

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEMENT BOARD

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 / WESTVRIES COMPUTER CONSULTING BV
 / RIJKSSTRAATWEG 19A
 / 1969 LB HEEMSKERK
 / 02510 - 43244

/SYMBOL DEFINITIONS:

6254 SINT=6254
 6274 SUF=6274
 6204 CINT=6204
 6264 CUF=6264
 6205 RTM=6205
 6235 LTM=6235
 6245 LRM=6245
 6265 SMME=6265
 6275 CMME=6275
 6215 SKME=6215
 6225 SKMM=6225

/FOR PRODUCTION TEST DEFINE PRODUCTION:

0001 PRODUCTION=1

/INTERRUPT SERVICE ROUTINE:

```

0000 *0
00000 0000 0
00001 5020 JMP SERV

0020 *20
00020 3123 SERV, DCA AC /SAVE AC
00021 6254 SINT /TRAP ?
00022 5777' JMP INTERR /NO, ILLEGAL INTERRUPT
00023 6204 CINT /CLEAR TRAP FLAG
00024 6205 RTM /READ TRAP REGISTER
00025 3124 DCA TRAPD /THAT IS THE INSTR. THE HARDWARE SAW
00026 7240 CLA CMA
00027 1000 TAD 0
00030 3000 DCA 0 /BACKUP PC
00031 1400 TAD I 0 /GET TRAPPED INSTRUCTION FROM MEMORY
00032 7041 CIA /AND COMPARE TO
00033 1124 TAD TRAPD /TRAP REGISTER CONTENTS
00034 7640 SZA CLA /SHOULD BE EQUAL
00035 4776' JMS TRPERR /ERROR IN TRAP REGISTER
00036 1000 TAD 0 /DID WE TRAP THE SAFETY HLT ?
00037 1175 TAD (-HALT /
00040 7640 SZA CLA /?
00041 7040 CMA /NO, SET AC=-1
00042 5443 JMP I ENDTRP /BACK TO MAIN LOOP
00043 0042 ENDTRP, .-1 /CONTINUATION ADDRESS
    
```

/VIRTUAL CODE SEQUENCES:

```

00044 1574 RELTST, TAD I (7000 /RELOCATION TEST; GET DATAFIELD
00045 5051 JMP HALT /EXIT FROM USER MODE

00046 5046 TRPTST, JMP . /GETS IOT TO BE TESTED
    
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00047 5051 JMP .+2 /FOR CIF: ENABLE INTERRUPTS
00050 6001 ION /FOR SKON: REENABLE INTERRUPTS
00051 7402 HALT, HLT /EXIT FROM USER MODE
00052 5052 JMP . /*** IF HERE, HLT DID NOT TRAP ***
    
```

```

00053 1125 TTYTST, TAD BELL      /TEST TTY IN UNTRAPED MODE
00054 6046   TLS                /SEND A BELL TO THE CONSOLE
00055 6041   TSF                /WAIT TILL READY
00056 5055   JMP .-1            /
IFNDEF PRODUCTION <
      CLA                / >
IFDEF PRODUCTION <
00057 6032   KCC                /USED TO CLEAR THE AC
00060 7440   SZA                /DIDITDO ?
00061 5061   JMP .              /NO !!! *** UNTRAPPED KCC DID NOT CLA ***
00062 6042   TCF                /EXIT WITH TTY FLAG CLEAR
00063 6041   TSF                /DID THAT WORK ?
00064 7410   SKP                /YES
00065 5065   JMP .              /***TCF DID NOT CLEAR FLAG *** >
00066 5051   JMP HALT          /NOW EXIT FROM USER MODE

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      /MD-LINE TEST:
00067 3573 MDTST, DCA I (Q
00070 1573   TAD I (Q
00071 7001   IAC
00072 7440   SZA                /TEST ALL 4096 VALUES
00073 5067   JMP MDTST
00074 5051   JMP HALT
00075 0000   Q, 0

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      /CDTOIF TEST ROUTINE
00076 0000   CDTF, 0
00077 6200   6200              /CDTOIF
00100 6202   CIF 0
00101 5476   JMP I CDTF

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      /RDF TEST ROUTINE:
00102 6214   TSTRDF, RDF
00103 1105   KK, TAD K0        /GET ACTUAL FIELD NUMBER
00104 5051   JMP HALT        /GOT THROUGH

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```

00105 0000   K0, 0
00106 0001   K1, 1
00107 0002   K2, 2
00110 0003   K3, 3
00111 0004   K4, 4
00112 0005   K5, 5
00113 0006   K6, 6
00114 0007   K7, 7

```

```

      /VARIABLES, COUNTERS AND POINTERS:
00115 0000   COUNT, 0
00116 0000   COUNT1, 0
00117 0000   COUNT2, 0
00120 0000   COUNT3, 0

```

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```

00121 0000   PTR, 0
00122 0000   FIELDS, 0      /NUMBER OF FIELDS AVAILABLE
00123 0000   AC, 0
00124 0000   TRAPD, 0
00125 0207   BELL, 207

      0200   PAGE

```

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```

00200 4777'   JMS INIT        /SETUP FIELDS
00201 6007   START, CAF

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00202 6035      KIE          /DISABLE KEYBOARD INTERRUPTS
00203 4776' LOOP0, JMS COPY    /MOVE PAGE 0 TO ALL FIELDS
00204 4775'      JMS IOTTST   /STATIC TEST OF DM8E40 IOTS
00205 1122      TAD FIELDS
00206 7041      CIA
00207 3115      DCA COUNT    /FOR ALL FIELDS
00210 1374      TAD (CDF
00211 3214      DCA FCDF     /SET A CDF TO EACH FIELD
00212 1115 LOOP1, TAD COUNT    /
00213 1122      TAD FIELDS
00214 6201 FCDF,  CDF 0       //CDF0, CDF10, CDF 20, ...
00215 3773      DCA I (7000   //PUT THE FIELD NUMBER AT 7000
00216 6201      CDF 0       //RESTORE THE DATAFIELD
00217 1214      TAD FCDF     /MAKE A NEW CDF
00220 1372      TAD (10
00221 3214      DCA FCDF     /
00222 2115      ISZ COUNT    /ALL FIELDS DONE
00223 5212      JMP LOOP1    /
/NOW A SIMPLE RELOCATION TEST. WE SET UP A SEQUENCE OF
/RELOCATION AND THAN GO VIRTUAL, PICK UP THE FIELD
/CONSTANT FROM 7000 AND HLT, TO GET OUT OF USER MODE
/WE TRY TO TEST IF ALL WORDS OF THE RELOCATION RAM
/CAN TAKE ALL VALUES, AT LEAST ALL VALUES FOR WHICH
/THERE ARE FIELDS IN THE SYSTEM.
00224 1371      TAD (RET1    /SETUP TRAP RETURN ADDRESS
00225 3043      DCA ENDTRP   /
00226 1122      TAD FIELDS   /SET UP COUNTER FOR FIELDS
00227 7041      CIA
00230 3115      DCA COUNT    /
00231 1370 LOOP2, TAD (-10    /TEST ALL 8 WORDS OF THE RELOCATION RAM
00232 3116      DCA COUNT1   /
00233 1370 LOOP3, TAD (-10    /LOAD ALL WORDS OF THE RAM
00234 3117      DCA COUNT2   /
00235 1117 LOOP4, TAD COUNT2  /
00236 1372      TAD (10      /MAKE 0, 1, 2, ...
00237 6245      LRM          /SET ALL WORDS TO 0
00240 2117      ISZ COUNT2   /
00241 5235      JMP LOOP4    /
00242 1115      TAD COUNT    /
00243 1122      TAD FIELDS   /POSITIVE REAL FIELD #
00244 7106      CLL RTL      /
00245 7004      RAL          /SHIFT TO BITS 6-8
00246 1116      TAD COUNT1   /ADD VIRTUAL FIELD #
00247 1372      TAD (10      / (POSITIVE)
00250 6245      LRM          /THIS SETS ONE WORD
00251 1116      TAD COUNT1   /
00252 1372      TAD (10      /
00253 1367      TAD (100     /USER MODE+VIRTUAL DATA FIELD
00254 6005      RTF          /RESTORE FLAGS
00255 7200      CLA          /?!
00256 5044      JMP RELTST   /JMP TO RELOCATION TEST
/NEXT MUST BE AVAILABLE IN EACH FIELD
00257 7200 RET1, CLA

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00260 1123      TAD AC        /GET AC FROM TRAP
00261 7041      CIA          /AND COMPARE TO INTENDED FIELD #
00262 1115      TAD COUNT    /
00263 1122      TAD FIELDS   /
00264 7640      SZA CLA      /
00265 4766'      JMS RELERR   /RELOCATION ERROR
00266 2116      ISZ COUNT1   /
00267 5233      JMP LOOP3    /
00270 2115      ISZ COUNT    /
00271 5231      JMP LOOP2    /
/END OF RELOCATION TEST. NOW COMES THE TRAP/UNTRAP TEST

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/IN EACH AVAILABLE FIELD WE TEST EACH IOT FROM THE TABLE
00272 1122      TAD FIELDS /
00273 7041      CIA
00274 3115      DCA COUNT /
00275 1370 LOOP5, TAD (-10
00276 3116      DCA COUNT1 /ZERO THE RELOCATION RAM
00277 1115 LOOP6, TAD COUNT /
00300 1122      TAD FIELDS /
00301 7106      CLL RTL
00302 7004      RAL /
00303 1116      TAD COUNT1 /
00304 1372      TAD (-10 /MAKE ONE-TO-ONE MAPPING
00305 6245      LRM /LOAD RELOCATION MEMORY
00306 2116      ISZ COUNT1 /
00307 5277      JMP LOOP6 /
00310 1115      TAD COUNT /
00311 1122      TAD FIELDS /
00312 7106      CLL RTL
00313 7004      RAL /
00314 1374      TAD (CDF /MAKE CDF
00315 3325      DCA XCDF /CDF TO TARGET FIELD
00316 1365      TAD (TABLE /SETP POINTER FOR IOT TABLE
00317 3121      DCA PTR /
00320 1521 LOOP7, TAD I PTR /
00321 3046      DCA TRPTST /DROP IT IN THE TRAPTST
00322 1364      TAD (RET2
00323 3043      DCA ENDTRP
00324 1046      TAD TRPTST /
00325 6201 XCDF, CDF /CDF TARGET FIELD
00326 3763      DCA I (TRPTST /IN THE TARGET FIELD TOO
00327 6201      CDF 0 /
00330 4762'     JMS UTRALL /UNTRAP ALL DEVICE CODES
00331 1046      TAD TRPTST /GET TEST IOT AGAIN
00332 0361      AND (7776 /CLEAR UNTRAP BIT
00333 6235      LTM /AND SET DM8E40 TO TRAP FOR THIS IOT
00334 6274      SUF /ENTER USER MODE
00335 6001      ION /WITH INTERRUPT ON
00336 5046      JMP TRPTST /THIS BRINGS US INTHE TARGET FIELD !
/-----
00337 2121 RET2, ISZ PTR /RETURN FROM TRAP HANDLER
00340 1521      TAD I PTR /GET TRAP/UNTRAP INDICATOR
00341 7010      RAR /BIT 11 IS XOR!
00342 7630      SZL CLA /OK ?
00343 4760'     JMS TERROR /TRAP ERROR

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```

00344 1357      TAD (RET3
00345 3043      DCA ENDTRP /SET NEW RETURN POINT
00346 4756'     JMS TRPALL /TRAP ALL DEVICE CODES
00347 1046      TAD TRPTST
00350 0361      AND (7776
00351 7001      IAC /SET UNTRBP BIT
00352 6235      LTM /
00353 6274      SUF
00354 6001      ION
00355 5046      JMP TRPTST /GO !

00356 1600
00357 0400
00360 1120
00361 7776
00362 1615
00363 0046
00364 0337
00365 2200
00366 1057

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00367 0100
 00370 7770
 00371 0257
 00372 0010
 00373 7000
 00374 6201
 00375 0502
 00376 0437
 00377 2000
 0400 PAGE

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/-----
00400 2121 RET3, ISZ PTR
00401 1521 TAD I PTR
00402 7010 RAR /BIT 11 DOES XOR
00403 7630 SZL CLA /OK ?
00404 4777' JMS UERROR /NO, UNTRAP ERROR
00405 2121 ISZ PTR /SELECT NEXT IOT
00406 1521 TAD I PTR /AND FETCH IT
00407 7640 SZA CLA /END OF LIST ?
00410 5776' JMP LOOP7 /NO, TEST NEXT IOT
IFNDEF FYSIOL <
/FINALLY, WE TEST THE CONSOLE TERMINAL WITH IT'S IOTS UNTRAPPED:
00411 1375 TAD (RET4
00412 3043 DCA ENDTRP
00413 4774' JMS TRPALL /TRAP ALL DEVICE CODES,
00414 1373 TAD (6031 /EXCEPT FOR THE TERMINAL
00415 6235 LTM
00416 1372 TAD (6041 /
00417 6235 LTM /
00420 6274 SUF
00421 6001 ION
00422 5053 JMP TTYTST /
/-----
00423 7300 RET4, CLA CLL / >
00424 1371 TAD (RET5
00425 3043 DCA ENDTRP
00426 6274 SUF
00427 6001 ION
00430 5067 JMP MDTST /TEST ALL VALUES FOR MD DATA
/-----
00431 7640 RET5, SZA CLA /SHOULD NOT TRAP
00432 4770' JMS MDERR
00433 4767' JMS RDTST /NOW EXERCIZE RDF IN USER MODE
00434 2115 ISZ COUNT /SELECT NEXT TARGET FIELD
00435 5766' JMP LOOP5 /NOT DONE YET
00436 5765' JMP LOOP0 /START OVER AGAIN

00437 0000 COPY, 0
00440 1122 TAD FIELDS
00441 7041 CIA
00442 7001 IAC
00443 7450 SNA
00444 5637 JMP I COPY /ONLY 4K
00445 3115 DCA COUNT
00446 7040 COPY1, CMA
00447 3010 DCA 10
00450 7040 CMA
00451 3011 DCA 11
00452 1115 TAD COUNT
00453 1122 TAD FIELDS
00454 7104 CLL RAL
00455 7006 RTL
00456 1364 TAD (CDF
00457 3264 DCA YCDF

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00460 1363 TAD (-200

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```
00461 3116 DCA COUNT1
00462 6201 COPY2, CDF 0
00463 1410 TAD I 10
00464 7402 YCDF, HLT
00465 3411 DCA I 11
00466 2116 ISZ COUNT1
00467 5262 JMP COPY2
00470 1264 TAD YCDF
00471 0362 AND (70
00472 7112 CLL RTR
00473 7010 RAR
00474 1761 TAD I (KK
00475 3761 DCA I (KK
00476 6201 CDF 0
00477 2115 ISZ COUNT
00500 5246 JMP COPY1
00501 5637 JMP I COPY
```

/STATIC IOT TST FOR DM8E40 INSTRUCTIONS:

```
00502 0000 IOTTST, 0
00503 1360 TAD (IOTLST-1 /SETUP LIST POINTER
00504 3010 DCA 10
00505 1410 TAD I 10 /FETCH FIRST IOT
00506 3310 IOT1, DCA IOTX /
00507 1357 TAD (5252 /GET A TEST PATERN IN THE AC
00510 7402 IOTX, HLT /REPLACED BY THE IOT UNDER TEST
00511 5317 JMP IOT2 /IOT DID NOT SKIP
00512 3123 DCA AC /REMEBER AC AFTER IOT
00513 1410 TAD I 10 /GET SKIP FLAG
00514 7650 SNA CLA /SHOULD HE HAVE SKIPPED ?
00515 4756' JMS ERR1 /NO, BUT HE DID !
00516 5323 JMP IOT3 /GO CHECK AC EFFECTS
00517 3123 IOT2, DCA AC /REMEMBER AC
00520 1410 TAD I 10 /GET SKIP FLAG
00521 7640 SZA CLA /SHOULD HE HAVE SKIPPED ?
00522 4755' JMS ERR2 /YES, BUT HE DIDN'T !
00523 1410 IOT3, TAD I 10 /GET AC-CHANGED FLAG
00524 7650 SNA CLA /SHOULD AC HAVE CHANGED ?
00525 5335 JMP IOT4 /NO, GO CHECK THAT
00526 1410 TAD I 10 /YES, MUST AC BE CLEAR NOW ?
00527 7650 SNA CLA /
00530 5341 JMP IOT5 /NO, UNDEFINED AC NOW
00531 1123 TAD AC /YES, TEST AC
00532 7640 SZA CLA /ZERO ?
00533 4754' JMS ERR3 /NO, IOT DID NOT CLA !
00534 5341 JMP IOT5 /DONE ALL TESTS
00535 1123 IOT4, TAD AC /IF HERE AC SHOULD NOT HAVE CHANGED
00536 1353 TAD (-5252 /TEST IF STILL OK
00537 7640 SZA CLA /
00540 4752' JMS ERR4 /IOT SPOILED AC
00541 1410 IOT5, TAD I 10 /GET NEXT IOT
00542 7440 SZA /END OF LIST ?
00543 5306 JMP IOT1 /NO, TEST NEXT IOT
00544 4572 JMS I [CDTOIF /TEST 6200
00545 5702 JMP I IOTTST
```

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```
00552 1344
00553 2526
00554 1324
```

00555 1306
 00556 1267
 00557 5252
 00560 2764
 00561 0103
 00562 0070
 00563 7600
 00564 6201
 00565 0203
 00566 0275
 00567 0600
 00570 1245
 00571 0431
 00572 6041
 00573 6031
 00574 1600
 00575 0423
 00576 0320
 00577 1200
 0600 PAGE

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```

00600 0000 RDTST,      0          /TEST RDF IN USER MODE
00601 4777'      JMS TRPALL
00602 1376      TAD (RET6
00603 3043      DCA ENDTRP
00604 1775      TAD I (XCDF      /SET DATAFIELD TO
00605 7040      CMA          /COMPLEMENT OF
00606 0374      AND (70          /REAL FIELD
00607 1373      TAD (CDF
00610 3222      DCA KCDF
00611 1372      TAD (-7
00612 3116      DCA COUNT1      /CHANGE MAPPING
00613 1222      LOOP8, TAD KCDF      /
00614 0374      AND (70          /
00615 1116      TAD COUNT1      /
00616 1371      TAD (10          /
00617 6245      LRM          /
00620 2116      ISZ COUNT1      /
00621 5213      JMP LOOP8      /
00622 6271      KCDF, CDF 70
00623 6274      SUF
00624 6001      ION
00625 5102      JMP TSTRDF

/-----
00626 7640      RET6,  SZA CLA          /DID RDF TRAP ?
00627 4770'      JMS RDFER1      /YES, ERROR
00630 1222      TAD KCDF      /COMPUTE CORRECT AC
00631 0374      AND (70
00632 7421      MQL
00633 7501      MQA
00634 7040      CMA
00635 0374      AND (70
00636 7112      CLL RTR
00637 7010      RAR
00640 7501      MQA
00641 7041      CIA
00642 1123      TAD AC          /GET VIRTUAL AC
00643 7640      SZA CLA          / ?
00644 4767'      JMS RDFER2      /NO, AC WAS SPOILED !
00645 5600      JMP I RDTST      /RETURN

00767 1414
00770 1400
00771 0010
00772 7771
  
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00773 6201
00774 0070
00775 0325
00776 0626
00777 1600
1000 PAGE

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/ERROR MESSAGE PROCESSORS:
01000 6007 INTERR, CAF
01001 6035     KIE
01002 4571     JMS I [STRING
01003 2516     TEXT /UNEXPECTED INTERRUPT/
01004 0530
01005 2005
01006 0324
01007 0504
01010 4011
01011 1624
01012 0522
01013 2225
01014 2024
01015 0000
01016 4570     JMS I [CRLF
01017 1123     TAD AC
01020 6244     RMF
01021 6001     ION
01022 5400     JMP I 0

01023 0000 TRPERR, 0
01024 4571     JMS I [STRING
01025 2422     TEXT /TRAP REGISTER WRONG: (PC-1)=/
01026 0120
01027 4022
01030 0507
01031 1123
01032 2405
01033 2240
01034 2722
01035 1716
01036 0772
01037 4050
01040 2003
01041 5561
01042 5175
01043 0000
01044 1400     TAD I 0
01045 4777'    JMS OCTOUT
01046 4571     JMS I [STRING
01047 5440     TEXT /, RTM=/
01050 2224
01051 1575
01052 0000
01053 1124     TAD TRAPD
01054 4777'    JMS OCTOUT
01055 4570     JMS I [CRLF
01056 5623     JMP I TRPERR

01057 0000 RELERR, 0
01060 4571     JMS I [STRING
01061 2205     TEXT /RELOCATION ERROR, GOOD FIELD=/
01062 1417
01063 0301
```

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01064	2411	
01065	1716	
01066	4005	
01067	2222	
01070	1722	
01071	5440	
01072	0717	
01073	1704	
01074	4006	
01075	1105	
01076	1404	
01077	7500	
01100	1115	TAD COUNT
01101	1122	TAD FIELDS
01102	4777'	JMS OCTOUT
01103	4571	JMS I [STRING
01104	5440	TEXT /, ACTUAL FIELD=/'
01105	0103	
01106	2425	
01107	0114	
01110	4006	
01111	1105	
01112	1404	
01113	7500	
01114	1123	TAD AC
01115	4777'	JMS OCTOUT
01116	4570	JMS I [CRLF
01117	5657	JMP I RELERR
01120	0000	TERROR, 0
01121	1046	TAD TRPTST
01122	4777'	JMS OCTOUT
01123	1521	TAD I PTR
01124	7650	SNA CLA
01125	5340	JMP TER1
01126	4571	JMS I [STRING
01127	4006	TEXT / FAILED TO TRAP/'
01130	0111	
01131	1405	
01132	0440	
01133	2417	
01134	4024	
01135	2201	
01136	2000	
01137	5350	JMP TER2
01140	4571	TER1, JMS I [STRING
01141	4040	TEXT / DID TRAP /
01142	0411	
01143	0440	
01144	4024	
01145	2201	
01146	2040	
01147	0000	
01150	4571	TER2, JMS I [STRING
01151	4011	TEXT / IN FIELD /

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01152	1640	
01153	0611	
01154	0514	
01155	0440	
01156	0000	
01157	1115	TAD COUNT
01160	1122	TAD FIELDS
01161	0376	AND (7

```

01162 1375      TAD C'0
01163 4774'    JMS TYPE
01164 4570     JMS I [CRLF
01165 5720     JMP I ERROR

01174 2054
01175 0260
01176 0007
01177 1715
      1200 PAGE

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```

01200 0000 UERROR,      0
01201 1046      TAD TRPTST
01202 4777'    JMS OCTOUT
01203 1521     TAD I PTR
01204 7640     SZA CLA
01205 5220     JMP UER1
01206 4571     JMS I [STRING
01207 4004     TEXT / DID NOT UNTRAP/
01210 1104
01211 4016
01212 1724
01213 4025
01214 1624
01215 2201
01216 2000
01217 5227     JMP UER2
01220 4571 UER1,     JMS I [STRING
01221 4004     TEXT / DID UNTRAP/
01222 1104
01223 4025
01224 1624
01225 2201
01226 2000
01227 4571 UER2,     JMS I [STRING
01230 4011     TEXT / IN FIELD /
01231 1640
01232 0611
01233 0514
01234 0440
01235 0000
01236 1115     TAD COUNT
01237 1122     TAD FIELDS
01240 0376     AND C7
01241 1375     TAD C'0
01242 4774'    JMS TYPE
01243 4570     JMS I [CRLF
01244 5600     JMP I UERROR

01245 0000 MDERR,    0
01246 4571     JMS I [STRING
01247 2422     TEXT /TRAPPED ON MEMORY DATA /
01250 0120
01251 2005
01252 0440
01253 1716
01254 4015
01255 0515
01256 1722
01257 3140
01260 0401
01261 2401
01262 4000
01263 1075     TAD Q
01264 4777'    JMS OCTOUT

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01265 4570 JMS I [CRLF

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01266 5645 JMP I MDERR

01267 0000 ERR1, 0
01270 1773 TAD I [IOTX
01271 4567 JMS I [OCTOUT
01272 4571 JMS I [STRING
01273 4027 TEXT / WRONGLY SKIPPED/
01274 2217
01275 1607
01276 1431
01277 4023
01300 1311
01301 2020
01302 0504
01303 0000
01304 4570 JMS I [CRLF
01305 5667 JMP I ERR1

01306 0000 ERR2, 0
01307 1566 TAD I [IOTX
01310 4567 JMS I [OCTOUT
01311 4571 JMS I [STRING
01312 4006 TEXT / FAILED TO SKIP/
01313 0111
01314 1405
01315 0440
01316 2417
01317 4023
01320 1311
01321 2000
01322 4570 JMS I [CRLF
01323 5706 JMP I ERR2

01324 0000 ERR3, 0
01325 1566 TAD I [IOTX
01326 4567 JMS I [OCTOUT
01327 4571 JMS I [STRING
01330 4006 TEXT / FAILED TO CLEAR AC/
01331 0111
01332 1405
01333 0440
01334 2417
01335 4003
01336 1405
01337 0122
01340 4001
01341 0300
01342 4570 JMS I [CRLF
01343 5724 JMP I ERR3

01344 0000 ERR4, 0
01345 1566 TAD I [IOTX
01346 4567 JMS I [OCTOUT
01347 4571 JMS I [STRING
01350 4023 TEXT / SPOILED THE AC/

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 6-2

01351 2017
01352 1114
01353 0504
01354 4024

```

01355 1005
01356 4001
01357 0300
01360 4570      JMS I [CRLF
01361 5744      JMP I ERR4
01373 0510
01374 2054
01375 0260
01376 0007
01377 1715
      1400 PAGE

```

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```

01400 0000 RDFER1, 0
01401 4571      JMS I [STRING
01402 2204      TEXT /RDF DID TRAP !/
01403 0640
01404 0411
01405 0440
01406 2422
01407 0120
01410 4041
01411 0000
01412 4570      JMS I [CRLF
01413 5600      JMP I RDFER1

01414 0000 RDFER2, 0
01415 4571      JMS I [STRING
01416 2204      TEXT /RDF RETURNED WRONG ANSWER: /
01417 0640
01420 2205
01421 2425
01422 2216
01423 0504
01424 4027
01425 2217
01426 1607
01427 4001
01430 1623
01431 2705
01432 2272
01433 4000
01434 1123      TAD AC
01435 4567      JMS I [OCTOUT
01436 4570      JMS I [CRLF
01437 5614      JMP I RDFER2

```

1600 PAGE

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 8

```

01600 0000 TRPALL, 0      /SUBROUTINE TO SET ALL BITS
01601 1377      TAD (-100      /IN THE TRAP MEMORY (EXCEPT 600X)
01602 3231      DCA TRPCNT
01603 1231 TRP1, TAD TRPCNT
01604 1376      TAD (100      /MAKE IT POSITIVE
01605 7104      CLL RAL
01606 7006      RTL
01607 6235      LTM      /SET TO TRAP
01610 2231      ISZ TRPCNT      /DONE ?
01611 5203      JMP TRP1      /NO
01612 1375      TAD (6001      /UNTRAP ION FOR 6215, 6225
01613 6235      LTM      /
01614 5600      JMP I TRPALL      /YES, RETURN

```

```

01615 0000 UTRALL, 0 /SUBROUTINE TO UNTRAP ALL DEVICE CODES
01616 1377 TAD (-100
01617 3231 DCA TRPCNT /
01620 1231 UTR1, TAD TRPCNT
01621 1376 TAD (100 /MAKE IT POTIVE
01622 7104 CLL RAL
01623 7006 RTL
01624 7001 IAC /SET UNTRAP BIT
01625 6235 LTM
01626 2231 ISZ TRPCNT /DONE ?
01627 5220 JMP UTR1 /NO
01630 5615 JMP I UTRALL /YES, RETURN

```

```

01631 0000 TRPCNT, 0

```

```

01632 0000 CDTOIF, 0 /TEST CDTOIF INSTRUCTION
01633 1122 TAD FIELDS /FOR ALL AVAILABLE FIELDS
01634 7041 CIA
01635 3116 DCA COUNT1 /
01636 1116 CDT1, TAD COUNT1
01637 1122 TAD FIELDS /MAKE POSITIVE FIELD NUMBER
01640 7104 CLL RAL
01641 7006 RTL
01642 1165 TAD [CIF
01643 3252 DCA CDT3 /
01644 1252 TAD CDT3
01645 7040 CMA /MAKE COMPLEMENTARY CDF
01646 0164 AND [70
01647 1163 TAD [CDF
01650 3251 DCA CDT2
01651 7402 CDT2, HLT /CDF
01652 7402 CDT3, HLT /CIF
01653 4076 JMS CDTF /DO CDTOIF IN SOME FIELD
01654 6214 RDF /READ DATA FIELD
01655 6201 CDF 0 /RESET DF
01656 7041 CIA
01657 1252 TAD CDT3 /AND COMPARE WITH PREVIOUS
01660 0164 AND [70 /INSTRUCTION FIELD
01661 7640 SZA CLA /OK ?
01662 4774' JMS CDterr /NO, CDTOIF DID NOT WORK
01663 2116 ISZ COUNT1 /TRY NEXT FIELD

```

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 8-1

```

01664 5236 JMP CDT1
01665 5632 JMP I CDTOIF /END OF TEST

```

```

01666 0000 CRLF, 0
01667 1373 TAD (215
01670 4772' JMS TYPE
01671 1371 TAD (212
01672 4772' JMS TYPE
01673 5666 JMP I CRLF

```

```

01674 0000 STRING, 0
01675 1674 TAD I STRING
01676 7002 BSW
01677 4304 JMS BYTE
01700 1674 TAD I STRING
01701 2274 ISZ STRING
01702 4304 JMS BYTE
01703 5275 JMP STRING+1

```

```

01704 0000 BYTE, 0
01705 0370 AND (77
01706 7450 SNA

```

01707 5674 JMP I STRING
01710 1367 TAD (240
01711 0370 AND (77
01712 1367 TAD (240
01713 4772' JMS TYPE
01714 5704 JMP I BYTE

01715 0000 OCTOUT, 0
01716 7004 RAL
01717 4325 JMS DIGIT
01720 4325 JMS DIGIT
01721 4325 JMS DIGIT
01722 4325 JMS DIGIT
01723 7200 CLA
01724 5715 JMP I OCTOUT

01725 0000 DIGIT, 0
01726 7004 RAL
01727 7006 RTL
01730 3337 DCA OCTEMP
01731 1337 TAD OCTEMP
01732 0366 AND (7
01733 1365 TAD ("0
01734 4772' JMS TYPE
01735 1337 TAD OCTEMP
01736 5725 JMP I DIGIT

01737 0000 OCTEMP, 0

01765 0260
01766 0007
01767 0240
01770 0077

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 8-2

01771 0212
01772 2054
01773 0215
01774 2027
01775 6001
01776 0100
01777 7700
2000 PAGE

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 9

02000 0000 INIT, 0
02001 4571 JMS I [STRING
02002 1011 TEXT /HIGHEST FIELD # ? /
02003 0710
02004 0523
02005 2440
02006 0611
02007 0514
02010 0440
02011 4340
02012 7740
02013 0000
02014 6031 KSF
02015 5214 JMP .-1
02016 6036 KRB
02017 6046 TLS
02020 6041 TSF
02021 5220 JMP .-1
02022 0377 AND (7

```

02023 7001      IAC
02024 3122      DCA FIELDS
02025 4570      JMS I [CRLF
02026 5600      JMP I INIT

02027 0000      CDERR, 0
02030 4571      JMS I [STRING
02031 0304      TEXT /CDTOIF FAILED IN FIELD /
02032 2417
02033 1106
02034 4006
02035 0111
02036 1405
02037 0440
02040 1116
02041 4006
02042 1105
02043 1404
02044 4000
02045 1116      TAD COUNT1
02046 1122      TAD FIELDS
02047 0162      AND [7
02050 1161      TAD ["0
02051 4254      JMS TYPE
02052 4570      JMS I [CRLF
02053 5627      JMP I CDERR

02054 0000      TYPE, 0
02055 6046      TLS
02056 6041      TSF
02057 5256      JMP .-1
02060 7200      CLA
02061 6031      KSF
02062 5654      JMP I TYPE
02063 1376      CTRLQ, TAD (7600
02064 6034      KRS

```

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 9-1

```

02065 1375      TAD (-7603
02066 7450      SNA
02067 5776      JMP I (7600
02070 1374      TAD (3-23
02071 7650      SNA CLA
02072 5275      JMP CTRLS
02073 6032      KCC
02074 5654      JMP I TYPE
02075 6032      CTRLS, KCC
02076 6031      KSF
02077 5276      JMP .-1
02100 5263      JMP CTRLQ
02174 7760
02175 0175
02176 7600
02177 0007
2200 PAGE

```

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 10

/THE IOT TABLE. THE FORMAT IS: IOT;SHOULD-TRAP-IF-TRAPPED;SHOULD-TRAP-
/IF-UNTRAPPED. THE TABLE ENDS WITH IOT=0

```

7777      Y=7777
0000      N=0000
02200 6000      TABLE, 6000;Y;N
02201 7777

```

02202	0000		
02203	6006	6006;N;N	/SGT
02204	0000		
02205	0000		
		IFDEF PRODUCTION <	
02206	6010	6010;Y;N	
02207	7777		
02210	0000		
02211	6020	6020;Y;N	
02212	7777		
02213	0000		
02214	6030	6030;Y;N	
02215	7777		
02216	0000		
02217	6040	6040;Y;N	
02220	7777		
02221	0000		
02222	6050	6050;Y;N	
02223	7777		
02224	0000		
02225	6060	6060;Y;N	
02226	7777		
02227	0000		
02230	6070	6070;Y;N	
02231	7777		
02232	0000		
02233	6100	6100;Y;N	
02234	7777		
02235	0000		
02236	6110	6110;Y;N	
02237	7777		
02240	0000		
02241	6120	6120;Y;N	
02242	7777		
02243	0000		
02244	6130	6130;Y;N	
02245	7777		
02246	0000		
02247	6140	6140;Y;N	
02250	7777		
02251	0000		
02252	6150	6150;Y;N	
02253	7777		
02254	0000		
02255	6160	6160;Y;N	
02256	7777		
02257	0000		
02260	6170	6170;Y;N	/ >

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 10-1

02261	7777		
02262	0000		
02263	6200	6200;Y;Y	/CDTOIF
02264	7777		
02265	7777		
02266	6201	6201;Y;N	/CDF 0
02267	7777		
02270	0000		
02271	6202	6202;Y;N	/CIF 0
02272	7777		
02273	0000		
02274	6203	6203;Y;N	/CDF CIF 0
02275	7777		
02276	0000		
02277	6204	6204;Y;Y	/CINT
02300	7777		

02301	7777		
02302	6205	6205;Y;Y	/RTM
02303	7777		
02304	7777		
02305	6206	6206;Y;Y	
02306	7777		
02307	7777		
02310	6207	6207;Y;Y	
02311	7777		
02312	7777		
02313	6210	6210;Y;Y	
02314	7777		
02315	7777		
02316	6211	6211;Y;N	/CDF 10
02317	7777		
02320	0000		
02321	6212	6212;Y;N	/CIF 10
02322	7777		
02323	0000		
02324	6213	6213;Y;N	/CDF CIF 10
02325	7777		
02326	0000		
02327	6214	6214;N;N	/RDF
02330	0000		
02331	0000		
02332	6215	6215;Y;Y	/SKME
02333	7777		
02334	7777		
02335	6216	6216;Y;Y	
02336	7777		
02337	7777		
02340	6217	6217;Y;Y	
02341	7777		
02342	7777		
02343	6220	6220;Y;Y	
02344	7777		
02345	7777		
02346	6221	6221;Y;N	/CDF 20
02347	7777		

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 10-2

02350	0000		
02351	6222	6222;Y;N	/CIF 20
02352	7777		
02353	0000		
02354	6223	6223;Y;N	/CDF CIF 30
02355	7777		
02356	0000		
02357	6224	6224;N;N	/RIF
02360	0000		
02361	0000		
02362	6225	6225;Y;Y	/SKMM
02363	7777		
02364	7777		
02365	6226	6226;Y;Y	
02366	7777		
02367	7777		
02370	6227	6227;Y;Y	
02371	7777		
02372	7777		
02373	6230	6230;Y;Y	
02374	7777		
02375	7777		
02376	6231	6231;Y;N	/CDF 30
02377	7777		
02400	0000		

02401	6232	6232;Y;N	/CIF 30
02402	7777		
02403	0000		
02404	6233	6233;Y;N	/CDF CIF 0
02405	7777		
02406	0000		
02407	6234	6234;Y;Y	
02410	7777		
02411	7777		
02412	6235	6235;Y;Y	
02413	7777		
02414	7777		
02415	6236	6236;Y;Y	
02416	7777		
02417	7777		
02420	6237	6237;Y;Y	
02421	7777		
02422	7777		
02423	6240	6240;Y;Y	
02424	7777		
02425	7777		
02426	6241	6241;Y;N	/CDF 40
02427	7777		
02430	0000		
02431	6242	6242;Y;N	/CIF 40
02432	7777		
02433	0000		
02434	6243	6243;Y;N	/CDF CIF 40
02435	7777		
02436	0000		

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 10-3

02437	6244	6244;Y;Y	
02440	7777		
02441	7777		
02442	6245	6245;Y;Y	
02443	7777		
02444	7777		
02445	6246	6246;Y;Y	
02446	7777		
02447	7777		
02450	6247	6247;Y;Y	
02451	7777		
02452	7777		
02453	6250	6250;Y;Y	
02454	7777		
02455	7777		
02456	6251	6251;Y;N	/CDF 50
02457	7777		
02460	0000		
02461	6252	6252;Y;N	/CIF 50
02462	7777		
02463	0000		
02464	6253	6253;Y;N	/CDF CIF 50
02465	7777		
02466	0000		
02467	6254	6254;Y;Y	
02470	7777		
02471	7777		
02472	6255	6255;Y;Y	
02473	7777		
02474	7777		
02475	6256	6256;Y;Y	
02476	7777		
02477	7777		
02500	6257	6257;Y;Y	

02501	7777		
02502	7777		
02503	6260	6260;Y;Y	
02504	7777		
02505	7777		
02506	6261	6261;Y;N	/CDF 60
02507	7777		
02510	0000		
02511	6262	6262;Y;N	/CIF 60
02512	7777		
02513	0000		
02514	6263	6263;Y;N	/CDF CIF 60
02515	7777		
02516	0000		
02517	6264	6264;Y;Y	
02520	7777		
02521	7777		
02522	6265	6265;Y;Y	
02523	7777		
02524	7777		
02525	6266	6266;Y;Y	

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 10-4

02526	7777		
02527	7777		
02530	6267	6267;Y;Y	
02531	7777		
02532	7777		
02533	6270	6270;Y;Y	
02534	7777		
02535	7777		
02536	6271	6271;Y;N	/CDF 70
02537	7777		
02540	0000		
02541	6272	6272;Y;N	/CIF 70
02542	7777		
02543	0000		
02544	6273	6273;Y;N	/CDF CIF 70
02545	7777		
02546	0000		
02547	6274	6274;Y;Y	
02550	7777		
02551	7777		
02552	6275	6275;Y;Y	
02553	7777		
02554	7777		
02555	6276	6276;Y;Y	
02556	7777		
02557	7777		
02560	6277	6277;Y;Y	
02561	7777		
02562	7777		
		IFDEF PRODUCTION <	
02563	6300	6300;Y;N	
02564	7777		
02565	0000		
02566	6310	6310;Y;N	
02567	7777		
02570	0000		
02571	6320	6320;Y;N	
02572	7777		
02573	0000		
02574	6320	6320;Y;N	
02575	7777		
02576	0000		
02577	6330	6330;Y;N	

02600	7777	
02601	0000	
02602	6340	6340;Y;N
02603	7777	
02604	0000	
02605	6350	6350;Y;N
02606	7777	
02607	0000	
02610	6360	6360;Y;N
02611	7777	
02612	0000	
02613	6370	6370;Y;N

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 10-5

02614	7777	
02615	0000	
02616	6400	6400;Y;N
02617	7777	
02620	0000	
02621	6410	6410;Y;N
02622	7777	
02623	0000	
02624	6420	6420;Y;N
02625	7777	
02626	0000	
02627	6430	6430;Y;N
02630	7777	
02631	0000	
02632	6440	6440;Y;N
02633	7777	
02634	0000	
02635	6450	6450;Y;N
02636	7777	
02637	0000	
02640	6460	6460;Y;N
02641	7777	
02642	0000	
02643	6470	6470;Y;N
02644	7777	
02645	0000	
02646	6500	6500;Y;N
02647	7777	
02650	0000	
02651	6510	6510;Y;N
02652	7777	
02653	0000	
02654	6520	6520;Y;N
02655	7777	
02656	0000	
02657	6530	6530;Y;N
02660	7777	
02661	0000	
02662	6540	6540;Y;N
02663	7777	
02664	0000	
02665	6550	6550;Y;N
02666	7777	
02667	0000	
02670	6560	6560;Y;N
02671	7777	
02672	0000	
02673	6570	6570;Y;N
02674	7777	
02675	0000	
02676	6600	6600;Y;N
02677	7777	

02700 0000
02701 6610 6610;Y;N
02702 7777

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 10-6

02703 0000
02704 6620 6620;Y;N
02705 7777
02706 0000
02707 6630 6630;Y;N
02710 7777
02711 0000
02712 6640 6640;Y;N
02713 7777
02714 0000
02715 6650 6650;Y;N
02716 7777
02717 0000
02720 6660 6660;Y;N
02721 7777
02722 0000
02723 6670 6670;Y;N
02724 7777
02725 0000
02726 6700 6700;Y;N
02727 7777
02730 0000
02731 6710 6710;Y;N
02732 7777
02733 0000
02734 6720 6720;Y;N
02735 7777
02736 0000
02737 6730 6730;Y;N
02740 7777
02741 0000
02742 6740 6740;Y;N
02743 7777
02744 0000
02745 6750 6750;Y;N
02746 7777
02747 0000
02750 6760 6760;Y;N
02751 7777
02752 0000
02753 6770 6770;Y;N / >
02754 7777
02755 0000
02756 7402 7402;Y;Y /HLT
02757 7777
02760 7777
02761 7404 7404;Y;Y /OSR
02762 7777
02763 7777
02764 0000 0 /END OF TABLE

/LIST FOR STATIC IOT TEST. EACH ENTRY CONSISTS OF
/IOT-CODE, SHOULD-SKIP, MAY-CHANGE-AC, (SHOULD-CLEAR-AC).
/THE LAST ELEMENT IS ONLY NEEDED IF MAY-CHANGE-AC IS YES.

02765 6200 IOTLST, 6200;N;N

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 10-7

02766 0000
02767 0000

02770	6275	CMME;N;N
02771	0000	
02772	0000	
02773	6205	RTM;N;Y;N
02774	0000	
02775	7777	
02776	0000	
02777	6215	SKME;N;N
03000	0000	
03001	0000	
03002	6225	SKMM;Y;N
03003	7777	
03004	0000	
03005	6235	LTM;N;Y;Y
03006	0000	
03007	7777	
03010	7777	
03011	6245	LRM;N;Y;Y
03012	0000	
03013	7777	
03014	7777	
03015	6265	SMME;N;N
03016	0000	
03017	0000	
03020	6215	SKME;Y;N
03021	7777	
03022	0000	
03023	6225	SKMM;Y;N
03024	7777	
03025	0000	
03026	6205	RTM;N;Y;N
03027	0000	
03030	7777	
03031	0000	
03032	6235	LTM;N;Y;Y
03033	0000	
03034	7777	
03035	7777	
03036	6245	LRM;N;Y;Y
03037	0000	
03040	7777	
03041	7777	
03042	0000	0
		\$
00161	0260	
00162	0007	
00163	6201	
00164	0070	
00165	6202	
00166	0510	
00167	1715	
00170	1666	
00171	1674	

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 10-8

00172	1632
00173	0075
00174	7000
00175	7727
00176	1023
00177	1000

/TEST PROGRAM FOR DM8E40 MEMORY MANAGEM PAL8-V10A 21-SEP-84 PAGE 11

AC	0123	LOOP4	0235	YCDF	0464
----	------	-------	------	------	------

BELL	0125	LOOP5	0275
BYTE	1704	LOOP6	0277
CDTERR	2027	LOOP7	0320
CDTF	0076	LOOP8	0613
CDTOIF	1632	LRM	6245
CDT1	1636	LTM	6235
CDT2	1651	MDERR	1245
CDT3	1652	MDTST	0067
CINT	6204	N	0000
CMME	6275	OCTEMP	1737
COPY	0437	OCTOUT	1715
COPY1	0446	PRODUC	0001
COPY2	0462	PTR	0121
COUNT	0115	Q	0075
COUNT1	0116	RDFER1	1400
COUNT2	0117	RDFER2	1414
COUNT3	0120	RDFST	0600
CRLF	1666	RELERR	1057
CTRLQ	2063	RELTST	0044
CTRLS	2075	RET1	0257
CUF	6264	RET2	0337
DIGIT	1725	RET3	0400
ENDTRP	0043	RET4	0423
ERR1	1267	RET5	0431
ERR2	1306	RET6	0626
ERR3	1324	RTM	6205
ERR4	1344	SERV	0020
FCDF	0214	SINT	6254
FIELDS	0122	SKME	6215
HALT	0051	SKMM	6225
INIT	2000	SMME	6265
INTERR	1000	START	0201
IOTLST	2765	STRING	1674
IOTTST	0502	SUF	6274
IOTX	0510	TABLE	2200
IOT1	0506	TERROR	1120
IOT2	0517	TER1	1140
IOT3	0523	TER2	1150
IOT4	0535	TRAPD	0124
IOT5	0541	TRPALL	1600
KCDF	0622	TRPCNT	1631
KK	0103	TRPERR	1023
K0	0105	TRPTST	0046
K1	0106	TRP1	1603
K2	0107	TSTRDF	0102
K3	0110	TTYTST	0053
K4	0111	TYPE	2054
K5	0112	UERROR	1200
K6	0113	UER1	1220
K7	0114	UER2	1227
LOOP0	0203	UTRALL	1615
LOOP1	0212	UTR1	1620
LOOP2	0231	XCDF	0325
LOOP3	0233	Y	7777

ERRORS DETECTED: 0
LINKS GENERATED: 37