

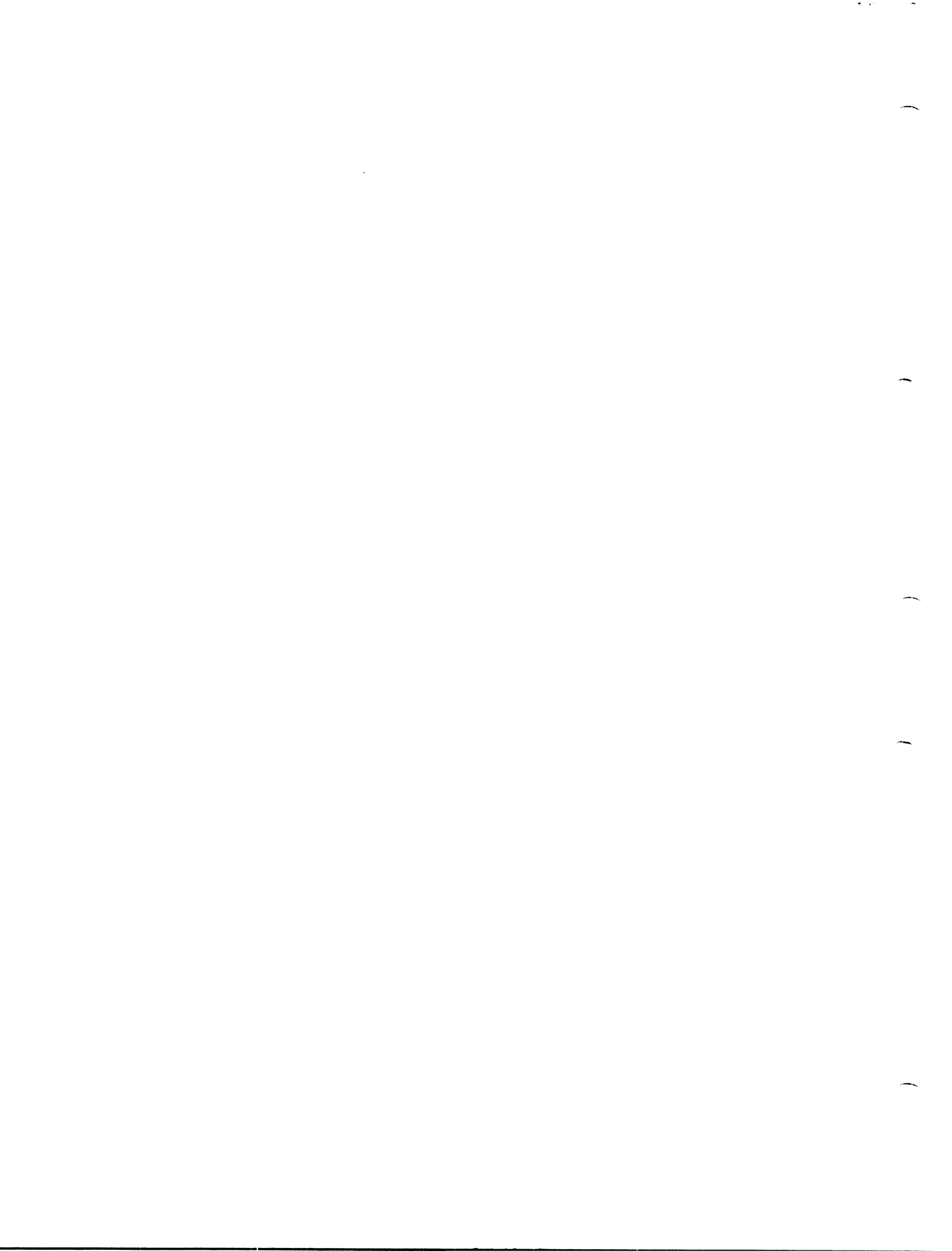
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### IDENTIFICATION

|               |                       |
|---------------|-----------------------|
| PRODUCT CODE: | MAINDEC-8E-DØIA-D-(D) |
| PRODUCT NAME: | BASIC JMP-JMS TEST    |
| DATE CREATED: | NOVEMBER 5, 1970      |
| MAINTAINER:   | DIAGNOSTICS GROUP     |
| AUTHOR:       | BRUCE HANSEN          |

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1. ABSTRACT

This is a diagnostic program for testing the JMP and JMS instructions of the PDP-8E.

2. REQUIREMENTS

2.1 Equipment

A PDP-8E equipped with Teletype.

2.2 Storage

This program uses most of memory. The Binary Loader must be stored in the last memory page.

2.3 Preliminary Programs

Maindec-8E-D0AA and Maindec-8E-D0BA

3. LOADING PROCEDURE

3.1 Method

The standard Binary Loader is used.

4. STARTING PROCEDURE

4.1 Control Switch Settings (none)

4.2 Starting Address

200

4.3 Restart Addresses

600

704

4.4 Operator Action

- a. Set SR to 200 and press LOAD ADDRESS.
- b. Push clear and then continue. The program will store parts of the RIM and Binary Loaders that will be destroyed, and then JMP to 4200 to begin testing.

5. OPERATING PROCEDURES

5.1 Program Restarts

Since the loaders are already stored, a program restart should begin at 600 not 200.

5.2 Program End

To restore the loaders at the conclusion of the test, start at 704. When the program halts, restoration is completed (PC=736).

6. ERRORS

6.1 Error Halts and Description

See listing, section 10.

6.2 Error Recovery

In most cases it is possible to insert a JMP instruction in the error halt position to return the program to the failing test. This forms a program loop on the failing test and allows the problem to be investigated with an oscilloscope. In cases where a scope mode loop cannot be maintained due to the instability of the JMP or JMS instruction and its failing condition, it will probably be advantageous to simulate this same problem using the Random JMP Test, Maindec-8E-DØHA, or Random JMS Test, Maindec-8E-DØJA.

7. RESTRICTIONS (none)

8. MISCELLANEOUS

8.1 Execution Time

Three hundred and Forty-five program loops per second. A bell is sounded every 10 seconds, which equals 3456 program loops.

9. PROGRAM DESCRIPTION

The program is made up of 82 individual tests for JMP and JMS. An octal counter located at memory location 0136 always holds the number of the present test. For test 1 location, 0136 contains 0000 and for test 82, 0136 contains 0121. Each test performs the following functions:

- a. Check location 0136 for proper test number.
- b. Performs additional checking such as verification of the stored PC (program counter) on a JMS.
- c. Advances test counter.
- d. Sets up for next test.
- e. Jumps or JMSs to the next test. These JMP and JMS instructions are the ones being tested.

If the PC does not arrive at the proper place after performing steps above, it either falls into the background field of HLTS or into another area of the program. If the field of HLTS is encountered, the program halts immediately. If a program field is entered, it is most likely that the program will halt when the test counter check is made (location 136 equals the test count). In a few remote cases it is possible for the test counter to be advanced by one, following the erroneous JMP or JMS and before the halt. It is also possible for the program, on an error condition, to enter the loaders stored in the last memory page. All of these possibilities should be kept in mind when analyzing an error.

Test 0 through 19 are tests for same page jumping using direct addressing. Tests 20 through 45 test the JMP instruction with indirect addressing. In these cases the address that the program jumps to is always the complement of its present address. JMS Tests 1 through 12 are test for the same page using direct addressing. JMS Tests 13 through 35 test JMS in the same manner as JMP is tested in test 20 through 45.

The Teletype bell is sounded every 10 seconds (3456 program cycles).

```

0000
0001
0002
0003
0004
0005
0006
0007
0010
0011
0012
0013
0014
0015
0016
0017
0020
0021

```

```

*0
0 JMP 1
2
3
0
0
HLT
HLT
HLT
HLT
HLT
HLT
HLT
HLT
HLT
HLT

```

```

0022
0023
0024
0025
0026
0030
0031
0032
0033
0034
0035
0036
0037
0042
0043
0044
0045
0046
0047
0050
0051
0052
0053
0054
0055
0056
0057
0060
0061
0062

```

```

*22
K0,
K1,
K2,
K4,
K10,
K20,
K40,
K100,
K200,
K400,
K1000,
K2000,
K4000,
K3777,
*42
K5777,
K6777,
K7377,
K7577,
K7677,
K7737,
K7757,
K7767,
K7773,
K7775,
K7776,
K7777,
K7767,
K7773,
K7775,
K7776,
K7777,
K4620,
K4640,
K4660,
K4700,
K4720,

```

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|      |      |         |      |
|------|------|---------|------|
| 0063 | 4740 | K4740,  | 4740 |
| 0064 | 4760 | K4760,  | 4760 |
| 0065 | 5000 | K5000,  | 5000 |
| 0066 | 5020 | K5020,  | 5020 |
| 0067 | 5040 | K5040,  | 5040 |
| 0070 | 5060 | K5060,  | 5060 |
| 0071 | 5100 | K5100,  | 5100 |
| 0072 | 5120 | K5120,  | 5120 |
| 0073 | 5140 | K5140,  | 5140 |
| 0074 | 5160 | K5160,  | 5160 |
| 0075 | 5200 | K5200,  | 5200 |
| 0076 | 5220 | K5220,  | 5220 |
| 0102 | 5240 | #102    | 5240 |
| 0103 | 5260 | K5260,  | 5260 |
| 0104 | 5300 | K5300,  | 5300 |
| 0105 | 5320 | K5320,  | 5320 |
| 0106 | 5340 | K5340,  | 5340 |
| 0107 | 5360 | K5360,  | 5360 |
| 0110 | 5400 | K5400,  | 5400 |
| 0111 | 5420 | K5420,  | 5420 |
| 0112 | 5440 | K5440,  | 5440 |
| 0113 | 7777 | M1,     | -1   |
| 0114 | 7776 | M2,     | -2   |
| 0115 | 7775 | M3,     | -3   |
| 0116 | 7774 | M4,     | -4   |
| 0117 | 7773 | M5,     | -5   |
| 0120 | 7772 | M6,     | -6   |
| 0121 | 7771 | M7,     | -7   |
| 0123 | 7770 | M10,    | -10  |
| 0124 | 7767 | M11,    | -11  |
| 0124 | 7766 | M12,    | -12  |
| 0125 | 7765 | M13,    | -13  |
| 0126 | 7764 | M14,    | -14  |
| 0127 | 7763 | M15,    | -15  |
| 0130 | 7762 | M16,    | -16  |
| 0131 | 7761 | M17,    | -17  |
| 0132 | 7760 | M20,    | -20  |
| 0133 | 7757 | M21,    | -21  |
| 0134 | 7756 | M22,    | -22  |
| 0135 | 7755 | M23,    | -23  |
| 0136 | 0000 | PNTCNT, | 0    |
| 0137 | 2410 | K2410,  | 2410 |
| 0140 | 2440 | K2440,  | 2440 |
| 0141 | 2470 | K2470,  | 2470 |
| 0142 | 2520 | K2520,  | 2520 |
| 0143 | 2600 | K2600,  | 2600 |
| 0144 | 2630 | K2630,  | 2630 |
| 0145 | 2660 | K2660,  | 2660 |
| 0146 | 2710 | K2710,  | 2710 |
| 0147 | 2740 | K2740,  | 2740 |
| 0150 | 3000 | K3000,  | 3000 |
| 0151 | 3030 | K3030,  | 3030 |



0152 3060 K3060, 3060  
 0153 3110 K3110, 3110  
 0154 3140 K3140, 3140  
 0155 3200 K3200, 3200

0156 3230 K3230, 3230  
 0157 3260 K3260, 3260  
 0160 3310 K3310, 3310  
 0161 3340 K3340, 3340  
 0162 3400 K3400, 3400  
 0163 3430 K3430, 3430  
 0164 3460 K3460, 3460  
 0165 3510 K3510, 3510  
 0166 3540 K3540, 3540

0170 \*170  
 0000 DO,  
 0171 1175 TAD K7402  
 0172 3410 DCA I 10  
 0173 1010 TAD 10  
 0174 9970 JMP I 00  
 0175 7402 K7402, 7402

0200 \*200  
 0601 0601 JMP I SAVER  
 0201 0600 SAVER, SAVE

/STORE LOADER INSTRUCTIONS  
 /THAT WILL BE DESTROYED

0600 \*600  
 0600 SAVE,  
 0601 7200 CLA I K7775  
 0602 1453 TAD STOR  
 0603 3343 DCA STOR  
 0604 1452 TAD I K7773  
 0605 3344 DCA STOR+1  
 0606 1736 TAD I K74  
 0607 3345 DCA STOR+2  
 0610 1451 TAD I K7767  
 0611 3346 DCA STOR+3  
 0612 1737 TAD I K76  
 0613 3347 DCA STOR+4  
 0614 1450 TAD I K7757  
 0615 3350 DCA STOR+5  
 0616 1740 TAD I K60  
 0617 3351 DCA STOR+6  
 0620 1447 TAD I K7737  
 0621 3352 DCA STOR+7  
 0622 1741 TAD I K740  
 3353 DCA STOR+10

|      |      |             |
|------|------|-------------|
| 0623 | 1446 | TAD I K7677 |
| 0624 | 3354 | DCA STOR+11 |
| 0625 | 1742 | TAD I K00   |
| 0626 | 3355 | DCA STOR+12 |
| 0627 | 1455 | TAD I K7777 |
| 0630 | 3356 | DCA STOR+13 |
| 0631 | 7300 | CLA CLL     |
| 0632 | 1264 | TAD K175    |
| 0633 | 3010 | DCA 10      |
| 0634 | 4170 | JMS DO      |
| 0635 | 1265 | TAD M577    |
| 0636 | 7640 | SEA CLA     |
| 0637 | 5234 | JMP -3      |
| 0640 | 1266 | TAD K756    |
| 0641 | 3010 | DCA 10      |
| 0642 | 4170 | JMS DO      |
| 0643 | 1267 | TAD M1777   |
| 0644 | 7640 | SEA CLA     |
| 0645 | 5242 | JMP -3      |
| 0646 | 1270 | TAD K3572   |
| 0647 | 3010 | DCA 10      |
| 0650 | 4170 | JMS DO      |
| 0651 | 1271 | TAD M4177   |
| 0652 | 7640 | SEA CLA     |
| 0653 | 5250 | JMP -3      |
| 0654 | 1272 | TAD K5451   |
| 0655 | 3010 | DCA 10      |
| 0656 | 4170 | JMS DO      |
| 0657 | 1273 | TAD M7600   |
| 0660 | 7640 | SEA CLA     |
| 0661 | 5256 | JMP -3      |
| 0662 | 5300 | JMP RESTAR  |
| 0663 | 4200 | BEGIN       |
| 0664 | 0175 | K175,       |
| 0665 | 7201 | M577,       |
| 0666 | 0756 | K756,       |
| 0667 | 0001 | M1777,      |
| 0670 | 3572 | K3572,      |
| 0671 | 5601 | M4177,      |
| 0672 | 5451 | K5451,      |
| 0673 | 0200 | M7600,      |

HALT1,

HALT2,

HALT3,

HALT4,

/RESTORE LOADER INSTRUCTIONS

|      |      |              |              |
|------|------|--------------|--------------|
| 0700 | *700 | RESTAR,      | TAD RENEW    |
| 0701 | 1303 | DCA SAVE     | DCA SAVE     |
| 0702 | 5303 | JMP I HALT+7 | JMP I HALT+7 |
| 0703 | 5663 | RENEW,       | RENEW,       |
| 0704 | 7200 | REFILL,      | REFILL,      |
| 0705 | 1343 | CLA          | CLA          |
| 0706 | 3453 | TAD STOR     | TAD STOR     |
| 0707 | 1344 | DCA I K7775  | DCA I K7775  |
| 07   | 3452 | TAD STOR+1   | TAD STOR+1   |
|      |      | DCA I K7775  | DCA I K7775  |

```

0711 1345 TAD STOR+2
0712 1346 DCA I K74
0713 1346 TAD STOR+3
0714 1347 DCA I K7767
0715 1347 TAD STOR+4
0716 1347 DCA I K70
0717 1350 TAD STOR+5
0720 1350 DCA I K7757
0721 1351 TAD STOR+6
0722 1340 DCA I K60
0723 1352 TAD STOR+7
0724 1347 DCA I K7737
0725 1353 TAD STOR+10
0726 1341 DCA I K740
0727 1354 TAD STOR+11
0730 1346 DCA I K7677
0731 1355 TAD STOR+12
0732 1342 DCA I K00
0733 1356 TAD STOR+13
0734 1355 DCA I K7777
0735 1402 HLT

```

/CONSTANTS

```

0736 7774 K74,
0737 7770 K70,
0740 7760 K60,
0741 7740 K740,
0742 7700 K00,
0743 0000 STOR,
0744 0000
0745 0000
0746 0000
0747 1742 -6036
0750 0000
0751 0000
0752 0000
0753 0000
0754 0000
0755 0000
0756 0000

```

```

/STORE LOC 7775
/+1 STORE LOC 7773
/+2 STORE LOC 7774
/+3 STORE LOC 7767
/+4 STORE LOC 7750
/+5 STORE LOC 7757
/+6 STORE LOC 7760
/+7 STORE LOC 7737
/+10 STORE LOC 7740
/+11 STORE LOC 7677
/+12 STORE LOC 7700
/+13 STORE LOC 7777

```

```

4200 4200 =4200
4201 3136 BEGIN,

```

```

CLA PNTCNT
DCA PNTCNT

```

```

4202 5203 /JUMP TEST 0 COUNTER=0
4203 1136 JMP +1
4204 7440 TAD PNTCNT
4205 7402 SZA
4206 1136 HLT
TAD PNTCNT
/JMP COUNTER WRONG

```

|                        |      |            |                    |
|------------------------|------|------------|--------------------|
| 4207                   | 7001 | IAC        | /ADVANCE COUNTER   |
| 4210                   | 3136 | DCA PNTCNT |                    |
| /JUMP TEST 1 COUNTER=1 |      |            |                    |
| 4211                   | 5213 | JMP .+2    | /JMP FAILED        |
| 4212                   | 7402 | HLT        |                    |
| 4213                   | 1136 | TAD PNTCNT |                    |
| 4214                   | 1113 | TAD M1     |                    |
| 4215                   | 7440 | SEA        | /CHECK COUNTER     |
| 4216                   | 7402 | HLT        | /JMP COUNTER WRONG |
| 4217                   | 1136 | TAD PNTCNT |                    |
| 4220                   | 7001 | IAC        | /ADVANCE COUNTER   |
| 4221                   | 3136 | DCA PNTCNT |                    |
| /JUMP TEST 2 COUNTER=2 |      |            |                    |
| 4222                   | 5225 | JMP .+3    | /JMP FAILED        |
| 4223                   | 7402 | HLT        |                    |
| 4224                   | 7402 | HLT        |                    |
| 4225                   | 1136 | TAD PNTCNT |                    |
| 4226                   | 1114 | TAD M2     |                    |
| 4227                   | 7440 | SEA        | /CHECK COUNTER     |
| 4230                   | 7402 | HLT        | /JMP COUNTER WRONG |
| 4231                   | 1136 | TAD PNTCNT |                    |
| 4232                   | 7001 | IAC        |                    |
| 4233                   | 3136 | DCA PNTCNT |                    |
| /JUMP TEST 3 COUNTER=3 |      |            |                    |
| 4234                   | 5240 | JMP .+4    | /JMP FAILED        |
| 4235                   | 7402 | HLT        | /                  |
| 4236                   | 7402 | HLT        | /                  |
| 4237                   | 7402 | HLT        |                    |
| 4240                   | 1136 | TAD PNTCNT |                    |
| 4241                   | 1115 | TAD M3     |                    |
| 4242                   | 7440 | SEA        | /CHECK COUNTER     |
| 4243                   | 7402 | HLT        | /JMP COUNTER WRONG |
| 4244                   | 1136 | TAD PNTCNT |                    |
| 4245                   | 7001 | IAC        | /ADVANCE COUNTER   |
| 4246                   | 3136 | DCA PNTCNT |                    |
| /JUMP TEST 4 COUNTER=4 |      |            |                    |
| 4247                   | 5254 | JMP .+5    | /JMP FAILED        |
| 4250                   | 7402 | HLT        | /                  |
| 4251                   | 7402 | HLT        | /                  |
| 4252                   | 7402 | HLT        | /                  |
| 4253                   | 7402 | HLT        |                    |
| 4254                   | 1136 | TAD PNTCNT |                    |
| 4255                   | 1116 | TAD M4     |                    |
| 4256                   | 7440 | SEA        | /CHECK COUNTER     |
| 4257                   | 7402 | HLT        | /JMP COUNTER WRONG |
| 4260                   | 1136 | TAD PNTCNT |                    |
| 4261                   | 7001 | IAC        | /ADVANCE COUNTER   |
| 4262                   | 3136 | DCA PNTCNT |                    |
| /JUMP TEST 5 COUNTER=5 |      |            |                    |

```

4263 9271 JMP .+6
4264 7402 HLT
4265 7402 HLT
4266 7402 HLT
4267 7402 HLT
4270 7402 HLT
4271 1136 TAD PNTCNT
4272 1117 TAD M5
4273 7440 SEA
4274 7402 HLT
4275 1136 TAD PNTCNT
4276 7001 IAC
4277 3136 DCA PNTCNT

/JMP FAILED
/JMP FAILED
/JMP FAILED
/JMP FAILED
/JMP FAILED
/CHECK COUNTER
/JMP COUNTER WRONG
/ADVANCE COUNTER

```

```

/JUMP TEST 6 COUNTER=6
4300 5307 /JMP .+7
4301 7402 HLT
4302 7402 HLT
4303 7402 HLT
4304 7402 HLT
4305 7402 HLT
4306 7402 HLT
4307 1136 TAD PNTCNT
4310 1120 TAD M6
4311 7440 SEA
4312 7402 HLT
4313 1136 TAD PNTCNT
4314 7001 IAC
4315 3136 DCA PNTCNT

/JMP FAILED
/JMP FAILED
/JMP FAILED
/JMP FAILED
/JMP FAILED
/CHECK COUNTER
/JMP COUNTER WRONG
/ADVANCE COUNTER

```

```

/JUMP TEST 7 COUNTER=7
4316 5326 /JMP .+10
4317 7402 HLT
4320 7402 HLT
4321 7402 HLT
4322 7402 HLT
4323 7402 HLT
4324 7402 HLT
4325 7402 HLT
4326 1136 TAD PNTCNT
4327 1121 TAD M7
4330 7440 SEA
4331 7402 HLT
4332 1136 TAD PNTCNT
4333 7001 IAC
4334 3136 DCA PNTCNT

/JMP FAILED
/JMP FAILED
/JMP FAILED
/JMP FAILED
/JMP FAILED
/CHECK COUNTER
/JMP COUNTER WRONG
/ADVANCE COUNTER

```

```

/JUMP TEST 8 COUNTER=10
4335 5346 /JMP .+11
4336 7402 HLT
4337 7402 HLT
4340 7402 HLT
4341 7402 HLT
4342 7402 HLT

```

```

4343 7402 /
4344 7402 /
4345 7402 /
4346 1136 /CHECK COUNTER
4347 1122 /JMP COUNTER WRONG
4350 7440 /ADVANCE COUNTER
4351 7402
4352 1136
4353 7001
4354 3136

```

/JUMP TEST 9 COUNTER=11

```

4355 9367 /JMP .+12
4356 7402 /JMP FAILED
4357 7402 /
4360 7402 /
4361 7402 /
4362 7402 /
4363 7402 /
4364 7402 /
4365 7402 /
4366 7402 /
4367 1136 /CHECK COUNTER
4370 1123 /JMP COUNTER WRONG
4371 7440 /ADVANCE COUNTER
4372 7402
4373 1136
4374 7001
4375 3136
4376 7000
4377 7000

```

\*4400 /JUMP TEST 10 COUNTER=12

```

4400 4400 /
4401 9201 /JMP .+1
4402 1136 /TAD PNTCNT
4403 1124 /TAD M12
4404 7402 /SEA
4405 1136 /HLT
4406 7001 /TAD PNTCNT
4407 3136 /IAC
/ADVANCE COUNTER
/CHECK COUNTER WRONG
/JMP COUNTER WRONG

```

/JUMP TEST 11 COUNTER=13

```

4410 9212 /JMP .+2
4411 7402 /JMP FAILED
4412 1136 /TAD PNTCNT
4413 1125 /TAD M13
4414 7440 /SEA
4415 7402 /HLT
4416 1136 /CHECK COUNTER
4417 7001 /JMP COUNTER WRONG
4420 3136 /ADVANCE COUNTER

```

```

4421 5224 /JUMP TEST 12 COUNTER=14
4422 7402 JMP .+3
4423 7402 HLT /JMP FAILED
4424 1136 HLT /
4425 1126 TAD PNTCNT
4426 7440 TAD M14
4427 7402 SEA /CHECK COUNTER
4430 1136 HLT /JMP COUNTER WRONG
4431 7001 TAD PNTCNT /ADVANCE COUNTER
4432 3136 IAC PNTCNT
         DCA PNTCNT

```

```

4433 5237 /JUMP TEST 13 COUNTER=15
4434 7402 JMP .+4
4435 7402 HLT /JMP FAILED
4436 7402 HLT /
4437 1136 TAD PNTCNT
4440 1127 TAD M15
4441 7440 SEA /CHECK COUNTER
4442 7402 HLT /JMP COUNTER WRONG
4443 1136 TAD PNTCNT /ADVANCE COUNTER
4444 7001 IAC
4445 3136 DCA PNTCNT

```

```

4446 5253 /JUMP TEST 14 COUNTER=16
4447 7402 JMP .+5
4448 7402 HLT /JMP FAILED
4449 7402 HLT /
4451 7402 HLT /
4452 7402 HLT /
4453 1136 TAD PNTCNT
4454 1130 TAD M16
4455 7440 SEA /CHECK COUNTER
4456 7402 HLT /JMP COUNTER WRONG
4457 1136 TAD PNTCNT /ADVANCE COUNTER
4460 7001 IAC
4461 3136 DCA PNTCNT

```

```

4462 5270 /JUMP TEST 15 COUNTER=17
4463 7402 JMP .+6
4464 7402 HLT /JMP FAILED
4465 7402 HLT /
4466 7402 HLT /
4467 7402 HLT /
4470 1136 TAD PNTCNT
4471 1131 TAD M17
4472 7440 SEA /CHECK COUNTER
4473 7402 HLT /JMP COUNTER WRONG
4474 1136 TAD PNTCNT /ADVANCE COUNTER
4475 7001 IAC
4476 3136 DCA PNTCNT

```

```

/JUMP TEST 16  COUNTER =20
JMP .+7
HLT /JMP FAILED
HLT /
HLT /
HLT /
HLT /
HLT /
TAD PNTCNT
TAD M20
SEA /CHECK COUNTER
HLT /JMP COUNTER WRONG
TAD PNTCNT
IAC /ADVANCE COUNTER
DCA PNTCNT

```

```

/JUMP TEST 17  COUNTER=21
JMP .+10 /JMP FAILED
HLT /
HLT /
HLT /
HLT /
HLT /
HLT /
HLT /

```

```

TAD PNTCNT
TAD M21 /CHECK COUNTER
SEA /JMP COUNTER WRONG
HLT /ADVANCE COUNTER
TAD PNTCNT
IAC /ADVANCE COUNTER
DCA PNTCNT

```

```

/JUMP TEST 18  COUNTER=22
JMP .+11
HLT /JMP FAILED
HLT /
HLT /
HLT /
HLT /
HLT /
HLT /
TAD PNTCNT
TAD M22
SEA /CHECK COUNTER
HLT /JMP COUNTER WRONG
TAD PNTCNT
IAC /ADVANCE COUNTER
DCA PNTCNT

```

```

/JMP TEST 19  COUNTER=23

```



```

4554 9366 JMP .+12
4555 7402 HLT
4556 7402 HLT
4557 7402 HLT
4560 7402 HLT
4561 7402 HLT
4562 7402 HLT
4563 7402 HLT
4564 7402 HLT
4565 7402 HLT
4566 1136 TAD PNTCNT
4567 1136 TAD M25
4570 7402 SEA
4571 7402 HLT
4572 1136 TAD PNTCNT
4573 7001 IAC
4574 3136 DCA PNTCNT
4575 7000 NOP
4576 7000 NOP
4577 7000 NOP

```

/JMP FAILED

/CHECK COUNTER  
/JMP COUNTER WRONG  
/ADVANCE COUNTER

```

/JMP TEST 20 COUNTER=24
TAD PK1
DCA I K7777
TAD PK2
DCA I K0
JMP I K7777
JMP I K0
JMP I K4620

```

PK1,  
PK2,

```

*4620
TAD PNTCNT
TAD M24
SEA
HLT
TAD PNTCNT
IAC
DCA PNTCNT

```

/CHECK COUNTER  
/JMP COUNTER WRONG  
/ADVANCE COUNTER

```

/JMP TEST 21 COUNTER=25
TAD PK3
DCA I K7776
TAD PK4
DCA I K1
JMP I K7776
JMP I K1
JMP I K4640
-24

```

PK3,  
PK4,  
M24,

```

*4640
TAD PNTCNT
TAD M25
SEA
HLT

```

/CHECK COUNTER  
/JMP COUNTER WRONG

```

4600 1200
4601 3455
4602 1206
4603 3422
4604 5455
4605 5422
4606 5456

```

```

4620
4621 1136
4622 1236
4623 7440
4624 1136
4625 7001
4626 3136

```

```

4627 1234
4630 3454
4631 1235
4632 3423
4633 5454
4634 5423
4635 5457
4636 7754

```

```

4640
4641 1136
4642 1256
4643 7440
4643 7402

```

4644 1136 TAD PNTCNT /ADVANCE COUNTER  
 4645 7001 IAC /ADVANCE COUNTER  
 4646 3136 DCA PNTCNT

4647 1254 /JMP TEST 22 COUNTER=26  
 4650 3453 TAD PK5  
 4651 1255 DCA I K7775  
 4652 3424 TAD PK6  
 4653 5453 DCA I K2  
 4654 5424 JMP I K7775  
 4655 5660 JMP I K2  
 4656 7753 JMP I 4660  
 -25

4660 4660 \*4660  
 4661 1136 TAD PNTCNT  
 4662 1276 TAD M26  
 4663 7400 SEA  
 4664 1136 HLT  
 4665 7001 TAD PNTCNT  
 4666 3136 IAC  
 DCA PNTCNT

4667 1274 /JMP TEST 23 COUNTER=27  
 4670 3452 TAD PK7  
 4671 1275 DCA I K7773  
 4672 3425 TAD PK8  
 4673 5452 DCA I K4  
 4674 5425 JMP I K7773  
 4675 5461 JMP I K4  
 4676 7752 JMP I K4700  
 -26

4700 4700 \*4700  
 4701 1136 TAD PNTCNT  
 4702 1316 TAD M27  
 4703 7400 SEA  
 4704 1136 HLT  
 4705 7001 TAD PNTCNT  
 4706 3136 IAC  
 DCA PNTCNT

4707 1314 /JMP TEST 24 COUNTER=30  
 4710 3451 TAD PK9  
 4711 1315 DCA I K7767  
 4712 3426 TAD PK1E  
 4713 5451 DCA I K10  
 4714 5426 JMP I K7767  
 4715 5462 JMP I K10  
 4716 7751 JMP I K4720  
 -27

4720 4720 \*4720  
 4721 1136 TAD PNTCNT

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/BASIC JMP-JMS TEST

4721 1336  
 4722 7440  
 4723 7602  
 4724 1136  
 4725 7001  
 4726 3136

TAD M30  
 SEA  
 HLT  
 TAD PNTCNT  
 IAC  
 DCA PNTCNT  
 /JMP TEST 25 COUNTER=31  
 TAD PK11  
 DCA I K7757  
 TAD PK12  
 DCA I K20  
 JMP I K7757  
 JMP I K20  
 JMP I K4740  
 \*30

4727 1334  
 4728 3450  
 4729 1335  
 4730 3427  
 4731 5450  
 4732 5427  
 4733 5463  
 4734 7750  
 4735  
 4736

TAD PNTCNT  
 TAD M31  
 SEA  
 HLT  
 TAD PNTCNT  
 IAC  
 DCA PNTCNT  
 /JMP TEST 26 COUNTER=32  
 TAD PK13  
 DCA I K7737  
 TAD PK14  
 DCA I K40  
 JMP I K7737  
 JMP I K40  
 JMP I K4760  
 \*31

4740 \*4740  
 4741 1136  
 4742 1356  
 4743 7440  
 4744 7402  
 4745 1136  
 4746 7001  
 4747 3136

TAD PNTCNT  
 TAD M32  
 SEA  
 HLT  
 TAD PNTCNT  
 IAC  
 DCA PNTCNT  
 /JMP TEST 27 COUNTER=33  
 TAD PK15  
 DCA I K7677  
 TAD PK16  
 DCA I K102  
 JMP I K7677  
 JMP I K102  
 JMP I K6000  
 \*32

4750 1354  
 4751 3447  
 4752 1355  
 4753 3430  
 4754 5447  
 4755 5430  
 4756 5464  
 4757 7747  
 4758 \*4760  
 4759 1136  
 4760 1376  
 4761 7440  
 4762 7402  
 4763 1136  
 4764 7001  
 4765 3136

TAD PNTCNT  
 TAD M32  
 SEA  
 HLT  
 TAD PNTCNT  
 IAC  
 DCA PNTCNT  
 /CHECK COUNTER WRONG  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

4767 1374  
 4768 3446  
 4769 1375  
 4770 3431  
 4771 5446  
 4772 5431  
 4773 5465  
 4774 7746  
 4775  
 4776

TAD PNTCNT  
 TAD M32  
 SEA  
 HLT  
 TAD PNTCNT  
 IAC  
 DCA PNTCNT  
 /CHECK COUNTER WRONG  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

4777 1374  
 4778 3446  
 4779 1375  
 4780 3431  
 4781 5446  
 4782 5431  
 4783 5465  
 4784 7746  
 4785  
 4786

TAD PNTCNT  
 TAD M32  
 SEA  
 HLT  
 TAD PNTCNT  
 IAC  
 DCA PNTCNT  
 /CHECK COUNTER WRONG  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

4787 1374  
 4788 3446  
 4789 1375  
 4790 3431  
 4791 5446  
 4792 5431  
 4793 5465  
 4794 7746  
 4795  
 4796

TAD PNTCNT  
 TAD M32  
 SEA  
 HLT  
 TAD PNTCNT  
 IAC  
 DCA PNTCNT  
 /CHECK COUNTER WRONG  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

5000 \*5000  
 5001 TAD PNTCNT  
 5002 TAD M35  
 5003 SZA  
 5004 HLT  
 5005 TAD PNTCNT  
 5006 TAC  
 5007 DCA PNTCNT  
 /CHECK COUNTER  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

/JMP TEST 20 COUNTER=34  
 5007 TAD PK17  
 5008 DCA I K2577  
 5009 TAD PK18  
 5010 DCA I K200  
 5011 JMP I K2577  
 5012 PK17  
 5013 PK18  
 5014 M35  
 5015 -33  
 5016

\*5020  
 5020 TAD PNTCNT  
 5021 TAD M34  
 5022 SZA  
 5023 HLT  
 5024 TAD PNTCNT  
 5025 TAC  
 5026 DCA PNTCNT  
 /CHECK COUNTER WRONG  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

/JMP TEST 20 COUNTER=35  
 5027 TAD PK19  
 5028 DCA I K7377  
 5029 TAD PK20  
 5030 DCA I K400  
 5031 JMP I K7377  
 5032 PK19  
 5033 PK20  
 5034 M34  
 5035 -34  
 5036

\*5040  
 5040 TAD PNTCNT  
 5041 TAD M35  
 5042 SZA  
 5043 HLT  
 5044 TAD PNTCNT  
 5045 TAC  
 5046 DCA PNTCNT  
 /CHECK COUNTER WRONG  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

/JMP TEST 30 COUNTER=36  
 5047 TAD PK21  
 5048 DCA I K5777  
 5049 TAD PK22  
 5050 DCA I K1000  
 5051  
 5052

5053 5443 JMP I K6777  
 5054 5434 JMP I K1000  
 5055 5470 JMP I K5060  
 5056 7743 M35,  
 -35

5060 \*5060  
 5060 1136 TAD PNTCNT  
 5061 1276 TAD M36  
 5062 7440 SZA  
 5063 7402 HLT  
 5064 1136 TAD PNTCNT  
 5065 7001 IAC  
 5066 3136 DCA PNTCNT

/CHECK COUNTER  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

5067 1274 /JMP TEST 31 COUNTER=37  
 5070 3442 TAD PK23  
 5071 1275 DCA I K5777  
 5072 3435 TAD PK24  
 5073 5442 DCA I K2000  
 5074 5435 JMP I K5777  
 5075 5471 JMP I K2000  
 5076 7742 JMP I K5100  
 -36

5100 \*5100  
 5100 1136 TAD PNTCNT  
 5101 1316 TAD M37  
 5102 7440 SZA  
 5103 7402 HLT  
 5104 1136 TAD PNTCNT  
 5105 7001 IAC  
 5106 3136 DCA PNTCNT

/CHECK COUNTER  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

5107 1314 /JMP TEST 32 COUNTER=40  
 5110 3437 TAD PK25  
 5111 1315 DCA I K3777  
 5112 3436 TAD PK26  
 5113 5437 DCA I K4000  
 5114 5436 JMP I K3777  
 5115 5472 JMP I K4000  
 5116 7741 JMP I K5120  
 -37

5120 \*5120  
 5120 1136 TAD PNTCNT  
 5121 1336 TAD M40  
 5122 7440 SZA  
 5123 7402 HLT  
 5124 1136 TAD PNTCNT  
 5125 7001 IAC  
 5126 3136 DCA PNTCNT

/CHECK COUNTER  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

/JMP TEST 33 COUNTER=41

5127 1334  
 5130 3422  
 5131 1335  
 5132 3455  
 5133 5422  
 5134 5455  
 5135 5473  
 5136 7740

PK27,  
 PK28,  
 M40,  
 \*5140  
 5140  
 5141 1136  
 5142 1356  
 5143 7440  
 5144 7402  
 5145 1136  
 5146 7001  
 5147 3136

/CHECK COUNTER  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

/JMP TEST 34 COUNTER=42

5147 1354  
 5150 3423  
 5151 1355  
 5152 3454  
 5153 5423  
 5154 5454  
 5155 5474  
 5156 7737

\*5160  
 5160  
 5161 1136  
 5162 1376  
 5163 7440  
 5164 7402  
 5165 1136  
 5166 7001  
 5167 3136

/CHECK COUNTER  
 /JMP COUNTER WRONG  
 /ADVANCE COUNTER

/JMP TEST 35 COUNTER=43

5167 1374  
 5170 3424  
 5171 1375  
 5172 3453  
 5173 5424  
 5174 5453  
 5175 5475  
 5176 7736

PK31,  
 PK32,  
 M42,  
 \*5200  
 5200  
 5201 1136  
 5202 1216  
 5203 7440  
 5204 7402  
 5205 1136

/CHECK COUNTER  
 /JMP COUNTER WRONG

/ADVANCE COUNTER

IAC PNTCNT  
DCA PNTCNT

/JMP TEST 36 COUNTER=44

TAD PK33  
DCA I K4  
TAD PK34  
DCA I K7773  
JMP I K4  
JMP I K7773  
JMP I K5220  
-43

PK33,  
PK34,  
M43,

\*5220

TAD PNTCNT  
TAD M44  
SZA  
HLT  
TAD PNTCNT  
IAC  
DCA PNTCNT

/CHECK COUNTER WRONG  
/JMP COUNTER WRONG  
/ADVANCE COUNTER

/JMP TEST 37 COUNTER=45

TAD PK35  
DCA I K10  
TAD PK36  
DCA I K7767  
JMP I K10  
JMP I K7767  
JMP : K5240  
-44

PK35,  
PK36,  
M44,

\*5240

TAD PNTCNT  
TAD M45  
SZA  
HLT  
TAD PNTCNT  
IAC  
DCA PNTCNT

/CHECK COUNTER WRONG  
/JMP COUNTER WRONG  
/ADVANCE COUNTER

/JMP TEST 3 COUNTER=46

TAD PK37  
DCA I K20  
TAD PK38  
DCA I K7757  
JMP I K20  
JMP I K7757  
JMP I K5260  
-45

PK37,  
PK38,  
M45,

\*5260

TAD PNTCNT  
TAD M46

5205 7001  
5206 3136

5207 1214  
5210 3425  
5211 1215  
5212 3452  
5213 5425  
5214 5452  
5215 5476  
5216 7735

5220  
5221 1136  
5222 1236  
5223 7440  
5224 7402  
5224 1136  
5225 7001  
5226 3136

5227 1234  
5230 3426  
5231 1235  
5232 3491  
5233 5426  
5234 5451  
5235 5502  
5236 7734

5240  
5241 1136  
5242 1256  
5243 7440  
5244 7402  
5245 1136  
5245 7001  
5246 3136

5247 1254  
5250 3427  
5251 1255  
5252 3450  
5253 5427  
5254 5450  
5255 5503  
5256 7733

5260  
5261 1136  
5261 1276

5262 7440 SZA /CHECK COUNTER  
 5263 7402 HLT /JMP COUNTER WRONG  
 5264 1136 TAD PNTCNT  
 5265 7001 IAC /ADVANCE COUNTER  
 5266 3136 DCA PNTCNT

/JMP TEST 39 COUNTER=47

5267 1274 TAD PK39  
 5270 3430 DCA I K40  
 5271 1275 TAD PK40  
 5272 3447 DCA I K7737  
 5273 5430 JMP I K40  
 5274 5447 JMP I K7737  
 5275 5504 JMP I K5300  
 5276 7732 M46, -46

\*5300

5300 TAD PNTCNT  
 5301 1136 TAD M47  
 5302 7440 SZA /CHECK COUNTER  
 5303 7402 HLT /JMP COUNTER WRONG  
 5304 1136 TAD PNTCNT /ADVANCE COUNTER  
 5305 7001 IAC  
 5306 3136 DCA PNTCNT

/JMP TEST 40 COUNTER=50

5307 1314 TAD PK41  
 5310 3431 DCA I K100  
 5311 1315 TAD PK42  
 5312 3446 DCA I K7677  
 5313 5431 JMP I K100  
 5314 5446 JMP I K7677  
 5315 5505 JMP I K5320  
 5316 7731 M47, -47

\*5320

5320 TAD PNTCNT  
 5321 1136 TAD M50  
 5322 7440 SZA /CHECK COUNTER WRONG  
 5323 7402 HLT /JMP COUNTER WRONG  
 5324 1136 TAD PNTCNT /ADVANCE COUNTER  
 5325 7001 IAC  
 5326 3136 DCA PNTCNT

/JMP TEST 41 COUNTER=51

5327 1334 TAD PK43  
 5330 3432 DCA I K200  
 5331 1335 TAD PK44  
 5332 3445 DCA I K7577  
 5333 5432 JMP I K200  
 5334 5445 JMP I K7577  
 5335 5506 JMP I K5340  
 5336 7730 M50, -50



5340 \*5340  
 5340 1136 TAD PNTCNT  
 5341 1356 TAD M51  
 5342 7440 SZA /CHECK COUNTER  
 5343 7402 HLT /JMP COUNTER WRONG  
 5344 1136 TAD PNTCNT /ADVANCE COUNTER  
 5345 7001 IAC  
 5346 3136 DCA PNTCNT

5347 1394 /JMP TEST 42 COUNTER=52  
 5350 3433 TAD PK45  
 5351 1395 DCA I K400  
 5352 3444 TAD PK46  
 5353 5433 DCA I K7377  
 5354 5444 JMP I K400  
 5355 5507 JMP I K7377  
 5356 7727 JMP I K5360  
 -51

5360 \*5360  
 5360 1136 TAD PNTCNT  
 5361 1376 TAD M52  
 5362 7440 SZA /CHECK COUNTER  
 5363 7402 HLT /JMP COUNTER WRONG  
 5364 1136 TAD PNTCNT /ADVANCE COUNTER  
 5365 7001 IAC  
 5366 3136 DCA PNTCNT

5367 1374 /JMP TEST 43 COUNTER=53  
 5370 3434 TAD PK47  
 5371 1375 DCA I K1000  
 5372 3443 TAD PK48  
 5373 5434 DCA I K6777  
 5374 5443 JMP I K1000  
 5375 5510 JMP I K6777  
 5376 7726 JMP I K5400  
 -52

5400 \*5400  
 5400 1136 TAD PNTCNT  
 5401 1216 TAD M53  
 5402 7440 SZA /CHECK COUNTER  
 5403 7402 HLT /JMP COUNTER WRONG  
 5404 1136 TAD PNTCNT /ADVANCE COUNTER  
 5405 7001 IAC  
 5406 3136 DCA PNTCNT

5407 1214 /JMP TEST 44 COUNTER=54  
 5410 3435 TAD PK49  
 5411 1215 DCA I K2000  
 5412 3442 TAD PK50  
 5413 5435 DCA I K5777  
 5414 5442 JMP I K2000  
 PK49, JMP I K5777

|      |      |       |                           |  |
|------|------|-------|---------------------------|--|
| 5415 | 5511 | PK50, | JMP I K5420               |  |
| 5416 | 7725 | M53,  | -53                       |  |
| 5420 | 5420 | *5420 |                           |  |
| 5420 | 1136 |       | TAD PNTCNT                |  |
| 5421 | 1236 |       | TAD M54                   |  |
| 5422 | 7440 |       | SZA /CHECK COUNTER        |  |
| 5423 | 7402 |       | HLT /JMP COUNTER WRONG    |  |
| 5424 | 1136 |       | TAD PNTCNT                |  |
| 5425 | 7001 |       | IAC /ADVANCE COUNTER      |  |
| 5426 | 3136 |       | DCA PNTCNT                |  |
| 5427 | 1234 |       | /JMP TEST 45 COUNTER=55   |  |
| 5430 | 3436 |       | TAD PK51                  |  |
| 5431 | 1235 |       | DCA I K4000               |  |
| 5432 | 3437 |       | TAD PK52                  |  |
| 5433 | 5436 |       | DCA I K3777               |  |
| 5434 | 5437 |       | JMP I K4000               |  |
| 5435 | 5512 | PK51, | JMP I K3777               |  |
| 5436 | 7724 | PK52, | JMP I K5440               |  |
|      |      | M54,  | -54                       |  |
| 5440 | 5440 | *5440 |                           |  |
| 5440 | 1136 |       | TAD PNTCNT                |  |
| 5441 | 1250 |       | TAD M55                   |  |
| 5442 | 7440 |       | SZA /CHECK COUNTER WRONG  |  |
| 5443 | 7402 |       | HLT /JMP COUNTER WRONG    |  |
| 5444 | 1136 |       | TAD PNTCNT                |  |
| 5445 | 7001 |       | IAC /ADVANCE COUNTER      |  |
| 5446 | 3136 |       | DCA PNTCNT                |  |
| 5447 | 5651 |       | /JMS TEST 1 COUNTER=56    |  |
| 5450 | 7723 | M55,  | JMP I AFRM                |  |
| 5451 | 2002 | AFRM, | -55                       |  |
| 2002 | 2002 | *2002 |                           |  |
| 2003 | 4203 | FRM,  | JMS TO                    |  |
| 2004 | 1136 | TO,   | JMP .                     |  |
| 2005 | 1222 |       | TAD PNTCNT                |  |
| 2006 | 7440 |       | TAD M56                   |  |
| 2007 | 7402 |       | SZA /CHECK COUNTER WRONG  |  |
| 2010 | 1224 |       | HLT /JMP COUNTER WRONG    |  |
| 2011 | 7041 |       | TAD AFM                   |  |
| 2012 | 1203 |       | CIA                       |  |
| 2013 | 7440 |       | TAD TO                    |  |
| 2014 | 7402 |       | SZA /CHECK STORED ADDRESS |  |
| 2015 | 3203 |       | HLT /JMS FAILED           |  |
| 2016 | 1136 |       | DCA TO /CLEAR STORED PC   |  |
| 2017 | 7001 |       | TAD PNTCNT                |  |
| 2020 | 3136 |       | IAC                       |  |
| 2021 | 7410 |       | DCA PNTCNT                |  |
| 7722 | 7722 | M56,  | SKP                       |  |
|      |      |       | -56                       |  |

|                        |      |            |                       |
|------------------------|------|------------|-----------------------|
| 2023                   | 7410 | SKP        |                       |
| 2024                   | 2003 | FRM+1      |                       |
| /JMS TEST 2 COUNTER=57 |      |            |                       |
| 2025                   | 4227 | JMS T01    |                       |
| 2026                   | 7402 | HLT        |                       |
| 2027                   | 5227 | JMP        | FRM1,                 |
| 2030                   | 1136 | TAD PNTCNT | T01,                  |
| 2031                   | 1246 | TAD M57    |                       |
| 2032                   | 7440 | SEA        | /CHECK COUNTER        |
| 2033                   | 7402 | HLT        | /JMP COUNTER WRONG    |
| 2034                   | 1250 | TAD AFRM1  |                       |
| 2035                   | 7041 | CIA        |                       |
| 2036                   | 1227 | TAD T01    |                       |
| 2037                   | 7440 | SEA        | /CHECK STORED ADDRESS |
| 2040                   | 7402 | HLT        | /JMS FAILED           |
| 2041                   | 3227 | DCA T01    | /CLEAR STORED PC      |
| 2042                   | 1136 | TAD PNTCNT |                       |
| 2043                   | 7001 | IAC        |                       |
| 2044                   | 3136 | DCA PNTCNT |                       |
| 2045                   | 7410 | SKP        |                       |

|      |      |        |      |
|------|------|--------|------|
| 2046 | 7721 | M57,   | -57  |
| 2047 | 7410 | SKP    |      |
| 2050 | 2026 | AFRM1, | FRM1 |

|                        |      |            |                       |
|------------------------|------|------------|-----------------------|
| /JMS TEST 3 COUNTER=60 |      |            |                       |
| 2051                   | 4254 | JMS T02    |                       |
| 2052                   | 7402 | HLT        |                       |
| 2053                   | 7402 | HLT        |                       |
| 2054                   | 9254 | JMP        | FRM2,                 |
| 2055                   | 1136 | TAD PNTCNT | T02,                  |
| 2056                   | 1275 | TAD M60    |                       |
| 2057                   | 7440 | SEA        | /CHECK COUNTER        |
| 2060                   | 7402 | HLT        | /JMP COUNTER WRONG    |
| 2061                   | 1273 | TAD AFRM2  |                       |
| 2062                   | 7041 | CIA        |                       |
| 2063                   | 1254 | TAD T02    |                       |
| 2064                   | 7440 | SEA        | /CHECK STORED ADDRESS |
| 2065                   | 7402 | HLT        | /JMS FAILED           |
| 2066                   | 3254 | DCA T02    | /CLEAR STORED PC      |
| 2067                   | 1136 | TAD PNTCNT |                       |
| 2070                   | 7001 | IAC        |                       |
| 2071                   | 3136 | DCA PNTCNT |                       |
| 2072                   | 7410 | SKP        |                       |
| 2073                   | 2052 | AFRM2,     | FRM2                  |
| 2074                   | 7410 | SKP        |                       |
| 2075                   | 7720 | M60,       | -60                   |

|                        |      |         |  |
|------------------------|------|---------|--|
| /JMS TEST 4 COUNTER=61 |      |         |  |
| 2076                   | 4302 | JMS T03 |  |
| 2077                   | 7402 | HLT     |  |
| 2100                   | 7402 | HLT     |  |
| 2101                   | 7402 | HLT     |  |

|      |      |      |        |
|------|------|------|--------|
| 2102 | 5302 | JMP  |        |
| 2103 | 1136 | TAD  | PNTCNT |
| 2104 | 1323 | TAD  | M61    |
| 2105 | 7440 | SEA  |        |
| 2106 | 7402 | HLT  |        |
| 2107 | 1321 | TAD  | AFRMS  |
| 2110 | 7041 | CIA  |        |
| 2111 | 1302 | TAD  | T03    |
| 2112 | 7443 | SEA  |        |
| 2113 | 7402 | HLT  |        |
| 2114 | 3302 | DCA  | T03    |
| 2115 | 1136 | TAD  | PNTCNT |
| 2116 | 7001 | IAC  |        |
| 2117 | 3136 | DCA  | PNTCNT |
| 2120 | 7410 | SKP  |        |
| 2121 | 2077 | FRMS |        |
| 2122 | 7410 | SKP  |        |
| 2123 | 7717 | -61  |        |

/CHECK STORED ADDRESS  
/JMS FAILED  
/CLEAR STORED PC

/CHECK COUNTER WRONG

|      |      |                        |        |
|------|------|------------------------|--------|
| 2124 | 4330 | /JMS TEST 5 COUNTER=62 |        |
| 2125 | 7402 | JMS                    | T04    |
| 2126 | 7402 | HLT                    |        |
| 2127 | 7402 | HLT                    |        |
| 2130 | 3330 | JMP                    | PNTCNT |
| 2131 | 1136 | TAD                    | M62    |
| 2132 | 1351 | SEA                    |        |
| 2133 | 7440 | HLT                    |        |
| 2134 | 7402 | TAD                    | AFRMS  |
| 2135 | 1347 | CIA                    |        |
| 2136 | 7041 | TAD                    | T04    |
| 2137 | 1330 | SEA                    |        |
| 2140 | 7440 | HLT                    |        |
| 2141 | 7402 | HLT                    |        |
| 2142 | 3330 | DCA                    | T04    |
| 2143 | 1136 | TAD                    | PNTCNT |
| 2144 | 7001 | IAC                    |        |
| 2145 | 3136 | DCA                    | PNTCNT |
| 2146 | 7410 | SKP                    |        |
| 2147 | 2125 | FRMS                   |        |
| 2150 | 7410 | SKP                    |        |
| 2151 | 7716 | -62                    |        |

/CHECK STORED ADDRESS  
/JMS FAILED  
/CLEAR STORED PC

/CHECK COUNTER WRONG

|      |      |                        |        |
|------|------|------------------------|--------|
| 2152 | 4356 | /JMS TEST 6 COUNTER=63 |        |
| 2153 | 7402 | JMS                    | T05    |
| 2154 | 7402 | HLT                    |        |
| 2155 | 7402 | HLT                    |        |
| 2156 | 5356 | JMP                    | PNTCNT |
| 2157 | 1136 | TAD                    | M63    |
| 2160 | 1377 | TAD                    | M63    |
| 2161 | 7440 | SEA                    |        |

/CHECK COUNTER

|      |      |            |                       |
|------|------|------------|-----------------------|
| 2162 | 7402 | HLT        |                       |
| 2163 | 1375 | TAD AFRM5  | /JMP COUNTER WRONG    |
| 2164 | 7041 | CIA        |                       |
| 2165 | 1356 | TAD T05    |                       |
| 2166 | 7440 | SZA        | /CHECK STORED ADDRESS |
| 2167 | 7402 | HLT        | /JMS FAILED           |
| 2170 | 3356 | DCA T05    | /CLEAR STORED PC      |
| 2171 | 1136 | TAD PNTCNT |                       |
| 2172 | 7001 | IAC        |                       |
| 2173 | 3136 | DCA PNTCNT |                       |
| 2174 | 7410 | SKP        |                       |
| 2175 | 2153 | AFRM5,     |                       |
| 2176 | 7410 | SKP        |                       |
| 2177 | 7715 | M63,       |                       |

PAUSE

/TAPE # 2  
\*2200

|      |      |                        |                       |
|------|------|------------------------|-----------------------|
| 2200 | 2200 | /JMS TEST 7 COUNTER=64 |                       |
| 2201 | 7000 | NOP                    |                       |
| 2202 | 4202 | JMS T06                |                       |
| 2203 | 5202 | JMP                    |                       |
| 2204 | 1136 | TAD PNTCNT             |                       |
| 2205 | 1221 | TAD M64                |                       |
| 2206 | 7440 | SZA                    | /CHECK COUNTER WRONG  |
| 2207 | 7402 | HLT                    | /JMP COUNTER WRONG    |
| 2210 | 7041 | TAD T06                |                       |
| 2211 | 1223 | CIA                    |                       |
| 2212 | 7440 | TAD AT06               |                       |
| 2213 | 7402 | SZA                    | /CHECK STORED ADDRESS |
| 2214 | 3202 | HLT                    | /JMS FAILED           |
| 2215 | 1136 | DCA T06                | /CLEAR STORED PC      |
| 2216 | 7001 | TAD PNTCNT             |                       |
| 2217 | 3136 | IAC                    |                       |
| 2220 | 7410 | DCA PNTCNT             |                       |
| 2221 | 7714 | SKP                    |                       |
| 2222 | 7410 | -64                    |                       |
| 2223 | 2202 | SKP                    |                       |
|      |      | T06                    |                       |
|      |      | AT06,                  |                       |
|      |      | /JMS TEST 8 COUNTER=65 |                       |
| 2224 | 4226 | JMS T07                |                       |
| 2225 | 7402 | HLT                    |                       |
| 2226 | 5226 | JMP                    |                       |
| 2227 | 1136 | TAD PNTCNT             |                       |
| 2230 | 1245 | TAD M65                |                       |
| 2231 | 7440 | SZA                    | /CHECK COUNTER WRONG  |
| 2232 | 7402 | HLT                    | /JMP COUNTER WRONG    |
| 2233 | 1247 | TAD AFRM7              |                       |
| 2234 | 7041 | CIA                    |                       |
| 2235 | 1226 | TAD T07                |                       |

2236 7440 /BASIC JMP-JMS TEST  
 2237 7402 SEA /CHECK STORED ADDRESS  
 2240 3226 HLT /JMS FAILED  
 2241 1136 DCA T07 /CLEAR STORED PC  
 2242 7001 TAD PNTCNT  
 2243 3136 IAC  
 2244 7410 DCA PNTCNT  
 2245 7713 SKP  
 2246 7410 M65, -65  
 2247 2225 AFRM7, FRM7

2250 4253 /JMS TEST 9 COUNTER=66  
 2251 7402 JMS T08  
 2252 7402 HLT FRM8,  
 2253 5253 HLT T08,  
 2254 1136 JMP TAD PNTCNT  
 2255 1274 TAD M66  
 2256 7440 SEA /CHECK COUNTER  
 2257 7402 HLT /JMP COUNTER WRONG  
 2260 1253 TAD T08  
 2261 7041 CIA  
 2262 1272 TAD AFRM8  
 2263 7440 SEA /CHECK STORED ADDRESS  
 2264 7402 HLT /JMS FAILED  
 2265 3253 DCA T08 /CLEAR STORED PC  
 2266 1136 TAD PNTCNT  
 2267 7001 IAC  
 2270 3136 DCA PNTCNT  
 2271 7410 SKP  
 2272 2251 AFRM8,  
 2273 7410 SKP  
 2274 7712 M66, -66

2275 4301 /JMS TEST 10 COUNTER=67  
 2276 7402 JMS T09  
 2277 7402 HLT FRM9,  
 2300 7402 HLT T09,  
 2301 5301 JMP TAD PNTCNT  
 2302 1136 TAD M67  
 2303 1322 SEA /CHECK COUNTER  
 2304 7440 HLT /JMP COUNTER WRONG  
 2305 7402 TAD T09  
 2306 1301 CIA  
 2307 7041 TAD AFRM9  
 2310 1320 SEA /CHECK STORED ADDRESS  
 2311 7440 HLT /JMS FAILED  
 2312 7402 DCA T09 /CLEAR STORED PC  
 2313 3301 TAD PNTCNT  
 2314 1136 IAC  
 2315 7001 DCA PNTCNT  
 2316 3136 SKP  
 2317 7410

|                          |      |         |            |  |  |  |  |
|--------------------------|------|---------|------------|--|--|--|--|
| 2320                     | 2276 | AFRM9,  | FRM9       |  |  |  |  |
| 2321                     | 7410 |         | SKP        |  |  |  |  |
| 2322                     | 7711 | M67,    | -67        |  |  |  |  |
| /JMS TEST 11 COUNTER =70 |      |         |            |  |  |  |  |
| 2323                     | 4330 | FRM10,  | JMS T010   |  |  |  |  |
| 2324                     | 7402 |         | HLT        |  |  |  |  |
| 2325                     | 7402 |         | HLT        |  |  |  |  |
| 2326                     | 7402 |         | HLT        |  |  |  |  |
| 2327                     | 7402 |         | HLT        |  |  |  |  |
| /CHECK COUNTER WRONG     |      |         |            |  |  |  |  |
| /JMP COUNTER WRONG       |      |         |            |  |  |  |  |
| /CHECK STORED ADDRESS    |      |         |            |  |  |  |  |
| /JMS FAILED              |      |         |            |  |  |  |  |
| /CLEAR STORED PC         |      |         |            |  |  |  |  |
| 2330                     | 5330 | T010,   | JMP        |  |  |  |  |
| 2331                     | 1136 |         | TAD PNTCNT |  |  |  |  |
| 2332                     | 1351 |         | TAD M70    |  |  |  |  |
| 2333                     | 7440 |         | SEA        |  |  |  |  |
| 2334                     | 7402 |         | HLT        |  |  |  |  |
| 2335                     | 1330 |         | TAD T010   |  |  |  |  |
| 2336                     | 7041 |         | CIA        |  |  |  |  |
| 2337                     | 1347 |         | TAD AFRM10 |  |  |  |  |
| 2340                     | 7440 |         | SEA        |  |  |  |  |
| 2341                     | 7402 |         | HLT        |  |  |  |  |
| 2342                     | 3330 |         | DCA T010   |  |  |  |  |
| 2343                     | 1136 |         | TAD PNTCNT |  |  |  |  |
| 2344                     | 7001 |         | IAC        |  |  |  |  |
| 2345                     | 3136 |         | DCA PNTCNT |  |  |  |  |
| 2346                     | 7410 |         | SKP        |  |  |  |  |
| 2347                     | 2324 | AFRM10, | FRM10      |  |  |  |  |
| 2350                     | 7410 |         | SKP        |  |  |  |  |
| 2351                     | 7710 | M70,    | -70        |  |  |  |  |
| /JMS TEST 11 COUNTER=71  |      |         |            |  |  |  |  |
| 2352                     | 4356 | FRM11,  | JMS T011   |  |  |  |  |
| 2353                     | 7402 |         | HLT        |  |  |  |  |
| 2354                     | 7402 |         | HLT        |  |  |  |  |
| 2355                     | 7402 |         | HLT        |  |  |  |  |
| 2356                     | 5356 | T011,   | JMP        |  |  |  |  |
| 2357                     | 1136 |         | TAD PNTCNT |  |  |  |  |
| 2360                     | 1377 |         | TAD M71    |  |  |  |  |
| 2361                     | 7440 |         | SEA        |  |  |  |  |
| 2362                     | 7402 |         | HLT        |  |  |  |  |
| 2363                     | 1356 |         | TAD T011   |  |  |  |  |
| 2364                     | 7041 |         | CIA        |  |  |  |  |
| 2365                     | 1375 |         | TAD AFRM11 |  |  |  |  |
| 2366                     | 7440 |         | SEA        |  |  |  |  |
| 2367                     | 7402 |         | HLT        |  |  |  |  |
| 2370                     | 3356 |         | DCA T011   |  |  |  |  |
| 2371                     | 1136 |         | TAD PNTCNT |  |  |  |  |
| 2372                     | 7001 |         | IAC        |  |  |  |  |
| 2373                     | 3136 |         | DCA PNTCNT |  |  |  |  |
| 2374                     | 7410 |         | SKP        |  |  |  |  |
| 2375                     | 2353 | AFRM11, | FRM11      |  |  |  |  |
| 2376                     | 7410 |         | SKP        |  |  |  |  |
| 2377                     | 7707 | M71,    | -71        |  |  |  |  |

2400 \*2400

/JMS TEST 12 COUNTER=72

2400 1205 TAD RK1  
 2401 3455 DCA I K7777  
 2402 1206 TAD RK2  
 2403 3423 DCA I K1  
 2404 5423 JMP I K1  
 2405 5537 JMP I K2410  
 2406 4454 JMS I K7776

\*2410

2410 2410 TAD PNTCNT  
 2411 1136 TAD M72  
 2412 7440 SEA  
 2413 7402 HLT  
 2414 1454 TAD I K7776  
 2415 1054 TAD K7776  
 2416 7440 SEA  
 2417 7402 HLT  
 2420 3454 DCA I K7776  
 2421 1136 TAD PNTCNT  
 2422 7001 IAC  
 2423 3136 DCA PNTCNT

/CHECK COUNTER  
 /JMP COUNTER WRONG

/CHECK STORED ADDRESS  
 /JMS FAILED  
 /CLEAR STORED ADDRESS  
 /ADVANCE COUNTER

/JMS TEST 13 COUNTER=73

2424 1231 TAD RK3  
 2425 3454 DCA I K7776  
 2426 1232 TAD RK4  
 2427 3424 DCA I K2  
 2430 5424 JMP I K2  
 2431 5540 JMP I K2440  
 2432 4453 JMS I K7775  
 2433 7706 -72

\*2440

2440 2440 TAD PNTCNT  
 2441 1136 TAD M73  
 2442 7440 SEA  
 2443 7402 HLT  
 2444 1453 TAD I K7775  
 2445 1053 TAD K7775  
 2446 7440 SEA  
 2447 7402 HLT  
 2450 3453 DCA I K7775  
 2451 1136 TAD PNTCNT  
 2452 7001 IAC  
 2453 3136 DCA PNTCNT

/CHECK COUNTER  
 /JMP COUNTER WRONG

/CHECK STORED ADDRESS  
 /JMS FAILED  
 /CLEAR STORED ADDRESS  
 /ADVANCE COUNTER

/JMS TEST 14 COUNTER=74

2454 1261 TAD RK5



|      |      |             |
|------|------|-------------|
| 2455 | 3664 | DCA I K7774 |
| 2456 | 1262 | TAD RK6     |
| 2457 | 3425 | DCA I K4    |
| 2460 | 5425 | JMP I K4    |
| 2461 | 5541 | JMP I K2470 |
| 2462 | 4452 | JMS I K7773 |
| 2463 | 7705 | -73         |
| 2464 | 7774 | K7774, 7774 |

|      |       |             |
|------|-------|-------------|
| 2470 | *2470 | TAD PNTCNT  |
| 2471 | 1136  | TAD M74     |
| 2472 | 1313  | SEA         |
| 2473 | 7440  | HLT         |
| 2474 | 7402  | TAD I K7773 |
| 2475 | 1452  | TAD K7773   |
| 2476 | 1092  | SEA         |
| 2477 | 7440  | HLT         |
| 2500 | 3452  | DCA I K7773 |
| 2501 | 1136  | TAD PNTCNT  |
| 2502 | 7001  | IAC         |
| 2503 | 3136  | DCA PNTCNT  |

/CHECK COUNTER  
/JMP COUNTER WRONG

/CHECK STORED ADDRESS  
/JMS FAILED  
/CLEAR STORED ADDRESS

/ADVANCE COUNTER

|      |      |                         |
|------|------|-------------------------|
| 2504 | 1311 | /JMS TEST 15 COUNTER=75 |
| 2505 | 3714 | TAD RK7                 |
| 2506 | 1312 | DCA I K7770             |
| 2507 | 3426 | TAD RK8                 |
| 2510 | 5426 | DCA I K10               |
| 2511 | 5542 | JMP I K10               |
| 2512 | 4451 | JMP I K2520             |
| 2513 | 7704 | JMS I K7767             |
| 2514 | 7770 | -74                     |
|      |      | K7770, 7770             |

|      |       |             |
|------|-------|-------------|
| 2520 | *2520 | TAD PNTCNT  |
| 2521 | 1136  | TAD M75     |
| 2522 | 1343  | SEA         |
| 2523 | 7440  | HLT         |
| 2524 | 7402  | TAD I K7767 |
| 2525 | 1091  | TAD K7767   |
| 2526 | 1451  | SEA         |
| 2527 | 7440  | HLT         |
| 2530 | 7402  | DCA I K7767 |
| 2531 | 3451  | TAD PNTCNT  |
| 2532 | 1136  | IAC         |
| 2533 | 7001  | DCA PNTCNT  |
|      |       | DCA PNTCNT  |

/CHECK COUNTER  
/JMP COUNTER WRONG

/CHECK STORED ADDRESS  
/JMS FAILED  
/CLEAR STORED ADDRESS

/ADVANCE COUNTER

|      |      |                         |
|------|------|-------------------------|
| 2534 | 1341 | /JMS TEST 16 COUNTER=76 |
| 2535 | 3744 | TAD RK9                 |
| 2536 | 1342 | DCA I K7760             |
| 2537 | 3427 | TAD RK10                |
| 2540 | 5427 | DCA I K20               |
|      |      | JMP I K20               |

|      |        |              |             |      |           |                       |           |
|------|--------|--------------|-------------|------|-----------|-----------------------|-----------|
| 2541 | /BASIC | JMP-JMS TEST | PAL10       | V141 | 11-NOV-70 | 13117                 | PAGE 1-27 |
| 2542 | 5543   | RK9,         | JMP I K2600 |      |           |                       |           |
| 2543 | 4450   | RK10,        | JMS I K7757 |      |           |                       |           |
| 2544 | 7703   | M75,         | -75         |      |           |                       |           |
|      | 7760   | K7760,       | 7760        |      |           |                       |           |
| 2600 | *2600  |              |             |      |           |                       |           |
| 2601 | 1136   | TAD          | PNTCNT      |      |           |                       |           |
| 2602 | 1223   | TAD          | M76         |      |           |                       |           |
| 2603 | 7440   | SEA          |             |      |           | /CHECK COUNTER        |           |
| 2604 | 7402   | HLT          |             |      |           | /JMP COUNTER WRONG    |           |
| 2605 | 1450   | TAD          | I K7757     |      |           |                       |           |
| 2606 | 1050   | TAD          | K7757       |      |           |                       |           |
| 2607 | 7440   | SEA          |             |      |           | /CHECK STORED ADDRESS |           |
| 2610 | 7402   | HLT          |             |      |           | /JMS FAILED           |           |
| 2611 | 3450   | DCA          | I K7757     |      |           | /CLEAR STORED ADDRESS |           |
| 2612 | 1136   | TAD          | PNTCNT      |      |           |                       |           |
| 2613 | 7001   | IAC          |             |      |           | /ADVANCE COUNTER      |           |
| 2614 | 3136   | DCA          | PNTCNT      |      |           |                       |           |
| 2615 | 1221   | /JMS TEST 17 | COUNTER#77  |      |           |                       |           |
| 2616 | 3624   | TAD          | RK11        |      |           |                       |           |
| 2617 | 1222   | DCA          | I K7740     |      |           |                       |           |
| 2620 | 3430   | TAD          | RK12        |      |           |                       |           |
| 2621 | 5430   | DCA          | I K40       |      |           |                       |           |
| 2622 | 5544   | JMP          | I K40       |      |           |                       |           |
| 2623 | 4447   | JMP          | I K2630     |      |           |                       |           |
| 2624 | 7702   | JMS          | I K7737     |      |           |                       |           |
|      | 7740   | -76          | 7740        |      |           |                       |           |
| 2630 | *2630  |              |             |      |           |                       |           |
| 2631 | 1136   | TAD          | PNTCNT      |      |           |                       |           |
| 2632 | 1253   | TAD          | M77         |      |           |                       |           |
| 2633 | 7440   | SEA          |             |      |           | /CHECK COUNTER        |           |
| 2634 | 7402   | HLT          |             |      |           | /JMP COUNTER WRONG    |           |
| 2635 | 1447   | TAD          | I K7737     |      |           |                       |           |
| 2636 | 1047   | TAD          | K7737       |      |           |                       |           |
| 2637 | 7440   | SEA          |             |      |           | /CHECK STORED ADDRESS |           |
| 2640 | 7402   | HLT          |             |      |           | /JMS FAILED           |           |
| 2641 | 3447   | DCA          | I K7737     |      |           | /CLEAR STORED ADDRESS |           |
| 2642 | 1136   | TAD          | PNTCNT      |      |           |                       |           |
| 2643 | 7001   | IAC          |             |      |           | /ADVANCE COUNTER      |           |
| 2644 | 3136   | DCA          | PNTCNT      |      |           |                       |           |
| 2644 | 1251   | /JMS TEST 18 | COUNTER=100 |      |           |                       |           |
| 2645 | 3654   | TAD          | RK13        |      |           |                       |           |
| 2646 | 1252   | DCA          | I K7700     |      |           |                       |           |
| 2647 | 3431   | TAD          | RK14        |      |           |                       |           |
| 2650 | 5431   | DCA          | I K100      |      |           |                       |           |
| 2651 | 5545   | JMP          | I K100      |      |           |                       |           |
| 2652 | 4446   | JMP          | I K2660     |      |           |                       |           |
| 2653 | 7701   | JMS          | I K7677     |      |           |                       |           |
| 2654 | 7700   | M77,         | -77         |      |           |                       |           |
|      |        | K7700,       | 7700        |      |           |                       |           |

|      |       |             |                       |
|------|-------|-------------|-----------------------|
| 2660 | *2660 | TAD PNTCNT  |                       |
| 2661 | 1136  | TAD M100    |                       |
| 2662 | 1303  | SEA         | /CHECK COUNTER        |
| 2663 | 7440  | HLT         | /JMS COUNTER WRONG    |
| 2664 | 7402  | TAD I K7677 |                       |
| 2665 | 1446  | TAD K7677   |                       |
| 2666 | 1046  | SEA         | /CHECK STORED ADDRESS |
| 2667 | 7440  | HLT         | /JMS FAILED           |
| 2670 | 3446  | DCA I K7677 | /CLEAR STORED ADDRESS |
| 2671 | 1136  | TAD PNTCNT  |                       |
| 2672 | 7001  | IAC         | /ADVANCE COUNTER      |
| 2673 | 1136  | DCA PNTCNT  |                       |

|      |      |              |             |
|------|------|--------------|-------------|
| 2674 | 1301 | /JMS TEST 19 | COUNTER=101 |
| 2675 | 3704 | TAD RK15     |             |
| 2676 | 1302 | DCA I K7600  |             |
| 2677 | 3432 | TAD RK16     |             |
| 2700 | 9432 | DCA I K200   |             |
| 2701 | 5546 | JMP I K200   |             |
| 2702 | 4445 | JMP I K2710  |             |
| 2703 | 7700 | JMS I K7577  |             |
| 2704 | 7600 | -100         |             |
|      |      | K7600,       | 7600        |

|      |       |             |                       |
|------|-------|-------------|-----------------------|
| 2710 | *2710 | TAD PNTCNT  |                       |
| 2711 | 1136  | TAD M101    |                       |
| 2712 | 1333  | SEA         | /CHECK COUNTER        |
| 2713 | 7440  | HLT         | /JMP COUNTER WRONG    |
| 2714 | 7402  | TAD I K7577 |                       |
| 2715 | 1445  | TAD K7577   |                       |
| 2716 | 1045  | SEA         | /CHECK STORED ADDRESS |
| 2717 | 7440  | HLT         | /JMS FAILED           |
| 2720 | 3445  | DCA I K7577 | /CLEAR STORED ADDRESS |
| 2721 | 1136  | TAD PNTCNT  |                       |
| 2722 | 7001  | IAC         | /ADVANCE COUNTER      |
| 2723 | 1136  | DCA PNTCNT  |                       |

|      |      |              |             |
|------|------|--------------|-------------|
| 2724 | 1331 | /JMS TEST 20 | COUNTER=102 |
| 2725 | 3734 | TAD RK17     |             |
| 2726 | 1332 | DCA I K7400  |             |
| 2727 | 3433 | TAD RK18     |             |
| 2730 | 5433 | DCA I K400   |             |
| 2731 | 5547 | JMP I K400   |             |
| 2732 | 4444 | JMP I K2740  |             |
| 2733 | 7677 | JMS I K7377  |             |
| 2734 | 7400 | -101         |             |
|      |      | K7400,       | 7400        |

|      |       |            |  |
|------|-------|------------|--|
| 2740 | *2740 | TAD PNTCNT |  |
| 1136 |       |            |  |

2741 1363 TAD M102  
 2742 7440 /CHECK COUNTER  
 2743 7402 /JMP COUNTER WRONG  
 2744 1444 HLT  
 2745 1044 TAD I K7377  
 2746 7440 TAD K7377  
 2747 7402 /CHECK STORED ADDRESS  
 2750 3444 /JMS FAILED  
 2751 1136 /CLEAR STORED ADDRESS  
 2752 7001 IAC PNTCNT  
 2753 3136 /ADVANCE COUNTER  
 DCA PNTCNT

/JMS TEST 21 COUNTER=103

2754 1361 TAD RK19  
 2755 3764 DCA I K7000  
 2756 1362 TAD RK20  
 2757 3434 DCA I K1000  
 2760 5434 JMP I K1000  
 2761 5550 JMP I K3000  
 2762 4443 JMS I K6777  
 2763 7676 -102  
 2764 7000 K7000,  
 \*3000

3000 TAD PNTCNT  
 3001 1136 TAD M103  
 3002 7440 /CHECK COUNTER  
 3003 7402 /JMP COUNTER WRONG  
 3004 1443 HLT  
 3005 1043 TAD I K6777  
 3006 7440 TAD K6777  
 3007 7402 /CHECK STORED ADDRESS  
 3010 3443 /JMS FAILED  
 3011 1136 /CLEAR STORED ADDRESS  
 3012 7001 IAC PNTCNT  
 3013 3136 /ADVANCE COUNTER  
 DCA PNTCNT

/JMS TEST 22 COUNTER=104

3014 1221 TAD RK21  
 3015 3624 DCA I K6000  
 3016 1222 TAD RK22  
 3017 3435 DCA I K2000  
 3020 5435 JMP I K2000  
 3021 5551 JMP I K3030  
 3022 4442 JMS I K5777  
 3023 7675 -103  
 3024 6000 K6000,  
 \*3030

3030 TAD PNTCNT  
 3031 1136 TAD M104  
 3032 7440 /CHECK COUNTER  
 3033 7402 /JMP COUNTER WRONG  
 3034 1442 HLT  
 TAD I K5777

3035 1042 TAD K5777 /CHECK STORED ADDRESS  
 3036 7440 SEA /JMS FAILED  
 3037 7402 HLT /CLEAR STORED ADDRESS  
 3040 3442 DCA I K5777  
 3041 1136 TAD PNTCNT /ADVANCE COUNTER  
 3042 7001 IAC  
 3043 3136 DCA PNTCNT

3044 1251 /JMS TEST 23 COUNTER=105  
 3045 3654 TAD RK23  
 3046 1252 DCA I K4001  
 3047 3437 TAD RK24  
 3050 5437 DCA I K3777  
 3051 5552 JMP I K3777  
 3052 4436 JMP I K3060  
 3053 7674 JMS I K4000  
 3054 4001 -104  
 K4001, 4001

3060 3060 \*3060  
 3061 1136 TAD PNTCNT  
 3062 1303 TAD M105  
 3063 7440 SEA /CHECK COUNTER  
 3064 7402 HLT /JMP COUNTER WRONG  
 3065 1436 TAD I K4000  
 3066 1036 TAD K4000  
 3067 7440 SEA /CHECK STORED ADDRESS  
 3070 3436 HLT /JMS FAILED  
 3071 1136 DCA I K4000 /CLEAR STORED ADDRESS  
 3072 7001 TAD PNTCNT /ADVANCE COUNTER  
 3073 3136 IAC  
 DCA PNTCNT

3074 1301 /JMS TEST 24 COUNTER=106  
 3075 3704 TAD RK25  
 3076 1302 DCA I K2001  
 3077 3442 TAD RK26  
 3100 5442 DCA I K5777  
 3101 5553 JMP I K5777  
 3102 4435 JMP I K3110  
 3103 7673 JMS I K2000  
 3104 2001 -105  
 K2001, 2001

3110 3110 \*3110  
 3111 1333 TAD PNTCNT  
 3112 7440 TAD M106  
 3113 7402 SEA /CHECK COUNTER  
 3114 1435 HLT /JMP COUNTER WRONG  
 3115 1035 TAD I K2000  
 3116 7440 TAD K2000 /CHECK STORED ADDRESS  
 3117 7402 SEA /JMS FAILED  
 3120 3435 HLT /CLEAR STORED ADDRESS  
 DCA I K2000

3121 1136 TAD PNTCNT  
 3122 7001 IAC /ADVANCE COUNTER  
 3123 3136 DCA PNTCNT

3124 1331 /JMS TEST 25 COUNTER=107

3125 3734 TAD RK27  
 3126 1332 DCA I K1001  
 3127 3443 TAD RK28  
 3130 5443 DCA I K6777  
 3131 5554 JMP I K6777  
 3132 4434 JMP I K3140  
 3133 7672 JMS I K1000  
 3134 1001 -106  
 1001 1001

\*3140

3140 1136 TAD PNTCNT  
 3141 1363 TAD M107  
 3142 7440 HLT /CHECK COUNTER WRONG  
 3143 7402 HLT /JMP COUNTER WRONG  
 3144 1434 TAD I K1000  
 3145 1034 TAD K1000  
 3146 7440 SEA /CHECK STORED ADDRESS  
 3147 7402 HLT /JMS FAILED  
 3150 3434 DCA I K1000 /CLEAR STORED ADDRESS  
 3151 1136 TAD PNTCNT  
 3152 7001 IAC /ADVANCE COUNTER  
 3153 3136 DCA PNTCNT

\*3140 /JMS TEST 26 COUNTER=110

3154 1361 TAD RK29  
 3155 3764 DCA I K401  
 3156 1362 TAD RK30  
 3157 3444 DCA I K7377  
 3160 5444 JMP I K7377  
 3161 5555 JMP I K3200  
 3162 4433 JMS I K400  
 3163 7671 -107  
 3164 0401 401

\*3200

3200 1136 TAD PNTCNT  
 3201 1223 TAD M110  
 3202 7440 SEA /CHECK COUNTER  
 3203 7402 HLT /JMP COUNTER WRONG  
 3204 1433 TAD I K400  
 3205 1033 TAD K400  
 3206 7440 SEA /CHECK STORED ADDRESS  
 3207 7402 HLT /JMS FAILED  
 3210 3433 DCA I K400 /CLEAR STORED ADDRESS  
 3211 1136 TAD PNTCNT  
 3212 7001 IAC /ADVANCE COUNTER  
 3213 3136 DCA PNTCNT

/JMS TEST 27 COUNTER=111

3214 1221  
 3215 3624  
 3216 1222  
 3217 3445  
 3220 5445  
 3221 5556  
 3222 4432  
 3223 7670  
 3224 0201

RK31,  
 RK32,  
 M110,  
 K201,

\*3230

3230  
 3231  
 3232  
 3233  
 3234  
 3235  
 3236  
 3237  
 3240  
 3241  
 3242  
 3243

TAD PNTCNT  
 TAD M111  
 SEA  
 HLT  
 TAD I K200  
 TAD K200  
 SEA  
 HLT  
 DCA I K200  
 TAD PNTCNT  
 IAC  
 DCA PNTCNT

/CHECK COUNTER  
 /JMP COUNTER WRONG  
 /CHECK STORED ADDRESS  
 /JMS FAILED  
 /CLEAR STORED ADDRESS  
 /ADVANCE COUNTER

/JMS TEST 28 COUNTER =112

3244 1251  
 3245 3654  
 3246 1252  
 3247 3446  
 3250 5446  
 3251 5557  
 3252 4431  
 3253 7667  
 3254 0101

RK33,  
 RK34,  
 M111,  
 K101,

3260  
 3261  
 3262  
 3263  
 3264  
 3265  
 3266  
 3267  
 3270  
 3271  
 3272  
 3273

TAD PNTCNT  
 TAD M112  
 SEA  
 HLT  
 TAD I K100  
 TAD K100  
 SEA  
 HLT  
 DCA I K100  
 TAD PNTCNT  
 IAC  
 DCA PNTCNT

/CHECK COUNTER  
 /JMP COUNTER WRONG  
 /CHECK STORED ADDRESS  
 /JMS FAILED  
 /CLEAR STORED ADDRESS  
 /ADVANCE COUNTER

/JMS TEST 29 COUNTER=113

3274 1301  
 3275 3704  
 3276 1302

TAD RK35  
 DCA I K41  
 TAD RK36

3277 3447 DCA I K7737  
 3300 5447 JMP I K7737  
 3301 5560 JMP I K3310  
 3302 4430 RK35,  
 3303 7666 RK36,  
 3304 0041 M112,  
 41 K41,  
 \*3310

3310 3310 TAD PNTCNT  
 3310 1136 TAD M113  
 3311 1333 SEA  
 3312 7440 HLT  
 3313 7402 TAD I K40  
 3314 1430 TAD K40  
 3315 1030 SEA  
 3316 7440 HLT  
 3317 7402 DCA I K40  
 3320 3430 TAD PNTCNT  
 3321 1136 IAC  
 3322 7001 DCA PNTCNT  
 3323 3136

/CHECK COUNTER  
/JMP COUNTER WRONG

/CHECK STORED ADDRESS  
/JMS FAILED  
/CLEAR STORED ADDRESS  
/ADVANCE COUNTER

3324 1331 /JMS TEST 30 COUNTER=114  
 3325 3734 TAD RK37  
 3326 1332 DCA I K21  
 3327 3450 TAD RK38  
 3330 5450 DCA I K7757  
 3331 5561 JMP I K7757  
 3332 4427 JMP I K3340  
 3333 7665 JMS I K20  
 3334 0021 -113  
 21

3340 3340 TAD PNTCNT  
 3340 1136 TAD M114  
 3341 1363 SEA  
 3342 7440 HLT  
 3343 7402 TAD I K20  
 3344 1427 TAD K20  
 3345 1027 SEA  
 3346 7440 HLT  
 3347 7402 DCA I K20  
 3350 3427 TAD PNTCNT  
 3351 1136 IAC  
 3352 7001 DCA PNTCNT  
 3353 3136

/CHECK COUNTER  
/JMP COUNTER WRONG

/CHECK STORED ADDRESS  
/JMS FAILED  
/CLEAR STORED ADDRESS  
/ADVANCE COUNTER

3354 1361 /JMS TEST 31 COUNTER=115  
 3355 3764 TAD RK39  
 3356 1362 DCA I K11  
 3357 3451 TAD RK40  
 3360 5451 DCA I K7767  
 3361 5562 JMP I K7767  
 3362 5562 JMP I K3400

RK39,



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3362 4426 RK40, JMS I K10
3363 7664 M114, -114
3364 0011 K11, 11
      3400 *3400
3400 1136 TAD PNTCNT
3401 1223 TAD M115
3402 7440 SEA
3403 7402 HLT
3404 1426 TAD I K10
3405 1026 TAD K10
3406 7440 SEA
3407 7402 HLT
3410 3426 DCA I K10
3411 1136 TAD PNTCNT
3412 7001 IAC
3413 3136 DCA PNTCNT
      /CHECK COUNTER
      /JMP COUNTER WRONG
      /CHECK STORED ADDRESS
      /JMS FAILED
      /ADVANCE COUNTER

```

```

3414 1221 /JMS TEST 32 COUNTER=116
3415 3624 TAD RK41
3416 1222 DCA I K5
3417 3452 TAD RK42
3420 3452 DCA I K7773
3421 5563 JMP I K7773
3422 4425 JMP I K3430
3423 7663 JMS I K4
3424 0005 -115
      5

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```

3430 3430 *3430
3430 1136 TAD PNTCNT
3431 1253 TAD M116
3432 7440 SEA
3433 7402 HLT
3434 1425 TAD I K4
3435 1025 TAD K4
3436 7440 SEA
3437 7402 HLT
3440 3425 DCA I K4
3441 1136 TAD PNTCNT
3442 7001 IAC
3443 3136 DCA PNTCNT
      /CHECK COUNTER
      /JMP COUNTER WRONG
      /CHECK STORED ADDRESS
      /JMS FAILED
      /ADVANCE COUNTER

```

```

3444 1251 /JMS TEST 33 COUNTER=117
3445 3654 TAD RK43
3446 1252 DCA I K3
3447 3453 TAD RK44
3450 5453 DCA I K7775
3451 5564 JMP I K7775
3452 4424 JMS I K2
3453 7662 M116, -116
3454 0003 K3, 3

```

\*3460  
 3460 TAD PNTCNT  
 1136 TAD M117  
 3461 SZA /CHECK COUNTER  
 7440 HLT /JMP COUNTER WRONG  
 3462 TAD I K2  
 7402 TAD K2  
 3464 SZA /CHECK STORED ADDRESS  
 1024 HLT /JMS FAILED  
 3465 DCA I K2 /CLEAR STORED ADDRESS  
 7440 TAD PNTCNT  
 3467 IAC /ADVANCE COUNTER  
 7402 DCA PNTCNT  
 3470 /JMS TEST 34 COUNTER=120  
 1136 TAD RK45  
 3471 DCA I K2  
 7001 TAD PNTCNT  
 3472 IAC  
 3136 DCA PNTCNT

3474 1301  
 3475 3424  
 3476 1302  
 3477 3454  
 3500 5454  
 3501 9565  
 3502 4423  
 3503 7661  
 RK45,  
 RK46,  
 M117,

\*3510  
 3510 TAD PNTCNT  
 1136 TAD M120  
 3511 SZA /CHECK COUNTER  
 7440 HLT /JMP COUNTER WRONG  
 3512 TAD I K1  
 7402 TAD K1  
 3513 SZA /CHECK STORED ADDRESS  
 1023 HLT /JMS FAILED  
 3514 DCA I K1 /CLEAR STORED ADDRESS  
 3515 TAD PNTCNT  
 7440 IAC /ADVANCE COUNTER  
 3517 DCA PNTCNT  
 3520 /JMS TEST 35 COUNTER=121  
 3423 TAD RK47  
 1136 DCA I K1  
 7001 TAD RK48  
 3136 DCA PNTCNT

3524 1331  
 3525 3423  
 3526 1332  
 3527 3455  
 3530 5455  
 3531 5566  
 3532 4422  
 3533 7660  
 RK47,  
 RK48,  
 M120,

\*3540  
 3540 TAD PNTCNT  
 1136 TAD M121  
 3541 SZA /CHECK COUNTER  
 7440 HLT /JMP COUNTER WRONG  
 3542 7440  
 3543 7402

|      |      |             |                       |
|------|------|-------------|-----------------------|
| 3544 | 1422 | TAD I K0    |                       |
| 3545 | 1022 | TAD K0      |                       |
| 3546 | 7440 | SEA         | /CHECK STORED ADDRESS |
| 3547 | 7402 | HLT         | /JMS FAILED           |
| 3550 | 3422 | DCA I K0    | /CLEAR STORED ADDRESS |
| 3551 | 1371 | TAD BLCNT   |                       |
| 3552 | 7001 | IAC         |                       |
| 3553 | 3371 | DCA BLCNT   |                       |
| 3554 | 1371 | TAD BLCNT   |                       |
| 3555 | 1372 | TAD LIMIT   |                       |
| 3556 | 7640 | SEA CLA     |                       |
| 3557 | 5766 | JMP I BEL-1 |                       |
| 3560 | 3371 | DCA BLCNT   |                       |
| 3561 | 1367 | TAD BEL     |                       |
| 3562 | 6046 | TLS         |                       |
| 3563 | 6041 | TSF         |                       |
| 3564 | 5363 | JMP I -1    |                       |
| 3565 | 5766 | JMP I .+1   |                       |
| 3566 | 4200 | 4200        |                       |
| 3567 | 0207 | 207         | BEL,                  |
| 3570 | 7657 | -121        | M121,                 |
| 3571 | 0000 | 0           | BLCNT,                |
| 3572 | 1200 | -6600       | LIMIT,                |

\$



4000  
4100  
4200 11111111 11111111 11111111 11111111 11111111 11111111  
4300 11111111 11111111 11111111 11111111 11111111 11111111  
4400 11111111 11111111 11111111 11111111 11111111 11111111  
4500 11111111 11111111 11111111 11111111 11111111 11111111  
4600 11111110 00000000 11111111 11111110 11111111 11111110  
4700 11111111 11111110 11111111 11111110 11111111 11111110  
5000 11111111 11111110 11111111 11111110 11111111 11111110  
5100 11111111 11111110 11111111 11111110 11111111 11111110  
5200 11111111 11111110 11111111 11111110 11111111 11111110  
5300 11111111 11111110 11111111 11111110 11111111 11111110  
5400 11111111 11111110 11111111 11111110 11111111 00000000  
5500 00000000 00000000 00000000 00000000 00000000 00000000  
5600  
5700  
6000  
6100  
6200  
6300  
6400  
6500  
6600  
6700  
7000  
7100  
7200  
7300  
7400  
7500  
7600  
7700

|        |      |       |      |       |      |       |      |
|--------|------|-------|------|-------|------|-------|------|
| AFM    | 2024 | K2520 | 0142 | K5320 | 0105 | M116  | 3453 |
| AFRM   | 5451 | K2600 | 0143 | K5340 | 0106 | M117  | 3503 |
| AFRM1  | 2050 | K2630 | 0144 | K5360 | 0107 | M12   | 0124 |
| AFRM10 | 2347 | K2660 | 0145 | K5400 | 0110 | M120  | 3533 |
| AFRM11 | 2375 | K2710 | 0146 | K5420 | 0111 | M121  | 3570 |
| AFRM2  | 2073 | K2740 | 0147 | K5440 | 0112 | M13   | 0125 |
| AFRM3  | 2121 | K3    | 0150 | K5451 | 0672 | M14   | 0126 |
| AFRM4  | 2147 | K3000 | 0151 | K5777 | 0042 | M15   | 0127 |
| AFRM5  | 2175 | K3030 | 0152 | K60   | 0740 | M16   | 0130 |
| AFRM7  | 2247 | K3060 | 0153 | K6000 | 3024 | M17   | 0131 |
| AFRM8  | 2272 | K3110 | 0154 | K6777 | 0043 | M1777 | 0667 |
| AFRM9  | 2320 | K3140 | 0155 | K70   | 0737 | M2    | 0114 |
| AT06   | 2223 | K3200 | 0156 | K7000 | 2764 | M20   | 0132 |
| BEGIN  | 4200 | K3230 | 0157 | K7377 | 0044 | M21   | 0133 |
| BEL    | 3567 | K3260 | 0158 | K74   | 0736 | M22   | 0134 |
| BLCNT  | 3571 | K3310 | 0160 | K740  | 0741 | M23   | 0135 |
| DO     | 0170 | K3340 | 0161 | K7400 | 2734 | M24   | 4636 |
| FRM    | 2002 | K3400 | 0162 | K7402 | 0175 | M25   | 4656 |
| FRM1   | 2026 | K3430 | 0163 | K756  | 0666 | M26   | 4676 |
| FRM10  | 2324 | K3460 | 0164 | K7577 | 0045 | M27   | 4716 |
| FRM11  | 2353 | K3510 | 0165 | K7600 | 2704 | M3    | 0115 |
| FRM2   | 2092 | K3540 | 0166 | K7677 | 0046 | M30   | 4736 |
| FRM3   | 2077 | K3572 | 0670 | K7700 | 2654 | M31   | 4756 |
| FRM4   | 2125 | K3777 | 0037 | K7737 | 0047 | M32   | 4776 |
| FRM5   | 2153 | K4    | 0025 | K7740 | 2624 | M33   | 5016 |
| FRM7   | 2225 | K40   | 0030 | K7757 | 0050 | M34   | 5036 |
| FRM8   | 2251 | K400  | 0033 | K7760 | 2544 | M35   | 5056 |
| FRM9   | 2276 | K4000 | 0036 | K7767 | 0051 | M36   | 5076 |
| HALT1  | 0631 | K4001 | 3054 | K7770 | 2514 | M37   | 5116 |
| HALT2  | 0640 | K401  | 3164 | K7773 | 0052 | M4    | 0116 |
| HALT3  | 0646 | K41   | 3304 | K7774 | 2464 | M40   | 5136 |
| HALT4  | 0654 | K4620 | 0056 | K7775 | 0053 | M41   | 5156 |
| K0     | 0022 | K4640 | 0057 | K7776 | 0054 | M4177 | 0671 |
| K00    | 0742 | K4660 | 0060 | K7777 | 0055 | M42   | 5176 |
| K1     | 0023 | K4700 | 0061 | LIMIT | 3572 | M43   | 5216 |
| K10    | 0026 | K4720 | 0062 | M1    | 0113 | M44   | 5236 |
| K100   | 0031 | K4740 | 0063 | M10   | 0122 | M45   | 5256 |
| K1000  | 0034 | K4760 | 0064 | M100  | 2703 | M46   | 5276 |
| K1001  | 3134 | K5    | 3424 | M101  | 2733 | M47   | 5316 |
| K101   | 3254 | K5000 | 0065 | M102  | 2763 | M5    | 0117 |
| K11    | 3364 | K5020 | 0066 | M103  | 3023 | M50   | 5336 |
| K175   | 0664 | K5040 | 0067 | M104  | 3053 | M51   | 5356 |
| K2     | 0024 | K5060 | 0070 | M105  | 3103 | M52   | 5376 |
| K20    | 0027 | K5100 | 0071 | M106  | 3133 | M53   | 5416 |
| K200   | 0032 | K5120 | 0072 | M107  | 3163 | M54   | 5436 |
| K2000  | 0035 | K5140 | 0073 | M11   | 0123 | M55   | 5450 |
| K2001  | 3104 | K5160 | 0074 | M110  | 3223 | M56   | 2022 |
| K201   | 3224 | K5200 | 0075 | M111  | 3253 | M57   | 2046 |
| K21    | 3334 | K5220 | 0076 | M112  | 3303 | M577  | 0665 |
| K2410  | 0137 | K5240 | 0102 | M113  | 3333 | M6    | 0120 |
| K2440  | 0140 | K5260 | 0103 | M114  | 3363 | M60   | 2075 |
| K2470  | 0141 | K5300 | 0104 | M115  | 3423 | M61   | 2123 |

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V141

FAL10

/BASIC JMP-JMS TEST

|       |      |        |      |       |      |
|-------|------|--------|------|-------|------|
| M62   | 2151 | PK42   | 5315 | RK39  | 3361 |
| M63   | 2177 | PK43   | 5334 | RK4   | 2432 |
| M64   | 2221 | PK44   | 5335 | RK40  | 3362 |
| M65   | 2245 | PK45   | 5354 | RK41  | 3421 |
| M66   | 2274 | PK46   | 5355 | RK42  | 3422 |
| M67   | 2322 | PK47   | 5374 | RK43  | 3451 |
| M7    | 0121 | PK48   | 5375 | RK44  | 3452 |
| M70   | 2351 | PK49   | 5414 | RK45  | 3501 |
| M71   | 2377 | PK5    | 4654 | RK46  | 3502 |
| M72   | 2433 | PK50   | 5415 | RK47  | 3531 |
| M73   | 2463 | PK51   | 5434 | RK48  | 3532 |
| M74   | 2513 | PK52   | 5435 | RK5   | 2461 |
| M75   | 2543 | PK6    | 4655 | RK6   | 2462 |
| M76   | 2623 | PK7    | 4674 | RK7   | 2511 |
| M7600 | 0673 | PK8    | 4675 | RK8   | 2512 |
| M77   | 2653 | PK9    | 4714 | RK9   | 2541 |
| PK1   | 4605 | PNTCNT | 0136 | SAVE  | 0600 |
| PK10  | 4715 | REFILL | 0704 | SAVER | 0201 |
| PK11  | 4734 | RENEW  | 0703 | STOR  | 0743 |
| PK12  | 4735 | RESTAR | 0700 | TO    | 2003 |
| PK13  | 4754 | RK1    | 2405 | TO1   | 2027 |
| PK14  | 4755 | RK10   | 2542 | TO10  | 2330 |
| PK15  | 4774 | RK11   | 2621 | TO11  | 2356 |
| PK16  | 4775 | RK12   | 2622 | TO2   | 2054 |
| PK17  | 5014 | RK13   | 2651 | TO3   | 2102 |
| PK18  | 5015 | RK14   | 2652 | TO4   | 2130 |
| PK19  | 5034 | RK15   | 2701 | TO5   | 2156 |
| PK2   | 4606 | RK16   | 2702 | TO6   | 2202 |
| PK20  | 5035 | RK17   | 2731 | TO7   | 2226 |
| PK21  | 5054 | RK18   | 2732 | TO8   | 2253 |
| PK22  | 5055 | RK19   | 2761 | TO9   | 2301 |
| PK23  | 5074 | RK2    | 2406 |       |      |
| PK24  | 5075 | RK20   | 2762 |       |      |
| PK25  | 5114 | RK21   | 3021 |       |      |
| PK26  | 5115 | RK22   | 3022 |       |      |
| PK27  | 5134 | RK23   | 3051 |       |      |
| PK28  | 5135 | RK24   | 3052 |       |      |
| PK29  | 5154 | RK25   | 3101 |       |      |
| PK3   | 4634 | RK26   | 3102 |       |      |
| PK30  | 5155 | RK27   | 3131 |       |      |
| PK31  | 5174 | RK28   | 3132 |       |      |
| PK32  | 5175 | RK29   | 3161 |       |      |
| PK33  | 5214 | RK3    | 2431 |       |      |
| PK34  | 5215 | RK30   | 3162 |       |      |
| PK35  | 5234 | RK31   | 3221 |       |      |
| PK36  | 5235 | RK32   | 3222 |       |      |
| PK37  | 5254 | RK33   | 3251 |       |      |
| PK38  | 5255 | RK34   | 3252 |       |      |
| PK39  | 5274 | RK35   | 3301 |       |      |
| PK4   | 4635 | RK36   | 3302 |       |      |
| PK40  | 5275 | RK37   | 3331 |       |      |
| PK41  | 5314 | RK38   | 3332 |       |      |

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