IDENTIFICATION
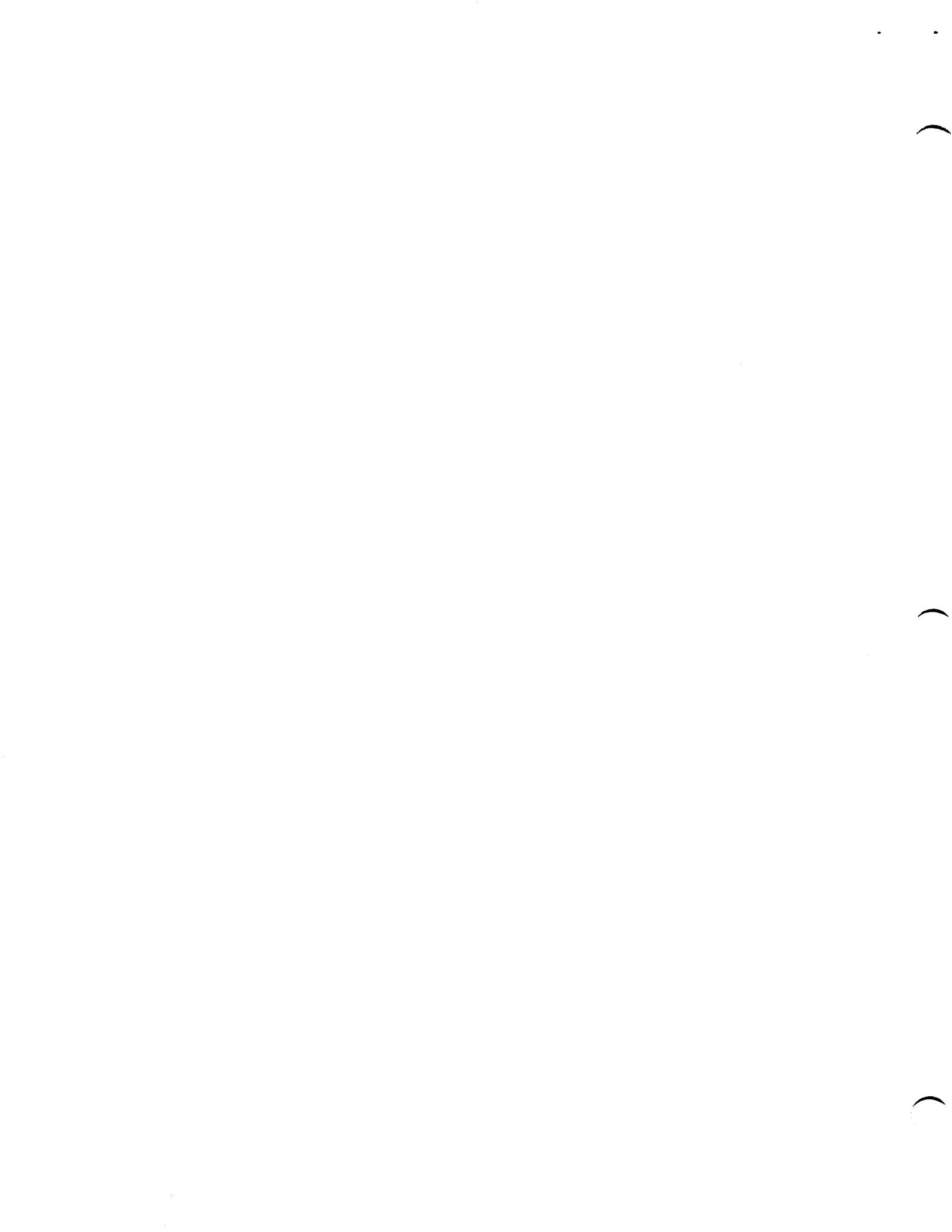
PRODUCT CODE: MAINDEC-8E-D0DB-D

PRODUCT NAME: RANDOM AND TEST

DATE CREATED: JUNE 7,1971

MAINTAINER: DIAGNOSTIC GROUP

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1.   ABSTRACT

     ...S PROGRAM TESTS THE AND INSTRUCTING OF THE PDP-8E.   THE
     AND INSTRUCTION, INSTRUCTION ADDRESS, OPERAND ADDRESS AND
     BOTH OPERANDS ARE PRODUCED BY RANDOM NUMBER GENERATORS.

2.   REQUIREMENTS

2.1 EQUIPMENT

     PDP-8E EQUIPPED WITH AT LEAST 4K OF MEMORY.

     TELETYPE.

2.2 STORAGE

     THE PROGRAM IS INITIALLY LOADED INTO LOCATIONS 0000 THRU 1177.
     THE INITIAL TEST AREA IS 1200-7777. WHEN THE PROGRAM RELOCATES,
     IT OCCUPIES 6600-7777. THE TEST AREA IS THEN 0000-6577.

2.3 PRELIMINARY PROGRAMS

     MAINDEC-8E-D0AA, D0BA, D0CA

3.   LOADING PROCEDURE

     THE STANDARD PROCEDURE FOR LOADING BINARY TAPES IS TO BE USED.

4.   STARTING PROCEDURE

4.1 STARTING ADDRESS

     0200

4.2 CONTROL SWITCH SETTINGS

     SR00=1, SUPPRESS HALT ON ERROR
     SR01=1, HALT AT END OF PASS, RESTORE LOADERS
     SR02=1, SUPPRESS PROGRAM RELOCATION
     SR03=1, SUPPRESS END OF PASS TYPEOUT
     SR09=1, HOLD DATA 1 CONSTANT
     SR10=1, HOLD DATA 2 CONSTANT
     SR11=1, HOLD INSTRUCTION CONSTANT

4.3   OPERATOR ACTION

4.3.1   SET SR TO 0200

4.3.2   PRESS LOAD ADDRESS SWITCH

4.3.3   SET SR TO 0000

4.3.4   PRESS CLEAR AND CONTINUE SWITCHES
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5.   OPERATING PROCEDURE

         SAME AS 4.

6.   ERRORS

6.1   RELOCATION ERROR

         IF AN ERROR OCCURS DURING PROGRAM RELOCATION, THE PROGRAM WILL
         HALT AT 234 OR 6634, DEPENDING UPON WHETHER THE PROGRAM IS
         LOCATED LOW OR HIGH.

6.2   DATA ERRORS

         IF THE LINK IS SET AFTER COMPLETION OF THE AND INSTRUCTION, OR
         IF THE RESULTS OF THE AND INSTRUCTION ARE INCORRECT, THE PROGRAM
         WILL HALT AT 731(7331) WITH DATA1 IN THE AC.

         DEPRESS CONTINUE TO DISPLAY DATA2 IN THE AC.
         DEPRESS CONTINUE TO DISPLAY AND INSTRUCTION IN AC.
         DEPRESS CONTINUE TO DISPLAY INSTRUCTION ADDRESS IN AC.
         DEPRESS CONTINUE TO DISPLAY DATA2 ADDRESS IN AC.
         DEPRESS CONTINUE TO DISPLAY INDIRECT POINTER (USED BY INDIRECT
         AND) IN AC.
         DEPRESS CONTINUE TO RESUME TEST

6.3   ERROR RECOVERY

6.3.1   RELOCATION ERROR

         RELOAD PROGRAM

6.3.2   DATA ERROR

        SEE 6.2

6.4   LOOPING

        SET SR00=1 TO PREVENT HALT AFTER ERROR,

        SET SR02=1 TO PREVENT RELOCATION,

        SET SR03=1 TO SUPPRESS END OF PASS TYPEOUT,

        SET SR09-SR11=1 TO HOLD INSTRUCTION AND DATA CONSTANT,

7.   RESTRICTIONS

        NONE

8.   EXECUTION TIME

        THE PROGRAM PERFORMS 4096 RANDOM TESTS IN APPROXIMATELY 2
        SECONDS AND THEN RELOCATES, THE PROGRAM WILL TYPE "A" AFTER
        EACH 4096 RANDOM TESTS UNLESS SR03=1,

9.   PROGRAM DESCRIPTION

        THE PROGRAM IS INITIALLY LOADED INTO LOCATIONS 0200-1177,
        WITH TEMPORARY STORAGE LOCATIONS ON PAGE 0, AFTER INITIAL
        KEYSTART, THE PROGRAM WILL SAVE RIM AND BIN LOADERS IN PAGE 0
        AND WILL THEN PROCEED TO USE LOCATIONS 1200-7777 AS A TEST
        AREA,

        THE PROGRAM USES SEPARATE RANDOM NUMBER GENERATORS TO GENERATE
        THE AND INSTRUCTION, INSTRUCTION AND DATA ADDRESSES, AND THE
        TWO ARGUMENTS TO BE "ANDED", THE INSTRUCTIONS AND DATA ARE
        STORED IN THEIR PREVIOUSLY GENERATED ADDRESSES, THE PROGRAM
        TRANSFERS TO THE LOCATION OF THE INSTRUCTION AND EXECUTES IT,
        THE PROGRAM THEN TRANSFERS TO A COMPARISON ROUTINE WHERE THE
        ACTUAL RESULT OF THE AND INSTRUCTION IS COMPARED TO A SIMULATED
        AND,

        AFTER 4096 TESTS, THE PROGRAM TYPES "A", RELOCATES, AND
        CONTINUES TESTING,