

IDENTIFICATION

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PRODUCT CODE: MA1NDEC-08-DHMCA-A1-D  
PRODUCT NAME: PDP8-E MEMORY EXTENSION  
AND TIME SHARE CONTROL TEST  
DATE CREATED: JUNE 16, 1972  
MAINTAINER: DIAGNOSTIC PROGRAMMING GROUP  
AUTHOR: J. VROBEL  
M.C.O. DATE: JUNE 27, 1975

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MAIN DEC CHANGE NOTICE  
MAY BE REQUIRED FOR  
PROGRAM TO OPERATE



1. ABSTRACT  
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THIS PROGRAM TESTS THE MEMORY EXTENSION AND TIME SHARE CONTROL LOGIC FOR PROPER OPERATION. THE PROGRAM EXERCISES AND TESTS ALL IOT'S ASSOCIATED WITH MEMORY EXTENSION AND TIME SHARE CONTROL.

ERRORS ENCOUNTERED DURING RUNNING WILL RESULT IN A PROGRAM "HALT" OR A "JUMP TO SELF", WHICH MAY OCCUR IN ANY FIELD DEPENDING ON THE PORTION OF THE TEST EXECUTED. ERRORS MAY BE IDENTIFIED BY REFERENCING THE PROGRAM LISTING.

2. REQUIREMENTS  
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2.1 EQUIPMENT  
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PDP8-E COMPUTER WITH THE KM8-E OPTION INSTALLED AND AT LEAST 4K OF EXTENDED MEMORY.

2.2 STORAGE  
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THE PROGRAM REQUIRES 4200(8) LOCATIONS OF CORE MEMORY AND MUST RESIDE IN FIELD 0 ONLY.

2.3 PRELIMINARY PROGRAMS  
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ALL THE PROGRAMS FOR THE BASIC PDP8-E MUST HAVE BEEN RUN SUCCESSFULLY.

3. LOADING PROCEDURE  
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3.1 METHOD  
-----

THE PROGRAM IS LOADED INTO "FIELD 0" USING THE STANDARD BINARY LOADER TECHNIQUE.

4. STARTING PROCEDURE  
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4.1 CONTROL SWITCH SETTINGS  
-----

SR 9, 10, AND 11 MUST CONTAIN AN OCTAL VALUE EQUAL TO THE NUMBER OF EXTENDED FIELDS AVAILABLE. NOTE THAT FIELD 0 IS NOT INCLUDED.

SR0=0 WILL RESULT IN COMPLETE PROGRAM EXECUTION OF THE MEMORY

## EXTENSION AND TIME SHARE CONTROL.

SR0=1 WILL LOOP THE PROGRAM ON THE MEMORY EXTENSION PORTION AND TEST THAT THE TIME SHARE IS DISABLED.

SR1=1 WILL RESULT IN AN END OF TEST HALT AT LOCATION 1565(8).

### 4.2 STARTING ADDRESS

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THE STARTING ADDRESS IS LOCATION 0200(8).

### 4.3 OPERATOR ACTION

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#### 4.3.1 MEMORY EXTENSION AND TIME SHARE CONTROL (TIME SHARE ENABLED)

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WITH THE PROGRAM IN MEMORY, SET THE SWITCH REGISTER TO 0000.

PRESS EXTENDED ADDRESS LOAD.

SET THE REGISTER TO 0200 OCTAL.

PRESS ADDRESS LOAD.

PLACE THE OCTAL VALUE OF EXTENDED FIELDS AVAILABLE IN SR9-11.

PRESS CLEAR AND THEN CONTINUE.

THE PROGRAM SHOULD RUN UNTIL A FAILURE OCCURS OR UNTIL STOPPED BY THE OPERATOR WITH SR1=1. NOTE THAT THE PROGRAM SHOULD ALWAYS BE STOPPED WITH SR1=1.

THE TTY BELL WILL SIGNAL A SUCCESSFUL TEST AT THE COMPLETION OF EVERY PASS.

#### 4.3.2 MEMORY EXTENSION PORTION (TIME SHARE DISABLED)

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WITH THE PROGRAM IN MEMORY, SET THE SWITCH REGISTER TO 0000.

PRESS EXTENDED ADDRESS LOAD.

SET THE SWITCH REGISTER TO 0200 OCTAL.

PRESS ADDRESS LOAD.

PLACE THE OCTAL VALUE OF EXTENDED FIELDS AVAILABLE IN SR9-11.

PLACE SR0=1 TO EXECUTE MEMORY EXTENSION ONLY.

PRESS CLEAR AND THEN CONTINUE.

THE PROGRAM SHOULD HALT AT LOCATION 3651(8), THIS WILL

VERIFY THAT THE TIME SHARE IS DISABLED. ALL OTHER ERRORS AT THIS TIME WILL BE CONSIDERED AS AN ILLEGAL CONDITION.

PRESS CONTINUE.

THE PROGRAM SHOULD LOOP UNTIL AN ERROR OCCURS OR UNTIL STOPPED BY THE OPERATOR WITH SR1=1.

THE TTY BELL WILL SIGNAL A SUCCESSFUL TEST AT THE END OF EVERY PASS.

## 5. OPERATING PROCEDURE

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### 5.1 OPERATOR ACTION

-----

#### 5.1.1 MEMORY EXTENSION AND TIME SHARE CONTROL

-----7-----

VISUALLY VERIFY THAT THE TIME SHARE DISABLE JUMPER IS "OUT" ON THE M837 MODULE AND FOLLOW THE OPERATOR ACTION IN 4.3.

#### 5.1.2 MEMORY EXTENSION PORTION

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VISUALLY VERIFY THAT THE TIME SHARE DISABLE JUMPER IS "IN" ON THE M837 MODULE AND FOLLOW THE OPERATOR ACTION 4.3.

## 6. ERRORS

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### 6.1 ERROR DESCRIPTION

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BOTH "HALTS" AND "JUMP TO SELF" ARE USED TO INDICATE ERROR CONDITIONS. IN EITHER CASE REFER TO THE PROGRAM LISTING FOR MORE INFORMATION.

### 6.2 ERROR RECOVERY

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ALL ERRORS ENCOUNTERED MUST BE CORRECTED BEFORE PROCEEDING ON IN THE PROGRAM.

## 7. RESTRICTIONS

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### 7.1 OPERATING RESTRICTIONS

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PDP8-E ONLY WITH THE KM8-E OPTION INSTALLED AND AT LEAST 4K OF EXTENDED MEMORY.

THE NUMBER OF EXTENDED AVAILABLE FIELDS MUST BE IN SR9-11.

IF MEMORY EXTENSION ONLY, THE TIME SHARE MUST BE DISABLED AND SR0=1.

IF MEMORY EXTENSION AND TIME SHARE CONTROL, THE TIME SHARE MUST BE ENABLED AND SR0=0.

IN ALL CASES SR1=1 MUST BE USED TO STOP PROGRAM.

THE PROGRAM MUST RESIDE IN FIELD 0 ONLY.

BOTH PORTIONS OF THE TEST MUST BE RUN, 4.3.1 AND 4.3.2, TO VERIFY THAT THE TIME SHARE CAN BE DISABLED AND ENABLED.

## 8. MISCELLANEOUS -----

### 8.1 EXECUTION TIME -----

EXECUTION TIME DEPENDS ON THE AMOUNT OF AVAILABLE EXTENDED FIELDS. EXECUTION TIME FOR 32K APPROXIMATIVELY 3.75 MINUTES.

## 9. PROGRAM DESCRIPTION -----

THE PROGRAM EXERCISES AND TESTS ALL IOT'S ASSOCIATED WITH THE MEMORY EXTENSION AND TIME SHARE CONTROL, THE ABILITY TO RUN WITH THE TIME SHARE DISABLED, THE ABILITY TO RUN "EXECUTIVE" AND "USER MODES" IN ALL AVAILABLE FIELDS WITH THE TIME SHARE ENABLED, THE ABILITY TO REFERENCE ALL MEMORY FIELDS FROM FIELD 0 AND VICE-VERSA, THE ABILITY TO READ AND WRITE DATA IN ALL AVAILABLE FIELDS AND THE ABILITY TO RUN PROGRAM INTERRUPTS AND INTERRUPT INHIBIT IN ALL FIELDS.

THE TIME SHARE OPTION DEVELOPES A NEW MODE OF OPERATION OR THE "USER MODE". ALL HLT, OSR, AND IOT INSTRUCTIONS ARE ILLEGAL IN USER MODE AND SHOULD "TRAP OUT". THE PROGRAM WILL THEN DETERMINE IF AN ERROR CONDITION DOES EXIST. IN SOME CASES, IN TIME SHARING, AN ERROR CONDITION CANNOT BE INDICATED WITH A "HLT" OR "TYPE OUT" BECAUSE THIS WOULD BE ILLEGAL. THEREFORE A "JUMP TO SELF" IS USED TO INDICATE ERRORS.

### 9.1 TEST 00 -----

TEST CDF AND RDF FOR ALL COMBINATIONS 0 TO 7.

### 9.2 TEST 01 -----

TEST INTERRUPT BUFFER BITS 9-11 WITH RIB. PI IS ENABLED AND TTY FLAG IS USED FOR INTERRUPTS. DO ALL COMBINATIONS 0 TO 7.

9.3 TEST 02  
-----

TEST DCA I AND TAD I TO ALL AVAILABLE FIELDS. EACH STACK  
WILL CONTAIN ITS DF# IN LOCATION 7000.

9.4 TEST 03  
-----

TEST CIF INSTRUCTION. CHECKS THE ABILITY OF A CIF-ION-  
NOP-JMP AND CIF-ION-NOP-JMS.

9.5 TEST 04  
-----

TEST GTF INSTRUCTION FOR ITT FLAG AND SAVE FIELD.  
GET SAVE FIELD AFTER INTERRUPT AND CHECK INTERRUPT  
INHIBIT. DO ALL COMBINATIONS 0 TO 7.

9.6 TEST 05  
-----

TEST ION AND LINK FROM RTF. TEST INTERRUPT INHIBIT BEFORE  
PI. GET THE FLAGS WITH GTF.

9.7 TEST 06  
-----

TEST READ AND WRITE DATA IN ALL AVAILABLE EXTENDED FIELDS.

9.8 TEST 07  
-----

CONFIDENCE CHECK ON ALL EXISTENT FIELDS. MAKE SURE ALL  
STACKS ARE ACCESSED CORRECTLY.

9.9 TEST 08  
-----

TEST DF AND IF FROM SAVE FIELD AFTER PI. USE RTF TO  
SET THE FLAGS AND GTF TO GET THE FLAGS. CHECK INTERRUPT  
INHIBIT. DO ALL SF COMBINATIONS 0 TO 77.

9.10 TEST 09  
-----

TEST PROGRAM INTERRUPT IN ALL AVAILABLE EXTENDED FIELDS.  
USE RTF, GTF, RDF, AND RIF FOR CHECK.

9.11 TEST 10  
-----

TEST INTERRUPT INHIBIT IN ALL AVAILABLE EXTENDED FIELDS.  
TEST CIF-ION-JMP COMBINATION.

9.12 TEST 11  
-----

TEST SAVE FIELD WITH RMF IOT.

9.13 TEST 12  
-----

TEST AUTO-INDEX IN ALL AVAILABLE EXTENDED FIELDS.

9.14 TEST 13  
-----

DYNAMIC RMF TEST. TEST ALL SF TO DE TRANSFERS AND SF  
TO IB TRANSFERS.

9.15 TEST 14  
-----

TEST NON-EXISTENT FIELDS FOR ALL DIS. IF 32K PRESENT  
BY-PASS TEST.

9.16 TEST 15  
-----

TEST TIME SHARE IN FIELD 0.

9.17 TEST 16  
-----

TEST TIME SHARE IN ALL AVAILABLE EXTENDED FIELDS.

10. LISTING  
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/PDP8-E, MEMORY EXTENSION AND TIME SHARE CONTROL TEST.
/
/COPYRIGHT 1972, DIGITAL EQUIPMENT CORP., MAYNARD, MASS.
/STARTING ADDRESS IS 0200.
/
/CONSTANTS
/
0201 CDF=6201
0202 CIF=6202
0214 RDF=6214
0224 RIF=6224
0244 RMF=6244
0234 RIB=6234
0274 SUF=6274
0264 CUF=6264
0254 SINT=6254
0204 CINT=6204
0007 CAF=6007
0005 RTF=6005
0004 GTF=6004
0001 ION=6001
0002 IOF=6002
0000 SKON=6000
0003 SRQ=6003
0040 SPF=6040
0041 TSF=6041
0032 KCC=6032
0002 IOF=6002
0036 KRB=6036
0000 IOT=6000
7421 MQL=7421
/
0000 *0
0000 0000 0000
0001 5001 5001
0002 0002 0002
0003 0003 0003
/
0020 *20
/
0020 5400 JMP10, JMP 1 0
0021 2000 IS20, IS2 0
0022 2443 XTFLG, TFLG
0023 2435 XSTKS, NSTKS
0024 1050 XRMF, TRMF
0025 1321 XTRANS, TRANS
0026 1432 XAUTO, TAUTO
0027 0000 LOOP, 0
0030 0000 NDF, 0
0031 0000 STKS, 0
0032 0000 DAT, 0
0033 0000 NOSTAK, 0
0034 0000 NOFLD, 0
0035 1132 KCAIM, CAI-1

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0036 1133 KCAI, CAI
0037 7402 KHLT, HLT
0040 6201 KCDF, 6201
0041 6202 KCIF, 6202
0042 1316 XFD, EXFD
0043 0001 K1, 1
0044 0007 K7, 7
0045 0010 K10, 10
0046 7777 K7777, 7777
0047 7000 K7000, 7000
0050 7707 K7707, 7707
0051 7767 K7767, 7767
0052 7757 K7757, 7757
0053 7747 K7747, 7747
0054 7737 K7737, 7737
0055 7727 K7727, 7727
0056 7717 K7717, 7717
0057 7776 K7776, 7776
0060 7775 K7775, 7775
0061 7774 K7774, 7774
0062 7773 K7773, 7773
0063 7772 K7772, 7772
0064 7771 K7771, 7771
0065 0067 POINT, +2

0066 0067 K7S, +1
0067 7766 K7766, 7766
0070 7755 K7755, 7755
0071 7744 K7744, 7744
0072 7733 K7733, 7733
0073 7722 K7722, 7722
0074 7711 K7711, 7711
0075 7700 K7700, 7700
0076 1127 XTDF, STDF
0077 1130 XTDF1, STDF+1
0100 1302 KXFLD, EXFLD
0101 5402 KJMP, JMP 1 2
0102 1200 KNTR, ENTER
0103 0020 K20, 20
0104 5005 JMP2, JMP 1 KFLD0
0105 1427 KFLD0, RTN
0106 1422 KRTN, CA0+2
0107 1400 XFIB, SFIB
0110 7770 K7770, 7770
0111 0070 K0070, 0070
0112 0000 XSAV, 0000
0113 7770 XCOUNT, 7770
0114 0000 XTQR, 0000
0115 5200 K5200, 5200
0116 1200 K1200, 1200
0117 0077 K0077, 0077
0120 0011 K0011, 0011
0121 7700 K7700, 7700
0122 0002 K0002, 0002

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0123 0004 K0004, 0004
0124 7402 K7402, 7402
0125 6000 K6000, 6000
0126 0100 K0100, 0100
0127 0200 PLACE, BEGIN
0130 1000 K1000, 1000
0131 2000 TIME, T1
0132 0017 K0017, 0017
0133 6001 K6001, 6001
0134 5535 JMPIR, JMP I XRET
0135 2511 XRET, RET
0136 0000 XDATA, 0000
0137 0000 K0000, 0000
0140 0003 K0003, 0003
0141 0001 K0001, 0001
0142 1100 K1100, 1100
0143 7745 SR00, 7745
0144 3577 K3577, 3577
0145 7745 K7745, 7745
0146 3633 XXSR0, XSR0
0147 1556 XELL, BELL*1
0150 1555 XBELL, BELL
0151 0046 TTB, TLS
0152 3643 XTRAP, TRAP
0153 5531 ATRAP, JMP I TIME
0154 0000 FCO, 0000
0155 2047 XDATER, DATER
0156 0211 KCDF1, CDF 10
0157 2525 KDATER, 2525

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/TEST 00
/TEST CDF AND RDF, USE CDF TO SET THE DATA
/FIELD AND RDF TO READ THE DATA FIELD,
/DO ALL COMBINATIONS 0 TO 7,
/
*200
/
0200 7604 BEGIN1, LAB
0201 7510 SPA
0202 5552 JMP I XTRAP
0203 7300 BEGIN, CLA CLL
0204 0007 CAF
0205 0244 CUF
0206 1037 TAD KHLT /STORE A HLT IN LOC. 1 AND
0207 3001 DCA 1 /CHECK FOR STRAY INTERRUPT RQST,
0210 0001 ION
/
0211 0201 DFB, CDF 00 /DF 0
0212 0214 RDF
0213 7450 SNA /SHOULD NOT SKIP
0214 5220 JMP DF7
0215 7402 HLT /ERROR, CDF OR RDF FAILED

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0216 7200 CLA
0217 5211 JMP DF0 /REPEAT
/
0220 1050 DF7, TAD K7707 /7707
0221 0271 CDF 70 /DF 7
0222 0214 RDF
/
0223 7040 CMA /AC = 0
0224 7450 SNA /SHOULD NOT SKIP
0225 5231 JMP OK1
0226 7402 HLT /CDF OR RDF FAILED
0227 7200 CLA
0230 5220 JMP DF7
/
0231 2027 OK1, ISB LOOP /CHECK DONE
0232 5211 JMP DF0
/
0233 7200 CLA
0234 3027 DCA LOOP /LOOP COUNTER
/
0235 1051 DF1, TAD K7767 /7767
0236 0211 CDF 10 /DF 10
0237 0214 RDF
/
0240 7040 CMA /AC=0
0241 7450 SNA
0242 5246 JMP DF2
0243 7402 HLT /CDF 1 OR RDF FAILED
0244 7200 CLA
0245 5235 JMP DF1
/
0246 1052 DF2, TAD K7757 /7757
0247 0221 CDF 20 /DF 2
0250 0214 RDF
/
0251 7040 CMA /AC=0
0252 7450 SNA
0253 5257 JMP OK2
/
0254 7402 HLT /CDF 2 OR RDF FAILED
0255 7200 CLA
0256 5246 JMP DF2
/
0257 2027 OK2, ISB LOOP /DONE IF SKP
0260 5235 JMP DF1
0261 7200 CLA
0262 3027 DCA LOOP
/
0263 1053 DF3, TAD K7747 /7747
0264 0231 CDF 30 /DF 3
0265 0214 RDF
/
0266 7040 CMA /AC=0
0267 7450 SNA
0270 5274 JMP DF4
0271 7402 HLT /CDF 3 OR RDF FAILED
0272 7200 CLA
0273 5263 JMP DF3

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0274 1854 / DF4, TAD K7737 /7737
0275 6241 CDF 48 /DF 4
0276 6214 RDP
0277 7040 CMA /AC=0
0300 7450 SNA
0301 5305 JMP OK3
0302 7402 HLT /CDF 4 OR RDP FAILED
0303 7200 CLA
0304 5274 JMP DF4

0305 2027 / OK3, ISB LOOP /DONE IF SKP
0306 5263 JMP DF3

0307 7200 / CLA
0310 3027 DCA LOOP

0311 1855 / DF5, TAD K7727 /7727
0312 6251 CDF 50 /DF5
0313 6214 RDP
0314 7040 CMA /AC=0
0315 7450 SNA
0316 5322 JMP DF6
0317 7402 HLT /CDF 5 OR RDP FAILED,
0320 7200 CLA
0321 5311 JMP DF5

0322 1856 / DF6, TAD K7717 /7717
0323 6241 CDF 60 /DF 6
0324 6214 RDP
0325 7040 CMA /AC=0
0326 7450 SNA
0327 5333 JMP OK4

0330 7402 HLT /CDF 6 OR RDP FAILED
0331 7200 CLA
0332 5322 JMP DF6

0333 2027 / OK4, ISB LOOP /DONE IF SKP
0334 5311 JMP DF5
0335 6000 SKON /SKP IF ION
0336 7402 HLT /IS ION STILL ON

/TEST 01
/NOV TEST INTERRUPT BUFFER (IB) BITS 9-11 WITH
/RIB, PI IS ENABLED. TELEPRINTER FLAG IS
/USED FOR INTERRUPT. DO ALL COMBINATIONS 0 TO 7.

0337 6201 / CDF 00 /DF0
0340 1020 TAD JMP10 /JMP10=JMP I 0
0341 3001 DCA 1 /C(1)=JMP I 0
0342 3027 DCA LOOP
0343 6041 TSP /TEST IY FLAG
0344 4422 JMS I XTFLG /SET FLAG

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0345 6001 IB0, ION /ENABLE PI
0346 7200 CLA
0347 6234 RIB /READ SF
0350 7450 SNA
0351 5354 JMP IB1
0352 7402 HLT /RIB FAILED
0353 5345 JMP IB0

0354 6211 / IB1, CDF 10 /DF 1
0355 6001 ION
0356 7200 CLA
0357 6214 RDP /DF SHOULD BE 0 AFTER A PI
0360 7450 SNA
0361 5364 JMP ,+3
0362 7402 HLT
0363 5354 JMP IB1 /DF NOT CLEARED, OR NO PI

0364 1057 / TAD K7776
0365 6234 RIB /READ SF
0366 7040 CMA /AC=0
0367 7450 SNA
0370 5373 JMP OK5
0371 7402 HLT /RIB OR SF FAILED
0372 5354 JMP IB1
0373 2027 OK5, ISB LOOP /DONE IF SKP
0374 5345 JMP IB0
0375 5776 JMP I ,+1
0376 0400 IB2-2

0400 0400 *400
0400 7200 CLA
0401 3027 DCA LOOP

0402 6221 / IB2, CDF 20 /DF 2
0403 6001 ION
0404 7200 CLA
0405 6214 RDP /SHOULD BE 0 AFTER PI
0406 7450 SNA
0407 5212 JMP ,+3
0410 7402 HLT /DF NOT CLEARED, OR NO PI
0411 5202 JMP IB2

0412 1060 / TAD K7775
0413 6234 RIB /AC=7777
0414 7040 CMA /=0
0415 7450 SNA
0416 5221 JMP IB3
0417 7402 HLT /RIB OR SF FAILED
0420 5202 JMP IB2

0421 6231 / IB3, CDF 30 /DF3
0422 6001 ION
0423 7200 CLA
0424 6214 RDP /DF SHOULD BE CLEARED

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0425 7450 SNA
0426 5231 JMP ,+3
0427 7402 HLT /DF NOT CLEARED
0430 5221 JMP IB3

0431 1061 TAD K7774
0432 6234 RIB /AC=7777
0433 7040 CMA /AC=0
0434 7450 SNA
0435 5240 JMP OK6
0436 7402 HLT /RIB OR SF FAILED
0437 5221 JMP IB3

0440 2027 OK6, ISL LOOP /DONE IF SKP
0441 5202 JMP IB2

0442 7200 CLA
0443 3027 DCA LOOP

0444 6241 IB4, CDF 40 /DF 3
0445 6001 ION
0446 7200 CLA
0447 6214 RDF /DF MUST BE 000 AFTER A PI
0450 7450 SNA /ERROR IF SKIP
0451 5254 JMP ,+3

0452 7402 HLT /DF NOT 0 AFTER PI
0453 5244 JMP IB4

0454 1062 TAD K7773 /AC=7773
0455 6234 RIB /AC=7777
0456 7040 CMA /AC=0
0457 7450 SNA
0460 5263 JMP IB5 /RIB OR SF FAILED
0461 7402 HLT
0462 5244 JMP IB4

0463 6251 IB5, CDF 50 /DF5
0464 6001 ION
0465 7200 CLA
0466 6214 RDF /DF SHOULD=000
0467 7450 SNA
0470 5273 JMP ,+3 /DF NOT 0 AFTER PI
0471 7402 HLT
0472 5263 JMP IB5

0473 1063 TAD K7772 /AC = 7772
0474 6234 RIB /AC = 7777
0475 7040 CMA /AC = 0000
0476 7450 SNA
0477 5302 JMP OK7 /RIB OR SF FAILED
0500 7402 HLT
0501 5263 JMP IB5

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0502 2027 OK7, ISL LOOP /DONE IF 0 AND SKIP
0503 5244 JMP IB4

0504 7200 CLA
0505 3027 DCA LOOP

0506 6261 IB6, CDF 60 /DF6
0507 6001 ION
0510 7200 CLA
0511 6214 RDF /DF MUST=0 AFTER PI
0512 7450 SNA
0513 5316 JMP ,+3 /DF NOT 0 AFTER PI
0514 7402 HLT
0515 5306 JMP IB6

0516 1064 TAD K7771 /7771
0517 6234 RIB /AC=7777
0520 7040 CMA
0521 7450 SNA
0522 5325 JMP IB7 /RIB OR SF FAILED
0523 7402 HLT
0524 5306 JMP IB6

0525 6271 IB7, CDF 70 /DF 7
0526 6001 ION
0527 7200 CLA
0530 6214 RDF /DF MUST = 0 AFTER PI
0531 7450 SNA
0532 5335 JMP ,+3 /DF NOT 0
0533 7402 HLT
0534 5325 JMP IB7

0535 1110 TAD K7770 /AC=7777
0536 6234 RIB
0537 7040 CMA
0540 7450 SNA
0541 5344 JMP OK8 /RIB OR SF FAILED
0542 7402 HLT
0543 5325 JMP IB7

0544 2027 OK8, ISL LOOP /DONE IF SKP
0545 5306 JMP IB6
0546 5747 JMP I ,+1 /NEW PAGE
0547 0600 600

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0600 *600
/TEST 02
/NOW TEST DCA I AND TAD I TO ALL STACKS, NUMBER OF
/EXTENDED STACKS SHOULD BE IN 000 TO 11. EACH STACK WILL
/CONTAIN ITS DF# IN LOCATION 7000.
0600 3027 DCA LOOP

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0601 4423 DCAI, JMS I XSTKS /READ SR 9-11
0602 7001 IAC
0603 3030 DCA NDF /DF NUMBER = 1 TO START
0604 1040 TAD KCDF /6201
0605 1045 TAD K10
0606 3207 DCA ,+1 /DF 001 TO START WITH
0607 0201 DFLD, CDF 00 /WILL BE INCREMENTED
0610 1030 TAD NDF /DF#
0611 3447 DCA I K7000 /PUT IN 7000 OF STACK
0612 2031 ISB STKS /ALL STACKS WHEN 0
0613 7410 SKP
0614 5222 JMP TADI /TEST TAD I
0615 1045 TAD K10
0616 1207 TAD DFLD /INCR. CDF 101
0617 3207 DCA DFLD
0620 2030 ISB NDF
0621 5207 JMP DFLD

/
0622 4423 TADI, JMS I XSTKS /SR9-11 AGAIN
0623 7001 IAC
0624 3030 DCA NDF /DF#1 AGAIN
0625 1040 TAD KCDF /6201
0626 1045 TAD K10
0627 3230 DCA ,+1
0630 0201 TFLD, CDF 00
0631 1447 TAD I K7000 /AC=DF CONTENTS NOW
0632 3032 DCA DAT /SAVE TEMP
0633 1032 TAD DAT
0634 7041 CIA /2'S COMP
0635 1030 TAD NDF /BETTER BE EQUAL
0636 7640 SZA CLA
0637 5252 JMP CAA-1 /ERROR PATH
0640 2031 ISB STKS /ALL WHEN 0
0641 5245 JMP ,+4
0642 2027 ISB LOOP /DONE WHEN 0
0643 5201 JMP DCAI
0644 5256 JMP ISBF /NEXT TEST
0645 1045 TAD K10
0646 1230 TAD TFLD /CDF 101 + 10
0647 3230 DCA TFLD
0650 2030 ISB NDF
0651 5230 JMP TFLD

/
0652 1032 TAD DAT /DATA AS READ
0653 7402 CAA, HLT /AC=DATA READ
0654 7200 CLA
0655 5230 JMP TFLD

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/CIF TEST, CHECKS THE ABILITY OF A CIF-ION-NOP-JMP OR  
 /CIF=ION-NOP-JMS SEQUENCE TO DO THE FOLLOWING:  
 /1. CIF ENABLE MB TO 10 TRANSFER,  
 /2. INHIBIT INTERRUPT TILL JMP OR JMS EXECUTED.  
 /3. INTERRUPT AFTER JMP OR JMS EXECUTED.

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/4. JMP OR JMS ENABLES 10 TO IF TRANSFER,
/5. INTERRUPT ENABLES IF TO SF TRANSFER.

/SET UP FOR CIF-ION-NOP-JMP CHECK.
0656 0201 ISBF, CDF 00 /SET LOCS 1-2 TO ISB 0,
0657 1021 TAD ISB0 /JMP I 0 RESPECTIVELY.
0660 3001 DCA 1
0661 1352 TAD KNOP
0662 3002 DCA 2
0663 1020 TAD JMP10
0664 3003 DCA 3

/
/NOW STORE HALTS IN LOC1, CIFJMP+1,
/AND CIFJMS+1 OF ALL EXTENDED FIELDS.

0665 4423 JMS I XSTKS
0666 1040 TAD KCDF
0667 1045 TAD K10
0670 3271 DCA ,+1
0671 0211 HLTS, CDF 10
0672 1037 TAD KHLT
0673 3443 DCA I K1
0674 1037 TAD KHLT
0675 3754 DCA I CAB
0676 1037 TAD KHLT
0677 3755 DCA I CAC
0700 2031 ISB STKS
0701 7410 SKP
0702 9305 JMP ,+3
0703 1271 TAD HLTS
0704 9267 JMP HLTS-2
0705 0201 CDF 00
0706 0041 TSF /ENSURE TIO FLAG SET,
0707 4422 JMS I XTELG /SET COUNTER FOR 4096 PASSES.
0710 3027 DCA LOOP /INITIALIZE TO CIF 00.
0711 1041 AGAIN, TAD KCIF
0712 3323 DCA CIFJMP
0713 3353 DCA CIFCK /INITIALIZE I.F. CHECK TO 0.
0714 4423 JMS I XSTKS /READ SR9-11.
0715 1323 CIFJPL, TAD CIFJMP
0716 1045 TAD K10
0717 3323 DCA CIFJMP
0720 1353 TAD CIFCK
0721 1045 TAD K10
0722 3353 DCA CIFCK
0723 0202 CIFJMP, CIF 00 /MODIFIED TO CURRENT FIELD
/UNDER TEST.

0724 0001 ION
0725 7000 NOP
0726 5327 JMP ,+1
0727 7402 HLT /ERROR. NO PI OR INHIBIT PI.
0730 0234 R10
0731 7041 CIA

```

5

```

0732 1353      TAD CIFCK
0733 7650      SNA CLA
0734 5344      JMP CAD+3
0735 1353      TAD CIFCK
0736 7421      MQL
0737 7300      CLA GLL /LOAD MQ
0740 6234      RIB
0741 7402      HLT
0742 7200      CAD, CLA
0743 5323      JMP CIFEJMP
          /ERROR. I.B. TO I.F. TRANSFER
          /FAILED AFTER CIF-JMP. BAD
          /I.F. IN AC, GOOD I.F. IN
          /MQ. REPEAT UPON CONTINUE.
          /DONE?
0744 2031      ISZ STKS
0745 5315      JMP CIFEJPL /NO. DO NEXT FIELD
0746 2027      ISZ LOOP /4096 TIMES?
0747 5311      JMP AGAIN1 /NO. DO IT ALL AGAIN.
0750 5751      JMP I .+1 /YES. GO TEST CIF-JMS,
0751 1000      IBSF1
0752 7000      KNOP, NOP
0753 0000      CIFCK, 0
0754 0724      CAB, CIFEJMP+1
0755 1020      CAC, CIFEJMS+1

```

```

1000 1000      *1000
1000 7200      IBSF1, CLA
1001 6201      CDF 00
1002 6041      TSF
1003 4422      JMS I XTFLG
1004 3027      DCA LOOP
1005 1041      AGAIN2, TAD KCIF
1006 3217      DCA CIFEJMS
1007 3246      DCA CIFECK1
1010 4423      JMS I XSTKS
1011 1217      CIFEJSL, TAD CIFEJMS
1012 1045      TAD K10
1013 3217      DCA CIFEJMS
1014 1246      TAD CIFECK1
1015 1045      TAD K10
1016 3246      DCA CIFECK1
1017 6202      CIFEJMS, CIP 00
          /MODIFIED TO CURRENT FIELD
          /UNDER TEST.
1020 6001      ION
1021 7000      NOP
1022 4223      JMS .+1
1023 0000      0
1024 7402      HLT
1025 6234      RIB
1026 7041      CIA
1027 1246      TAD CIFECK1
1030 7650      SNA CLA
1031 5241      JMP CAE+3
1032 1246      TAD CIFECK1
1033 7110      CLL RAR
1034 7012      RTR
          /ENSURE TIO FLAG SET,
          /SET UP FOR 4096 PASSES,
          /INIT. TO CIP 00,
          /INIT. I.F. CHECK TO 0,
          /READ SR9-11,

```

```

1035 6234      CAE, RIB
1036 7402      HLT
1037 7200      CLA
1040 5217      JMP CIFEJMS
          /ERROR. I.B. TO I.F. TRANSFER
          /FAILED AFTER CIF-JMS. BAD
          /I.F. IN AC6=8, GOOD I.F.
          /IN AC9-11. REPEAT UPON CONTINUE
          /DONE?
1041 2031      ISZ STKS
1042 5211      JMP CIFEJSL /NO. DO NEXT FIELD.
1043 2027      ISZ LOOP /4096 TIMES?
1044 5205      JMP AGAIN2 /NO. DO IT ALL AGAIN.
1045 5647      JMP I XGTF1 /YES. GO ON TO NEXT TEST
1046 0000      CIFECK1,0
1047 2271      XGTF1, GTF1

```

```

/
/TEST 10
/TEST INTERRUPT INHIBIT
/FROM EACH FIELD. REFER TO HEADING TITLED "EXTENDED
/FIELD TEST ROUTINE". THIS ROUTINE IS PLACED IN
/EACH TESTED FIELD AT THE ADDRESSES SPECIFIED. THE
/INDICATED ERROR HALTS WILL BE IN THE EXTENDED
/FIELD. PRESS CONT. TO RECOVER. ONLY 1 FIELD WILL
/CONTAIN THE ROUTINE AT ANY ONE TIME. OTHER FIELDS
/WILL CONTAIN ALL0'S. THE ROUTINE IS REPLACED WITH
/HALTS AFTER COMPLETION. THE PORTIONS OF THE FIELD
/WHICH DO NOT CONTAIN THE ROUTINE ARE SET TO 0000
/BEFOREHAND.
/
/

```

/SETUP FIELDS TO TEST, POINTERS, ETC.,

```

1050 4423      TRMF, JMS I XSTKS /READ SR9-11
1051 1040      TAD KCDF /6201
1052 3260      DCA .+6
1053 1260      TAD .+5
1054 1045      TAD K10
1055 3260      DCA .+3
1056 7040      CMA
1057 3010      DCA 10
1060 6201      CDF 00
1061 3410      DCA I 10
1062 1010      TAD 10 /PLACE 0'S IN EACH FIELD FROM
1063 7040      CMA /LOC. 0 TO 7777,
1064 7640      SZA CLA
1065 5261      JMP .-4
1066 2031      ISZ STKS
1067 5253      JMP TRMF+3

```

/NOW PUT A HLT IN EACH FIELD IN THE SAME  
/LOCATION AS CAI. BELOW.

```

1070 4423      JMS I XSTKS /READ SR 9-11
1071 1040      TAD KCDF
1072 1045      TAD K10

```

```

1873 3274      DCA ,+1
1874 8281      CDF 00
1875 1836      TAD KCAI      /KCAI = ADDRESS OF CAI,
1876 3827      DCA LOOP      /SAVE TEMPORARILY
1877 1837      TAD KHLT      /KHLT = 7482 (HLT)
1888 3427      DCA I LOOP
1881 2831      ISB STKS      /DONE ALL STACKS WHEN SKIP
1882 7418      SKP
1883 3386      JMP ,+3
1884 1274      TAD CHDF
1885 3272      JMP CHDF-2
/
1886 8281      CDF 00
1887 8841      STRMF,      TSF      /CHECK ITY FLAG
1888 4422      JMS I XTFLG      /GO SET IT
1889 1858      TAD K7787
1890 3827      DCA LOOP
1891 1865      TAD POINT
1892 3866      DCA K75      /POINTER FOR K7788 TO K7766
1893 4423      JMS I XSTKS      /READ SR 9-11
1894 1848      TAD KCDF      /6281
1895 1845      TAD K18      /18
1896 3327      DCA STDF
1897 1841      TAD KCIF      /6282
1898 1845      TAD K18      /18
1899 3338      DCA STDF+1
1900 1338      TAD STDF+1
1901 3442      DCA I XFD
1902 4425      JMS I XTRANS      /PUT TEST ROUTINE INTO FIELD X
/
1903 6211      STDF,      CDF 18      /FIELD 1 TO START WITH
1904 6212      CIF 18
1905 3332      JMP ,+1      /SHOULD ENTER EXTENDED FIELD
/
1906 7888      NOP
1907 7482      CAI,      HLT      /ERROR, PI FAILED
/
1908 5327      JMP STDF      /C(AC) = C(I,B.)
/
1909 5327      JMP STDF      /REPEAT SAME TEST.
/

```

/ENTER HERE AFTER PI FROM EXTENDED BANK

```

1200 1200      *1200
1201 6214      ENTER,      RDF      /DF SHOULD BE 888
1202 7458      SNA      /ERROR IF SKIP
1203 5286      JMP ,+4      /CHECK C(SF)
1204 7482      HLT      /AC=C(DF)
1205 7288      CLA
1206 5476      JMP I XTDF      /REPEAT TEST
1207 6212      CIF 18      /SET I,B. TO FIELD 1
1208 6244      RMF      /I,B. NOW EQUAL TO SP
1209 6234      RIB      /READ 18
1210 6282      CIF 88
1211 6281      CDF 88
1212 6281

```

```

1213 1466      TAD I K75
1214 7848      CMA
1215 7658      SNA CLA      /ERROR IF SKIP
1216 5226      JMP OKPC
1217 6244      RMF
1218 6234      RIB
1219 7482      HLT      /ERROR RMF AND PI WORKED, BUT
/
1220 7288      CLA      /I,B. NOT CORRECT AFTER RMF,
1221 6281      CDF 88      /AC=C(18)
1222 6282      CIF 88
1223 5476      JMP I XTDF      /BACKUP A PAGE AND REPEAT
/
1224 1836      CKPC,      TAD KCAI      /KCAI=ADDRESS OF CAI
1225 7881      IAC      /MAKE CAI+1
1226 7841      CIA
1227 1888      TAD 8      /COMPARE TO C(8)
1228 7658      SNA CLA      /SHOULD NOT SKIP
1229 5248      JMP ,+5      /ALL OK SETUP FOR NEXT FIELD
1230 1888      TAD 8
1231 7482      HLT      /ERROR, ALL WORKED, BUT
/
1232 7288      CLA      /C(PC) WAS NOT=TO CAI+1
1233 6281      CDF 88      /AFTER PI IN EXTENDED
1234 6282      CIF 88      /FIELD, C(AC)=C(8),F8.
1235 5476      JMP I XTDF      /CHECK FOR PI NOT INHIBITED,
/
1236 7288      CLA      /OR AUTO-INDEX REG.
1237 5476      JMP I XTDF      /12 FAILING IN THE EXTENDED FIELD.
/
/SETUP FOR NEXT FIELD
/
1238 2831      ISB STKS      /DONE ALL IF SKIP
1239 3246      JMP ,+5
1240 2827      ISB LOOP      /DONE LOOPING IF SKIP
1241 3645      JMP I ,+2      /REPEAT ALL AGAIN
1242 3587      JMP I XF18      /EXIT TO NEXT TEST
1243 1113      STRMF+4      /BACK TO LAST PAGE
/

```

/SET LAST TESTED FIELD TO ALL 8'S AND PUT A  
/HLT IN RESPECTIVE ADDRESS OF CAI

```

1244 7248      CLA CMA
1245 3818      DCA 18
1246 1476      TAD I XTDF      /CDF X8 AT STDF
1247 3252      DCA ,+1
1248 6211      CDF 18      /F1 TO START WITH
1249 3418      DCA I 18
1250 1818      TAD 18
1251 7848      CMA
1252 7648      SZA CLA      /CLEARD IF SKIP
1253 5253      JMP ,+4
1254 6281      CDF 88

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1261 1476      TAD I XTDF      /CDF XB AT STDF
1262 3263      DCA ,+1
1263 6211      CDF 10
1264 1037      TAD KHLT      /=7402 (HLT)
1265 3436      DCA I KCAI      /KCAI=ADDRESS OF CAI
1266 6201      CDF 00      /RESTORE OF
/
/INCREMENT CDF AND CIF 10'S AT STDF, STDF+1
/TO NEXT FIELD.
/
1267 1476      TAD I XTDF      /CDF XB AT STDF
1270 1045      TAD K10
1271 3476      DCA I XTDF
1272 1477      TAD I XTDF1      /CIF XB AT STDF
1273 1045      TAD K10
1274 3477      DCA I XTDF1
1275 1477      TAD I XTDF1
1276 3316      DCA EXFD
1277 2066      ISE K75
1300 4321      JMS TRANS      /PUT ROUTINE IN NEW FIELD
1301 3476      JMP I XTDF      /TEST NEW FIELD
/
/EXTENDED FIELD TEST ROUTINE
/
/THE FOLLOWING INSTRUCTIONS ARE PLACED IN
/EACH EXTENDED FIELD TESTED. THE NUMBERS IN THE
/COMMENTS FIELD CORRESPOND TO THE
/MEMORY LOCATIONS IN THE TESTED FIELD. LOCATIONS
/0 THRU 11 ARE USED FOR AN ERROR ROUTINE
/IN CASE FIELD 0 IS NOT ENTERED AFTER AN
/INTERRUPT, THE EXTENDED FIELD SHOULD BE
/ENTERED AT LOCATION CAI-1 WHICH CORRESPONDS
/TO CAI-1 IN FIELD 0.
/
/EXTENDED FIELD INSTRUCTIONS:
/
1302 0000      EXFLD, 0      /0
1303 1000      TAD 0      /1
1304 7450      SNA      /IF LOC. 0 NOT 00 PI DIDN'T
/ENTER FIELD 0
1305 5010      JMP 10      /3
1306 7402      HLT      /4. INTERRUPTED TO THIS FIELD
/INSTEAD OF FIELD 0, C(AC)=C(0)
/WHICH SHOULD BE CAI+1
/IF NOT, CHECK LOC. 7777, IT
/MUST = 3412 (JMP I 12).
/
1307 7200      CLA      /5
1310 3000      DCA 0      /6
1311 3420      JMP I 20      /7. C(20) =CAI
1312 7402      HLT      /10. THE JMP I 12 AT LOC.
/7777 WAS NOT EXECUTED,
/OR INTERRUPT FAILED. IF
/NO INTERRUPT, LOCATION 12
/NOW CONTAINS 0 INSTEAD

```

```

/OF ADDRESS CAI,
1313 5005      JMP 5      /11. REPEAT IN THIS FIELD
1314 1133      CAI      /12. AUTO-INDEXS TO CAI+1
/IN F 0 IF THE JMP I 12
/WORKS.
/LOCS. 13 TO 17 ARE ALL 0'S
/
1315 1133      CAI      /20. EQUALS CAI IN F0.
/
/LOCS. 21 TO CAI-2 ARE ALL 0'S
/
1316 6212      EXFD, CIF 10 /FIELD 1 TO START WITH
1317 6001      ION      /LOC. CAI. SEE SYMBOL TABLE
/FOR CAI.
/LOCS. CAI+1 TO 7776 ARE ALL 0'S
/
1320 3412      JMP I 12      /7777. PI SHOULD OCCUR,
/AFTR THIS INSTRUCTION,
/TO FIELD 0.
/
/ROUTINE TO TRANSFER TEST ROUTINE TO PROPER FIELD
/
1321 0000      TRANS, 0
1322 1101      TAD KJMP      /KJMP=JMP I 2
1323 3001      DCA 1      /IN FIELD 0
1324 1102      TAD KNTR      /KNTR = LOC. ENTER
1325 3002      DCA 2      /OF FIELD 0
1326 1100      TAD KXFLD      /KXFLD = LOC. EXFLD
1327 3010      DCA 10
1330 3011      DCA 11
1331 1067      TAD K7766      /1=10 DECIMAL
1332 3000      DCA 0      /SAVE
1333 1476      TAD I XTDF      /CDF XB IN STDF
1334 3337      DCA ,+3
1335 6201      CDF 00
1336 1410      TAD I 10
1337 6211      TRFLD, CDF 10 /F1 TO START WITH
1340 3411      DCA I 11      /PUT IN EXTENDED FIELD
1341 2000      ISE 0      /DONE LOCS 1 TO 12 IF SKIP
1342 3335      JMP ,+5
1343 1337      TAD TRFLD
1344 3347      DCA ,+3
1345 6201      CDF 00
1346 1410      TAD I 10
1347 6211      CDF 10
1350 3503      DCA I K20      /PUT E40 IN LOC. 20
1351 6201      CDF 00
1352 1337      TAD TRFLD
1353 3335      DCA ,+2
1354 1410      TAD I 10
1355 6211      CDF 10
1356 3435      DCA I KCAIM      /PUT CIF XB IN CAI-1
1357 6201      CDF 00

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1360 1337      TAD TRFLD
1361 3363      DCA ,+2
1362 1410      TAD I 10
1363 6211      CDF 10
1364 3436      DCA I KCA1      /ION TO LOC. CA1
1365 6201      CDF 00
1366 1337      TAD TRFLD
1367 3371      DCA ,+2
1370 1410      TAD I 10
1371 6211      CDF 10
1372 3446      DCA I K7777      /PUT JMP I 12 IN 7777
1373 6201      CDF 00
1374 5721      JMP I TRANS      /EXIT

1400      *1400
/
/TEST 11
/TEST SF WITH AN RMF IOT, AN INTERRUPT IN FIELD 0 IS CREATED, AFTER
/WHICH, THE OF AND IB REGISTERS ARE SET TO FIELD 1,
/THE SF SHOULD CONTAIN FIELD 0, THE TEST
/THEN MAKES SURE THE IB IS CLEARED, THEN SET BY ISSUING AN RMF.
/FOLLOWED BY A JMP I K7000, IF THE IB IS CLEARED, THE JMP GOES TO 7000 IN FIELD 0,
/IF THE IB AND SF ARE INCLUSIVE OR'D, THE JMP GOES TO 7000 IN FIELD 1, AND
/A HALT OCCURS THERE, RESTART FROM 1400 AFTER AN ERROR, THE TEST IS LOOPEO
/512 TIMES.
/
1400 6041      SFIB,      TSP      /SEE IF FLAG IS SET.
1401 4422      JMS I XTFLG      /SET IT
1402 1047      TAD K7000      /7000
1403 3027      DCA LOOP
1404 6211      CDF 10      /DF=FIELD 1
1405 1037      TAD KHLT      /HLT
1406 3447      DCA I K7000      /7000, FIELD 1=HLT
1407 6201      CDF 00      /DF=0
1408 1104      TAD JMP2      /JMP2=JMP I KFLD0
1411 3447      DCA I K7000      /7000, FIELD 0=JMP I KFLD0
/
1412 1101      TAD KJMP      /KJMP=JMP I 2
1413 3001      DCA 1
1414 1106      TAD KRTN      /KRTN=LOC. CAG+2
1415 3002      DCA 2
/
/BEGIN TEST
/
1416 6001      ION      /ENABLE PI
1417 7000      NOP
1420 7402      CAG,      HLT      /ERROR NO PI
1421 5200      JMP SFIB      /REPEAT TEST
/
/RETURN HERE AFTER PI
/
1422 7200      CLA
1423 6211      CDF 10      /DF=FIELD1
1424 6212      CIF 10      /IB=FIELD1
1425 6244      RMF 10      /IB SHOULD=FIELD0

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1426 5447      JMP I K7000      /IF SHOULD=FIELD0
/
1427 2027      RTRN,      ISE LOOP      /WORKED OK
1430 5216      JMP CAG-2      /LOOP
1431 5232      JMP TAUTO      /DONE, GO TO NEXT TEST
/
/
/TEST 12
/TEST ALL AUTO-INDEX REGISTERS IN EACH EXTENDED FIELD,
/IDENTICAL TEST ROUTINES ARE PERFORMED FROM EACH FIELD,
/AND ERROR HALTS OCCUR IN THE FIELD CURRENTLY RUNNING
/THE ROUTINE, PRESS CONT, TO RESUME TESTING, EACH
/FIELD CONTAINS ALL 0'S EXCEPT FOR THE AREA OCCUPIED
/BY THE TEST ROUTINE, FIELD 0 IS RE-ENTERED
/AFTER EACH TEST, AND THE NEXT SEQUENTIAL FIELD
/IS THEN ENTERED, REFER TO THE HEADING "AUTO-
/INDEX TEST" FOR THE SEQUENCE OF OPERATIONS.
/
1432 6201      TAUTO,      CDF 00
1433 1050      TAD K7707
1434 3027      DCA LOOP      /LOOP COUNTER
1435 4423      JMS I XSTKS      /READ SR 9-11
1436 1040      TAD KCDF      /6201
1437 3246      DCA OFN
1440 1246      NEWDF,      TAD OFN
1441 1045      TAD K10      /INCREMENT OF
1442 3246      DCA OFN
/
/CLEAR ONE FIELD TO 0
/
1443 7040      CMA
1444 3010      DCA 10
1445 3000      DCA 0      /USE LOC. 0 FOR A COUNTER
1446 6211      CDF 10      /FIELD 1 TO START WITH
1447 3410      DCA I 10
1450 2000      ISE 0
1451 5247      JMP ,+2
1452 6201      CDF 00
/
/NOW PUT TEST ROUTINE IN THE EXTENDED FIELD
/
1453 1317      TAD DQAUTO      /1ST LOC. OF ROUTINE MINUS 1
1454 3010      DCA 10      /SOURCE
1455 1071      TAD K7744      /-20 DECIMAL
1456 3000      DCA 0      /USE LOC. 0 AS COUNTER
1457 1317      TAD DQAUTO
1460 3011      DCA 11      /DESTINATION
1461 1246      TAD OFN      /CDF X0
1462 3205      DCA ,+3
1463 6201      MOVE,      CDF 00
1464 1410      TAD I 10
1465 6211      CDF 10      /FIELD 1 TO START
1466 3411      DCA I 11

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1467 2000      ISB 0      /MOVE WHEN SKIP
1470 2263      JMP MOVE

/
/ NOW SET AUTO-I REGS 10 TO 17 TO 7777.
/
1471 1110      TAD K7770      /-8 DECIMAL
1472 3000      DCA 0
1473 1044      TAD K7      /7
1474 3010      DCA 10
1475 7040      CMA      /7777
1476 3410      DCA I 10
1477 2000      ISB 0      /10 TO 17 = 7777 WHEN SKIP
1500 5275      JMP ,=3
1501 7040      CMA
1502 3446      DCA I K7777      /PUT 7777 IN LOC. 7777 OF EXTENDED FIELD
1503 0214      RDP      /READ D.F.
1504 1041      TAD KCIF      /6202
1505 3300      DCA ,*1
1506 0212      CIP 10
1507 4716      JMP I FILDX      /FIELD 1 TO START
                                /ENTER EXTENDED FIELD
                                /510 OCTAL LOGS, BEFORE THE
                                /TAD I 10 INSTRUCTION.
                                /THIS IS A TEST OF THE
                                /DEFER BIT, 500 US DELAY

/
/ ENTER FIELD 0 FROM EXTENDED FIELD HERE.
/
1510 2031      GOTO0, ISB 0TKS      /DONE ALL WHEN SKIP
1511 5240      JMP NEWDF      /SETUP FOR NEXT
1512 2027      ISB LOOP      /ALL DONE IF SKIP
1513 5235      JMP NEWDF=3      /REPEAT ALL
1514 5715      JMP I LBTP
1515 1000      LBTP, RMFTST
/
1516 1002      FILDX, DOAUTO=515

/
/ AUTO-INDEX TEST
/
/ THE ROUTINE WILL BE PLACED IN THE SAME RESPECTIVE
/ LOCATIONS IN EACH EXTENDED FIELD. ANY ERROR
/ HALTS WILL OCCUR IN THE EXTENDED FIELD. PRESS
/ CONTINUE TO PROCEED WITH TESTING. THE INDEX
/ REGISTERS 10 TO 17 INITIALLY CONTAIN 7777, AND
/ ARE AUTO-INDEXED TO 0000 BY A TAD I INSTRUCTION.
/ A HALT OCCURS IF THE REG. IS NOT INCREMENTED TO 0,
/ THE TAD I WOULD HAVE THEN REFERENCED LOC. 7777,
/ WHICH CONTAINS 7777.
/
1517 1517      DOAUTO, .      /THIS LOC. IS NOT MOVED TO
                                /THE EXTENDED FIELD.
1520 7200      CLA

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1521 1410      TAD I 10
1522 7440      SZA
1523 7402      HLT      /ERROR, INDEX REG. 10 FAILED
1524 1411      TAD I 11
1525 7440      SZA
1526 7402      HLT      /INDEX REG. 11 FAILED
1527 1412      TAD I 12
1528 7440      SZA
1529 7402      HLT      /12 FAILED
1530 1413      TAD I 13
1531 7440      SZA
1532 7402      HLT      /13 FAILED
1533 1414      TAD I 14
1534 7440      SZA
1535 7402      HLT      /14 FAILED
1536 1415      TAD I 15
1537 7440      SZA
1538 7402      HLT      /15 FAILED
1539 1416      TAD I 16
1540 7440      SZA
1541 7402      HLT      /16 FAILED
1542 1417      TAD I 17
1543 7440      SZA
1544 7402      HLT      /17 FAILED
1545 6201      CDF 00      /SET DF TO FIELD 0
1546 6202      CIP 00      /SET I.O. TO FIELD 0
1547 5310      JMP GOTO0      /EXIT TO FIELD 0

/ END OF TEST ROUTINE
/
/
/ RING BELL AT THE COMPLETION OF TEST
/ CHECK SR1=1 FOR HLT AT END OF TEST
/
1554 0007      AND 7
1555 1354      BELL, TAD ,=1
1556 0046      TLS
1557 0041      TSP      /RING BELL
1558 5357      JMP ,=1
1559 7604      LAB
1560 7004      RAL
1561 7500      SMA
1562 5527      JMP I PLACE      /START TEST OVER
1563 7402      HLT      /END OF TEST
1564 5527      JMP I PLACE      /HIT CONTINUE TO START TEST OVER

/
/ TEST 13
/ DYNAMIC RMF TEST.
/ TESTS ALL SF TO DF TRANSFERS AND THOSE SF TO IB TRANSFERS
/ AS APPLICABLE TO THE NUMBER OF EXTENDED FIELDS PRESENT.
/ THE GENERAL METHOD IS TO INTERRUPT FROM EACH EXTENDED FIELD
/ WITH THE DF=FROM 0 THROUGH 7. AN RMF INSTRUCTION IS THEN ISSUED
/ AND CONTROL TRANSFERRED TO AN EXTENDED FIELD. THE RMFDY ROUTINE

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      /IN THAT FIELD THEN CHECKS THAT THE IF AND OF ARE CORRECT, IF NOT,
      /THE FAILING IF OR OF IS IN THE IF OR OF REG, AND THE CORRECT FIELD
      /NUMBER IS IN AC BITS 6 THRU 8.
      /
      /
      1600      *1600
      /
      1600 7604 RMFTST, LAS      /CHECK HOW MANY EXTENDED FIELDS
      1601 0044 AND          K7      /ARE PRESENT
      1602 7041 CIA          /NEGATE AND SAVE.
      1603 3205 DCA          IFCN
      1604 4700 JMS I      XFERP      /TRANSFER RMFDY ROUTINE TO ALL
      1605 0000 IFCN, 0      /EXTENDED FIELDS.
      1606 7744 -34
      1607 1702 RMFDY=1
      1608 3275 DCA          LBSTQC      /SET RMFTST COUNTER FOR 4096 PASSES
      1609 1302 TAD          JMP14      /SET INTERRUPT LINK.
      1610 3001 DCA          1
      1611 1274 TAD          INIEP
      1612 3004 DCA          4
      1613 6201 RMFL3, CDF      00      /INITIALIZE IF TO 0.
      1614 3341 DCA          KIFSHB
      1615 1205 TAD          IFCN      /INITIALIZE TEST COUNTER
      1616 3276 DCA          RMFCN1
      1617 1341 RMFL2, TAD      KIFSHB      /UPDATE CURRENT IF.
      1618 1045 TAD          K10
      1619 3341 DCA          KIFSHB
      1620 1341 TAD          KIFSHB
      1621 7041 CIA
      1622 3342 DCA          MIFSHB
      1623 1110 TAD          K7770      /INITIALIZE OF COUNTER TO -10.
      1624 3277 DCA          OFCN
      1625 1110 TAD          K7770      /INITIALIZE OF TO -10.
      1626 3337 DCA          KOFSHB
      1627 1337 RMFL1, TAD      KOFSHB      /UPDATE OF.
      1628 1045 TAD          K10
      1629 3337 DCA          KOFSHB
      1630 1337 TAD          KOFSHB
      1631 7041 CIA
      1632 3340 DCA          MOFSHB
      1633 1205 TAD          IFCN      /TRANSFER OF AND IF INFORMATION
      1634 3244 DCA          .02      /TO EXTENDED FIELDS.
      1635 4700 JMS I      XFERP
      1636 0000 0
      1637 7774 -4
      1638 1736 KOFSHB-1
      1639 6201 CDF          00
      /
      1650 1040 TAD          KCOF      /UPDATE CDF INST.
      1651 1337 TAD          KOFSHB
      1652 3260 DCA          RMFI1
      1653 1041 TAD          KCIF      /UPDAT CIF INST.
  
```

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      1654 1341 TAD          KIFSHB
      1655 3261 DCA          RMFI2
      1656 0041 RMFE2, TSF
      1657 4422 JMS I      XTELG      /ENSURE TIO FLAG SET.
      1658 6201 RMFI1, CDF      /SET OF AND IF TO CURRENT FIELD.
      1659 6202 RMFI2, CIF
      1660 5303 JMP          RMFDY
      1661 6244 INTE, RMF
      1662 5310 JMP          RMFDY1      /GO TO RMFDY IN CURRENT IF.
      1663 2277 ISB          OFCN      /ENTER FROM INTERRUPT FROM EX. FLD.
      1664 5233 JMP          RMFL1      /GO BACK TO EXTENDED FIELD.
      1665 2276 ISB          RMFCN1      /ALL OF'S USED WITH CURRENT IF.
      1666 5233 JMP          RMFL2      /NO. DO NEXT OF.
      1667 2276 ISB          RMFL3      /ONE PASS OF RMFTST COMPLETE?
      1668 5221 JMP          LBSTQC      /NO. DO NEXT IF.
      1669 2275 ISB          RMFL3      /RMFTST DONE?
      1670 5215 JMP          XHEH      /NO. DO AGAIN.
      1671 5701 JMS I      XHEH      /YES. GO TO NEXT TEST
      1672 1663 INTE, INTE
      1673 0000 LBSTQC, 0
      1674 0000 RMFCN1, 0
      1675 0000 OFCN, 0
      1676 2000 XFERP, XFER
      1677 2200 XHEH, NOHEH
      1678 2200 JMP I      4
      1679 5404
      /
      /
      /
      /ROUTINE TO CHECK CORRECT TRANSFERS FOR SAVE FIELD TO DATA FIELD AND
      /SAVE FIELD TO INST. BUFFER TO INSTRUCTION FIELD AFTER
      /RMF.
      /STORED IN ALL EXTENDED FIELDS.
      /
      1703 0001 RMFDY, ION      /THIS IS NOT TRANSFERRED.
      1704 7000 NOP
      1705 0002 IOP
      1706 7402 HLT          /INTERRUPT FAILURE.
      1707 5333 JMP          REPEAT
      1708 7200 RMFDY1, CLA
      1709 6214 ROP
      1710 1340 TAD          MOFSHB      /CHECK FOR CORRECT DATA FIELD
      1711 7650 SNA          CLA
      1712 5320 JMP          .04
      1713 1337 TAD          KOFSHB      /DATA FIELD INCORRECT
      1714 7402 HLT          /SF TO OF TRANSFER FAILED AFTER RMF.
      1715 5333 JMP          REPEAT      /REPEAT THIS TEST.
      1716 6224 RIF
      1717 1342 TAD          MIFSHB      /CHECK FOR CORRECT INSTRUCTION FIELD.
      1718 7650 SNA          CLA
      1719 5327 JMP          .04
      1720 1341 TAD          KIFSHB      /INSTRUCTION FIELD INCORRECT.
      1721 7402 HLT          /SF TO IB TRANSFER FAILED AFTER RMF
      1722 5333 JMP          REPEAT      /REPEAT THIS TEST.
  
```

```

1727 6201 CDF 00 /GO BACK AND RUN NEXT TEST.
1730 6202 CIF 00
1731 5732 JMP I .+1
1732 1665 RMFE1
1733 6201 REPEAT, CDF 00 /GO BACK AND REPEAT FAILING
1734 6202 CIF 00 /TEST.
1735 5736 JMP I .+1
1736 1656 RMFE2
1737 0000 KDFSHB, 0 /DATA FIELD SHOULD BE
1740 0000 MDFSHB, 0 /TWO'S COMPLEMENT OF ABOVE,
1741 0000 KIFSHB, 0 /INSTRUCTION FIELD SHOULD BE
1742 0000 MIFSHB, 0 /TWO'S COMPLEMENT OF ABOVE
/
/
/
/
/ROUTINE TO TRANSFER N1 WORDS STARTING AT P IN FIELD 0 TO P IN THE
/NEXT N2 EXTENDED FIELDS,
/THE CALLING SEQUENCE IS:
/JMS I XFERP
/-N2
/-N1
/P=1

2000 /
*2000 /
2000 0000 XFER, 0
2001 7200 CLA
2002 1600 TAD I XFER /GET -N2
2003 3242 DCA N2
2004 2200 ISB XFER /GET -N1
2005 1600 TAD I XFER
2006 3243 DCA N1
2007 2200 ISB XFER /GET P-1
2010 1600 TAD I XFER
2011 3244 DCA P
2012 2200 ISB XFER /UPDATE TO RETURN ADDRESS,
2013 1040 TAD KCOF /INITIALIZE CDF INST,
2014 3232 DCA XFERIN
2015 1242 TAD N2
2016 3245 DCA XFERC2
2017 1244 XFERL2, TAD P /PUT POINTER IN AUTO 10 AND 11.
2020 3010 DCA 10
2021 1244 TAD P
2022 3011 DCA 11
2023 1243 TAD N1 /SET COUNTER 1 TO -N1
2024 3246 DCA XFERC1
2025 1232 TAD XFERIN /UPDATE CDF INST,
2026 1045 TAD K10
2027 3232 DCA XFERIN

```

```

2030 6201 XFERL1, CDF 00 /TRANSFER
2031 1410 TAD I 10
2032 6201 XFERIN, CDF 11
2033 3411 DCA I 11
2034 2246 ISB XFERC1 /DONE WITH CURRENT FIELD?
2035 5230 JMP XFERL1 /NO, CONTINUE.
2036 2245 ISB XFERC2 /DONE WITH ALL FIELDS?
2037 5217 JMP XFERL2 /NO, DO NEXT FIELD
2040 6201 CDF 00 /ALL DONE, SET DF#0.
2041 5600 JMP I XFER /EXIT.
2042 0000 N2, 0
2043 0000 N1, 0
2044 0000 P, 0
2045 0000 XFERC2, 0
2046 0000 XFERC1, 0
/
/TEST 06
/NOW DO A READ AND WRITE DATA TEST IN
/ALL AVAILABLE EXTENDED FIELDS,
/IF A FAILURE OCCURS CHECK LOC, 10
/FOR BAD ADDRESS ABEA AND LOC, RANA
/FOR THE MOST RECENT FIELD CHANGE,
/LOC, K0ATER CONTAINS DATA PATTERN USED.
/
2047 0000 DATER, 0000
2050 7300 CLA CLL
2051 4423 JMS I XSTKS
2052 1040 TAD KCOF
2053 1045 TAD K10
2054 3257 DCA RANA /MODIFIED UNDER TEST
2055 7340 CLA CLL CMA
2056 3010 DCA 10 /SET AUTO REGISTER
2057 6201 RANA, CDF
2060 4276 JMS FILL /LOAD UP FIELD WITH DATA
2061 7340 CLA CMA CLL
2062 3010 DCA 10
2063 4312 JMS CHECK /CHECK DATA IN FIELD
2064 7300 CLA CLL
2065 2031 ISB STKS
2066 7410 SKP
2067 5274 JMP .+5
2070 1257 TAD RANA
2071 1045 TAD K10
2072 3257 DCA RANA /CHECK NEXT FIELD
2073 5255 JMP RANA -2
2074 6201 CDF
2075 5647 JMP I DATER
/
/ROUTINE TO FILL FIELD WITH DATA
/
2076 0000 FILL, 0000
2077 7300 CLA CLL
2100 1157 TAD K0ATER
2101 3410 DCA I 10
2102 1157 TAD K0ATER

```

```

2103 7040 CMA
2104 3410 DCA I 10
2105 1010 TAD 10
2106 7001 IAC
2107 7040 SEA CLA
2110 5277 JMP FILL +1
2111 5676 JMP I FILL

/ROUTINE TO CHECK DATA IN FIELD
/
2112 0000 CHECK, 0000
2113 7300 CLA CLL
2114 1410 TAD I 10
2115 7001 IAC
2116 1410 TAD I 10
2117 7440 SEA
2120 7402 HLT
2121 7300 CLA CLL
2122 1010 TAD 10
2123 7001 IAC
2124 7640 SEA CLA
2125 5313 JMP CHECK +1
2126 5712 JMP I CHECK

/

2200 *2200
/TEST 14
/REFERENCE ALL 4K FIELDS NOT PRESENT.
/IF 32K IS PRESENT, THE TEST IS BY-PASSED.
/EACH FIELD NOT PRESENT IS REFERENCED
/BY THE PROGRAM WITH JMP, DCA AND TAD.
/THE PROGRAM MUST CONTINUE IN SEQUENCE
/BELL WILL SIGNAL A SUCCESSFUL TEST
/
2200 7200 NOMEM, CLA
2201 1110 TAD K7770
2202 3027 DCA LOOP
2203 7604 LAS
2204 0044 AND K7
2205 7041 CIA
2206 1044 TAD K7
2207 7450 SNA
2210 5546 JMP I XXSR0
2211 3033 DCA NOSTAK
2212 3547 DCA I XELL

/TEST LOOP COUNTER
/READ SR9-11

/SUBTRACT MAX. POSSIBLE

/32K PRESENT. CAN'T TEST
/SAVE NO. MISSING
/CLEAR THE TLS IOT AT
/BELL+1 TO PROHIBIT
/FALSE INDICATION. TLS
/IS RESTORED LATER WRONG
/ENTRY FROM NON-EXISTENT

```

```

2213 7604 LAS
2214 0044 AND K7
2215 7001 IAC
2216 7100 CLL
2217 7006 RTL
2220 7004 RAL
2221 3034 DCA NOFLD
2222 1033 TAD NOSTAK
2223 7041 CIA
2224 3033 DCA NOSTAK

/MEMORY MAY CAUSE A
/HANG-UP AT BELL+2 AND +3.
/# OF FIELDS PRESENT
/+1 TO GET 1ST MISSING
/POSITION TO AC 6-8.
/1ST MISSING
/# STACKS NOT HERE
/USED AS COUNTER

/
2225 1040 TAD KCDF
2226 1034 TAD NOFLD
2227 3245 DCA CDF0S

/6201
/MISSING STACK

/NOW READ ALL 0'S FROM ALL NON-EXISTENT FIELDS
/IF CONTROL PORTION ONLY, RING BELL.
/IF NOT PROCEED TO TIME SHARE.
/
2230 4244 JMS ALL0
2231 2033 CNSTK, ISE NOSTAK
2232 5237 JMP POS
2233 2027 ISE LOOP
2234 5036 JMP I XNOM
2235 5546 JMP I XXSR0

/READ ALL 0 FROM 1ST
/DONE ALL MISSING IF SKIP
/DONE LOOPING IF SKIP
/REPEAT

/
2236 2203 XNOM, NOMEM+3
/
2237 1245 POS, TAD CDF0S
2240 1045 TAD K10
2241 3245 DCA CDF0S
2242 4244 JMS ALL0
2243 5231 JMP CNSTK

/DF PLUS 1
/READ ALL 0'S
/CHECK DONE

/ROUTINE TO READ ALL 0'S.
/
2244 0000 ALL0, 0
2245 0201 CDF0S, CDF 00
2246 7240 CLA CMA
2247 3010 DCA 10
2250 7040 CMA
2251 3011 DCA 11
2252 3002 DCA 2
2253 7040 CMA
2254 3410 DCA I 10
2255 2002 ISE 2

/SET DF TO 1ST MISSING
/10 AND 11 USED FOR ADDRESS
/USE AS COUNTER
/WRITE 1'S INTO NON-EXIS-
/TENT FIELD.

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```

2256 5253      JMP ,+3
2257 1411      TAD I 11      /READ NON-EXIST, FIELD
2260 7650      SNA CL1      /SHOULD = 0000
2261 5264      JMP ,+3
2262 1811      TAD 11
2263 7402      CAX, HLT      /ERROR, AN EXISTING FIELD
                               /WAS REFERENCED, C(AC)*
                               /ADDRESS REFERENCED

2264 2002      ISB 2
2265 5257      JMP CAX-4      /READ NEXT

/
2266 6201      DONE0, CDF 00
2267 6202      CIF 00
2270 5644      JMP I ALL0      /EXIT

/
/TEST 04

/TEST GTF FOR FLAG AND SAVE FIELDS
/GET SAVE FIELDS AFTER INTERRUPT
/CHECK INTERRUPT INHIBIT, DO ALL
/COMBINATIONS 0 TO 7,
/
2271 7300      GTF1, CLA CLL
2272 1020      TAD JMP10      /SET FOR RETURN
2273 3001      DCA 1
2274 1040      TAD KCDF
2275 3304      DCA XSDF
2276 1304      MGTF, TAD XSDF      /GET FIRST FIELD
2277 0111      AND K0070
2300 7120      STL
2301 7010      RAR
2302 7012      RTR
2303 3112      DCA XSAV
2304 6201      XSDF, CDF 00
2305 6041      TSP      /IS TTY FLAG SET
2306 4422      JMS I XTFLG      /GET THE FLAG
2307 6001      ION
2310 7340      CLA CLL CMA      /CHECK FOR JAM ON GTF
2311 6004      GTF      /GET THE FLAG
2312 7041      CIA
2313 1112      TAD XSAV      /TTY + CURRENT FIELD
2314 7440      SEA
2315 7402      HLT      /FLAG + FIELD
2316 2027      ISB LOOP      /4096 TIMES
2317 5276      JMP MGTF
2320 1045      TAD K10
2321 1304      TAD XSDF
2322 3304      DCA XSDF
2323 2113      ISB XCOUNT      /MORE FIELDS TO CHECK
2324 5276      JMP MGTF
2325 1110      TAD K7770
2326 3113      DCA XCOUNT
2327 5730      JMP I XION1      /YES, GO TO NEXT TEST

```

```

2330 2331      XION1, ION1
/
/TEST 05
/TEST ION AND LINK FROM RTF
/TEST INTERRUPT INHIBIT BEFORE PI
/GET THE FLAGS WITH GTF,
/
2331 7300      ION1, CLA CLL
2332 1021      TAD ISB0
2333 3001      DCA 1
2334 1020      TAD JMP10
2335 3002      DCA 2
2336 6005      RTF
2337 5340      JMP ,+1
2340 7402      HLT      /WAS INT, INH.
2341 7300      CLA CLL
2342 1115      TAD K5200
2343 6005      RTF
2344 7240      CLA CMA      /CHECK FOR JAM ON GTF
2345 6004      GTF      /GET LINK, ION, TTY FLAG
2346 7041      CIA
2347 1115      TAD K5200      /EXPECTED BITS
2350 7440      SEA
2351 7402      HLT      /WAS LINK, ION, TTY FLAG SET
2352 7300      CLA CLL
2353 6005      RTF      /REPLACE ION, INT INH
2354 7300      CLA CLL
2355 6004      GTF
2356 7041      CIA
2357 1116      TAD K1200
2360 7440      SEA
2361 7402      HLT      /TTY FLAG, ION, NO LINK
2362 5363      JMP ,+1
2363 7402      HLT      /WAS INT INH
2364 7300      CLA CLL
2365 2027      ISB LOOP      /4096 TIMES
2366 5331      JMP ION1
2367 4555      JMS I X0ATER      /GO TO NEXT TEST
2370 4773      JMS I XCON1      /GO TO NEXT TEST
2371 5772      JMP I XRTF1      /GO TO NEXT TEST
2372 2400      XRTF1, RTF1
2373 4000      XCON1, CON1
/
/TEST 08
/TEST DF00 + IF00 FROM SAVE FIELD AFTER PI
/USE RTF TO SET THE FLAGS AND GTF TO GET THE FLAGS
/CHECK INTERRUPT INHIBIT, DO ALL SAVE
/FIELD COMBINATIONS 0 TO 77,
/
2400      *2400
/
2400 7300      RTF1, CLA CLL
2401 4422      JMS I XTFLG      /SET TTY FLAG
2402 1021      TAD ISB0
2403 3001      DCA 1

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2484 1828      TAD JMP10
2485 3882      DCA 2
2486 3114      DCA XTOR
2487 1114      XSRTF, TAD XTOR
2410 6885      RTF          /MAKE OF 88 + IF 88
2411 5212      JMP .+1
2412 7482      HLT          /WAS INT INH
2413 7388      CLA GLL
2414 6884      GTF          /GET THE FLAGS
2415 8117      AND K8877
2416 7841      CIA
2417 1114      TAD XTOR      /EXPECTED BITS
2420 7448      SZA
2421 7482      HLT          /WAS DF + IF SET
2422 2827      ISL LOOP      /4896 TIMES
2423 5287      JMP XSRTF
2424 1114      TAD XTOR
2425 1128      TAD K8811
2426 3114      DCA XTOR
2427 2113      ISL XCOUNT
2430 5287      JMP XSRTF      /DO THE REST OF 88 + IF 88
2431 1118      TAD K7778
2432 3113      DCA XCOUNT
2433 5634      JMP I XRTG1
2434 2452      XRTG1, R101
2435 8888      NSTK8, 8
/
2436 7684      LAR          /READ SR 9-11
2437 8844      AND K7
2440 7841      CIA
2441 3831      DCA STKS
2442 5635      JMP I NSTK8
/
/SET TTY FLAG
/
2443 8888      TFLG, 8
2444 7288      CLA
2445 6848      SPF
2446 6841      TSP
2447 5246      JMP .-1
2450 7288      CLA
2451 5643      JMP I TFLG      /EXIT
/
/TEST 89
/TEST PROGRAM INTERRUPT IN EXISTING FIELDS
/USE RTF, GTF, RDF AND RIF FOR CHECK
/CHECK PC, AC, SF AND FLAGS AFTER PI
/IF FAILURE OCCURS CHECK XDATA FOR AC DATA,
/LOC. 8 FIELD 8 FOR CORRECT PC AFTER PI,
/AND IFDF FOR CORRECT DF XX + IF XX,
/PROGRAM SHOULD INTERRUPT INHIBIT TILL JMP I ADRS
/IF PI FAILS TO INTERRUPT HLT IN THAT FIELD
/
2452 7388      R101, CLA GLL
2453 4423      JMS I XSTKS

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2454 1128      TAD K8811
2455 3268      DCA IFDF
2456 1132      TAD K8817
2457 3818      DCA 8818
2460 8888      IFDF, 8888      /SET TO CURRENT FIELD UNDER TEST
2461 7388      CLA GLL
2462 1268      TAD IFDF
2463 6885      RTF          /SET FIELDS AND TURN ION
2464 6882      IOF
2465 7388      CLA GLL
2466 2537      ISL I K8888
2467 7888      NOP
2470 1537      TAD I K8888
2471 3136      DCA XDATA
2472 1124      TAD K7482
2473 3841      DCA I K8881      /STORE A HLT IN LOC 1 OF THAT FIELD
2474 1133      TAD K8881
2475 3418      DCA I 8818      /ION FOR THAT FIELD
2476 1138      TAD K1888
2477 3418      DCA I 8818      /TAD FOR THAT FIELD
2500 1124      TAD K7482
2501 3418      DCA I 8818      /HLT FOR FAILURE
2502 1818      TAD 18
2503 1857      TAD K7776
2504 3318      DCA ADRS
2505 1134      TAD JMP1R
2506 3881      DCA 8881      /SET LOC 1 FOR RETURN AFTER PI
2507 5718      JMP I .+1      /GO TO THAT FIELD
2510 8888      ADRS, 8888
2511 7841      RET, CIA
2512 1136      TAD XDATA
2513 7448      SZA
2514 7482      HLT          /AC DATA FAILED DURING PI
2515 1888      TAD 8888
2516 7841      CIA
2517 1818      TAD 8818
2520 7448      SZA
2521 7482      HLT          /PC FAILED DURING PI
2522 6214      RDF
2523 6224      RIF
2524 7648      SZA CLA
2525 7482      HLT          /SHOULD BE 8 AFTER PI
2526 6884      GTF
2527 8117      AND K8877
2530 7841      CIA
2531 1268      TAD IFDF
2532 7448      SZA
2533 7482      HLT          /GTF OR RTF OR SF FAILED
2534 1818      TAD 8818
2535 7881      IAC
2536 7648      SZA CLA
2537 5261      JMP IFDF-1
2540 2831      ISL STKS
2541 7418      SKP
2542 5758      JMP I XTRMF

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2543 7300      CLA CLL
2544 1120      TAD K0011
2545 1260      TAD IFDF
2546 3260      DCA IFDF      /SET FOR NEXT FIELD
2547 5256      JMP IFDF -2
2550 1050      XTRMF, TRMF
/

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```

/TEST 15
/TEST TIME SHARE IN FIELD 0,
/ALL HLT, OSR, AND IOT INSTRUCTIONS
/SHOULD TRAP IN USER MODE.
/

```

```

2600
*2600
/
2600 7300      T1,      CLA CLL
2601 6007      CAF
2602 6264      CUF
2603 6204      CINT
2604 1021      TAD 1620
2605 3001      DCA 1
2606 1020      TAD JMP10
2607 3002      DCA 2
2610 6007      CAF
2611 7410      SKP
2612 5212      JMP ,      /CAF TRAPED
2613 6001      ION
2614 7410      SKP
2615 5215      JMP ,      /ION TRAPED
2616 6032      KCC
2617 7410      SKP
2620 5220      JMP ,      /KCC TRAPED
2621 6002      IOF
2622 7410      SKP
2623 5223      JMP ,      /IOF TRAPED
2624 6004      GTF
2625 7410      SKP
2626 5226      JMP ,      /GTF TRAPED
/THESE INSTRUCTIONS SHOULD TRAP
2627 6001      T2,      ION
2630 6274      CUF+10     /USER MODE
2631 5232      JMP ,+1
2632 7402      HLT
2633 5233      JMP ,      /HLT DID NOT TRAP
/EXECUTIVE MODE
2634 6254      SINT      /SKIP ON TRAP FLAG
2635 5235      JMP ,      /FLAG NOT UP
2636 6204      CINT      /CLEAR TRAP FLAG
2637 6254      SINT      /SKIP ON TRAP FLAG
2640 7410      SKP
2641 5241      JMP ,      /TRAP FLAG STILL SET
2642 7604      LAS      /SHOULD NOT TRAP
2643 7410      SKP
2644 5244      JMP ,      /LAS TRAPED IN EXECUTIVE MODE

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2645 6244      RMF      /RESTORE USER
2646 6001      ION
2647 5250      JMP ,+1     /GO TO USER
/USER MODE
2650 7404      OSR      /SHOULD TRAP ON OSR
2651 5251      JMP ,      /DID NOT TRAP
/EXECUTIVE MODE
2652 6254      SINT      /SKIP ON TRAP FLAG
2653 5253      JMP ,      /DID NOT SKIP
2654 6007      CAF      /CLEAR TRAP FLAG
2655 6254      SINT      /TEST IF CLEARED
2656 7410      SKP
2657 7402      HLT      /TRAP FLAG NOT CLEARED
2660 7404      OSR      /SHOULD NOT TRAP
2661 7410      SKP
2662 5262      JMP ,      /ORS TRAPED IN EXECUTIVE MODE
2663 6244      RMF      /RESTORE MODE
2664 6001      ION
2665 5266      JMP ,+1     /GO TO USER
/USER MODE
2666 6005      RTF      /MAKE THE FLAGS
2667 5267      JMP ,      /RTF FAILED TO TRAP
/EXECUTIVE MODE
2670 6254      SINT
2671 5271      JMP ,      /TRAP FLAG NOT SET
2672 6204      CINT      /CLEAR TRAP FLAG
2673 6254      SINT      /TEST IF CLEARED
2674 7410      SKP
2675 7402      HLT      /TRAP FLAG NOT CLEARED
2676 6004      GTF      /SHOULD NOT TRAP
2677 7410      SKP
2680 5300      JMP ,      /TRAPED IN EXECUTIVE MODE
2681 6244      RMF      /RESTORE MODE
2682 6001      ION
2683 5304      JMP ,+1     /GO TO USER
/USER MODE
2684 6001      ION
2685 5305      JMP ,      /ION DID NOT TRAP
/EXECUTIVE MODE
2686 6254      SINT      /SKIP ON TRAP FLAG
2687 5307      JMP ,      /TRAP FLAG NOT SET
2690 7300      CLA CLL
2691 6004      GTF
2692 0126      AND K0100
2693 7450      SNA
2694 7402      HLT      /SUF NOT SET
2695 6204      CINT      /CLEAR TRAP FLAG
2696 6254      SINT      /TEST IF CLEARED
2697 7410      SKP
2698 7402      HLT      /FLAG NOT CLEARED
2699 6002      IOF      /SHOULD NOT TRAP
2700 7410      SKP

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2723 5323      JMP ,      /IOP TRAPED IN EXECUTIVE MODE
2724 6244      RMF ,      /RESTORE MODE
2725 6001      ION ,
2726 5327      JMP ,+1     /GO TO USER

/USER MODE
/TEST CUF AND CUF+10
2727 7604      LAS
2730 5330      JMP ,      /DID NOT TRAP

/EXECUTIVE MODE
2731 6204      CINT
2732 6244      RMF
2733 6264      CUF
2734 6001      ION
2735 5336      JMP ,+1     /STAY IN EXECUTIVE MODE
2736 7404      OSR
2737 7410      SKP
2740 5340      JMP ,      /CUF DID NOT WORK

/TEST THAT INSTRUCTION ARE INHIBITED WHILE IN USER MODE
2741 6204      CINT
2742 6274      CUF+10
2743 6001      ION
2744 5345      JMP ,+1     /SET USER
                        /GO TO USER

/USER MODE
2745 7240      CHA CLA
2746 7604      LAS
2747 5347      JMP ,      /AC=7777
                        /SHOULD CLEAR AC
                        /DID LAS TRAP

/EXECUTIVE MODE
2750 7440      SEA
2751 7402      HLT
2752 6204      CINT
2753 6244      RMF
2754 6001      ION
2755 5356      JMP ,+1     /LAS CHANGED AC

/USER MODE
2756 7200      CLA
2757 7404      OSR
2760 5360      JMP ,      /SHOULD NOT READ SR

/EXECUTIVE MODE
2761 7440      SEA
2762 7402      HLT
2763 6204      CINT
2764 6244      RMF
2765 6001      ION
2766 5367      JMP ,+1     /OSR CHANGED AC

/USER MODE
2767 7240      CLA CHA
2770 7602      HLT CLA
2771 5371      JMP ,      /SHOULD CLA
                        /DID HLT TRAP

/EXECUTIVE MODE
2772 7440      SEA
2773 7402      HLT
2774 6204      CINT
2775 6003      SRQ
2776 7410      SKP

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2777 7402      HLT
3000 7300      CLA GLL
3001 1126      TAD K0100
3002 6005      RTF
                        /ENABLE USER

3003 6001      ION
3004 7000      NOP
3005 5206      JMP ,+1

/USER MODE
3006 6032      KCC
3007 5207      JMP ,      /DID KCC TRAP

/EXECUTIVE MODE
3010 6003      SRQ
                        /IS USER FLAG SET

3011 5210      JMP ,+1
3012 6204      CINT
3013 7300      CLA GLL
3014 1126      TAD K0100
3015 6005      RTF
3016 7300      CLA GLL
3017 6001      ION
3020 5221      JMP ,+1     /ENTER USER

/USER MODE
3021 6004      GTF
3022 5222      JMP ,      /DID GTF TRAP

/EXECUTIVE MODE
3023 0126      AND K0100
3024 7440      SEA
3025 7402      HLT
3026 6003      SRQ
3027 5226      JMP ,+1     /IS USER FLAG SET
3030 6204      CINT
3031 6244      RMF
3032 6001      ION
3033 5234      JMP ,+1

/USER MODE
3034 6004      GTF
3035 5235      JMP ,      /GTF DID NOT TRAP

/EXECUTIVE MODE
3036 6254      SINI
3037 5237      JMP ,      /SKIP ON TRAP FLAG
                        /FLAG NOT UP
3040 6204      CINT
3041 6254      SINI
3042 7410      SKP
3043 5243      JMP ,      /TRAP FLAG STILL SET
3044 6001      ION
3045 7410      SKP
3046 5246      JMP ,      /ION TRAPED IN EXECUTIVE MODE
                        /RESTORE USER
3047 6244      RMF
3050 5251      JMP ,+1     /GO TO USER

/USER MODE
3051 6202      CIF
3052 5252      JMP ,      /SHOULD TRAP ON CIF
                        /DID NOT TRAP

/EXECUTIVE MODE
3053 6254      SINI
                        /SKIP ON TRAP FLAG

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3054 5254      JMP ,           /DID NOT SKIP
3055 6204      CINT          /CLEAR TRAP FLAG
3056 6254      SINT          /TEST IF CLEARED
3057 7410      SKP
3060 7402      HLT           /TRAP FLAG NOT CLEARED
3061 6202      CIF          /SHOULD NOT TRAP
3062 7410      SKP
3063 5263      JMP ,         /CIF TRAPED IN EXECUTIVE MODE
3064 6244      RMP          /RESTORE MODE
3065 6001      ION
3066 5267      JMP .+1       /GO TO USER

      /USER MODE
3067 6214      ROP          /READ DATA FIELD
3070 5270      JMP ,         /DID ROP TRAP
      /EXECUTIVE MODE
3071 6254      SINT
3072 5272      JMP ,         /TRAP FLAG NOT SET
3073 6204      CINT          /CLEAR TRAP FLAG
3074 6254      SINT          /TEST IF CLEARED
3075 7410      SKP
3076 7402      HLT           /TRAP FLAG NOT CLEARED
3077 6214      ROP          /SHOULD NOT TRAP
3100 7410      SKP
3101 5301      JMP ,         /TRAPED IN EXECUTIVE MODE
      /EXECUTIVE MODE
3102 6040      SPF          /FLAG SHOULD WORK

3103 6041      TSF
3104 5303      JMP .-1       /SHOULD SKP
3105 6003      SRQ
3106 5305      JMP .-1       /SHOULD SKP
3107 6001      ION
3110 7300      CLA GLL
3111 5311      JMP ,         /DID PI WORK
3112 1126      TAD K0100
3113 6005      RTF
3114 6007      CAF
3115 6001      ION
3116 5317      JMP .+1
      /USER MODE
3117 6007      CAF
3120 5320      JMP ,         /DID CAF TRAP
      /EXECUTIVE MODE
3121 6003      SRQ
3122 7402      HLT           /USER FLAG UP
3123 6007      CAF
3124 6254      SINT
3125 7410      SKP
3126 7402      HLT           /FLAG CLEARED
      /TEST THAT TTI DOES NOT CHANGE AC
3127 7240      CLA CHA      /AC=7777
3130 7120      STL          /LINK#1

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3131 6274      CUF+10
3132 6001      ION
3133 5334      JMP .+1
      /USER MODE
3134 6036      KRB          /SHOULD NOT ZERO LINK OR SHIFT AC
3135 5335      JMP ,
      /EXECUTIVE MODE
3136 7040      CMA
3137 7440      SRA          /AC SHOULD=0000
3140 5340      JMP ,         /AC WAS CHANGED
3141 7420      SNL          /LINK SHOULD EQUAL 1
3142 5342      JMP ,         /LINK WAS CHANGE
3143 6254      SINT          /SKIP ON TRAP FLAG
3144 5344      JMP ,         /TRAP FLAG NOT SET
3145 6204      CINT
3146 6244      RMP
3147 6001      ION
3150 5351      JMP .+1
      /USER MODE
3151 6040      SPF          /FLAG
3152 5352      JMP ,         /DID SPF TRAP
      /EXECUTIVE MODE
3153 6041      TSF
3154 7410      SKP
3155 7402      HLT           /TTY FLAG
3156 6254      SINT
3157 5357      JMP ,         /TRAP FLAG NOT SET
3160 6204      CINT          /CLEAR TRAP FLAG
3161 6244      RMP
3162 6001      ION
3163 5764      JMP I .+1     /GO TO USER
3164 3200      . 177+1

3200      *. 177+1
      /USER MODE
3200 6001      ION
3201 5201      JMP ,         /ION DID NOT TRAP
      /EXECUTIVE MODE
3202 6254      SINT
3203 5203      JMP ,         /SKIP ON TRAP FLAG
3204 6204      CINT          /TRAP FLAG NOT SET
3205 6254      SINT          /CLEAR TRAP FLAG
3206 7410      SKP          /TEST IF CLEARED
3207 7402      HLT           /FLAG NOT CLEARED
3210 6002      IOF          /SHOULD NOT TRAP
3211 7410      SKP
3212 5212      JMP ,         /IOF TRAPED IN EXECUTIVE MODE
3213 6244      RMP          /RESTORE MODE
3214 6001      ION
3215 5216      JMP .+1       /GO TO USER
      /USER MODE
3216 6224      /TEST CUF AND CUF+10
      RIF

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3217 5217      JMP , /DID NOT TRAP
3220 6204      /EXECUTIVE MODE
3221 6244      CINT
3222 6244      RMP
3223 5224      CUP /STAY IN EXECUTIVE MODE
3224 7404      JMP ,+1
3225 7410      OSR
3226 5226      SKP
3227 7240      JMP , /CUP DID NOT WORK
3228 6274      /EXECUTIVE MODE
3229 6274      CLA CHA
3230 6274      CUP +10 /SET UP USER
3231 6001      ION
3232 5233      JMP ,+1
3233 7402      /USER MODE
3234 5234      HLT /SHOULD TRAP
3235 6203      JMP , /DID NOT TRAP
3236 6203      /EXECUTIVE MODE
3237 6204      CUP CIP
3238 6204      CINT /SETUP FOR EXECUTIVE
3239 6001      ION /CLEAR INTERRUPT
3240 6242      JMP ,+1
3241 7404      LAS /SHOULD NOT TRAP
3242 7410      SKP
3243 5244      JMP ,
3244 7450      SNA /SR AND AC SHOULD NOT EQUAL ZERO
3245 5246      JMP , /LAS WAS INHIBITED
3246 5246

3247 6274      /TEST HLT AND SKIP
3248 6001      CUP+10 /USER SETUP
3249 5252      ION
3250 5252      JMP ,+1 /GO TO USER
3251 5252      /USER MODE
3252 7412      SKP HLT /SHOULD TRAP
3253 5253      JMP , /DID NOT TRAP
3254 5254      JMP , /SKP DID NOT INDEX PC.
3255 6254      /EXECUTIVE MODE
3256 5256      SINT /SKP ON TRAP FLAG
3257 6204      JMP ,
3258 6204      CINT /CLEAR FLAG
3259 6254      SINT /IS IT CLEAR
3260 7410      SKP /YES
3261 5262      JMP , /NO-FLAG NO CLEAR
3262 5262

3263 2266      /LOOP PROGRAM
3264 5531      ISZ ,+3 /DO FIRST SECTION 4896
3265 7410      JMP I TIME
3266 6000      SKP
3267 5670      0 /COUNT FOR LOOP
3268 3400      JMP I ,+1
3269 177+1      . 177+1

3400      * , 177+1
  
```

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3400 7200      /TEST THAT ALL IOTS TRAP IN USER MODE
3401 1125      CLA
3402 3207      TAD K6000 /BASIC IOT
3403 6274      DCA INST /SET UP
3404 6204      IOTST, CUP+10 /SET FOR USER
3405 6001      CINT /CLEAR FLAG
3406 5207      ION
3407 5207      JMP ,+1 /GO TO USER MODE
3408 6000      /USER MODE
3409 6000      INST, 6000 /IOT THAT FAILED
3410 5210      JMP , /IOT DID NOT TRAP
3411 6254      /EXECUTIVE MODE
3412 5212      SINT /SKIP ON TRAP FLAG
3413 6204      JMP , /TRAP FLAG NOT SET
3414 6204      CINT /CLEAR FLAG
3415 6254      SINT
3416 7410      SKP CLA
3417 7402      HLT /FLAG DID NOT CLEAR
3418 2207      ISZ INST /CREATE NEW INSTRUCTION
3419 1207      TAD INST /TESTED ALL IOT?
3420 0130      AND K1000
3421 7650      SNA CLA
3422 5203      JMP IOTST /NO -- TEST THE REST
3423 5203

3424 1124      /TEST THAT ALL (HLT AND OSR) TRAP IN USER MODE
3425 3232      TAD K7402 /BASIC HALT INST
3426 6274      DCA INSTA /SET UP
3427 6204      HALTA, CUP+10 /SET FOR USER
3428 6001      CINT /CLEAR FLAG
3429 6001      ION
3430 5232      JMP ,+1 /GO TO USER MODE
3431 5232      /USER MODE
3432 7406      INSTA, HLT OSR /OPERATE TRAP INST
3433 5233      JMP , /DID NOT TRAP
3434 7000      /EXECUTIVE MODE
3435 6254      NOP /FOR (HLT,SKP)(OSR,SKP)
3436 6236      SINT /SKIP ON TRAP FLAG
3437 6204      JMP , /TRAP FLAG NOT SET
3438 6204      CINT /CLEAR FLAG
3439 6254      SINT
3440 7410      SKP CLA
3441 7402      HLT /FLAG DID NOT CLEAR
3442 1232      TAD INSTA
3443 1123      TAD K0004 /GENERATE ALL GROUPS OF
3444 3232      DCA INSTA /HALTS AND OSR
3445 1232      TAD INSTA
3446 1122      TAD K0002
3447 7640      SRA CLA
3448 5226      JMP HALTA /GENERATED ALL
3449 6244      RMP /NO - TEST THE REST
3450 6244      CUP
3451 6001      ION
3452 5256      JMP ,+1 /SHOULD NOT TRAP
3453 6002      IOF
  
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3457 6254      SINT
3468 7410      SKP
3461 7402      HLT      /TRAP FLAG SET
3462 6840      SPP
3463 6841      TSP      /SHOULD SKP
3464 5263      JMP ,+1
3465 6801      ION
3466 7410      SKP
3467 7402      HLT      /DID P1 INTERRUPT
3478 7402      HLT      /DID P0 INCR.

3471 7300      CLA GLL
3472 6804      GTF
3473 8126      AND K0100
3474 7440      SEA
3475 7402      HLT      /SUF SET
3476 7300      CLA GLL
3477 6807      CAP
3500 6264      CUP
3501 7000      NOP

/
/TEST 16
/TEST TIME SHARE IN EXTENDED MEMORY
/NOV TEST USER MODE TRAP IN ALL EXTENDED FIELDS
/IF TRAP ERROR OCCURS HLT IN THAT FIELD
/USE RTF TO SET USER MODE AND GTF TO GET THE FLAGS
/TEST ALL IOT'S FOR TRAP AND RETURN
/
3502 7300      R102, CLA GLL
3503 6807      CAP
3504 4423      JMB I XSTKS /CHECK NO. OF FIELDS PRESENT
3505 1040      TAD K00F
3506 1045      TAD K10
3507 3335      DCA SRD      /SET OF FOR FIRST FIELD
3510 1041      TAD K01F
3511 1045      TAD K10
3512 3347      DCA SRI      /SET IF FOR FIRST FIELD
3513 1144      STAN, TAD K3577 /GET START OF PROGRAM -1
3514 3010      DCA 10
3515 1145      TAD K7745      /NO. OF INSTRUCTIONS TO TRANSFER
3516 3143      DCA SRCO
3517 7040      CMA
3520 3011      DCA 11      /START AT 0000

3521 1335      TAD SRD      /MAKE FLAGS FOR RETURN CHECK
3522 0111      AND K0070
3523 7010      RAR
3524 7012      RTR
3525 3112      DCA XBAV
3526 1347      TAD SRI
3527 0111      AND K0070
3530 1112      TAD XBAV
3531 1142      TAD K1100
3532 3776      DCA I XFDCON
3533 6201      CDF 00

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3534 1410      TAD I 10
3535 6201      SRD, CDF 00
3536 3411      DCA I 11      /STORE INSTRUCTIONS
3537 2143      ISB SRCO
3540 5333      JMP SRD-2
3541 1021      TAD ISE0
3542 3001      DCA 1      /SET FIELD 0 FOR RETURN
3543 1347      TAD SRI
3544 3002      DCA 2
3545 1020      TAD JMP10
3546 3003      DCA 3
3547 6202      SRI, CIF 00
3550 5002      JMP 2      /GO TO FIELD UNDER TEST
3551 7300      SRRET, CLA GLL
3552 2031      ISB STKS
3553 7410      SKP
3554 5364      JMP EXITT
3555 1335      TAD SRD      /MORE FIELDS
3556 1045      TAD K10      /GO TO CONTROL
3557 3335      DCA SRD      /SET UP FOR NEXT FIELD
3560 1347      TAD SRI
3561 1045      TAD K10
3562 3347      DCA SRI
3563 5313      JMP STAN
3564 7300      EXITT, CLA GLL      /TEST THIS FIELD
3565 6807      CAP      /TEST DONE GO TO BEGIN
3566 6264      CUP
3567 1151      TAD TTB
3570 3547      DCA I XELL
3571 7604      LAB
3572 7700      SMA CLA
3573 5550      JMP I XBELL
3574 7402      HLT      /TIME SHARE ENABLED
3575 5552      JMP I XTRAP /AN ERROR CONDITION EXISTS.
3576 3632      XFDCON, FDCON /HIT CONTINUE TRY AGAIN

/
/INSTRUCTIONS TO BE TRANSFERRED TO FIELDS
/
3600      *3600
/
3600 7402      HLT      /SHOULD NOT HLT HERE
3601 7402      HLT      /SHOULD NOT TRAP HERE
3602 7300      FDCO, CLA GLL
3603 1232      TAD FDCON
3604 6805      RTF
3605 5206      JMP ,+1      /SET FOR USER
3606 6800      /USER MODE
3607 5207      IOTX, IOT
3608 7300      /EXECUTIVE MODE
3609 6804      CLA GLL
3610 7041      GTF
3611 7041      CIA
3612 1232      TAD FDCON      /GET THE FLAGS
3613 1232      /FLAGS THAT SHOULD BE PRESENT

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3614 7648      SEA CLA
3615 7402      HLT          /CHECK THE FLAGS
3616 6003      SRQ
3617 5216      JMP ,+1      /IS TRAP FLAG SET
3620 6204      CINT
3621 2206      ISZ 10TX
3622 1206      TAD 10TX
3623 1231      TAD F1000
3624 7648      SEA CLA
3625 5202      JMP F000
3626 6202      CIF
3627 5630      JMP I FRET      /TEST DONE GO TO FIELD 0
3630 3551      FRET, SRRET
3631 1000      F1000, 1000
3632 0000      F0000, 0000
/
/CHECK SR0=1 FOR MEMORY EXTENSION ONLY
/
3633 7300      XSR0, CLA GLL
3634 7604      LAB
3635 7700      SMA CLA
3636 5531      JMP I TIME
3637 6007      CAF
3640 1151      TAD TTB
3641 3547      DCA I XELL
3642 5550      JMP I XBELL
/
3643 7300      TRAP, CLA GLL
3644 1153      TAD ATRAP
3645 3001      DCA 1          /SET FOR RETURN
3646 6274      SUF          /SET FOR USER
3647 6001      ION
3650 5251      JMP ,+1      /GO TO USER
3651 7402      HLT          /TIME SHARE DISABLED, HIT
3652 6254      SINT        /CONTINUE TO LOOP ON CONTROL,
3653 7410      SKP
3654 7402      HLT          /ERROR, TRAP INT, RQST, UP
3655 6264      CUF
3656 6007      CAF
3657 5527      JMP I PLACE      /GO TO BEGIN
/
/TEST 07
/CONFIDENCE CHECK ON ALL EXISTENT FIELDS.
/MAKE SURE DCA I AND TAD I ARE TO CORRECT STACK.
/MAKE SURE JUMP IS TO CORRECT STACK.
/CHECK ALL COMBINATIONS.
/FIELDS WILL CONTAIN THEIR DF NUMBER IN LOC.0
/
4000          *4000
/
4000 0000      CON1, 0000      /FIRST FILL CORE, ALL STACKS
4001 7300      CLA GLL          /DCA I FOR 32K
4002 3323      DCA F0NUM
4003 3324      DCA NUMX
4004 1040      TAD KCDF

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4005 3232      DCA CONX
4006 1110      TAD K7770
4007 3327      DCA MSTKS      /SET FOR MAX. 32K
4010 1110      TAD K7770
4011 3031      DCA STKS
4012 1040      TAD KCDF
4013 3214      DCA ,+1
4014 6201      F0WRD, CDF      /MODIFIED UNDER TEST
4015 4307      JMS FILCOR
4016 2031      ISZ STKS      /ARE ALL STACKS DONE
4017 5222      JMP ,+3
4020 4252      JMS CONCHK      /CHECK RESULTS
4021 5227      JMP CON2
4022 1045      TAD K10
4023 1214      TAD F0WRD
4024 3214      DCA F0WRD      /UPDATE FIELD CHANGE
4025 2324      ISZ NUMX
4026 5214      JMP F0WRD
/
4027 7300      CON2, CLA GLL      /DO ONE AT A TIME
4030 1323      TAD F0NUM
4031 3324      DCA NUMX
4032 6201      CONX, CDF
4033 4307      JMS FILCOR
4034 6203      CDF CIF
4035 4252      JMS CONCHK
4036 7300      CLA GLL
4037 1232      TAD CONX
4040 1045      TAD K10
4041 3232      DCA CONX      /UPDATE FIELD CHANGE
4042 2323      ISZ F0NUM
4043 2327      ISZ MSTKS      /ARE ALL STACKS DONE
4044 5227      JMP CON2
4045 6203      CDF CIF
4046 6007      CAF
4047 2027      ISZ LOOP      /DO 4096 TIMES
4050 5201      JMP CON1 +1
4051 5600      JMP I CON1      /TEST COMPLETE
/
4052 0000      CONCHK, 0000      /CHECK ALL AVAILABLE STACKS
4053 7300      CLA GLL
4054 3324      DCA NUMX
4055 7604      LAB
4056 0044      AND K7
4057 7040      CMA
4060 3031      DCA STKS      /STACKS PRESENT
4061 1041      TAD KCIF
4062 3263      DCA ,+1
4063 6202      CIF          /MODIFIED UNDER TEST
4064 5541      JMP I K0001
4065 7041      RETADD, CIA
4066 1324      TAD NUMX
4067 7450      SNA
4070 5276      JMP ,+6      /GOOD FIELD
4071 3112      DCA XSAV

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4072 1263      TAD CONCH
4073 0111      AND K0070
4074 1112      TAO XSAV      /INCORRECT STACK REFERENCED,
4075 7402      HLT          /AC BITS 6-8 GOOD FIELD,
4076 7300      CLA CLL       /AC BITS 9-11 BAD FIELD.
4077 2031      ISR STKS
4100 7410      SKP          /CHECK ALL AVAILABLE STACKS.
4101 5652      JMP I CONCHK
4102 1263      TAD CONCH
4103 1045      TAD K10
4104 3263      DCA CONCH     /UPDATE FIELD CHANGE
4105 2324      ISR NUMX
4106 5263      JMP CONCH

4107 0000      / FILCOR, 0000      /INSTRUCTIONS FOR FIELDS
4110 1324      TAD NUMX      /MODIFIED TO DF#
4111 3537      DCA I K0000
4112 1130      TAD K1000
4113 3541      DCA I K0001
4114 1041      TAD KCIF
4115 3522      DCA I K0002
4116 1326      TAD JMPRET
4117 3540      DCA I K0003
4120 1325      TAD XRETAD
4121 3523      DCA I K0004
4122 5707      JMP I FILCOR

4123 0000      FDNUM, 0000
4124 0000      NUMX, 0000
4125 4065      XRETAD, RETADD
4126 5404      JMPRET, JMP I 4
4127 0000      MSTKS, 0000
          S

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0000 11110000 00000000 11111111 11111111 11111111 11111111 11111111 11111111
0100 11111111 11111111 11111111 11111111 11111111 11111111 00000000 00000000

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

0400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0500 11111111 11111111 11111111 11111111 11111111 00000000 00000000 00000000

0600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0700 11111111 11111111 11111111 11111111 11111111 11111100 00000000 00000000

1000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1100 11111111 11111111 11111111 11111000 00000000 00000000 00000000 00000000

1200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11110000

1400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1500 11111111 11111111 11111111 11111111 11111111 11111111 11111110 00000000

1600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1700 11111111 11111111 11111111 11111111 11100000 00000000 00000000 00000000

2000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2100 11111111 11111111 11111110 00000000 00000000 00000000 00000000 00000000

2200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11110000

2400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2500 11111111 11111111 11111111 11111111 11111111 10000000 00000000 00000000

2600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

3000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
3100 11111111 11111111 11111111 11111111 11111111 11111111 11110000 00000000

3200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 10000000
3300 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

3400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
3500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111110

3600 11111111 11111111 11111111 11111111 11111111 11111111 00000000 00000000
3700 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

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4000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
4100 11111111 11111111 11111111 00000000 00000000 00000000 00000000 00000000
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

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ADRS 2510 DONE0 2206 K0004 0123
AGAIN1 0711 ENTER 1200 K0011 0120
AGAIN2 1005 EXFD 1316 K0017 0132
ALL0 2244 EXFLD 1302 K0070 0111
ATRAP 0153 EXITT 3504 K0077 0117
BEGIN 0203 F1000 3631 K0100 0126
BEGIN1 0200 FCO 0154 K1 0043
BELL 1555 FDCON 3632 K10 0045
CAA 0653 FDGO 3602 K1000 0130
CAB 0754 FDNUM 4123 K1100 0142
CAC 0755 FDWRD 4014 K1200 0116
CAD 0741 FILCOR 4107 K20 0103
CAE 1036 FILD0 1516 K3577 0144
CAF 0007 FILL 2076 K5200 0115
CAG 1420 FRET 3630 K6000 0125
CAI 1133 GOT00 1510 K6001 0133
CAX 2263 GTF 6004 K7 0044
CDF 0201 GTF1 2271 K7000 0047
CDF0S 2245 HALTA 3426 K7402 0124
CHDF 1074 HLTS 0671 K7700 0121
CHECK 2112 I00 0345 K7707 0050
CIF 0202 I01 0304 K7717 0056
CIFCK 0753 I02 0402 K7727 0055
CIFCK1 1046 I03 0421 K7737 0054
CIFJMP 0723 I04 0444 K7744 0071
CIFJMS 1017 I05 0463 K7745 0145
CIFJPL 0715 I06 0506 K7747 0053
CIFJSL 1011 I07 0525 K7757 0052
CINT 0204 IBSF 0656 K7766 0067
CKPC 1226 IBSF1 1000 K7767 0051
CNSTK 2231 IFON 1605 K7770 0110
CON1 4000 IFDF 2400 K7771 0064
CON2 4027 INST 3407 K7772 0063
CONCH 4063 INSTA 3432 K7773 0062
CONCHK 4092 INTE 1603 K7774 0061
CONX 4032 INTEP 1674 K7775 0060
CUF 0264 IOF 0002 K7776 0057
DAY 0032 ION 0001 K7777 0046
DATER 2047 ION1 2331 K78 0066
DCA1 0601 IOT 0000 KCAI 0036
DF0 0211 IOTST 3403 KCAIM 0035
DF1 0235 IOTX 3606 KCC 0032
DF2 0246 IS00 0021 KCDF 0040
DF3 0263 JMP2 0104 KCDF1 0156
DF4 0274 JMP10 0020 KCIF 0041
DF5 0311 JMP14 1702 KQATER 0137
DF6 0322 JMP1R 0134 KD0SHB 1737
DF7 0220 JMPRET 4126 KFLDB 0105
DFCN 1677 K0000 0107 KHLT 0037
DFLD 0607 K0001 0141 KIFSHB 1741
DFN 1446 K0002 0122 KJMP 0101
DOAUTO 1517 K0003 0110 KNOP 0752

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KNTR 0102
KRB 0036
KRTN 0100
KXFLD 0100
LBT 1515
LBTSTC 1675
LOOP 0027
MDFSHB 1740
MGTF 2276
MIFSHB 1742
MOVE 1463
MQL 7421
MSTK3 4127
N1 2043
N2 2042
NDF 0030
NEWDF 1440
NOFLD 0034
NOMEN 2200
NOSTAK 0033
NSTK3 2435
NUMX 4124
OK1 0231
OK2 0257
OK3 0305
OK4 0333
OK5 0373
OK6 0440
OK7 0502
OK8 0544
P 2044
PLACE 0127
POINT 0065
POS 2237
RANA 2057
RDF 6214
REPEAT 1733
RET 2511
RETADD 4060
RIB 6234
RIF 6224
RIG1 2452
RIG2 3502
RMF 6244
RMFCN1 1676
RMFDY 1703
RMFDY1 1710
RMFE1 1665
RMFE2 1656
RMFI1 1660
RMFI2 1661
RMFL1 1633

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RHFL2	1621	XMEM	1781
RHFL3	1615	XNOM	2236
RHFTSY	1600	XRANB	0025
RTF	6005	XRET	0135
RTF1	2400	XRETAD	4125
RTRN	1427	XRIG1	2434
SFIB	1400	XRMF	0024
SINT	6254	XRTF1	2372
SKON	6000	XSAV	0112
SPP	6040	XSDF	2304
SRCO	0143	XSR0	3633
SRD	3535	XSRTF	2407
SRI	3547	XSTKS	0023
SRQ	6003	XTDF	0076
SRRET	3551	XTDF1	0077
STAN	3513	XTFL0	0022
STDf	1127	XTOR	0114
STKS	0031	XTRAP	0102
STRMF	1107	XTRMF	2550
SUP	6274	XXSR0	0146
T1	2600		
T2	2627		
TADI	0622		
TAUTO	1432		
TFLD	0630		
TFLG	2443		
TIME	0131		
TRANS	1321		
TRAP	3643		
TRPLD	1337		
TRMF	1050		
TSP	6041		
TTB	0151		
XAUTO	0026		
XBELL	0150		
XCON1	2373		
XCOUNT	0113		
XDATA	0136		
XDATER	0155		
XELL	0147		
XFD	0042		
XFDCON	3576		
XFER	2000		
XFERC1	2046		
XFERC2	2045		
XFERIN	2032		
XFERL1	2030		
XFERL2	2017		
XFERP	1700		
XFIB	0107		
XGTF1	1047		
XION1	2330		



**digital**MAINDEC 08-DHMCA-A  
CHANGE ORDERORIGINATOR Bill Heavey  
TEL EXT 3621 DATE 6/23/75  
DISC PROJ NO. V1806806  
COST CENTER NO. 301  
*MC 1032*MCO NO. 08-DHMCA-00000  
SHEET \_\_\_\_\_ OF \_\_\_\_\_  
DATE RECEIVED 6-24-75  
FIRST ISSUE 6-26-75  
FINAL ISSUE 6-27-75**PROBLEM** Inclusion of statements in restriction section (7.) of document to indicate to operator to remove any ROM's that may be present in system before running PDP-8E memory extension and time share control test.

PGM TO BE CHANGED

MAINDEC-08-DHMCA-A

DISP CODE

OPTIONS AFFECTED

KM8-E

**CORRECTION**

UNDER RESTRICTIONS (7.) include the following:

Memory available must be sequential 4K memory banks.

All ROM's should be removed prior to running this diagnostic.

**BREAK-IN/EFFECTIVITY**PRODUCT LINES  
AFFECTED

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ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE	
1	MAINDEC-08-DHMCA	A			DOCUMENTATION CHANGE; refer to correction.	<b>DOCUMENTATION AFFECTED</b> <input checked="" type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG  <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC  <b>FIELD SERVICE AFFECTED</b> <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Customer Charge <input type="checkbox"/> Product Line Charge <input type="checkbox"/> PL _____  <input type="checkbox"/> Contact Software Distribution Center for price. <input type="checkbox"/> Information Only

**DISPOSITION CODES**00 - (DELETED)  
01 - (DELETED)  
02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN)  
03 - REWORK IMMEDIATELY (RETROFIT)  
04 - (DELETED)  
05 - (DELETED)  
06 - DOCUMENT CORRECTION  
07 - NEW ITEM (THIS ASSEMBLY)  
08 - (DELETED)  
09 - SCRAP IMMEDIATELY  
  
*Doc 8/E  
DFS 8 FAM  
2250  
AKK  
6-24-75***APPROVAL SIGNATURES**

	Typewritten	Hand Signature
DIAGNOSTIC ENGR.	William Heavey	<i>William Heavey</i>
MFG, ENGR.	Bill Kochman	<i>Bill Kochman</i>
FIELD SERVICE	Carl Cline	<i>Carl Cline</i>
PRODUCT ENGR.	John Kirk	<i>John Kirk</i>

