IDENTIFICATION

PRODUCT CODE: MAINDEC-8E-D1GB-D

PRODUCT NAME: PDP-8E MEMORY POWER ON/OFF TEST

DATE CREATED: JUNE 11, 1971

MAINTAINER: DIAGNOSTIC GROUP

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1. ABSTRACT

   THIS PROGRAM IS A MEMORY DATA VALIDITY TEST TO BE USED AFTER
   A SIMULATED POWER FAIL.

2. REQUIREMENTS

   EQUIPMENT

   PDP-8E EQUIPPED WITH TELETYPE

   STORAGE

   MEMORY LOCATIONS 0000(8) - - 7601(8)

   BINARY LOADER AND RIM MUST BE STORED IN LAST MEMORY PAGE.

3. USAGE

3.1 LOADING

    NORMAL BINARY TAPE LOADING PROCEDURES

3.2 START UP AND/OR ENTRY

    LOAD ADDRESS 0200, PRESS CLEAR AND THEN CONT. THE PROGRAM
    SHOULD THEN HALT AT LOCATION 0031(8). LOAD ADDRESS 0201,
    PRESS CLEAR AND THEN CONT. THE PROGRAM SHOULD NOW LOOP.

3.3 ERRORS IN USAGE

    ERRORS DETECTED BY THE PROGRAM CAUSE THE PROGRAM TO HALT AT
    MEMORY LOCATION 0047(8). THE CONTENTS OF MEMORY ADDRESS
    0011(8) AND 0012(8) INDICATE THE ADDRESSES OF THE DATA THAT
    FAILED TO CHECK-SUM. MEMORY ADDRESSES 0007(8) AND 0010(8)
    CONTAIN THE DATA WORDS THAT FAILED TO CHECK-SUM.

    LOWER ADDRESS   = (0011(8)) = 202(8)-4001(8)

    UPPER ADDRESS   = (0012(8)) = 4002(8)-7601(8)

    LOWER ERROR WORD = (0007(8)) = 2525(8)

    UPPER ERROR WORD = (0010(8)) = 5252(8)

3.4 ERROR RECOVERY

    PRESS CONTINUE TO TEST FOR OTHER ERROR WORDS IN MEMORY. TO
    RELOAD MEMORY DO 3.2.

4.   DESCRIPTION

4.1   THIS PROGRAM TESTS MEMORY FOR BIT DROP OUT AND PICK UP AFTER
        A SIMULATED POWER FAILURE HAS OCCURRED.

        BY STARTING THE PROGRAM AT MEMORY ADDRESS 200(8), DATA WORDS
        CONSISTING OF 2525(8) ARE WRITTEN INTO MEMORY LOCATIONS
        0202(8) - - 4001(8), AND DATA WORDS CONSISTING OF 5252(8)
        ARE WRITTEN INTO MEMORY LOCATIONS 4002(8) - - 7601(8) AFTER
        WHICH THE PROGRAM HALTS AT MEMORY ADDRESS 0031(8). LOAD
        ADDRESS 0201(8) AND RESTART THE PROGRAM; THE PROGRAM WILL 2'S
        ADD THE CONTENTS OF MEMORY LOCATION 202(8) WITH 4002(8). IF
        THE RESULTS EQUALS 7777(8) THE PROGRAM WILL 2'S ADD THE CONTENTS
        OF MEMORY LOCATIONS 203(8) WITH 4003(8) ETC. UNTIL THE MEMORY
        ADDRESSES OF 4001(8) AND 7601(8) ARE TESTED. THE PROGRAM
        STAYS IN THE 2'S ADD COMPARE LOOP UNTIL AN ERROR OCCURS.
        CONCURRENTLY CYCLE THE POWER TO THE PDP-8E OFF AND ON. AFTER
        THE POWER HAS BEEN REAPPLIED TO THE PDP-8E, LOAD ADDRESS
        201(8) AND PRESS CLEAR AND THEN CONTINUE. IF AN ERROR OCCURRED
        DURING THE POWER CYCLING, THE PROGRAM HALTS AT LOCATION
        0047(8). THE PROGRAM MAY BE RESTARTED AT MEMORY ADDRESS
        0201(8) AS MANY TIMES AS DESIRED. RESTART ADDRESS TO FILL
        MEMORY WITH DATA WORDS IS 0200(8).

4.2   EXAMPLES AND/OR APPLICATIONS
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        A HALT OCCURS AT MEMORY ADDRESS 0047(8).

        ADDRESS 007(8) = 2535 (DATA WORD)

        ADDRESS 0010(8) = 5252 (DATA WORD)

        ADDRESS 0011(8) = 0270 (ADDRESS WORD)

        ADDRESS 0012(8) = 4070 (ADDRESS WORD)

        BIT 8 WAS PICKED UP AT MEMORY ADDRESS 0270(8).

5.   EXECUTION TIME
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        1 MSEC/LOOP

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                        /PDP 8E MEMORY POWER ON OFF TEST
          0200          *200
0200  5013              JMP START
0201  5032              JMP COMPAR

          0000          *0
0000  0000              0
0001  5001              JMP 1
0002  0002              2
0003  0003              3
0004  0000              0
0005  0000              0
0006  0000              0
0007  0000      UPPER,  0
0010  0000      LOWER,  0
0011  0000      LOWM,   0
0012  0000      HIGH,   0
0013  7300      START,  CLA CLL         /START INITIAL
0014  1056              TAD K0201
0015  3011              DCA LOWM
0016  1057              TAD K4001
0017  3012              DCA HIGH
0020  1060      WRKON,  TAD UPREG
0021  3411              DCA I LOWM
0022  1061              TAD LOREG
0023  3412              DCA I HIGH
0024  1011              TAD LOWM
0025  7041              CIA
0026  1057              TAD K4001
0027  7640              SZA CLA
0030  5020              JMP WRKON
0031  7402      STEND,  HLT             /TURN POWER ON OFF
0032  7300      COMPAR, CLA CLL
0033  1056              TAD K0201
0034  3011              DCA LOWM
0035  1057              TAD K4001
0036  3012              DCA HIGH
0037  1411              TAD I LOWM      /LOWM=UPPER ADDRESS 202-4001
0040  3007              DCA UPPER
0041  1412              TAD I HIGH      /HIGH=LOWER ADDRESS 4002-7601
0042  3010              DCA LOWER
0043  1007              TAD UPPER
0044  1010              TAD LOWER
0045  7040              CMA
0046  7440              SZA
0047  7402      E1,     HLT             /ERROR,DOES NOT COMPARE
0050  1011              TAD LOWM
0051  7041              CIA
0052  1057              TAD K4001
0053  7640              SZA CLA
0054  5037              JMP COMPAR+5    /RETURN TO CHECK MEMORY
0055  5032              JMP COMPAR      /END OF TEST AREA GO TO SETUP
0056  0201      K0201,  0201
0057  4001      K4001,  4001
0060  2525      UPREG,  2525            /ERROR WORD 2525
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0061    5252        LOREG,5252                      /ERROR WORD 5252
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