
1327 7410 SKP
1328 7402 HLT
1329 2734 ISZ I ,+1
1330 7410 SKP
1331 7402 HLT
1332 2734 ISZ I ,+1
1333 7410 SKP
1334 7402 HLT
1335 5337 JMP ,+1
1336 4454 ERROM
1337 6234 R13
1338 1118 TAD M66
1339 7640 SEA CLA
1340 4454 ERROM
1341 6254 SINT
1342 7640 SEA CLA
1343 4454 ERROM
1344 6254 SINT
1345 4454 ERROM
1346 7300 CLA CLL
1347 6203 CIFCDF
1348 6001 104

/SETUP SCOPE AND TEST LOOPING ADDRESS
/CLEAR ALL FLAGS
/CHANGE DATA AND INSTRUCTION FIELD TO 0
/CLEAR INTERRUPT INHIBIT
/CLEAR USER FLAG
/CLEAR USER INTERRUPT FLIP-FLOP
/SET INTERRUPT ENABLE
/SET USER BUFFER FLIP-FLOP
/CLEAR INTERRUPT INHIBIT
/FAILED TO ENTER USER MODE
/HLT FAILED TO TRAP
/SKIP ON USER INTERRUPT FLIP-FLOP
/USER INTERRUPT FLIP-FLOP NOT SET
/READ THE INTERRUPT BUFFER
/CHECK FOR USER FLAG

/USER FLAG NOT SET
/CHANGE IB AND OF TO FIELD 6 AND SET INTERRUPT INHIBIT
/SET INTERRUPT ENABLE, THE PROGRAM
/SHOULDN'T INTERRUPT UNTIL A JMP OR JMS IS ISSUED,
/CHECK THAT PROGRAM DOESN'T INTERRUPT

/PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED
/JDO A DCA I TO NEXT LOCATIONS

/PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED
/JDO A TAD I TO NEXT LOCATION

/PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED
/JDO A AND I TO THE NEXT LOCATION

/PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED
/JDO A ISZ I TO THE NEXT LOCATION

/PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED
/JDO A AND I TO THE NEXT LOCATION

/PROGRAM INTERRUPTED BEFORE A JMP WAS ISSUED
/CLEAR INTERRUPT INHIBIT AND INTERRUPT
/PROGRAM FAILED TO INTERRUPT
/READ THE INTERRUPT BUFFER
/CHECK FOR ISF AND DSF OF 6

/SAVE FIELD NOT EQUAL TO 66
/SKIP ON USER INTERRUPT F/F
/USER INTERRUPT F/F NOT SET
/CLEAR AC AND LINK
/SET IB AND OF TO 0
/SET INTERRUPT ENABLE

```

PAL10 V142 18-DEC-74 15105 PAGE 2-16
1351 5352 JMP ,+1
1352 4454 ERROR
1353 6254 SINT
1354 4454 ERROR
1355 6204 CINT
1356 7340 CLA CLL CMA
1357 6004 GTF
1360 7648 S2A CLA
1361 4454 ERROR
1362 4455 LOOP

```

/CLEAR INTERRUPT INHIBIT
 /PROGRAM FAILED TO INTERRUPT
 /SKIP ON USER INTERRUPT
 /USER INTERRUPT NOT SET
 /CLEAR USER INTERRUPT
 /SET THE AC TO ONES AND LINK TO 0
 /GET THE FLAGS
 /THE LINK, INT REQ, OR SAVE FIELD NON ZERO
 /LOOP ON TEST IF SR = 1000

```

*****  

/TEST 10 - IS A DATA TEST TO CHECK THAT DATA CAN BE DEPOSITED INTO EACH  

/SELECTED EXTENDED FIELD. DATA IS DEPOSITED INTO THE LAST ADDRESS OF  

/EACH 1K MEMORY SEGMENT IN THE EXTENDED MEMORY FIELD. THE USER INTERRUPT  

/IS SET FOR THIS TEST, THE PROGRAM CHANGES THE DATA FIELD TO THE NEW FIELD  

/CHECKS, IT THEN TURNS THE INTERRUPT ON AND DOES A DCA I TO THE LAST  

/ADDRESS IN A 1K MEMORY SEGMENT OF THAT FIELD. THE PROGRAM THEN DOES THE  

/SAME AS ABOVE, ONLY DOING A TAD I TO THE LAST ADDRESS OF EACH EXTENDED  

/SEGMENT, THE DATA THAT IS PUT INTO THE LAST ADDRESS OF EACH 1K MEMORY  

/1K MEMORY SEGMENT CONTAINS THE FIELD IN BITS 6-8 AND THE 1K SEGMENT IN  

/BITS 9-11.
*****
```

1363 4456	TEST10; SCOPLP	/SETUP TEST AND SCOPE LOOPING ADDRESS
1364 6007	CAF	/CLEAR ALL FLAGS
1365 6001	I0V	/TURN THE INTERRUPT ON
1366 1021	TAD DP1SEL	/GET MEMORY SIZE FROM LOCATION 21
1367 6136	AND K37	/MASK OFF THE MEMORY BITS
1370 7104	CLL RAL	/ROTATE BITS LEFT ONCE TO SETUP FOR FIELD
1371 3036	DCA SAVES2	/LIMIT AND LAST ADDRESS IN LAST FIELD
1372 1036	TAD SAVES2	/GET THE NUMBER
1373 6137	AND K70	/MASK OFF BITS 6-8 FOR FIELD LIMIT
1374 3037	DCA FLDLIM	/SAVE THE NUMBER AS THE LAST SELECTED FIELD
1375 1036	TAD SAVES2	/GET THE ROTATED NUMBER
1376 6134	AND K7	/MASK OFF ADDRESS BITS
1377 7112	CLL RTR	/ROTATE THE NUMBER 4 PLACES TO THE RIGHT
1400 7012	RTR	
1401 1145	TAD K1777	/ADD 1K TO THE NUMBER
1402 3040	DCA UPERLH	/SAVE THIS NUMBER AS THE LAST ADDRESS IN LAST FIELD
1403 1037	TAD FLDLIM	/GET THE FIELD LIMIT
1404 7650	SNA CLA	/IS THE LAST FIELD # TO FIELD 0
1405 5461	JMP I PASEND	/END OF 2ND 1K SEGMENT
1406 4777	JMS ACTLIN	/CHECK FOR ACT LINE AND 32K OF MEMORY
1407 6001	I0V	/TURN THE INTERRUPT ON
1410 6274	SUP	/SET USER BUFFER F/F
1411 5212	JMP ,+1	
1412 7402	HLT	/SHOULD TRAP HERE
1413 5213	JMP ,	/HALT FAILED TO TRAP
1414 6254	SINT	/SKIP ON USER INTERRUPT
1415 4454	ERROR	/USER INTERRUPT NOT SET
1416 7340	CLA CLL CMA	/SET THE AC TO ALL ONES
1417 6004	GTF	/GET THE FLAGS
1420 1130	TAD M1000	/CHECK FOR USER FLAG AND INT REQ

1421 7640	S2A CLA	/SAVE FIELD NOT EQUAL TO ABOVE
1422 4454	ERROR	/CLEAR WORKING FIELD
1423 3041	DCA WRKFLD	/CLEAR DATA PATTERN
1424 3042	DCA DATPAT	/GET UPPER ADDRESS OF 1K FIELD
1425 1145	BEGT10; TAD K1777	/SET FIRST ADDRESS EQUAL TO 1777
1426 3043	DCA WRKADD	/GET THE WORKING FIELD
1427 1041	TAD WRKFLD	/ADD A FIELD TO IT
1430 1135	TAD K10	
1431 3041	DCA WRKFLD	/GET THE WORKING FIELD
1432 1041	TAD WRKFLD	/NEGATE IT
1433 7041	CIA	/COMPARE IT TO THE FIELD LIMIT
1434 1037	TAD FLDLIM	/IS THE NEW FIELD GREATER THAN FIELD LIMIT
1435 7510	SPA	/YES END OF TEST
1436 5344	JMR ENDTST	/IS NEW FIELD EQUAL TO LAST FIELD
1437 7640	S2A CLA	/NO, THE LAST ADDRESS IN THIS FIELD WILL BE 7777
1440 7240	CLA CMA	/YES, THE LAST ADDRESS WILL BE EQUAL TO UPERLH
1441 7450	SNA	
1442 1042	TAD UPERLH	/SAVE THE LAST ADDRESS IN THIS FIELD
1443 3044	DCA HGHLLM	/GET THE HIGH LIMIT
1444 1044	TAD HGHLLM	/COMPLEMENT IT
1445 7040	CMA	/ROTATE 3 PLACES TO THE RIGHT
1446 7106	CLL RTL	
1447 7004	RAL	/ADD IN 4K ADDRESS CONSTANT
1450 1147	TAD K7774	/SAVE IT
1451 3047	DCA ADDCNT	/GET THE NEW FIELD
1452 1041	TAD WRKFLD	/ADD 1 TO IT
1453 7001	IAD	/SAVE THE WORD AS THE DATA PATTERN
1454 3042	DCA DATPAT	/SKIP ON USER INTERRUPT
1455 6254	TABLCU; SINT	/USER INTERRUPT GOT CLEARED
1456 4454	ERROR	/GET THE NEW FIELD
1457 1041	TAD WRKFLD	/GET THE GOF INSTRUCTION
1460 1041	TAD K6281	/PUT GOF TO NEW FIELD IN NEXT ADDRESS
1461 3262	DCA ,+1	
1462 7402	COFNEW; HLT/GOF	/CHANGE DATA FIELD TO NEW FIELD
1463 6214	RDF	/READ THE DATA FIELD
1464 7041	CIA	/NEGATE IT
1465 1041	TAD WRKFLD	/GET THE NEW FIELD
1466 7640	S2A CLA	
1467 4454	ERROR	/GOF TO NEW FIELD FAILED
1470 1042	TAD DATPAT	/GET THE DATA PATTERN
1471 6001	I0V	/TURN THE INTERRUPT ON
1472 3445	DCA I WRKADD	/PUT THE WORD UP IN NEW FIELD AND INTERRUPT
1473 4454	ERROR	/PROGRAM FAILED TO INTERRUPT
1474 1041	TAD WRKFLD	
1475 7112	CLL RTR	
1476 7012	RAL	
1477 3046	DCA SAVWFD	/SAVE THE WORKING FIELD IN BITS 9-11
1500 6234	R19	/READ THE INTERRUPT BUFFER
1501 7041	CIA	/NEGATE IT
1502 1040	TAD SAVWFD	/GET THE EXPECTED WORKING SAVE FIELD
1503 7640	S2A CLA	
1504 4454	ERROR	/SAVE FIELD NOT EQUAL TO EXPECTED FIELD
1505 6254	SINT	/SKIP ON USER INTERRUPT F/F
1506 4454	ERROR	/USER INTERRUPT GOT CLEARED

```

/KM8-B OPTION TEST 2 MAINDEG-WB=DJKHMA=AL 1K PART 2      PAL18   V142   18-DEC-74      15105 PAGE 2-18

1507 1262      TAD      COPNEW
1510 3311      DCA      141
1511 7402      HLT/CDF
1512 6214      RDP
1513 7043      CIA
1514 1041      TAD      WRKFELD
1515 7640      SEA      CLA
1516 4454      ERROR
1517 6001      IOV
1520 1443      TAD I  WRKADD
1521 4454      ERROR
1522 6236      RIS
1523 7043      CIA
1524 1046      TAD      SAVHFD
1525 7640      SEA      CLA
1526 4454      ERROR
1527 1042      TAD      DATPAT
1530 7041      CIA
1531 1032      TAD      DATREC
1532 7640      SEA      CLA
1533 4454      ERROR
1534 2047      ISE      ADDCNT
1535 7610      SKP      CLA
1536 5225      JMP     BEGT16
1537 1043      TAD      WRKADD
1540 1146      TAD      K2000
1541 3043      DCA      WRKADD
1542 2042      ISE      DATPAT
1543 5255      JMP     T16LCD
1544 6204      ENDIST, CINT
1545 6254      SINT
1546 7610      SKP      CLA
1547 4454      ERROR
1550 4455      LOOP
1551 5461      JMR I  PASEND

1577 1600
1600      PAGE

```

/GET THE COF INSTRUCTION TO THE NEW FIELD
/PUT IT IN THE NEXT LOCATION
/CDF TO NEW FIELD
/HEAD THE DATA FIELD
/NEGATE IT
/GET THE WORKING FIELD
/CDF TO NEW FIELD FAILED
/TURN THE INTERRUPT ON
/GET DATA PATTERN FROM NEW FIELD
/PROGRAM FAILED TO INTERRUPT
/HEAD THE INTERRUPT BUFFER
/NEGATE IT
/GET THE EXPECTED SAVE FIELD
/ARE THEY EQUAL
/NO,EXPECTED SAVE FIELD NOT EQUAL TO FIELD READ
/GET THE DATA PATTERN
/NEGATE IT
/GET THE WORD RECEIVED
/ARE THEY EQUAL?
/NO, DATA ERROR IN WRKFELD
/GET NEXT ADDRESS IN THIS FIELD?
/YES
/NO, GO GET NEXT FIELD IF ANY LEFT
/GET THE WORKING ADDRESS
/ADD 1K TO IT
/SAVE NEW 1K UPPER ADDRESS BOUNDARY
/ADD ANOTHER 1K TO DATA WORD
/GO LOAD AND COMPARE THIS ADDRESS
/CLEAR USER INTERRUPT
/SKIP ON USER INTERRUPT
/CINT FAILED TO CLEAR USER INTERRUPT
/LOOP ON TEST IF SR = 1000

```

1600 7080 ACTLIN: 0
1601 1822 TAJ    OP2SEL
1602 7700 SMA   CLA      /IS THE PROGRAM RUNNING ON ACT LINE?
1603 5602 JMP   I ACTLIN  /NO, RETURN
1604 1837 TAJ   FLDLIM  /GET THE FIELD LIMIT
1605 1111 TAJ   M70
1606 7640 SEA   CLA      /IS THE FIELD LIMIT EQUAL TO FIELD 77?
1607 5600 JMP   I ACTLIN  /NO, RETURN TO TEST
1610 1848 TAJ   UPERLM  /GET THE JPPEK ADDRESS LIMIT
1611 7081 TAJ   ADD3  /ADD 3 TO IT
1612 7640 SEA   CLA      /HAS IT 7777?
1613 5600 JMP   I ACTLIN  /NO, RETURN
1614 7352 CLA   CMA RTR  /SET LAST ADDRESS = 5777
1615 5640 DCA   UPERLM  /SAVE IT

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MAINDEQ=0B=DJKHMAW=L 1K PART 2				PAL10	V142	18-DEC-74	15105	PAGE 219
1616 5600	JMP	I	ACTLIN	/RETURN TO PROGRAM				
1617 1022	ENDPAS:	TAJ	OP2SEL	/CHECK FOR ACT LINE				
1620 7700	SMA	CLA		/IS THE PROGRAM RUNNING ON ACT LINE				
1621 5230	JMP	ENDING		/NO GO CHECK FOR SR 3 TO HALT AT END OF A PASS				
1622 2236	ISE	PRGPAS		/CHECK 1/2 SECOND COUNT				
1623 5230	JMP	ENDING		/NOT 1/2 SECOND YET				
1624 1377	TAJ	{144		/RESET THE COUNTER				
1625 3235	DCA	PRGPAS						
1626 6272	CIF	70						
1627 4451	JMS	I	GOODPS	/CHANGE INSTRUCTION FIELD TO 7				
1630 4335	ENDING:	JHS	SHCHK	/SIGNAL THE PHOM				
1631 7076	HTW			/CHECK SR 3 TO HALT ON A PROGRAM PASS				
1632 7074	RAS							
1633 7710	SPA	CLA						
1634 7402	HLT							
1635 5776	JMP		0200					
1636 7634	PRGPAS:	=144						
1637 7010	POWFAL:	RAS						
1640 3245	DCA	LINK						
1641 1000	TAJ	INTSER						
1642 3245	DCA	PC						
1643 6103	CAN							
1644 4452	JMS	I	AUTRST	/CLEAR AC LOW F/F				
1645 0000	LINK:	0		/RETURN TO THE PROGRAM				
1646 0000	PG:	0						
1647 0000	PRGHST:	0						
1650 6102	SPI							
1651 7610	SKP	CLA						
1652 5250	JMP	{2						
1653 5453	JMP	I	TEST					
1654 0000	TESTAD:	0						
1655 7340	CLA	CLL CHA						
1656 1254	TAJ	TESTAD						
1657 3053	DCA	TEST						
1660 1375	TAJ	{PRGRST						
1661 3052	DCA	AUTRST						
1662 5654	JMP	I	TESTAD					
1663 1021	BATEMT:	TAJ	OP1SEL					
1664 2143	AND	K200						
1665 7650	SNA	CLA						
1666 9273	JMP	DEAD						
1667 3367	DCA	ACNLCK						
1670 2000	ISE	INTSER						

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 2

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1971 2000    ISB    INTSER
1972 5400    JMP I INTSER
1973 7402    DEAU,  HALT
1974 5453    JMP I TEST
                                /ITS ALL OVER NOW = GOOD-BYE

1975 0000    GOODBYE, 0
1976 1022    TAD    OP2SEL
1977 7700    SMA    CLA
1978 5675    JMP I GOOD080
1979 6272    CIF 70
1980 4451    JMS I GOODPS
1981 5675    JMP I GOOD080
                                /RETURN TO PROGRAM

1984 0000    ERRORX, 0
1985 7300    CLA    CLL
1986 1022    TAD    OP2SEL
1987 7700    SMA    CLA
1988 5322    JMP I CHKINH
1989 1021    TAD    OP1SEL
1990 0143    AND K200
1991 7640    S2A    CLA
1992 6100    CLRMDR
1993 6002    IOP
1994 7240    CLA    CMA
1995 1304    TAD    ERRORX
1996 6272    CIF 70
1997 5450    JMP I BADPAS
1998 4335    CHKINH, JMP SWCHK
1999 7710    SPA    CLA
2000 5330    JMP ERLPSW
2001 7340    CLA CLL CMA
2002 1304    TAD    ERRORX
2003 7402    HLT
                                /TURN THE INTERRUPT OFF

2004 4335    ERLPSW, JMS SWCHK
2005 7004    RTL
2006 7710    SPA    CLA
2007 5454    JMP I TEST
2008 5704    JMP I ERRORX
                                /SUBTRACT ONE FROM JMS ERROR PC
                                /AC CONTAINS THE ADDRESS WHERE THE ERROR
                                /WAS DETECTED BY THE PROGRAM, REFER
                                /TO THE PROGRAM LISTING FOR ERROR
                                /EXPLANATION AND THE TEST DESCRIPTION,
                                /CHECK THE SWITCH REGISTER TO LOOP ON ERROR

2009 0000    SWCHK, 0
2010 7300    CLA    CLL
2011 1021    TAD    OP1SEL
2012 7700    SMA    CLA
2013 5344    JMP ,+3
2014 7604    LAS
2015 5735    JMP I SWCHK
2016 1020    TAD    SWITCH
2017 5735    JMP I SWCHK
                                /IS SR 1 SET TO A ONE TO LOOP ON TEST
                                /YES GO LOOP ON THE TEST
                                /NO, RETURN TO THE PROGRAM

2018 0000    SWCHK, 0
2019 7300    CLA    CLL
2020 1021    TAD    OP1SEL
2021 7700    SMA    CLA
2022 5344    JMP ,+3
2023 7604    LAS
2024 5735    JMP I SWCHK
2025 1020    TAD    SWITCH
2026 5735    JMP I SWCHK
                                /IS THE HARDWARE FRONT PANEL SELECTED
                                /NO, USE THE PSEUDO SWITCH REGISTER
                                /RETURN
                                /THE PSEUDO SWITCH REGISTER
                                /RETURN

```

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 2

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```

1746 0000    TSTL0P, 0
1747 4335    JMS    SWCHK
1748 7006    RTL
1749 7700    SMA    CLA
1750 5746    JMP I TSTL0P
1751 5453    JMP I TEST
                                /ROUTINE TO CHECK SR 2 TO LOOP ON TEST
                                /GO GET THE SWITCH REGISTER
                                /GO TO NEXT TEST
                                /LOOP ON SAME TEST

```

```

1754 0000    ACBATI, 0
1755 1367    TAD    ACNLOK
1756 7640    SEA    CLA
1757 5362    JMP ,+3
1758 2000    ISB    INTSER
1759 5400    JMP I INTSER
1760 3367    DCA    ACNLOK
1761 6101    SBE
1762 5360    JMP ,+4
1763 2000    ISB    INTSER
1764 5360    JMP ,+6
1765 0000    ACNLOK, 0
                                /LOOK AT RETURN FOR AC LOW OR BATTERY EMPTY
                                /SKIP ON BATTERY EMPTY

```

1775 1647
1776 2200
1777 7634
2000 PAGE

2000 *200

0000 11111111 11111111 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 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 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

2000
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5100

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5700

6000
6100

6200
6300

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6500

6600
6700

7000
7100

7200
7300

7400
7500

7600
7700

/KMB=A OPTION TEST 2 MAINDEG=08=DJKMA=L 1K PART 2		PAL18	V142	18=VEC=74	15105	PAGE 2*24
ACLBAT	1754	JM5C45	0764	M4108	0131	TST12D 0327
ACNLOK	1767	JM5C46	0102	M43	0101	TST12E 0401
ACTLIN	1608	JM5C47	0134	M44	0102	TST12F 0432
ADDINT	0047	JM5C48	0100	M5	0005	TST12G 0463
AUTRST	0052	K12	0135	M50	0103	TST12H 0515
BADPAS	0050	K125	0141	M5000	0132	TST12I 0547
RATEHT	1663	K132	0142	M5108	0133	TST13A 0636
REOT16	1425	K1777	0145	M52	0104	TST13B 0662
CAF	6007	X200	0146	M55	0105	TST13C 0704
CAL	6103	X2000	0146	M60	0106	TST13D 0732
CDF	6201	K37	0156	M61	0107	TST13E 0754
CUPCHK	0033	K400	0144	M66	0110	TST13F 1000
CUPNEW	1462	K4100	0153	M7	0006	TST13G 1024
CHKCDF	0034	K6201	0045	M73	0111	TST13H 1058
CHKINH	1722	K7	0134	M77	0112	TST14A 1115
CIP	6202	K73	0137	OP1SEL	0021	TST14B 1152
CIPCDF	6203	K7577	0152	OP21X2	0008	TST14C 1210
CINT	6204	K77	0140	OP2SEL	0022	TST14D 1256
CKJHS1	0227	K7707	0150	PASEN4	0061	TST14P 1746
CKJHS2	0257	K7727	0151	PC	1646	UPERLM 0048
CKJHS3	0310	K7774	0147	POWFL	1637	WRKADD 0043
CKJHS4	0341	L14K	1045	PRGPAS	1636	WRKFLO 0041
CKJHS5	0413	LO0HG2	6192	PRGHST	1647	XBAT 0066
CKJHS6	0444	LO0HG3	6153	RDF	6214	XPWRFL 0057
CKJHS7	0475	LO0P	4455	REDEMA	6155	
CKJHS3	0527	M1	0002	RIB	6234	
CKJHS9	0561	M12	0067	RIF	6224	
CLREMA	6154	M120	0113	RKRE	6223	
CLRNOD	6160	M1200	0117	RNP	6244	
CLRSIM	6150	M1307	0120	RTF	6085	
CUP	6264	M1616	0121	SAVES4	0036	
DATPAT	0042	M1823	0122	SAVWU	0046	
DATHEC	0035	M123	0123	SBE	6101	
DEAU	1673	M1233	0124	SCOP_P	4456	
ENDING	1630	M1252	0125	SINT	6254	
ENDPAS	1617	M1291	0126	SKON	6000	
ENDTST	1544	M1308	0127	SPKEWA	6166	
ERLPSW	1730	M11	0072	SPL	6182	
ERRHUR	4454	M1108	0130	SUF	6274	
ERRURX	1704	M125	0114	SUCHK	1735	
EXECUT	6164	M152	0115	SWITCH	0028	
FLDLIM	0037	M15	0071	T36LTU	1455	
GOODRD	1679	M2	0063	TEST	0053	
GOODUPS	0051	M20	0072	TEST12	0200	
GTF	6084	M22	0073	TEST13	0016	
HGHLM	0044	M25	0074	TEST14	1100	
HTY	7402	M30	0075	TEST15	1274	
INTSER	0008	M320	0116	TEST16	1363	
JMSCK1	0646	M33	0076	TESTAU	1654	
JMSCK2	0672	M34	0077	TST12A	0215	
JMSCK3	0714	M4	0064	TST12B	0245	
JMSCK4	0740	M48	0108	TST12C	0276	

/KMB=A OPTION TEST 2 MAINDEG=08=DJKMA=L 1K PART 2 PAL18 V142 18=VEC=74 15105 PAGE 2*25

ERRORS DETECTED: 0

LINKS GENERATED: 3

RUN-TIME: 18 SECONDS

3K CORE USED

/XMB=8 OPTION TEST 2 MAINDEG=088+0J<MA+A=0L 1K PART 3 PAL10 V142 18-DEC-74 15126 PAGE 1

/KMB=A OPTION TEST 2 MAINDEC=08=0JKMA=A=L 1K PART 3
/COMMMIGHT (C) 1974, DIGITAL EQUIPMENT CORPORATION
/PRGRMAMMER: BRUCE HANSEN

THE FOLLOWING LISTING WILL CORRESPOND TO THE PAPER TAPE LABELED MAINDEC-88-DJKHA-A=PM3,
1K 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,

/XMB-A OPTION TEST 2 MAINDEG=08-DJCSMA=A-L 1K PART 3 PAL10 V142 18-DEC-74 1512A PAGE 2

/KMS=A OPTION TEST 2 MAINDEC=BB=DJKMA=A=L 1K PART 3
/COPYRIGHT 1974, DIGITAL EQUIPMENT CORP., MAYNARD, MASS., 01754
/PDP-8A OPTION TEST 2 TESTS THE MEMORY EXTENTION/TIME SHARE CONTROL.
/POWER FAIL/AUTO RESTART, AND BOOTSTRAP LOADERS

6000 SKON#6000
6007 CAF#6007
7482 HL7482

/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
```

MEMORY EXTENSION/TIME SHARE INSTRUCTIONS

6884 GTF#6884 /GET FLAGS, READS THE FOLLOWING MACHINE STATE
/INTO THE INDICATED BITS OF THE ACI
/ACB LINE
/AC2 INTERRUPT REQUEST
/AC4 INTERRUPT ENABLE F/F
/AC5 USER FLAG
/AC6-11 SAVE FIELD REGISTER

6005 RTF6005
/*RESTORE THE FLAGS, RTF LOADS THE LINK FROM AC0,
/LOADS THE USER BUFFER F/F, INSTRUCTION BUFFER AND
/DATA FIELD WITH ACS, AC6-0, INSTRUCTION AC 9-11 AND INHIBITS
/PROCESSOR INTERRUPTS UNTIL NEXT JMP OR JNS INSTRUCTION.
/AT THE END OF THE JMP OR JMS, THE CONTENTS OF THE U.B. + I.B.
/ARE LOADED INTO USER FIELD F/F, AND THE I.F., INTERRUPT ENABLE
/IS SET AND INTERRUPT INHIBIT IS CLEARED

6234 RIB#6234

6244 RMF 6244

6204 CINTREAS

6354 FINTZ & ZIMMERMANN

1814 SURVEY

Digitized by srujanika@gmail.com

8279 SUR 40479

6201 CDF=6201

```
/GET FLAGS, READS THE FOLLOWING MACHINE STATES  
/INTO THE INDICATED BITS OF THE ACI  
/AC8 LINE  
/AC2 INTERRUPT REQUEST  
/AC4 INTERRUPT ENABLE F/F  
/AC5 USER FLAG  
/AC6-11 SAVE FIELD REGISTER  
  
/RESTORE THE FLAGS, RTF LOADS THE LINK FROM AC8,  
/LOADS THE USER BUFFER F/F, INSTRUCTION BUFFER AND  
/DATA FIELD WITH AC5, AC6-8, AC 9-11 AND INHIBITS  
/PROCESSOR INTERRUPTS UNTIL NEXT JMP OR JMS INSTRUCTION,  
/AT THE END OF THE JMP OR JMS, THE CONTENTS OF THE U.B., + I.B.,  
/ARE LOADED INTO USER FIELD F/F, AND THE I.F., INTERRUPT ENABLE  
/IS SET AND INTERRUPT INHIBIT IS CLEARED
```

CLEAR THE INTERRUPT BUFFER

RESTORES MEMORY FASTER

1915-16: 1916-1917: 1917-18:

USER INTERRUPT FLIP-FLOP

/*SKIP ON USER INTERRUPT FLIP

```
/*CLEAR USER BUFFER FLIP-FLOP  
*/SET USER BUFFER FLIP-FLOP (ENTER TIME SAME MODE) AND  
/*INHIBITS PROCESSOR INTERRUPTS UNTIL THE NEXT JMP OR  
/*JMS INSTRUCTION, AT THE END OF THE JMP OR JMS  
/*INSTRUCTION, THE USER BUFER IS LOADED INTO THE USER  
/*FIELD F/F;
```

CHANGE DATA FIELD

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 1K PART 3 PAL10 V142 18-DEC-74 15106 PAGE 2*1
 6202 CIF#6202 /CHANGE INSTRUCTION FIELD
 6214 RDF#6214 /READ THE DATA FIELD INTO AC BITS 6-8
 6224 RIF#6224 /READ THE INSTRUCTION FIELD INTO AC BITS 6-8
 6203 CIFCDF#6203 /PERFORMS THE CIF AND CDF FUNCTIONS

 /POWER FAIL INSTRUCTIONS
 6102 SPL#6102 /SKIP ON AC LOW FLIP-FLOP
 6103 CAL#6103 /CLEAR AC LOW FLIP-FLOP
 6101 SBE#6101 /SKIP ON BATTERY EMPTY FLIP-FLOP

 /OPTION BOARD 2 SIMULATOR IOTS
 6150 CLRSHM#6150 /CLEAR CONTROL REGISTERS
 6152 LOOKG2#6152 /LOAD CONTROL REGISTER 2
 6153 LOOKG3#6153 /LOAD CONTROL REGISTER 3
 6154 CLREMA#6154 /CLEAR EMA CATCHER LOGIC
 6155 REDEMA#6155 /READ EMA CATCHER REGISTER
 6160 CLRMOU#6160 /CLEAR TEST MODULE LOGIC
 6164 EXECUT#6164 /EXECUT AND CONTROL WORD 3 BIT 7 *1 ISSUE A POWER ON PULSE
 6166 SKPEMA#6166 /SKPEMA AND CONTROL WORD 3 BIT 3 *1 EMA INTERRUPT AND SKIP ENABLE
 /SKPEMA AND CONTROL WORD 3 BIT 3 *0 EMA INTERRUPT AND SKIP DISABLE

 /OPTION BOARD 2 SIMULATOR CONTROL WORD 2 BIT ASSIGNMENTS
 /
 /BITS 0 = 1 NOT USED
 /BITS 2 = 9 BOOT STRAP PROGRAM SELECT
 /BITS 9 = 11 AUTO-RESTART ADDRESS SELECT

 /OPTION BOARD 2 SIMULATOR CONTROL WORD 3 BIT ASSIGNMENTS
 /
 /BIT 0 TIME SHAME DISABLED 1=DISABLED
 /BIT 1 AC LOW (L) 1=PULLED LOW 0=FREE STATE
 /BIT 4 BATT EMPTY 1=BATT EMPTY PULLED LOW 0=FREE STATE
 /BIT 3 1=EMA INTERRUPT/SKIP ENABLE 0=EMA INTERRUPT SKIP DISABLE
 /BITS 4 = 5 NOT USED
 /BIT 7 1=POWER ON PULSE WITH EXECUT 0=SWITCH SW PULSE WITH EXECUT
 /BIT 9 1=DISABLES BOOTSTRAP WHILE RUNNING 0=ENABLES BOOTSTRAP WHILE RUNNING
 /BIT 9 = 11 AUTO-RESTART/BOUT STRAP ENABLE CODE

 0000 #0
 0003 0000 INTSEL, 2 /JMS I AUTHST PLACED HERE FOR SIMULATOR AUTO RESTART
 0001 3235 DCA DATREC
 0002 6102 SPL /SKIP ON AC LOW
 0003 7410 SKP
 0004 5457 JMP I XPHRFL
 0005 6101 SBE /POWER GOING DOWN
 /SKIP ON BATTERY EMPTY

 /KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 1K PART 3 PAL10 V142 18-DEC-74 15106 PAGE 2*2
 0006 7410 SKP
 0007 5460 JMP I XBAT /GO HALT THE COMPUTER ,ITS ALL OVER
 0010 6224 RIF
 0011 7640 SEA CLA /READ THE INSTRUCTION FIELD
 0012 4454 ERORH
 0013 6214 RDF
 0014 7640 SEA CLA
 0015 4454 ERORH
 0016 2000 ISZ INTSER
 0017 5400 JMP I INTSER /ADD 1 TO THE INTERRUPTED PC
 /RETURN TO THE PROGRAM

 0020 #20
 0020 0000 SWITCH, 2 /PSEUDO SWITCH REGISTER IF BIT 0=0 OF OP1SEL
 0021 1000 OP1SEL, 1000 /
 /BIT 0=0 USE LOC 20 AS A PSEUDO S,R,
 /BIT 0=1 USE HARDWARE FRONT PANEL S,R,
 /BIT 1=1 HAS 8A OPTION 1
 /BIT 2=1 HAS 8A OPTION 2
 /BIT 3=1 HAS 8A CPU SIMULATOR
 /BIT 4=1 HAS 8A OPTION 1 + 2 TEST MODULE
 /BIT 5=1 PROGRAM ON 8A XOR
 /BIT 6=1 HAS PDP-8E TYPE CPU
 /BITS 7+11 MEMORY SIZE = 015 = 1K, 37=32K,
 /MEMORY SIZE CAN BE INCREASED IN 1K INCREMENTS
 /BY ADDING A 1 TO THE NUMBER IN BITS 7+11,
 0022 0000 OP2SEL, 0
 /RK8E BOOT STRAP WILL LOAD INTO THE FOLLOWING LOCATIONS

 0023 7402 RK8E, HLT /2000
 0024 7402 HLT /0745
 0025 7402 HLT /0823
 0026 7402 HLT /77650
 0027 7402 HLT /5024
 0030 7402 HLT /6733
 0031 7402 HLT /5031
 0032 7402 HLT /TERMINATOR
 0033 0000 CDFCHK, 0
 0034 0035 CKC0F, CDFCHK
 0035 0000 DATREC, 0
 0036 0000 SAVESZ, 0
 0037 0000 FLDLM, 0
 0040 0000 UPHLIM, 0
 0041 0000 WRKFLU, 0
 0042 0000 DATPAT, 0
 0043 0000 WRKADU, 0
 0044 0000 HQHLIM, 0
 0045 6201 6201, 6201
 0046 0000 SAVHPU, 0
 0047 0000 ADDQNT, 0
 0050 6520 BADPAS, 6520
 0051 6500 GOODPAS, 6500
 0052 1653 AUTHST, PRSHST
 0053 0000 TEST, 0 /SCREW LOOP AND TEST LOOP ADDRESS

/KHB-A OPTION TEST 2 MAINDEG=08=DJKMA=A-L 1K PART 3 PAL10 V142 18-DEC-74 15106 PAGE 2-3

```
0054 4454 ERRUR# JMS I ,  
0055 1710 LOOP# JMS I ,  
0055 4455 SCOPHL# JMS I ,  
0055 1752 TSTLDP  
0056 4456 SCOPHL# JMS I ,  
0056 1660 TESTAD  
  
0057 1643 XPKHFW# POWFAL  
0058 1667 XBATI BATEMT  
0059 1617 PASENU ENCPAS
```

/CONSTANTS USED BY THE PROGRAM

```
0062 7777 M1, =1  
0063 7776 M2, =2  
0064 7774 M4, =4  
0065 7773 M5, =5  
0066 7771 M7, =7  
0067 7770 M10, =10  
0070 7767 M11, =11  
0071 7762 M16, =15  
0072 7760 M20, =20  
0073 7756 M22, =22  
0074 7753 M25, =25  
0075 7750 M30, =30  
0076 7745 M33, =33  
0077 7744 M34, =34  
0103 7740 M40, =40  
0101 7735 M43, =43  
0102 7734 M44, =44  
0103 7730 M50, =50  
0104 7726 M52, =52  
0105 7723 M55, =55  
0106 7720 M60, =60  
0107 7717 M61, =61  
0113 7712 M65, =65  
0111 7710 M70, =70  
0112 7701 M77, =77  
0113 7700 M100, =100  
0114 7693 M120, =120  
0115 7626 M152, =152  
0116 7500 M300, =300  
0117 7000 M1000, =1000  
0120 6771 M1007, =1007  
0121 6762 M1010, =1010  
0122 6753 M1025, =1025  
0123 6744 M1034, =1034  
0124 6730 M1045, =1045  
0125 6726 M1052, =1052  
0126 6717 M1061, =1061  
0127 6710 M1070, =1070  
0130 6700 M1100, =1100  
0131 3700 M4100, =4100
```

/KHB-A OPTION TEST 2 MAINDEG=08=DJKMA=A-L 1K PART 3 PAL10 V142 18-DEC-74 15106 PAGE 2-4

```
0132 3000 M5000, =5000  
0133 2700 M5100, =5100  
  
0134 0007 K7, 7  
0135 0010 K10, 10  
0136 0037 K37, 37  
0137 0070 K70, 70  
0140 0077 K77, 77  
0141 0125 K125, 125  
0142 0152 K152, 152  
0143 0200 K200, 200  
0144 0400 K400, 400  
0145 1777 K1777, 1777  
0146 2000 K2000, 2000  
0147 7774 K7774, 7774  
0150 7707 K7707, 7707  
0151 7757 K7757, 7757  
0152 7677 K7677, 7677  
0153 4000 K4100, =4100  
  
0200 =200
```

/TEST 18 = IS ONLY EXECUTED WHEN THE SIMULATOR IS SELECTED (BIT 4 OF LOCATION 21 SET TO A 1).
/TEST 18 CHECKS THAT THE EMA IS LOADED ONTO THE BUS DURING A DCA 1 FOLLOWING
/A CDF 101 CDF 201 CDF 4M. THE SIMULATOR IS USED TO CAUSE A INTERRUPT
/FOLLOWING A EMA CHANGE ON THE BUS, THE SIMULATOR STORES THE EMA INTO A
/EMA CATCHER REGISTER AND THEN THE PROGRAM READS AND COMPARES IT.

```
0200 7000 NOP/JMS I AUTRST /THIS LOCATION USED FOR AUTO-RESTARTS  
0201 4456 TEST18, SCOPLP /SETUP TEST AND SCOPE LOOPING ADDRESS  
0202 6007 CAF /CLEAR ALL FLAGS  
0203 1021 TAJ DP1SEL /CHECK BIT 4 OF LOCATION 21 FOR SIMULATOR SELECT  
0204 0143 AND K200 /  
0205 7650 SNA CLA /HAS THE SIMULATOR SELECTED ?  
0206 5481 JMS I PASEND /NO, END OF ONE PROGRAM PASS  
0207 4211 JMS EMACLR /LOAD CONTROL WORD AND CLEAR EMA REGISTER  
0210 5225 JMS TST1BA /GO TO FIRST TEST  
0211 0000 EMAULH, 0 /ROUTINE TO LOAD CONTROL WORD AND CLEAR EMA CATCHER REGISTER  
0212 1144 TAJ K400 /  
0213 6153 LODH63 /LOAD CONTROL REGISTER 3 FOR INT AND SKIP ENABLE  
0214 6154 CLR6TA /CLEAR EMA CATCHER REGISTER  
0215 6166 SKP6MA /SKIP ON EMA CATCHER REGISTER SET  
0216 7650 SKP CLA /  
0217 4454 ER00K /CLOMMA FAILED TO CLEAR CATCHER F/F  
0220 6155 RE26MA /HEAD THE EMA CATCHER REGISTER  
0221 1066 TAJ M7 /CLEARING THE REGISTER SET IT TO 7  
0222 7648 SEA CLA /IS THE REGISTER SET TO 7 ?  
0223 4454 ER00K /NO, CLOMMA FAILED TO SET REGISTER TO 7  
0224 5651 JMS I EMACLR /CHANGE DATA FIELD TO FIELD 10  
0225 6211 TST1BA, CDF 10 /TURN THE INTERRUPT ON  
0226 6001 104 /
```

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A-L 1K PART 3

PAL10 V142 18-DEC-74 15126 PAGE 2-5

```

0227 3630 DCA I ,*1 /CHANGE THE EMA LINES TO 1 AND INTERRUPT
0230 7402 HLT /SIMULATOR FAILED TO INT, OR EMA DIDN'T CHANGE
0231 6166 SKPEMA /SKIP ON EMA REGISTER SET
0232 4454 ERROR /SIMULATOR EMA CATCHER REGISTER NOT SET
0233 6234 R13 /READ THE INTERRUPT BUFFER
0234 1062 TAD M1 /IS THE SAVE FIELD EQUAL TO 1 ?
0235 7640 SEA CLA /NO, SAVE FIELD NOT EQUAL TO 1
0237 6155 REDEMA /READ THE SIMULATOR EMA CATCHER REGISTER
0240 1062 TAD M1 /IS THE EMA CATCHER REGISTER = 1 ?
0241 7640 SEA CLA /NO, EMA LINES OTHER THAN EMA2 MUST HAVE BEEN SET
0242 4454 ERROR /LOAD CONTROL WORD AND CLEAR EMA CATCHER REGISTER
0243 4211 JMS EMACLR /CHANGE DATA FIELD TO FIELD 2
0244 6221 TST18H, CDF 28 /TURN THE INTERRUPT ON
0245 6001 IOV /CHANGE THE EMA LINES TO 2 AND INTERRUPT
0246 3647 DCA I ,*1 /PROGRAM FAILED TO INTERRUPT OR EMA DID NOT CHANGE
0247 7402 HLT /SKIP ON EMA REGISTER SET
0250 6166 SKPEMA /EMA CATCHER REGISTER NOT SET
0251 4454 ERROR /READ THE EMA CATCHER REGISTER
0252 6155 REDEMA
0253 1063 TAD M2 /DID THE DF SET EMA1 ON TO THE BUS
0254 7640 SEA CLA /NO, EMA REGISTER NOT EQUAL TO 2
0255 4454 ERROR /LOAD CONTROL WORD CLEAR EMA REGISTER
0256 4211 JMS EMACLR /CHANGE DATA FIELD TO FIELD 4
0257 6241 TST18G, CDF 40 /TURN THE INTERRUPT ON
0258 6001 IOV /CHANGE EMA LINES TO 4 AND INTERRUPT
0259 3662 DCA I ,*1 /PROGRAM FAILED TO INTERRUPT OR EMA DID NOT CHANGE
0260 7402 HLT /SKIP ON EMA CATCHER REGISTER SET
0261 6166 SKPEMA /EMA CATCHER F/F NOT SET
0262 4454 ERROR /READ THE EMA CATCHER REGISTER
0263 6155 REDEMA
0264 1064 TAD M4 /DID THE DF SET EMA0 ONTO THE BUS
0265 7640 SEA CLA /NO, EMA CATCHER REGISTER NOT EQUAL TO 4
0267 4454 ERROR /LOAD CONTROL WORD AND CLEAR EMA CATCHER REGISTER
0271 4672 JMS I ,*1 /CLEAN SIMULATOR CONTROL WORD
0272 4211 EMACLR /LOOP
0273 6150 CLRSM /LOOP ON TEST IF SR = 1080
0274 4455 LOOP

```

```

*****  

/TEST 19 - IS A CONTINUATION OF TEST 18 ONLY TESTING THAT THE CIF  

/INSTRUCTION LOADS THE APPROPRIATE EMA LINE, THE TEST WILL BE FOR CIF 101  

/CIF 201 AND CIF 40, THE SIMULATOR IS USED FOR INTERRUPTS AND TO READ  

/THE EMA LINES:  

*****

```

```

0275 4456 TEST19, SCOPLP /SETUP TEST AND SCOPE LOOPING ADDRESS
0276 4207 CAF /CLEAR ALL FLAGS
0277 6160 CLRMD /CLEAR SIMULATOR MODULE
0280 6211 CUF 10 /CHANGE DATA FIELD TO FIELD 1
0281 3761 DCA I EMA1 /CLEAR THE FIRST TEST LOCATION
0282 4221 CDF 28 /CHANGE DATA FIELD TO FIELD 2
0283 3762 DCA I EMA2
0284 5241 CUF 40 /CHANGE DATA FIELD TO FIELD 4
0285 3763 DCA I EMA3 /CLEAR A LOCATION IN FIELD 4

```

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=A-L 1K PART 3

PAL10 V142 18-DEC-74 15126 PAGE 2-6

```

0306 6281 CDF 00 /CHANGE DATA FIELD BACK TO FIELD 0
0307 4760 JMS I CLRERG /LOAD CONTROL WORD AND CLEAR EMA CATCHER REGISTER
0310 6212 TST19A, CIF 10 /CHANGE INSTRUCTION FIELD TO 1
0311 6001 IOV /TURN THE INTERRUPT ON
0312 5312 EMAIF1, JMP : /CLEAR INT INHIBIT AND INTERRUPT
0313 7402 HLT /PROGRAM FAILED TO INTERRUPT
0314 6166 SKPEMA /SKIP ON EMA CATCHER F/F SET
0315 4454 ERROR /EMA CATCHER F/F NOT SET
0316 6234 R13 /READ THE INTERRUPT BUFFER
0317 1067 TAD M10 /IS THE SAVE FIELD EQUAL TO IF OF 1
0320 7640 SEA CLA /SAVE FIELD NOT EQUAL TO IF OF 1
0321 4454 ERROR /READ THE EMA CATCHER REGISTER
0322 6155 REDEMA
0323 1062 TAD M1 /IS THE EMA CATCHER REGISTER EQUAL TO 1
0325 4454 ERROR /NO, EMA CATCHER REGISTER NOT EQUAL TO 1
0326 4760 TST19B, JMS I CLRERG /LOAD CONTROL WORD, CLEAR EMA CATCHER REGISTER
0327 6222 CIF 28 /CHANGE INSTRUCTION FIELD TO FIELD 2
0330 6001 IOV /TURN THE INTERRUPT ON
0331 5331 EMAIF2, JMP : /CLEAR INT INHIBIT AND INTERRUPT
0332 7402 HLT /PROGRAM FAILED TO INTERRUPT OR EMA DID NOT CHANGE
0333 6166 SKPEMA /SKIP ON EMA CATCHER F/F SET
0334 4454 ERROR /EMA CATCHER REGISTER NOT SET
0335 6155 REDEMA /READ THE EMA CATCHER REGISTER
0336 1063 TAD M2 /IS THE EMA CATCHER REGISTER EQUAL TO 2
0337 7640 SEA CLA /NO, EMA WASN'T SET TO 2
0340 4454 ERROR /LOAD CONTROL WORD, CLEAR EMA REGISTER
0341 4760 TST19C, JMS I CLRERG /CHANGE INSTRUCTION FIELD TO FIELD 4
0342 6242 CIF 40 /TURN THE INTERRUPT ON
0343 6001 IOV /CLEAR INTERRUPT INHIBIT AND INTERRUPT
0344 5344 EMAIF3, JMP : /PROGRAM FAILED TO INTERRUPT
0345 7402 HLT /SKIP ON EMA CATCHER F/F SET
0346 6166 SKPEMA /EMA CATCHER REGISTER NOT SET
0347 4454 ERROR /READ THE EMA CATCHER REGISTER
0350 6155 REDEMA
0351 1064 TAD M4 /IS THE EMA CATCHER REGISTER SET TO 4
0352 7640 SEA CLA /NO, EMA WASN'T SET TO 4
0353 4454 ERROR /LOAD CONTROL WORD CLEAR CATCHER F/F'S
0355 6150 CLRSM /CLEAR SIMULATOR CONTROL WORDS
0356 4455 LOOP /LOOP ON TEST IF SR = 1080
0357 5777, JMP TEST20 /GO TO THE NEXT TEST

```

```

0360 0211 CLRERG, EMACLR
0361 0312 EMA1, EMA1F1
0362 0331 EMA2, EMA2F2
0363 0344 EMA3, EMA3F3

```

```

0377 0402
0400 PAGE
0400 5601 JMS I ,*1 /SIMULATOR COMES HERE AFTER A BOOTSTRAP
0401 0642 BOINT1

```

/TEST 20 = IS EXECUTED WHEN THE SIMULATOR IS SELECTED, TEST 22 CHECKS
 /THAT THE TIME SHARE LOGIC CAN BE DISABLED; THIS IS DONE WITH THE
 /SIMULATOR BY PULLING KHTS TIME SHARE DISA, L LOW, THE PROGRAM THEN
 /TRIES TO LOAD THE USER BUFFER AND THEN DOES A IOT, LAS, DSH AND CHECKS
 /THAT THE PROGRAM DIDN'T INTERRUPT,
 /*****

0402	4456	TEST2U, SCPLP	/SETUP TEST AND SCONE LOOPING ADDRESS
0403	6007	CAF	/CLEAR ALL FLAGS
0404	6160	CLRHOD	/CLEAR SIMULATOR LOGIC
0405	7330	CLA CLL CML RAR	/SET BIT 0 TO A ONE
0406	6153	LDXG3	/LOAD CONTROL REGISTER 3 WITH TIME SHARE DISABLE
0407	7300	CLA CLL	
0410	6801	I0V	/TURN THE INTERRUPT ON
0411	6274	SUF	/TRY TO SET USER BUFFER
0412	5213	JMP ,+1	/TRY TO ENTER TIME SHARE MODE
0413	7404	DSR	/SHOULD TRAP HERE IF TIME SHARE NOT DISABLED
0414	7410	SKP	
0415	4454	ER0H	/TIME SHARE NOT DISABLED=PROGRAM INTERRUPTED
0416	7684	LAS	/SHOULD TRAP HERE IF TIME SHARE NOT DISABLED
0417	7410	SKP	
0420	4454	ER0H	/LAS TRAPPED WITHOUT TIME SHARE ENABLED
0421	6001	I0V	/ISSUE A IOT
0422	7610	SKP	
0423	4454	ER0H	/IOT TRAPPED WITHOUT TIME SHARE ENABLED
0424	6007	CAF	/CLEAR ALL FLAGS
0425	7610	SKP CLE	
0426	4454	ER0H	/CAF TRAPPED
0427	6150	CLRSIM	/CLEAR THE SIMULATOR CONTROL REGISTERS
0430	6001	I0V	/TURN INTERRUPT ENABLE ON
0431	6274	SUF	/SET THE USER BUFFER F/F
0432	5233	JMP ,+1	/ENTER TIME SHARE MODE
0433	7402	HLT	/SHOULD TRAP HERE
0434	5234	JMP ,	/HALT FAILED TO TRAP IN USER MODE
0435	6254	SINT	/SKIP ON USER INTERRUPT F/F SET
0436	4454	ER0H	/USER INTERRUPT F/F NOT SET
0437	6007	CAF	/CLEAR USER INTERRUPT F/F
0440	4455	LOOP	/LOOP ON TEST IF SR = 1000
0441	5642	JMP I ,+1	
0442	"600	TEST21	

/THE FOLLOWING LOCATIONS CONTAIN THE CONTENTS OF THE TABE CASSETTE BOOTSTRAP

0443	4000	TABADU, 4020	/BOOTSTRAP WILL START LOADING INTO THIS ADDRESS
0444	7740	TABUMP=TABEND=1	
0445	1237	TABUMP, 1237	
0446	1206	1206	
0447	5704	5704	
0450	6706	6706	
0451	6703	6703	
0452	5204	5204	
0453	7254	7254	
0454	6702	6702	

0455	7610	7610	
0456	3211	3211	
0457	3636	3636	
0460	1205	1225	
0461	6704	6704	
0462	6706	6706	
0463	6701	6701	
0464	5216	5216	
0465	7082	7082	
0466	7430	7430	
0467	1636	1636	
0470	7022	7022	
0471	3636	3636	
0472	7420	7420	
0473	2236	2236	
0474	2235	2235	
0475	5215	5215	
0476	7346	7346	
0477	7002	7002	
0502	3235	3235	
0501	5201	5201	
0502	7737	7737	
0503	3557	3557	
0504	7730	TABEND, 7730	
0505	0000	0000	/TERMINATOR

0506	1301	BOOTTB, PTBA0D	
0507	1343	TQBA0D	
0510	1363	DSKA0D	
0511	0443	TABA0D	
0512	0514	RKBADD	
0513	0000	D	

/THE FOLLOWING LOCATIONS CONTAIN THE CONTENTS OF THE RK8E BOOTSTRAP

0514	0023	RKBADU, 0023	/BOOTSTRAP WILL LOAD INTO THIS ADDRESS
0515	7771	RKBCHP=RKBEND=1	/NUMBER OF LOCATIONS TO COMPARE
0516	2000	RKBCHP, 2000	
0517	6745	6745	
0520	0023	0023	
0521	7650	7650	
0522	5024	5024	
0523	6743	6743	
0524	5031	5031	
0525	0000	0000	/TERMINATOR
	0620	PAGE	

THE FOLLOWING TEST CHECKS THE BOOTSTRAP TO LOAD AND TO COMPARE CORRECTLY

```

0600 4456 TEST21 SCOPLP /SETUP TEST COUNT AND SCOPE LOOPING ADDRESS
0601 1377 TAD JMS I AUTRST /SETUP LOCATIONS 0 AND 200
0602 3000 DCA INTSER
0603 1377 TAD (JMS I AUTRST
0604 3776 TEST18=1
0605 1375 TAD (NOBOOT /SET UP A LOCATION IN CASE LOGIC DID A AUTO RESTART
0606 3052 DCA AUTRST /SAVE IT
0607 5212 JMP ,+3
0610 2000 NOBOOT, 0
0611 4454 ERROM /PROGRAM DID A AUTO-RESTART INSTEAD OF A BOOT
0612 4160 CLRMOO /CLEAR SIMULATOR TEST LOGIC
0613 4774' JMS SETUP /GO SETUP FOR BOOTSTRAPS
0614 1373 NXTBOT, TAD (BOTSEL /GET THE ADDRESS OF THE BOOT SELECT TABLE
0615 1320 TAD SIMBOT /GET THE BOOTSTRAP TO BE EXECUTED
0616 3322 DCA CONTW2 /SAVE THE ADDRESS OF BOOTSTRAP SELECT
0617 1372 TAD (BOTENA /GET THE ADDRESS OF THE BOOTSTRAP ENABLE BITS
0620 3323 DCA CONTW3 /SAVE THE ADDRESS OF BOOT ENABLE CODE
0621 7346 CLA CLL CMA RTL /SETUP TO DO 3 BOOTSTRAP COMBINATIONS
0622 3329 DCA BTSUBT /SAVE SUB-TEST COUNT
0623 6160 CLRMOO /CLEAR SIMULATOR MODULE
0624 4771' JMS CLEARB /CLEAR BOOTSTRAP LOCATIONS IN MEMORY
0625 1022 TAD OP2SEL /CHECK FOR THE ACT LINE
0626 7710 SPA CLA /IS PROGRAM RUNNING ON ACT LINE?
0627 6305 6305 /YES,DISABLE ACT UNTIL BOOTSTRAP IS COMPLETED
0630 1722 TAD I CONTW2 /GET THE BOOTSTRAP SELECT ADDRESS
0631 6152 LOOKH2 /LOAD SIMULATOR CONTROL REGISTER 2
0632 7300 CLL
0633 1326 TAD BOOTR1 /GET BOOT STRAP RETURN ADDRESS FOR BOOT RETURN
0634 3724 DCA I ADD401 /PUT IT INTO LOCATION 401
0635 1723 TAD I CONTW3 /GET BOOTSTRAP ENABLING CODE
0636 6153 LOOKH3 /LOAD SIMULATOR CONTROL REGISTER 3
0637 7300 CLL
0640 6164 EXECUT CLL
0641 5241 JMP ,
/LOAD THE BOOTSTRAP
/PROGRAM FAILED TO BOOTSTRAP ON 1 OF THE FOLLOWING CONDITIONS
/00001 SW-SW ENABLE BOOT WHEN RUNNING
/00002 SW-SW ENABLE BOOT WHEN RUNNING
/00003 SW-SW ENABLE BOOT WHEN RUNNING
0642 6160 ROTHT2, CLRMOO /CLEAR SIMULATOR LOGIC
0643 7301 CLA CLL IAC /BOOTSTRAP SHOULD RETURN HERE VIA SIMULATOR
0644 1022 TAD OP2SEL /CHECK FOR THE ACT LINE
0645 7510 SPA /IS THE PROGRAM ON THE ACT LINE
0646 6305 6305 /YES, ENABLE THE ACT LINE
0647 7300 CLL
0650 1320 TAD SIMBOT /GET THE BOOT BEING EXECUTED
0651 4770' JMS BOTCHP+2 /DO COMPARE THE BOOT THAT WAS LOADED
0652 2323 IS2 CONTW3 /ADD 1 TO THE BOOTSTRAP ENABLE ADDRESS
0653 2325 IS2 HTSUBT /DONE WITH THIS SUB TEST?
0654 5223 JMP BTST1 /NO, DO NEXT ENABLING CONDITION
0655 4767' JMS GOODBD /SIGNAL ACT LINE IF SELECTED
0656 1065 TAD HS /SETUP TO DO NEXT SUB TEST 5 TIMES

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0657 3325 DCA BTSUBT /SAVE SUB-TEST COUNT
0658 6160 BTST2, CLRMOO /CLEAR SIMULATOR MODULE
0659 4771' JMS CLEARB /CLEAR BOOTSTRAP LOCATIONS IN MEMORY
0660 1022 TAD OP2SEL /CHECK FOR THE ACT LINE
0661 7710 SPA CLA /IS IT ON THE ACT LINE
0664 6305 6305 /YES, DISABLE ACT LINE UNTIL BOOT IS DONE
0665 1722 TAD I CONTW2 /GET THE BOOTSTRAP SELECT ADDRESS
0666 6152 LOOKH2 /LOAD CONTROL REGISTER 2
0667 7300 CLL
0670 1327 TAD BOOTR2 /GET BOOT RETURN ADDRESS FOR BOOT RETURN
0671 3724 DCA I ADD401 /PUT IT IN LOCATION 401
0672 1723 TAD I CONTW3 /GET BOOT STRAP ENABLE CODE
0673 6153 LOOKH3 /LOAD CONTROL REGISTER 3
0674 7300 CLL
0675 6164 EXECUT CLL
0676 7602 HLT CLA
/LOAD THE BOOTSTRAP
/IF PHROGRAM HALTED IT FAILED TO DO 1 OF FOLLOWING
/00011 SW-SW DISABLE BOOT WHEN RUNNING
/00012 POWER ON DISABLE BOOT WHEN RUNNING
/00013 SW-SW DISABLE BOOT WHEN RUNNING
/00014 POWER ON DISABLE BOOT WHEN RUNNING
/00015 SW-SW DISABLE BOOT WHEN RUNNING
/CLEAR SIMULATOR LOGIC
0677 6160 ROTHT2, CLRMOO
0678 7301 CLA CLL IAC
0679 1022 TAD OP2SEL
0680 7510 SPA
0683 6305 6305
0684 7300 CLL
0685 1320 TAD SIMBOT /GET THE BOOTSTRAP BEING EXECUTED
0686 4770' JMS BOTCHP+2 /DO COMPARE THE BOOTSTRAP THAT WAS LOADED
0687 2323 IS2 CONTW3 /ADD 1 TO BOOTSTRAP ENABLE ADDRESS
0688 2325 IS2 HTSUBT /DONE WITH THE SUB-TEST ?
0711 5260 JMP BTST2 /NO, DO NEXT ENABLING CODE
0712 4767' JMS GOODBD /SIGNAL ACT LINE IF SELECTED
0713 2320 IS2 SIMBOT /ADD 1 TO THE BOOTSTRAP SELECT
0714 2321 IS2 CNTBOT /DONE ALL 5 BOOTSTRAPS?
0715 5214 JMP NXTBOT /NO, DO DO NEXT BOOTSTRAP
0716 4455 LOOP /LOOP ON TEST IF SR = 1000
0717 5766' JMP TEST22 /GO TO THE NEXT TEST
0720 0000 SIMBOT, 0
0721 0000 CNTBOT, 0
0722 0000 CONTW2, 0
0723 0000 CONTW3, 0
0724 2401 ADD401, 2401
0725 0000 BTSUBT, 0
/BOUTYTHP RETURN ADDRESSES
0726 0642 BOOTR1, BOTHT1
0727 0677 BOOTR2, BOTHT2
0766 1041
0767 1701
0770 1482
0771 1483

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0772	1155		
0773	1150		
0774	1517		
0775	1610		
0776	0200		
0777	4452		
	1000	PAGE	

/THE QAPSB CASSETTE BOOT STRAP WILL LOAD INTO THE FOLLOWING LOCATIONS,

1050	7402	CAPSRI	HLT	/1237
1051	7402		HLT	/1206
1052	7402		HLT	/5704
1053	7402		HLT	/5706
1054	7402		HLT	/5703
1055	7402		HLT	/5204
1056	7402		HLT	/7204
1057	7402		HLT	/6702
1058	7402		HLT	/7610
1059	7402		HLT	/3211
1060	7402		HLT	/5636
1061	7402		HLT	/1205
1062	7402		HLT	/6704
1063	7402		HLT	/6706
1064	7402		HLT	/6701
1065	7402		HLT	/5216
1066	7402		HLT	/7802
1067	7402		HLT	/7430
1068	7402		HLT	/1636
1069	7402		HLT	/7322
1070	7402		HLT	/3636
1071	7402		HLT	/7420
1072	7402		HLT	/2236
1073	7402		HLT	/2235
1074	7402		HLT	/5215
1075	7402		HLT	/7346
1076	7402		HLT	/7002
1077	7402		HLT	/3235
1078	7402		HLT	/5201
1079	7402		HLT	/7757
1080	7402		HLT	/3557
1081	7402		HLT	/7737
1082	7402		HLT	/TERMINATOR

/TEST 22 CHECKS THAT THE AUTO RESTART OCCURS AT THE APPROPRIATE ADDRESS, THIS
/TEST USES THE SIMULATOR TO SELECT AND CAUSE A AUTO RESTART,

1041	4456	TEST22, SCOPUP		/SETUP TEST AND SCOPE LOOP ADDRESS
1042	1377	TAD	(JMS I AUTRST	/SETUP LOCATIONS 0 AND 200

1043	3000	DCA	INYSER	/
1044	1377	TAD	(JMS I AUTRST	/
1045	37761	DCA	TEST1B=1	
1046	1375	TAD	IRSTAUT	/GET THE AUTO RESTART ADDRESS
1047	3052	DCA	AUTRST	/SAVE IT
1050	1374	TAD	INCAUTO	/GET BOOT STRAP ADDRESS
1051	3653	DCA	I	,+2
1052	4255	JMP		,+3
1053	1401			
1054	4454	NOAUTO, ERROM		/LOGIC DID A BOOT INSTEAD OF A AUTO RESTART
1055	47731	JMS	SETUP	/GO SETUP FOR TEST
1056	6160	AUTIST, CLRMO		/CLEAR SIMULATION MODULE
1057	1372	TAD	(RESADD	/GET THE ADDRESS OF AUTO RESTART TABLE
1058	1334	TAD	AUTSEL	/GET THE PROGRAM AUTO + RESTART TO BE EXECUTED
1061	3335	DCA	ADDRES	/SAVE THE TABLE ADDRESS
1062	1371	TAD	(SELAUT	/GET THE CONTROL WORD 2 TABLE ADDRESS
1063	1334	TAD	AUTSEL	/ADD IN THE RESTART TO BE EXECUTED
1064	3336	DCA	CONW2	/SAVE THIS ADDRESS TO GET THE CONTROL WORD
1065	1822	TAD	OP2SEL	/CHECK TO SEE IF PROGRAM IS ON ACT LINE
1066	7710	SPA	CLA	
1067	6305	6320		/DISABLE ACT LINE UNTIL AUTO RESTART IS DONE
1070	1736	TAD	I CONW2	/GET THE CONTROL WORD
1071	6152	LOAD	LOGH02	/LOAD CONTROL REGISTER 2
1072	7300	CLA	CLL	
1073	1347	TAD	AUTENA	/GET THE ENABLE CONTROL WORD
1074	6153	LOAD	LOGH03	/LOAD CONTROL REGISTER 3
1075	7300	CLA	CLL	
1076	6164	EXECUT		/EXECUTE A AUTO RESTART
1077	7602	HLT	CLA	/SHOULD DO A AUTO RESTART HERE, PRESS CONT FOR RETRY
1100	5256	JMP	AUTTST	/RETRY
1101	3000	RSTAUT,	0	/A AUTO RESTART SHOULD COME HERE
1102	6160	CLRMO		/CLEAR SIMULATOR LOGIC
1103	7301	CLA	CLL IAC	/SET BIT 11 TO A ONE
1104	1822	TAD	OP2SEL	/CHECK FOR THE ACT LINE
1105	7510	SPA		/IS IT RUNNING ON ACT LINE
1106	6305	6320		/YES, ENABLE ACT LINE
1107	7340	CLA	CLL CMA	/SET THE AC TO MINUS 1
1110	1301	TAD	RSTAUT	/GET THE PC FROM THE AUTO RESTART
1111	7041	CIA		/NEGATE IT
1112	1735	TAD	I ADDRES	/GET THE EXPECTED AUTO RESTART PC
1113	7650	SNA	CLA	/ARE THEY EQUAL?
1114	5325	JMP	GODAUT	/YES, GO DO NEXT ADDRESS
1115	4454	ERRON		/EXPECTED AUTO RESTART ADDRESS NOT EQUAL TO RETURN ADDRESS, PRESS CONT TO GET EXP AND ACT ADDRESS
1116	1735	TAD	I ADDRES	/
1117	7402	HLT		/AC EQUALS EXPECTED AUTO RESTART ADDRESS
1120	7340	CLA	CLL CMA	/
1121	1301	TAD	RSTAUT	/AC EQUALS ACTUAL AUTO RESTART ADDRESS
1122	7402	HLT		/DO SAME RESTART OVER AGAIN
1123	7200	CLA		/ADU 1 TO PROGRAM SELECT RESTART
1124	5256	JMP	AUTTST	/DONE ALL FOUR AUTO RESTARTS?
1125	2334	GODAUT,	ISE	/NO, GO DO NEXT ONE
1126	2333	ISE	AUTSEL	/SIGNAL ACT LINE OF A GOOD PASS IF ON IT
1127	5256	JMP	AUTTST	
1130	47781	JMS	GOODBD	

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 1K PART 3 PAL10 V142 18-DEC-74 15106 PAGE 2=13

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1131 4455      LOOP
1132 57671      JMP      TEST23
1133 0000      AUTUNT; 0
1134 0000      AUTSEL; 0
1135 0000      ADDRESS; 0
1136 0000      CONHZ; 0

1137 4200      RESADU; 4200
1140 2000      2000
1141 0200      0200
1142 0000      0000

1143 1676      SELAUT; 1676      /AUTO RESTART AT 4200
1144 1674      1674      /AUTO RESTART AT 2000
1145 1672      1672      /AUTO RESTART AT 0200
1146 1670      1670      /AUTO RESTART AT 0000

1147 0037      AUTENA; 0037      /POWER ON TRIGGERED AUTO RESTART

/CONTROL WORD 2 BOOTSTRAP SELECT

1150 1672      BOTSEL; 1672      /HI-LW PAPER TAPE SELECT
1151 1132      1132      /TC08 BOOTSTRAP SELECT
1152 0742      0742      /RF08/DF32D BOOTSTRAP SELECT

1153 0642      0642      /TAPE CASSETTE BOOTSTRAP SELECT
1154 1292      1292      /RKG-E BOOTSTRAP SELECT

/CONTROL WORD 3 BOOTSTRAP ENABLES (POWER ON OR SWITCH SW)

1155 0001      BOTENA; 0001      /SW=SW ENABLE BOOT WHEN RUNNING
1156 0003      0003      /SW=SW ENABLE BOOT WHEN RUNNING
1157 0007      0007      /SW=SW ENABLE BOOT WHEN RUNNING
1158 0011      0011      /SW=SW DISABLE BOOT WHEN RUNNING
1161 0032      0032      /POWER ON DISABLE BOOT WHEN RUNNING
1162 0013      0013      /SW=SW DISABLE BOOT WHEN RUNNING
1163 0033      0033      /POWER ON DISABLE BOOT WHEN RUNNING
1164 0017      0017      /SW=SW DISABLE BOOT WHEN RUNNING

1167 1201
1170 1771
1171 1145
1172 1137
1173 1517
1174 1054
1175 1101
1176 0200
1177 4452
1200      PAGE

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/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMA=A=L 1K PART 3 PAL10 V142 18-DEC-74 15106 PAGE 2=14

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/TEST 23- USES THE SIMULATOR TO CHECK THAT AC LOW AND BATTERY EMPTY F/F'S
/CAN SKIP AND INTERRUPT AND THAT THEY CAN BE CLEARED,
/*****
1200 4452      JMS I AUTRST      /AUTO RESTART HANDLER
1201 4456      TEST23; SCJMLP      /SETUP TEST AND SCOPE LOOP ADDRESS
1202 1377      TAJ      (ACLBAT
1203 3052      DCA      AUTRST
1204 6007      CAF
1205 6168      CLRMOO
1206 37761      DCA      ACNLOK
1207 6101      SBE
1210 7410      SK#
1211 4454      ERROR
1212 6102      SP#
1213 7410      SK#
1214 4454      ERROR
1215 1253      TAJ      K3000
1216 6153      LOJRG3
1217 7300      CLA      CLL
1220 6001      IOV
1221 5222      JMP      *+1
1222 4454      ERROR
1223 7610      SKP      CLA
1224 4454      ERROR
1226 6102      SP#
1226 4454      ERROR
1227 6101      SBE
1230 4454      ERROR
1231 1254      TAJ      K1000
1232 6153      LOJRG3
1233 7348      CLA      CLL      CHA
1234 37761      DCA      ACNLOK
1235 6001      IOV
1236 5237      JMP      *+1
1237 4454      ERROR
1240 4454      ERROR
1241 6153      LOJRG3
1242 6101      SBE
1243 7110      SKP
1244 4454      ERROR
1245 6102      SP#
1246 7410      SK#
1247 4454      ERROR
1250 6168      CLRMOO
1251 4455      LOOP
1252 5461      JMP I PASEND      /END OF PROGRAM

1253 3000      K3000; 3000
1254 1000      K1000; 1000

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/TIMDIS - IS AN OPERATOR INTERVENTION TEST, THE OPERATOR MUST SET THE
/TIME SHARE ENABLE SWITCH TO THE TIME SHARE DISABLE POSITION, THE PROGRAM

/KMB-A OPTION TEST 2 MAINDEQ=UB=DJKMA=A=L 1K PART 3 PAL10 V142 18-DEC-74 15186 PAGE 2-15

/TRY TO SET THE USER FLAG AND CHECKS THAT LAS, OSM, IOT, AND HALT
/DO NOT TRAP AND THAT HLT HALTS,

1255 4456	TIMH19, SCOPLP	/SETUP TEST AND SCOPE LOOPING ADDRESS
1256 6007	CAF	/CLEAR ALL FLAGS
1257 6264	CUF	/CLEAR USER BUFFER F/F
1258 6204	CINT	/CLEAR USER INTERRUPT F/F
1251 6001	IDY	/TURN THE INTERRUPT ON
1252 6274	SUF	/TRY TO SET THE USER BUFFER F/F
1263 5264	JMP ,*1	/TRY TO ENTER TIME SHARE MODE
1264 7404	DSR	/SHOULD TRAP HERE IF TIME SHARE NOT DISABLED
1265 7610	SKP CLA	/TIME SHARE NOT DISABLED, PROGRAM INTERRUPTED
1266 4454	ERRDH	/SHOULD TRAP HERE IF TIME SHARE NOT DISABLED
1267 7604	LAS	/LAS TRAPPED WITHOUT TIME SHARE ENABLED
1270 7610	SKP CLA	/SKIP ON USER INTERRUPT
1271 4454	ERRDH	/IOT TRAPPED OR USER INTERRUPT SET
1272 5254	SINT	/PROGRAM SHOULD HALT HERE FOR COMPLETION
1273 7610	SKP CLA	/IF TIME SHARE DISABLE TEST
1274 4454	ERRDH	/HALT TRAPPED
1275 7402	HLT	/RETRY THE TEST
1276 7610	SKP CLA	
1277 4454	ERRDH	
1303 5255	JMP TIMDIS	

/THE FOLLOWING LOCATIONS CONTAINS THE CONTENTS OF THE HI-LOW PAPER TAPE
/BOOTSTRAP

1301 7737	PTPADD, 7737	/BOOTSTRAP WILL START LOADING INTO THIS ADDRESS
1302 7741	PTPCM#PTPEND=1	/NUMBER OF LOCATIONS TO COMPARE
1303 6014	PTPUMP, 6014	
1304 3776	1776	
1305 7326	7326	
1306 1337	1337	
1307 2376	2376	
1310 5340	5340	
1311 6011	6011	
1312 5356	5356	
1313 3361	3361	
1314 1381	1381	
1315 3371	3371	
1316 1345	1345	
1317 3357	3357	
1320 1349	1349	
1321 3367	3367	
1322 6032	6032	
1323 6031	6031	
1324 5357	5357	
1325 6036	6036	
1326 7106	7106	
1327 7006	7006	
1330 7510	7510	

/KMB-A OPTION TEST 2 MAINDEQ=UB=DJKMA=A=L 1K PART 3 PAL10 V142 18-DEC-74 15186 PAGE 2-16

1331 5374	5374	
1332 7006	7006	
1333 6031	6031	
1334 5367	5367	
1335 6034	6034	
1336 7420	7420	
1337 3776	3776	
1340 5376	5376	
1341 5356	5356	
1342 7000	0000	

/TERMINATOR

/THE FOLLOWING LOCATIONS CONTAIN THE CONTENTS OF THE TC88 BOOTSTRAP

1343 7613	TC8ADD, 7613	/BOOTSTRAP WILL START LOADING INTO THIS ADDRESS
1344 7767	TC8CMP#TC8END=1	
1345 6774	TC8GMP, 6774	
1346 1222	1222	
1347 6766	6766	
1350 6771	6771	
1351 5216	5216	
1352 1223	1223	
1353 9215	9215	
1354 6600	6600	
1355 1220	0220	
1356 7754	7754	
1357 7776	*2	
1360 7577	7577	
1361 7577	7577	
1362 7000	0	

/TERMINATOR

/THE FOLLOWING LOCATIONS CONTAINS THE CONTENTS OF THE RF38/DF32D BOOTSTRAP

1363 7750	OSKADD, 7750	/BOOTSTRAP WILL START LOADING INTO THIS ADDRESS
1364 7773	RFDFCP#RFDFED=1	/NUMBER OF LOCATIONS TO COMPARE
1365 7600	RFDFCH, 7600	
1366 6603	6603	
1367 6622	6622	
1370 5352	5352	
1371 5752	5752	
1372 0000	2000	

/TERMINATOR

1376 1773
1377 1760
1400 PAGE

/TO RUN THE OPERATOR INTERVENTION BOOT STRAP COMPARE TEST, DO THE FOLLOWING:
/1, RUN CLRBOT TO CLEAR THE BOOTSTRAP LOCATIONS IN MEMORY
/2, DISABLE ALL OPTIONS ASSOCIATED WITH THE BOOTSTRAP
/3, SET THE APPROPRIATE SELECT AND ENABLE SWITCHES FOR THE BOOTSTRAP
/4, SET THE HALT KEY

/KMB-A OPTION TEST 2 MAINDEG=08=DJKMA=A=L 1K PART 3 PAL12 V142 18=DEC=74 15186 PAGE 2=17

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/5, TOGGLE THE BOOT KEY OR SWITCH
/6, START THE BOOT COMPARE TEST (BOTCHP)
/7, THE PROGRAM WILL HALT
/8, SET THE APPROPRIATE SWITCH REGISTER OR PSEUDO SWITCH REGISTER
/ TO THE BOOTSTRAP TO COMPARE AND PRESS CONTINUE;
/ SR#0008=H1LOW PAPER TAPE READER BOOTSTRAP
/ SR#0005=TC08 BOOTSTRAP
/ SR#0002=RF08/DF32D BOOTSTRAP
/ SR#0003=TABE CASSETTE BOOTSTRAP
/ SR#0004=WK8E BOOTSTRAP
/9, THE PROGRAM SHOULD HALT AT ADDRESS BOTOK IF NO ERRORS
/*****

```

1400	7402	BOTCHP, HLT	/SET THE SR FOR THE APPROPRIATE BOOTSTRAP COMPARE
1401	5204	JMP ,+3	
1402	0000	0	/SIMULATOR BOOTSTRAP CHECK ENTERS HERE
1403	5213	JMP ,+10	
1404	1021	TAD OP1SEL	/GET THE HARDWARE OPTIONS
1405	7700	SRA CLA	/15 THE HARDWARE SR BIT SET
1406	5211	JMP ,+3	/NO, USE THE PSEUDO SWITCH REGISTER
1407	7604	LAS	/USE THE HARDWARE SWITCH REGISTER
1410	7410	SKP	
1411	1020	TAD SWITCH	/GET THE PSEUDO SWITCH REGISTER
1412	0134	AND K7	/MASK OFF BITS 9-11
1413	1377	TAD (BOOTTB	/ADD IT TO THE BOOTSTRAP TABLE ADDRESS
1414	3366	DCA SAVSTR	/SAVE IT
1415	1766	TAD I SAVSTR	/GET THE ADDRESS FROM THE TABLE
1416	3367	DCA BOTADD	/SAVE IT
1417	1767	TAD I BOTADD	/GET THE BOOTSTRAP STARTING ADDRESS
1420	3370	DCA BOTADD	/THIS IS THE BOOTSTRAP STARTING ADDRESS
1421	2367	ISZ BOTADD	
1422	1767	TAD I BOTADD	/GET THE WORD COUNT
1423	3371	DCA BOTCNT	/SAVE IT
1424	2367	ISZ BOTADD	
1425	1770	COMPAH, TAD I BOTAD	/BOTADD IS THE STARTING ADDRESS OF BOOT COMPARE
1426	7841	CIA	/GET THE CONTENTS THAT BOOTSTRAP LOADED
1427	1767	TAD I BOTADD	/NEGATE IT
1428	7650	SNA CLA	/GET THE EXPECTED BOOTSTRAP CONTENTS
1431	5243	JMP GOODCP	/ARE THEY EQUAL
1432	4454	ERRON	/YES, GO GET NEXT WORD
1433	1378	TAD BOTSAD	/BOOTSTRAP COMPARE ERROR, PRESS "CONT" TO
1434	7402	HLT	/GET BAD PC, GOOD CONTENTS, AND BAD CONTENTS
1435	7202	CLA	/GET BOOTSTRAP ADDRESS THAT WAS BAD
1436	1767	TAD I BOTADD	/AC=THE ADDRESS THAT DIDN'T COMPARE
1437	7402	HLT	
1440	7202	CLA	
1441	1778	TAD I BOTSAD	
1442	7402	HLT	
1443	7320	GOODCH, CLA CLL	/AC=EXPECTED CONTENTS OF BOOTSTRAP
1444	2372	ISZ BOTSAD	
1445	7020	NOP	
1446	2367	ISZ BOTADD	
1447	7000	NOP	
1450	2371	ISZ ROTCNT	/END OF COMPARE

/KMB-A OPTION TEST 2 MAINDEG=08=DJKMA=A=L 1K PART 3 PAL12 V142 18=DEC=74 15186 PAGE 2=18

1451	5225	JMP COMPAR	/NO, GO GET NEXT WORD
1452	1767	TAD I BOTADD	/CONTINUE FOR TC08
1453	7448	SEA	
1454	5220	JMP COMPAR+5	
1455	1021	TAD OP1SEL	/GET HARDWARE OPTIONS
1456	0143	AND K200	
1457	7640	SEA CLA	/HAS THE SIMULATOR BEING USED
1458	5602	JMP I BOTCHP+2	/YES, RETURN TO SIMULATOR BOOTSTRAP CHECK
1461	7402	BOOTOK, HLT	/BOOT STRAP COMPARED OK
1462	5200	JMP BOTCHP	/DO AGAIN

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/*****
/THE FOLLOWING SECTIONS WILL CLEAR THE LOCATIONS THAT THE BOOT STRAP WILL LOAD INTO,
/THIS SHOULD BE DONE BEFORE EACH BOOTSTRAP IS ATTEMPTED,
/*****

```

1463	0000	CLEARB, 0	/SIMULATOR ENTERS HERE
1464	7610	SKP CLA	
1465	4317	CLRBOT, JMS	/GET MEMORY SIZE TO SEE WHAT BOOTS TO CLEAR
1466	1365	SETUP	/GET THE NUMBER TO START CLEARING BOOT
1467	1377	TAD BOTCLR	/GET THE ADDRESS OF BOOT STRAP TABLE
1470	3366	DCA SAVSTR	/SAVE IT
1471	1766	TAD I SAVSTR	/GET THE ADDRESS FROM TABLE
1472	7450	SNA	
1473	5311	BOTEND	/END UP CLEARING BOOTSTRAP LOCATIONS
1474	3367	DCA BOTADD	/SAVE IT
1475	1767	TAD I BOTADD	/GET THE BOOTSTRAP STARTING ADDRESS
1476	3370	DCA BOTSAD	/SAVE IT
1477	2367	ISZ BOTADD	
1500	1767	TAD I BOTADD	/GET THE WORD COUNT
1501	3371	DCA BOTCNT	/SAVE IT
1502	3770	DCA I BOTSAD	
1503	2370	ISZ BOTSAD	
1504	7000	NOP	
1505	2371	ISZ BOTCNT	
1506	5302	JMP ,+4	
1507	2366	ISZ SAVSTR	
1510	5271	JMP CLRBOT+4	
1511	1021	BOTEND, TAD OP1SEL	
1512	0143	AND K200	
1513	7640	SEA CLA	
1514	5653	JMP I CLEARB	/RETURN TO SIMULATOR BOOTSTRAP TEST
1515	7402	HLT	/END UP CLEARING BOOTSTRAPS
1516	5285	JMP CLRBOT	/DO IT AGAIN

1517	0000	SETUP, 0	
1520	3776	DCA AUTSEL	
1521	3775	DCA SIMBDT	
1522	1021	TAD OP1SEL	/GET THE HARDWARE CONFIGURATION
1523	7104	CLL RAL	/MOVE FIELD BITS INTO BITS 6-8
1524	0137	AND K78	/MASK OUT FIELD BITS
1525	7650	SNA CLA	/IS MEMORY SIZE GREATER THAN 4K

/KMB-A OPTION TEST 2 MAINDEU=UB=DJKM&A=L 1K PART 3 PAL1P V142 18-UFC-74 15186 PAGE 2-19

```

1526 5341    JMP   SETUP2      /*NO, GO GET THE MEMORY SIZE
1527 3775I   SETUP1, DCA  SIMBOT  /*YES THEN DO ALL BOOTS
1530 1775I   TAD   SIMBOT  /*GET BOOTSTRAP SELECT
1531 1065    TAD   M5        /*SUBTRACT 5
1532 3774I   DCA  CNTBOT  /*SAVE IT
1533 1775I   TAD   SIMBOT  /*GET BOOT NUMBER
1534 3365    DCA  BOTCLR  /*SAVE IT
1535 1770I   TAD   AUTSEL  /*GET AUTO RESTART SELECT
1536 1044    TAD   H4        /*SAVE THE NUMBER OF AUTO'S TO DO
1537 3773I   DCA  AUTCNT  /*RETURN TO DO BOOT OR AUTO=RESTART
1540 9717    JHP   I SETUP   /*GET THE HARDWARE CONFIGURATION
1541 1021    TAD   DP1SEL  /*MASK OFF FIELD 7 MEMORY SIZE
1542 0372    AND   KK3       /*IS IT 1K OF MEMORY
1543 7450    SNA   SET1K   /*YES,SETUP TO DO 1 BOOT OR 2 AUTO=RESTART
1544 9354    JHP   M1        /*SUBTRACT 1
1545 1052    TAD   M1        /*IS IT 2K OF MEMORY
1546 7450    SNA   SET2K   /*YES,DO ONE BOOT AND 3 AUTO'S
1550 1052    TAD   M1        /*SUBTRACT 1
1551 7650    SNA   CLA     /*IS IT 3K OF MEMORY
1552 5363    JHP   SET3K   /*YES, SETUP TO DO 2 BOOTS AND 4 AUTO'S
1553 5327    JHP   SETUP1  /*MUST BE 4K OF MEMORY=DO ALL
1554 7395    SET1K, CLA CLL IAC RAL
1555 3776I   DCA  AUTSEL
1556 7387    CLA CLL IAC RTL
1557 5327    JMP   SETUP1
1560 7381    SET2K, CLA CLL IAC
1561 3776I   DCA  AUTSEL
1562 5356    JHP   /*4
1563 7325    SET3K, CLA CLL CMH IAC RAL
1564 5327    JHP   SETUP1

1565 0200    BOTULH, 0
1566 1002    SAVTH, 0
1567 0200    BOTADD, 0
1570 0200    BOTSAU, 0
1571 0200    BOTUNT, 0
1572 0003    KK3, 3
1573 1133
1574 0721
1575 0720
1576 1134
1577 0506
1580 PAGE

```

```

1600 0200    ACTLIN, 0
1601 1022    TAD   OP2SEL
1602 7700    SMA  CLA      /*IS THE PROGRAM RUNNING ON ACT LINE?
1603 9600    JMP   I ACTLIN /*NO, RETURN
1604 1037    TAD   FLDLIM /*GET THE FIELD LIMIT
1605 1111    TAD   M70

```

/KMB-A OPTION TEST 2 MAINDEU=UB=DJKM&A=L 1K PART 3 PAL1P V142 18-UFC-74 15186 PAGE 2-23

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1606 7640    SEA  CLA      /*IS THE FIELD LIMIT EQUAL TO FIELD 77
1607 4600    JMP   I ACTLIN /*NO, RETURN TO TEST
1608 1240    TAD   UPRLM  /*GET THE UPPER ADDRESS LIMIT
1609 7281    IAC
1610 7646    SEA  CLA      /*ADD 1 TO IT
1611 5600    JMP   I ACTLIN /*WAS IT 7777
1612 7646    SEA  CLA      /*NO, RETURN
1613 5600    JMP   I ACTLIN /*SET LAST ADDRESS = 5777
1614 7352    CLA CLL CHA RTR
1615 3040    DCA  UPRLM  /*SAVE IT
1616 5600    JMP   I ACTLIN /*RETURN TO PROGRAM

1617 1022    ENDPA5, TAD  OP2SEL
1618 7700    SMA  CLA      /*CHECK FOR ACT LINE
1619 5234    JMP   ENDING  /*IS THE PROGRAM RUNNING ON ACT LINE
1620 1021    TAD   OP1SEL  /*NO GO CHECK FOR SR 3 TO HALT AT END OF A PASS
1621 5234    JMP   ENDING  /*GET THE HARDWARE CONFIGURATION
1622 1021    TAD   K200  /*CHECK FOR THE SIMULATOR
1623 7143    AND   K200  /*WAS THE SIMULATOR SELECTED
1624 7640    SEA  CLA      /*NO, ALREADY NOTIFIED PRGM OF GOOD PAS
1625 5234    JMP   ENDING  /*YES, ALREADY NOTIFIED PRGM OF GOOD PAS
1626 2242    ISE  PRGPAS  /*CHECK 1/2 SECOND COUNT
1627 5234    JMP   ENDING  /*NOT 1/2 SECOND YET
1628 1377    TAD   /*144
1629 3242    DCA  PRGPAS  /*RESET THE COUNTER
1630 5272    CIF   70      /*CHANGE INSTRUCTION FIELD TO 7
1631 4451    JMS   I GOODPS /*SIGNAL THE PRGM
1632 4341    ENDING, JMS  SWCHK  /*CHECK SR 3 TO HALT ON A PROGRAM PASS
1633 7086    RTI
1634 7204    RAM
1635 7710    SPA  CLA
1636 7492    HLT
1637 5776I   JMP   R201  /*END OF A COMPLETE PROGRAM PASS
1638 4452    JMS   I AUTRST /*RESTART THE PROGRAM

```

1642 7634 PRGHST, #154

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1643 7010    POWERL, RAR
1644 3231    DCA  LINK
1645 1000    TAD   INTSER
1646 3252    DCA  PC
1647 6103    CAL
1648 4452    JMS   I AUTRST /*CLEAR AC LOW F/F
1649 0200    LINK, 0 /*RETURN TO THE PROGRAM
1650 4000    PG, 0
1651 0200    PRGHST, 0 /*SKIP ON AC LOW AS A LEVEL
1652 4000    PG, 0
1653 0200    SP, 0
1654 6102    SPA
1655 7610    SKP  CLA
1656 4254    JMP   /*2
1657 5453    JMS   I TEST /*RETURN TO TEST BEING EXECUTED AND START OVER
1660 4000    TESTAU, 0
1661 7340    CLA CLL CHA
1662 1260    TAD   TESTAD

```

1663	3053	DCA	TEST	
1664	1375	TAD	(PRGRST	
1665	3052	DCA	AUTRST	
1666	5660	JMP	I TESTAD	
1667	1821	BATCMI	TAD	OP1SEL
1670	0143	ANJ	K203	/GET HARDWARE CONFIGURATION
1671	7650	SNA	CLA	
1672	5277	JMP	DEAD	/MACHINE GOING DOWN = STOP EVERYTHING
1673	3373	DCA	ACNLOK	
1674	2000	ISE	INTSER	
1675	2000	ISE	INTSER	
1676	5450	JMP	I INTSER	
1677	7402	DEAU,	4L1	/ITS ALL OVER NOW = GOODBYE
1700	5453	JMP	I TEST	
1781	0000	COOUBU	I	
1782	1822	TAD	OP2SEL	/GET HARDWARE CONFIGURATION
1783	7750	SMA	CLA	/IS THE PROGRAM RUNNING ON ACT LINE
1784	5701	JMP	I GOODBD	/NO RETURN TO PROGRAM
1785	5272	CIF	70	/CHANGE INSTRUCTION FIELD TO FIELD 7
1786	4451	JMS	I GOODPS	/SIGNAL ACT LINE PROGRAM STILL RUNNING
1787	5701	JMP	I GOODBD	/RETURN TO PROGRAM
1710	0000	ERRORX	I	
1711	7300	CLA	CLL	/ERROR ROUTINE
1712	1822	TAD	OP2SEL	
1713	7750	SMA	CLA	/CHECK FOR ACT LINE
1714	5326	JMP	CHKINH	
1715	1021	TAD	OP1SEL	
1716	5145	ANJ	K203	
1717	7640	S2A	CLA	
1720	6100	CL4MOD		
1721	6002	IOF		
1722	7240	CL4	CHA	
1723	1310	TAD	ERRORX	
1724	6272	CIF	70	
1725	5450	JMP	I BADPAS	/GO TO ROM FOR ERROH
1726	4341	CHKINH	JMS	/CHECK FOR SR 8(1) TO INHIBIT ERROR HALT
1727	7710	SPA	CLA	/IS SH 0 SET TO A ONE
1730	5334	JMP	ERLPSW	/YES, GO CHECK SR 1 TO LOOP ON ERROR
1731	7340	CL4	CLL	
1732	1310	TAD	ERRORX	
1733	7402	HLT		
1734	4341	ERLPSW	JMS	/SUBTRACT ONE FROM JMS ERROR PC
1735	7004	RAI		/AC CONTAINS THE ADDRESS WHERE THE ERROR
1736	7710	SPA	CLA	/WAS DETECTED BY THE PROGRAM, REFER
1737	5453	JMP	I TEST	/TO THE PROGRAM LISTING FOR ERROR
1740	5710	JMP	I ERRORX	/EXPLANATION AND THE TEST DESCRIPTION,
				/CHECK THE SWITCH REGISTER TO LOOP ON ERROR

1741	0000	SWCHK	I	
1742	7300	CLA	CLL	
1743	1221	TAD	OP1SEL	/GET THE HARDWARE STATUS WORD
1744	7700	SMA	CLA	/IS THE HARDWARE FRONT PANEL SELECTED
1745	5350	JMP	I+3	/AND, USE THE PSEUDO SWITCH REGISTER
1746	7604	LAS		
1747	5741	JMP	I SWCHK	/RETURN
1750	1820	TAD	SWITCH	/THE PSEUDO SWITCH REGISTER
1751	5741	JMP	I SWCHK	/RETURN
1752	0000	TSTL0P	I	
1753	4341	JMS	SWCHK	/ROUTINE TO CHECK SH 2 TO LOOP ON TEST
1754	7006	RT		/GO GET THE SWITCH REGISTER
1755	7700	SMA	CLA	
1756	5752	JMP	I TSTL0P	/GO TO NEXT TEST
1757	5453	JMP	I TEST	/LOOP ON SAME TEST
1760	0000	ACLBAT	I	
1761	1373	TAD	ACNLOK	/LOOK AT RETURN FOR AC LOW OR BATTERY EMPTY
1762	7640	S2A	CLA	
1763	5366	JMP	I+3	
1764	2000	ISE	INTSER	
1765	5400	JMP	I INTSER	
1766	3373	DCA	ACNLOK	
1767	5101	SBE		
1770	5364	JMP	I+4	/SKIP ON BATTERY EMPTY
1771	2000	ISE	INTSER	
1772	5364	JMP	I+6	
1773	2000	ACNLOK	I	
1775	1653			
1776	0201			
1777	7634			
	2000	PAGE		
	0200	*280		

/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 3 PAL10 V142 18=DEC=74 15106 PAGE 2=23

0000 11111111 11111111 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 00000000 00000000
0600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 00000000 00000000
0700 11111111 11111111 11111111 00000000 00000000 00000000 00000000 00000000 00000000
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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 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2000
2100
2200
2300
2400
2500
2600
2700

3000
3100
3200
3300
3400
3500
3600
3700

/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 3 PAL10 V142 18=DEC=74 15106 PAGE 2=24

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

/KMB=A OPTION TEST 2 MAINDEG=08=DJKMAA=L 1K PART 3

PAL18 V142 18-DEC-74 15126 PAGE 2*25

ACLBAT	1768	DATPAT	0042	M100	0113	PTPCMP	1383
ACNLOK	1773	DAIREC	0035	M1007	0117	PTPEND	1341
ACTLIV	1608	DEAD	1677	M1007	0120	RDF	6214
ADD4P	0724	DSXADD	1363	M1016	0121	REDEMA	6155
ADDCONT	0047	EMAI	0361	M1025	0122	RESADD	1137
ADDRES	1135	EMAZ	0362	M1034	0123	RFDFCP	1365
AUTCNT	1133	EMAJ	0363	M1043	0124	RFDFED	1371
AUTENA	1147	EMACLR	0211	M1052	0125	RIB	6234
AUTHST	0052	EMAF1	0312	M1061	0126	RIF	6224
AUTSEL	1134	EMAF2	0331	M1070	0127	RKBADD	0514
AUTSTT	1056	EMAF3	0344	M11	0070	RKBCHP	0516
RADPAS	0059	ENDING	1634	M1100	0130	RK8E	0823
RATEEN	1667	ENDPAS	1617	M125	0114	RK8END	0524
ROOTOK	1461	ERLPBW	1734	M152	0115	RHF	6244
ROOTR1	0726	ERROH	4454	M16	0071	RSTAUT	1181
ROOTR2	0727	ERRRXX	1713	M2	0083	RTF	6005
ROOTTB	0506	EXECUT	6164	M20	0072	SAVE3Z	0036
ROTADD	1567	FLSLIN	0337	M22	0073	SAVSTR	1566
ROTCLR	1565	GOAUT	1125	M25	0074	SAVWFD	0046
ROTCHP	1400	GOODBD	1701	M30	0075	SBE	6191
ROTCONT	1571	GOODCP	1443	M300	0116	SCOLP	4456
ROTENA	1155	GOODPS	0051	M33	0076	SELAUT	1143
ROTEND	1511	GTF	6004	M34	0077	SET1X	1554
ROTHT1	0642	HCLWLM	0044	M4	0064	SET2X	1560
ROTHT2	0677	HLT	7402	M43	0100	SET3X	1563
ROTSAD	1570	INISER	0000	M4500	0131	SETUP	1517
ROTSAL	1150	K10	0135	M43	0101	SETUP1	1527
RTBURT	0725	K1000	1254	M44	0102	SETUP2	1541
RTTST1	0623	K125	0141	M5	0065	SIMBOT	0720
RTTST2	0660	K152	0142	M50	0103	SINT	6254
CAF	6007	K1777	0145	M5000	0132	SKON	6000
CAL	6103	K200	0143	M5100	0133	SKPEMA	6166
CAPSH	1000	K2000	0146	M52	0104	SPL	6102
COF	6291	K3000	1253	M55	0105	SUF	6274
COFCHK	0033	K37	0136	M60	0106	SWCHK	1741
CHKCDF	0034	K400	0144	M61	0107	SWITCH	0020
CHKINH	1726	K4100	0153	M64	0118	TABADD	2443
CIF	6202	K6201	0045	M7	0066	TACCHP	2445
CIFCDF	6203	K7	0134	M70	0111	TABEND	0524
CINT	6204	K70	0137	M77	0112	TCBADD	1343
CLEARB	1463	K7577	0152	M9AUTU	1054	TCBCHP	1345
CLMBOT	1465	K77	0140	M9000	0610	TCBEND	1355
CLREHA	6154	K7707	0150	NXTBOT	0614	TEST	0053
CLHERG	0360	K7757	0151	OP1SEL	0021	TEST18	0201
CLRHOD	1160	K7774	0147	OP21K3	0000	TEST19	0275
CLHSIM	6150	KK3	1572	OP2SEL	0022	TEST20	0402
CTDGT	1721	L1VK	1651	PASEND	0061	TEST21	0002
COMPAR	1425	LOOP42	6152	PC	1652	TEST22	1041
CONTW2	1722	LOOP63	6153	POWFAL	1643	TEST23	1201
CONTW3	0723	LOOP	4455	PHGMAS	1642	TESTAD	1660
CONTW2	1136	"1	0002	PHGHST	1653	TIMOIS	1255
COF	6264	M10	0067	PTPA00	1301	TST1RA	0225

/KMB=A OPTION TEST 2 MAINDEG=08=DJKMAA=L 1K PART 3

PAL18 V142 18-DEC-74 15126 PAGE 2*25

TST18B	0244
TST18C	0257
TST19A	0310
TST19B	2326
TST19C	0341
TSTL0P	1752
UPERLH	0040
VRKADD	0043
VRKFELD	0041
XBAT	0060
XPHWFL	0057

ERRORS DETECTED 0

LINKS GENERATED 1 27

RUN-TIME 18 SECONDS

3K CORE USED

/KMB=A OPTION TEST 2 MAINDEC=08=DJKMA=A=L 1K PART 4 PAL12 V142 18-DEC-74 15128 PAGE 1

/KMB=A OPTION TEST 2 MAINDEC=08=DJKMA=A=L 1K PART 4
/COPYRIGHT (C) 1974, DIGITAL EQUIPMENT CORPORATION
/PROGRAMMER: BRUCE HANSEN
/

||||||||||||||||||||||||||||||||||||||||||||||||||||||||
/THE FOLLOWING LISTING WILL CORRESPOND TO THE PAPER TAPE LABELED MAINDEC=08=DJKMA=A=PH4,
/1K 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,
||||||||||||||||||||||||||||||||||||||||||||||||||||

/KMB=A OPTION TEST 2 MAINDEC=08=DJKMA=A=L 1K PART 4 PAL12 V142 18-DEC-74 15128 PAGE 2

/KMB=A OPTION TEST2 MAINDEC=08=DJKMA=A=L 1K PART 4
/COPYRIGHT 1974, DIGITAL EQUIPMENT CORP., MAYNARD, MASS., 01754
/POH-B-A OPTION TEST 2 TESTS THE MEMORY EXTENTION/TIME SHARE CONTROL,
/POWER FAIL/AUTO RESTART, AND BOOTSTRAP LOADERS

5200 SK0N#6000
5207 CAF#6007
7402 HLT#7402

/SWITCH REGISTER SETTINGS

/SH0=1 INHIBIT ERROR HALT
/SP1=1 LOOP ON ERROR
/SR2=1 LOOP ON TEST
/SR3=1 HALT AT COMPLETION OF A PROGRAM PASS

/MEMORY EXTENTION/TIME SHARE INSTRUCTIONS

5204	GTF#6004	/GET FLAGS, READS THE FOLLOWING MACHINE STATES /INTO THE INDICATED BITS OF THE AC1 /AC0 LINE /AC2 INTERRUPT REQUEST /AC4 INTERRUPT ENABLE F/F /AC5 USER FLAG /AC6=11 SAVE FIELD REGISTER
5205	RTE#6005	/RESTORE THE FLAGS, RTE LOADS THE LINK FROM AC0, /LOADS THE USER BUFFER F/F, INSTRUCTION BUFFER AND /DATA FIELD WITH AC0, AC6=6, AC 9=11 AND INHIBITS /PROCESSOR INTERRUPTS UNTIL NEXT JMP OR JMS INSTRUCTION, /AT THE END OF THE JMP OR JMS, THE CONTENTS OF THE U.B. + I.B. /ARE LOADED INTO USER FIELD F/F, AND THE I,F., INTERRUPT ENABLE /IS SET AND INTERRUPT INHIBIT IS CLEARED
5234	R18#6234	/READ THE INTERRUPT RUFFER
5244	RHF#6244	/RESTORES MEMORY FLAGS
5254	CINT#5204	/CLEAR USER INTERRUPT FLIP-FLOP
5254	SINT#5254	/SKIP ON USER INTERRUPT FLIP-FLOP
5264	CUF#6264	/CLEAR USER BUFFER FLIP-FLOP
5274	SUF#6274	/SET USER BUFFER FLIP-FLOP (ENTER TIME SAME MODE)AND /INHIBITS PROCESSOR INTERRUPTS UNTIL THE NEXT JMP OR /JMS INSTRUCTION, AT THE END OF THE JMP OR JMS /INSTRUCTION, THE USER BUFER IS LOADED INTO THE USER /FIELD F/F,
5201	CDF#6201	/CHANGE DATA FIELD

/KMB-A OPTION TEST 2 MAINDEQ=0B=0JKMA=A=L 1K PART 4

5202	CIF#6202	PAL10	V142	18=DEC=74	15188	PAGE 2*1
5214	RUF#6214	/CHANGE INSTRUCTION FIELD				
6224	RIF#6224	/READ THE DATA FIELD INTO AC BITS 6-8				
6223	CIFCOF#6223	/PERFORMS THE CIF AND COF FUNCTIONS				
 /PROGEN FAIL INSTRUCTIONS						
6102	SPL#6102	/SKIP ON AC LOW FLIP-FLOP				
6103	CAL#6103	/CLEAR AC LOW FLIP-FLOP				
6101	SBE#6101	/SKIP ON BATTERY EMPTY FLIP-FLOP				
 /OPTION BOARD 2 SIMULATOR IOTS						
6150	CLRSIM#6150	/CLEAR CONTROL REGISTERS				
6152	LOADG#6152	/LOAD CONTROL REGISTER 2				
6153	LOADGJ#6153	/LOAD CONTROL REGISTER 3				
6154	CLREMA#6154	/CLEAR EMA CATCHER LOGIC				
6155	REDEMA#6155	/READ EMA CATCHER REGISTER				
6160	CLRMOD#6160	/CLEAR TEST MODULE LOGIC				
6164	EXECUT#6164	/EXECUT AND CONTROL WORD 3 BIT 7 =1 ISSUE A POWER ON PULSE				
6166	SKPEMA#6166	/EXECUT AND CONTROL WORD 3 BIT 7 =0 ISSUE A SWITCH SW PULSE				
/SKPEMA AND CONTROL WORD 3 BIT 3 =1 EMA INTERRUPT AND SKIP ENABLE						
/SKPEMA AND CONTROL WORD 3 BIT 3 =0 EMA INTERRUPT AND SKIP DISABLE						
 /OPTION BOARD 2 SIMULATOR CONTROL WORD 2 BIT ASSIGNMENTS						
/						
/BITS 0 = 1 NOT USED						
/BITS 2 = 5 BOOT STRAP PROGRAM SELECT						
/BITS 9 = 11 AUTO=RESTART ADDRESS SELECT						
 /OPTION BOARD 2 SIMULATOR CONTROL WORD 3 BIT ASSIGNMENTS						
/						
/BIT 0 TIME SHAME 0=ENABLED 1=DISABLED						
/BIT 1 AC LOW (L) 1=PULLED LOW 0=FREE STATE						
/BIT 2 BATT EMPTY 1=BATT EMPTY PULLED LOW 0=FREE STATE						
/BIT 3 1=EMA INTERRUPT/SKIP ENABLE 0=EMA INTERRUPT SKIP DISABLE						
/BITS 4 = 5 NOT USED						
/BIT 7 1=POWER ON PULSE WITH EXECUT 0=SWITCH SW PULSE WITH EXECUT						
1=DISABLES BOOTSTRAP WHILE RUNNING 0=ENABLES BOOTSTRAP WHILE RUNNING						
/BIT 9 = 11 AUTO=RESTART/BOOT STRAP ENABLE CODE						

1000 00

0000	0000	INTSER, 0	/JMS AUTHST PLACED HERE FOR SIMULATOR AUTO RESTART				
0001	3035	DCA	DATREC				
0002	5102	SP,		/SKIP ON AC LOW			
0003	7410	SKP					
0004	9457	JMP	I XPMRFL	/POWER GOING DOWN			
0005	6101	SBE		/SKIP ON BATTERY EMPTY			

/KMB-A OPTION TEST 2 MAINDEQ=0B=0JKMA=A=L 1K PART 4

0006	7410	SKP	PAL10	V142	18=DEC=74	15188	PAGE 2*2	
0007	5460	JMP	I XBAT	/GO HALT THE COMPUTER ,ITS ALL OVER				
0010	6224	RIF		/READ THE INSTRUCTION FIELD				
0011	7640	SEA	CLA					
0012	4454	ERR0H		/I,F, IS NOT 0 AFTER A INTERRUPT				
0013	6214	RDF		/READ THE DATA FIELD				
0014	7640	SEA	CLA					
0015	4454	ERR0H		/I,F, IS NOT 0 AFTER A INTERRUPT				
0016	2000	ISZ	I INTSER	/ADD 1 TO THE INTERRUPTED PC				
0017	5400	JMP	I INTSER	/RETURN TO THE PROGRAM				
 0020 *20								
0020	0000	SWITCH, 0	/MSEUDO SWITCH REGISTER IF BIT 0=0 OF OP1SEL					
0021	1000	OP1SEL, 1000						
/BIT 0=0 USE LOC 20 AS A PSEUDO S,R, /BIT 0=1 USE HARDWARE FRONT PANEL S,R, /BIT 1=1 HAS BA OPTION 1 /BIT 2=1 HAS BA OPTION 2 /BIT 3=1 HAS BA CPU SIMULATOR /BIT 4=1 HAS BA OPTION 1 + 2 TEST MODULE /BIT 5=1 PROGRAM ON AA XOR /BIT 6=1 HAS PDP-BE TYPE CPU /BITS 7+11 MEMORY SIZE = 015 = 1K, 37=32K, /MEMORY SIZE CAN BE INCREASED IN 1K INCREMENTS /BY ADDING A 1 TO THE NUMBER IN BITS 7+11,								
0022	0000	OP2SEL, 0	/RKBD BOOT STRAP WILL LOAD INTO THE FOLLOWING LOCATIONS					
0023	7402	RKB#, HLT		10000				
0024	7402	HLT		10745				
0025	7402	HLT		10823				
0026	7402	HLT		17659				
0027	7402	HLT		15024				
0030	7402	HLT		16733				
0031	7402	HLT		15031				
0032	7402	HLT						
0033	0000	CDFCHK, 0						
0034	0033	CHKCDF, CDFCHK						
0035	0000	DATREC, 0						
0036	0000	SAVES#, 0						
0037	0000	FLDLM#, 0						
0040	0000	UPERLM#, 0						
0041	0000	WRLFLU#, 0						
0042	0000	DATPAT#, 0						
0043	0000	WRKADU#, 0						
0044	0000	HGLLM#, 0						
0045	6201	K62241, 6221						
0046	0000	SAVHTU, 0						
0047	0000	ADDGNT, 0						
0050	6520	BADMAS, 6520						
0051	6500	GOODPS, 6500						
0052	0453	AUTHST, PRHST						
0053	0000	TEST, 0						
/SCOPE LOOP AND TEST LOOP ADDRESS								

```

0054 4454  ERROR# JMS I
0054 0510  ERRORX
0055 4455  LOOP# JMS I
0055 0552  TSTLDP
0056 4456  SCOPLP# JMS I
0056 0460  TESTAD

0057 0443  XPHWFLX POWFAIL
0057 0467  XBATI BATEMT
0058 0417  PASEND ENDPAS

```

/CONSTANTS USED BY THE PROGRAM

```

M062 7777 M11, *1
M063 7778 M21, *2
M064 7779 M41, *4
M065 7773 M51, *5
M066 7771 M71, *7
M067 7770 M10, *10
M073 7767 M11, *11
M071 7762 M16, *15
M072 7760 M20, *20
M073 7756 M22, *22
M074 7753 M25, *25
M075 7758 M30, *30
M076 7745 M33, *33
M077 7744 M34, *34
M103 7746 M40, *40
M101 7735 M43, *43
M102 7734 M44, *44
M103 7733 M50, *50
M104 7726 M52, *52
M105 7723 M55, *55
M106 7720 M60, *60
M107 7717 M61, *61
M110 7712 M66, *66
M111 7710 M70, *70
M112 7701 M77, *77
M113 7700 M100, *100
M114 7653 M120, *120
M115 7626 M152, *152
M116 7508 M300, *300
M117 7002 M1000, *1000
M120 6771 M1007, *1007
M121 6762 M1016, *1016
M122 6753 M1020, *1020
M123 6744 M1034, *1034
M124 6735 M1043, *1043
M125 5726 M1052, *1052
M126 6717 M1061, *1061
M127 6710 M1070, *1070
M130 6700 M1100, *1100
M131 3700 M4100, *4100

```

```

0132 3000 M500H, *500H
0133 2700 M510H, *510H

0134 0007 K7, 7
0135 2010 K10, 10
0136 2037 K37, 37
0137 0070 K70, 70
0140 2077 K77, 77
0141 0120 K120, 120
0142 0152 K152, 152
0143 0200 K200, 200
0144 0400 K400, 400
0145 1777 K1777, 1777
0146 2000 K2000, 2000
0147 7774 K7774, 7774
0150 7707 K7707, 7707
0151 7757 K7757, 7757
0152 7677 K7677, 7677
0153 4100 K4100, 4100

*200 *200

```

```

*****+
//AUTO = IS AN OPERATOR INTERVENTION TEST TO CHECK POWER-FAIL/AUTO-RESTART,
//WHEN THE PROGRAM IS STARTED, IT FILLS LOCATIONS 5200 TO 7777 (4K) OR 5200 TO 5777 (3K) WITH A
//COMPLEMENTING DATA PATTERN (5200 = 2525), AND THEN HALTS, THE OPERATOR
//AT THIS TIME MUST SET THE APPROPRIATE AUTO RESTART SWITCHES ON THE
//MODULE, HE THEN MUST SIGNIFY TO THE PROGRAM VIA FRONT PANEL SWITCH
//REGISTER OR THE PSEUDO SWITCH REGISTER, WHICHEVER IS SELECTED, THE
//AUTO RESTART TO BE TESTED (0000=RESTART AT 4200; 0021=RESTART AT 2000;
//0032=RESTART AT 0200; 0033=RESTART AT 0000), THE OPERATOR THEN PRESSES
//"/CONTINUE", THE PROGRAM THEN STARTS COMPARING DATA, WAITING FOR THE
//OPERATOR TO PULL THE LINE CORD, WHEN THE AC LINE CORD IS PULLED, THE
//PROGRAM SHOULD HALT AT LOCATION A200N, THE OPERATOR SHOULD THEN PLUG
//THE LINE CORD BACK IN, AT THIS TIME THE PROGRAM SHOULD DO A AUTO RESTART
//TO THE ADDRESS SELECTED, THE PROGRAM THEN CHECKS FOR THE CORRECT
//AUTO RESTART AND THEN GOES BACK TO COMPARING DATA, THE ABOVE SEQUENCE
//FOR UNPLUGGING AND PLUGGING LINE CORD SHOULD BE DONE SEVERAL TIMES FOR EACH
//AUTO RESTART.
//WARNING: THE BATTERY SUPPLY SHOULD BE FULLY CHARGED!!!!!
*****+

```

```

0200 7000 NOP/JMS I AUTRST
0201 4456 AUTO, SCOPLP      /SETUP TEST AND SCOPE LOOP ADDRESS
0202 6007 CAF      /CLEAR ALL FLAGS
0203 1021 TA0 DP1SEL   /GET THE HARDWARE CONFIGURATION
0204 0143 AND K200
0205 7642 SCA CLA
0206 6100 CLRMOO     /SIMULATOR SELECTED CLEAR TEST MODULE

```

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=L 1K PART 4

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```

0207 1377 TAD IOPRINT
0210 3052 DCA AUTRST
0211 1376 TAD IBUFFER
0212 3302 DCA FILLIT
0213 1303 TAD BUFcnt
0214 3304 DCA CNTBUF
0215 1306 TAD K5252
0216 3305 DCA BUFPAT
0217 1305 TAD BUFPAT
0220 3702 DCA I FILLIT
0221 1305 TAD BUFPAT
0222 7040 DCA
0223 4305 DCA BUFPAT
0224 2302 IS2 FILLIT
0225 2314 IS2 CNTBUF
0226 5217 JMS *,7
0227 7402 HLT

0230 1021 TAD OP1SEL
0231 7500 SMA
0232 5235 JMP ,+3
0233 7604 LAS
0234 7413 SKP
0235 1020 TAD SWTCH
0236 4307 AND K3
0237 1375 TAD (RESADD
0240 3310 DCA MNRST
0241 1710 TAD I MNRST
0242 3310 DCA MNRST
0243 1376 STRCMP; TAD IBUFFER
0244 3302 DCA FILLIT
0245 1303 TAD BUFcnt
0246 3304 DCA CNTBUF
0247 1306 TAD K5252
0250 5305 DCA BUFPAT
0251 4001 CMPBUF; IOV
0252 1702 TAD I FILLIT
0253 7841 CLA
0254 1303 TAD BUFPAT
0255 7650 SNA
0256 5272 JMS HUFGOD
0257 4454 ERROR

0260 1302 TAD FILLIT
0261 7402 HLT
0262 7302 CLA CLL
0263 1305 TAD BUFPAT
0264 7402 HLT
0265 7300 CLA CLL
0266 1702 TAD I FILLIT
0267 7402 HLT
0270 7300 CLA CLL
0271 4453 JMP I TEST
0272 1305 BUFGOD; TAD BUFPAT
0273 7040 CLA

/GET THE ADDRESS FOR THE INTERRUPT ROUTINE
/SAVE IT
/GET THE ADDRESS OF TEST BUFFER
/SAVE IT
/GET THE NUMBER OF WORDS TO FILL THE BUFFER
/SAVE IT
/THE FIRST WORD IN THE BUFFER WILL BE 5252
/SAVE THE WORD
/GET THE WORD
/PUT IT IN THE BUFFER
/GET THE WORD
/COMPLEMENT IT
/INCREMENT BUFFER ADDRESS
/DONE?
/NO KEEP FILLING THE BUFFER
/SET THE SWITCH REGISTER OR PSEUDO S,R
/TO THE AUTO RESTART TO BE EXECUTED
/GET THE HARDWARE CONFIGURATION
/IS THE HARDWARE S,H, BEING USED
/NO USE THE PSEUDO SWITCH REGISTER
/MASK OFF BITS 17 AND 11
/ADD THE AUTO RESTART TABLE ADDRESS TO IT
/SAVE IT
/GET THE AUTO RESTART TO BE EXECUTED
/SAVE IT FOR COMPARISON AFTER RESTART
/GET THE BUFFER ADDRESS
/SAVE IT
/GET THE BUFFER SIZE
/SAVE IT
/SETUP INITIAL PATTERN
/TURN THE INTERRUPT ON
/GET THE WORD FROM BUFFER
/NEGATE IT
/GET THE WORD EXPECTED
/WORD COMPARED GO INCREMENT COUNTER
/DATA WORDS DIDN'T COMPARE. PRESS
/"CONT" FOR ADDRESS AND GOOD AND BAD DATA
/
/AC=BUFFER ADDRESS WHERE ERROR WAS DETECTED
/
/AC = GOOD DATA WORD
/AC = BAD DATA WORD + PRESS "CONT" TO
/HTRY THE COMPLETE TEST
/DONE THE TEST OVER
/GET THE DATA PATTERN
/NEGATE IT

```

/KMB-A OPTION TEST 2 MAINDEQ=08=DJKMA=L 1K PART 4

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```

0274 3305 DCA BUFPAT
0275 2302 IS2 FILLIT
0276 7000 NOP
0277 2304 IS2 CNTBUF
0300 5251 JMP CMPBUF
0301 5243 JMP STRCMP

/SAVE IT FOR NEXT COMPARE
/INCREMENT ADDRESS TO COMPARE
/THIS IS NEEDED FOR IS2 OVERFLOW
/DONE COMPLETE BUFFER?
/NO CONTINUE
/REINITIALIZE COMPARE LOOP AND COMPARE

0302 4000 FILLIT; *
0303 4000 BUFcnt; +1200
0304 2000 CNTBUF; *
0305 4000 BUFPAT; *
0306 5252 K5252; 5252
0307 4003 K3; 3
0310 1700 MNRST; 2

0311 4000 OPRRET; 0
0312 7340 CLA CLL CHA
0313 1311 TAD OPRRET
0314 7041 CLA
0315 1310 TAD MNRST
0316 7650 SNA CLA
0317 5329 JMP RESET
0320 4454 ERROR

/PROGRAM COMES HERE FROM AN AUTO RESTART
/GET THE ADDRESS FROM AUTO RESTART
/NEGATE IT
/GET EXPECTED RESTART
/ARE THEY EQUAL?
/YES RESET AC AND LINK AND RETURN TO COMPARE
/THE AUTO RESTART ADDRESS SELECTED BY
/OOPERATOR DOES NOT COMPARE WITH AUTO
/AUTO RESTART THAT RETURNED, PRESS "CONT"
/FOR EXPECTED AND ACTUAL RETURN ADDRESS
/GET THE EXPECTED AUTO RESTART ADDRESS
/AC = EXPECTED AUTO RESTART ADDRESS

0321 1310 TAD MNRST
0322 7402 HLT
0323 7340 CLA CLL CHA
0324 1311 TAD OPRRET
0325 7402 HLT
0326 7300 RESET; CLA CLL
0327 1377 TAD IOPRINT
0330 3052 DCA AUTRST
0331 1774 TAD PC
0332 3340 DCA RETPRG
0333 1773 TAD LINK
0334 7084 RAL
0335 1035 TAD DATREC
0336 6001 IOV
0337 5740 JMS I RETPRG

/GET ACTUAL
/AC = ADDRESS RETURNED FROM AUTO RESTART
/SETUP RETURN ADDRESS FOR POWER FAIL
/SAVE IT
/GET THE LINK
/PUT IT IN THE LINK
/GET THE AC
/TURN THE INTERRUPT ON

0340 4000 RETPRG; 0
0341 4034 K34; 34
0342 4001 K1; 1

0343 4000 OPRINT; 0
0344 1372 TAD (JMS I AUTRST
0345 3000 DCA INTSER
0346 1372 TAD (JMS I AUTRST
0347 3200 DCA AUTO=1
0350 1371 TAD (OPRRET

/OOPERATOR INTERVENTION AUTO RESTART
/SETUP FOR A AUTO RESTART

```

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMKA-L 1K PART 4 PAL12 V142 18-DEC-74 15108 PAGE 2-7

0351	3052	DCA	AUTRST	
0352	7492	ADDNU	HLT	/WAIT FOR LINE CORD TO BE PLUGGED IN
0353	5453	JMP	I TEST	/RETRY TEST
0354	4200	RESADU	4200	
0355	2000		2000	
0356	0200		0200	
0357	0000		0000	

0371	0311			
0372	4452			
0373	0451			
0374	0452			
0375	0354			
0376	0602			
0377	0343			
	0400	PAGE		

0400	2000	ACTLIN	I		
0401	1022	TAD	OP2SEL		
0402	7700	SMA	CLA	/IS THE PROGRAM RUNNING ON ACT LINE?	
0403	5000	JMP	I ACTLIN	/NO, RETURN	
0404	1037	TAD	FLDLIM	/GET THE FIELD LIMIT	
0405	1111	TAD	H70		
0406	7640	SEA	CLA	/IS THE FIELD LIMIT EQUAL TO FIELD 7?	
0407	5600	JMP	I ACTLIN	/NO, RETURN TO TEST	
0410	1040	TAD	UPERLH	/GET THE UPPER ADDRESS LIMIT	
0411	7001	TAD		/ADD 1 TO IT	
0412	7640	SEA	CLA	/HAS IT 7777	
0413	5600	JMP	I ACTLIN	/NO, RETURN	
0414	7352	CLA	CLL CMA RTR	/SET LAST ADDRESS = 5777	
0415	3040	DCA	UPERLH	/SAVE IT	
0416	5600	JMP	I ACTLIN	/RETURN TO PROGRAM	
0417	1022	ENDPAS	TAD	OP2SEL	
0420	7700	SMA	CLA	/CHECK FOR ACT LINE	
0421	5234	JMP	ENDING	/IS THE PROGRAM RUNNING ON ACT LINE	
0422	1021	TAD	OP1SEL	/NO GO CHECK FOR SR 3 TO HALT AT END OF A PASS	
0423	0143	AND	K200	/GET THE HARDWARE CONFIGURATION	
0424	7640	SEA	CLA	/CHECK FOR THE SIMULATOR	
0425	5234	JMP	ENDING	/HAS THE SIMULATOR SELECTED	
0426	2242	ISE	PRGPAS	/YES, ALREADY NOTIFIED PROM OF GOOD PAS	
0427	5234	JMP	ENDING	/CHECK 1/2 SECOND COUNT	
0430	1377	TAD	(=144	/NOT 1/2 SECOND YET	
0431	3242	DCA	PRGPAS	/RESET THE COUNTER	
0432	6272	CIF	70		
0433	4451	JMS	I GOODPS	/CHANGE INSTRUCTION FIELD TO 7	
0434	4341	ENDING	JMS	/SIGNAL THE PROM	
0435	7000	RTL		/CHECK SR 3 TO HALT ON A PROGRAM PASS	

/KMB-A OPTION TEST 2 MAINDEQ=0B=DJKMKA-L 1K PART 4 PAL12 V142 18-DEC-74 15108 PAGE 2-8

0436	7004	RAL		
0437	7710	SPA	CLA	
0440	7402	HLT		/END OF A COMPLETE PROGRAM PASS
0441	5776	JMP	0201	/RESTART THE PROGRAM

0442 7634 PRGPAS; #144

0443	7010	POWFAL	RAR	
0444	3251	DCA	LINK	
0445	1000	TAD	INTSER	
0446	3252	DCA	PC	
0447	6103	CA		
0450	4452	JMS	I AUTRST	/CLEAR AC LOW F/F
				/RETURN TO THE PROGRAM
0451	0000	LINK	I	
0452	0000	PC	I	
0453	0000	PRGHST	I	
0454	6102	SP		/SKIP ON AC LOW AS A LEVEL
0455	7610	SK	CLA	
0456	5254	JMP	I#2	
0457	5453	JMP	I TEST	/RETURN TO TEST BEING EXECUTED AND START OVER

0460	0000	TESTAU	I	
0461	7340	CLA	CLL CMA	
0462	1200	TAD	TESTAD	
0463	3053	DCA	TEST	
0464	1375	TAD	(PRGRST	
0465	3052	DCA	AUTRST	
0466	5660	JMP	I TESTAD	

0467	1021	BATEMT	TAD	OP1SEL	
0470	0143	AND	K200	/GET HARDWARE CONFIGURATION	
0471	7650	SNA	CLA		
0472	5277	JMP	DEAD	/MACHINE GOING DOWN = STOP EVERYTHING	
0473	3373	DCA	ACNLOK		
0474	2000	ISE	INTSER		
0475	2000	ISE	INTSER		
0476	5400	JMP	I INTSER		
0477	7402	DEAJ	HLT	/ITS ALL OVER NOW = GOODBYE	
0500	5453	JMP	I TEST		

0501	0000	GOODBU	I	
0502	1022	TAD	OP2SEL	/GET HARDWARE CONFIGURATION
0503	7700	SMA	CLA	/IS THE PROGRAM RUNNING ON ACT LINE
0504	5701	JMP	I GOODBD	/NO RETURN TO PROGRAM
0505	6272	CIF	70	/CHANGE INSTRUCTION FIELD TO FIELD 7
0506	4451	JMS	I GOODPS	/SIGNAL ACT LINE PROGRAM STILL RUNNING
0507	5701	JMP	I GOODBD	/RETURN TO PROGRAM

```

0510 0000  ERRURX; 0           /ERROR ROUTINE
0511 7300  CLA    CLL
0512 1022  TAD    DP2SEL
0513 7700  SMA    CLA
0514 5326  JMP    CHKINH
0515 1021  TAD    DP1SEL
0516 2143  AND    K200
0517 7640  SZA    CLA
0520 6160  CLRMO
0521 6002  IOR
0522 7242  CLA    CMA
0523 1310  TAD    ERRORX
0524 6272  CIP    70
0525 5450  JMP    I BADPAS
0526 4341  CHKINH; JMS  SWCHK
0527 7710  SPA    CLA
0530 5334  JMP    ERLPSH
0531 7340  CLA    CLL  CMA
0532 1310  TAD    ERRORX
0533 7402  HLT
0534 4341  ERLPSH; JMS  SWCHK
0535 7004  RAL
0536 7710  SPA    CLA
0537 5453  JMP    I TEST
0538 5710  JMP    I ERRORX
0541 8000  SWCHK; 0
0542 7300  CLA    CLL
0543 1021  TAD    DP1SEL
0544 7700  SMA    CLA
0545 5352  JMP    ,+3
0546 7604  LAS
0547 5741  JMP    I SWCHK
0550 1020  TAD    SWITCH
0551 5741  JMP    I SWCHK
0552 8000  TSTL0P; 0           /ROUTINE TO CHECK SH 2 TO LOOP ON TEST
0553 4341  JMS  SWCHK
0554 7006  RTL
0555 7700  SMA    CLA
0556 5752  JMP    I TSTL0P
0557 5453  JMP    I TEST
0560 8000  ACBLAT; 0           /GO GET THE SWITCH REGISTER
0561 1373  TAD    ACNL0K
0562 7640  SZA    CLA
0563 5366  JMP    ,+3
0564 2000  ISE   INTSER
0565 5400  JMP    I INTSER
0566 3373  DCA   ACNL0K
0567 6101  SBE
0570 5364  JMP    ,+4
0571 2000  ISE   INTSER
0572 5364  JMP    ,+6
0573 8000  ACNL0K; 0
0575 1453
0576 1201
0577 7634
0580  PAGE

```

/ACLOCK AT RETURN FOR AC LOW OR BATTERY EMPTY

```

0565 5400  JMP    I INTSER
0566 3373  DCA   ACNL0K
0567 6101  SBE
0570 5364  JMP    ,+4
0571 2000  ISE   INTSER
0572 5364  JMP    ,+6
0573 8000  ACNL0K; 0
0575 1453
0576 1201
0577 7634
0580  PAGE

```

0580 8000 BUFFER; 0 /BUFFER IS FROM 622 TO 1777

0200 *200

/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 4 PAL12 V142 18-DEC-74 15128 PAGE 2*11

0200 11111111 11111111 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 00000000 00000000
0400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0600 100000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0700 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

1000
1100

1200
1300

1400
1500

1600
1700

2000
2100

2200
2300

2400
2500

2600
2700

3000
3100

3200
3300

3400
3500

3600
3700

/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 4 PAL12 V142 18-DEC-74 15128 PAGE 2*12

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

/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 4 P1109 V142 18-DEC-74 15108 PAGE 2-13

ACDOWN	0352	K3	0387	H52	0104
ACLBAT	0560	K34	0341	H55	0105
ACNLOK	0573	K37	0136	H60	0106
ACTLTN	0490	K420	0144	H61	0107
ADDGNT	0847	K4200	0153	H66	0110
AUTO	0201	K5222	0386	H7	0066
AUTRST	0052	K6281	0045	H78	0111
BADPAS	0050	K7	0134	H77	0112
BATENT	0467	K72	0137	HANKST	0310
RUFQNT	0383	K7877	0152	OP1SEL	0021
RUFER	0600	K77	0140	OP2LK4	0000
RUFQGD	0272	K7707	0158	OP2SEL	0022
RUFPAT	0385	K7757	0151	OPRINT	0343
CAC	6887	K7774	0147	OPRNET	0311
CAL	6103	L1NK	0451	PASENU	0061
CDF	6201	L03KG2	6152	PC	0452
CDFCHK	0033	L03HG3	6153	POWFAL	0443
CHKCDF	0834	L03P	4455	PHGPAS	0442
CHKINH	0526	M1	0062	PRCHST	0493
CIF	6202	M10	0067	RUF	0214
CIFCFD	6203	M100	0113	REDEMA	0125
CINT	6204	M1000	0117	RESADU	0354
CLRMHA	5154	M1007	0120	RESET	0326
CLRMOD	6160	M1216	0121	RETPRG	0340
CLRSIH	6150	M1422	0122	RIB	0234
CMRBUF	0251	M1434	0123	RIF	0224
CNTBUF	0384	M1443	0124	RKE	0023
CUF	6204	M1502	0125	RMF	0244
DATPAT	0842	M1591	0126	RTF	0005
DATREC	0835	M1570	0127	SAVESE	0036
DEAU	0477	M11	0070	SAVWFU	0046
ENDING	0434	M1100	0130	SBE	0101
ENDPAS	0417	M125	0114	SCDPLH	4496
ERLPSH	0534	M132	0115	SINT	6254
ERROR	4454	M15	0071	SKON	0000
ERRQRX	0510	M2	0063	SKPEMA	0166
EXECUT	6164	M20	0072	SPL	0102
FILLIT	0302	M22	0073	STRCHM	0243
FLDLIM	0037	M25	0074	SUP	6274
GUARD	0501	M30	0075	SWCHK	0541
GOUPRS	0051	M320	0116	SWITCH	0020
GTV	6004	M33	0076	TEST	0053
HGHLM	0844	M34	0077	TESTAU	0460
HLT	7402	M4	0064	TSTLDM	0552
INTSER	0800	M40	0100	OPENLM	0040
K1	0342	M4100	0131	WRKADU	0043
K10	0135	M43	0101	WRKFLO	0041
K125	0141	M44	0102	XBAT	0060
K152	0142	M5	0065	XPNHFL	0057
K1777	0145	M50	0103		
K200	0143	M5000	0132		
K2000	0140	M5100	0133		

/KMB=A OPTION TEST 2 MAINDEQ=08=DJKMA=A=L 1K PART 4 P1109 V142 18-DEC-74 15108 PAGE 2-14

ERRORS DETECTED 0
 LINKS GENERATED 3
 RUN-TIME 17 SECONDS
 3K CORE USED

