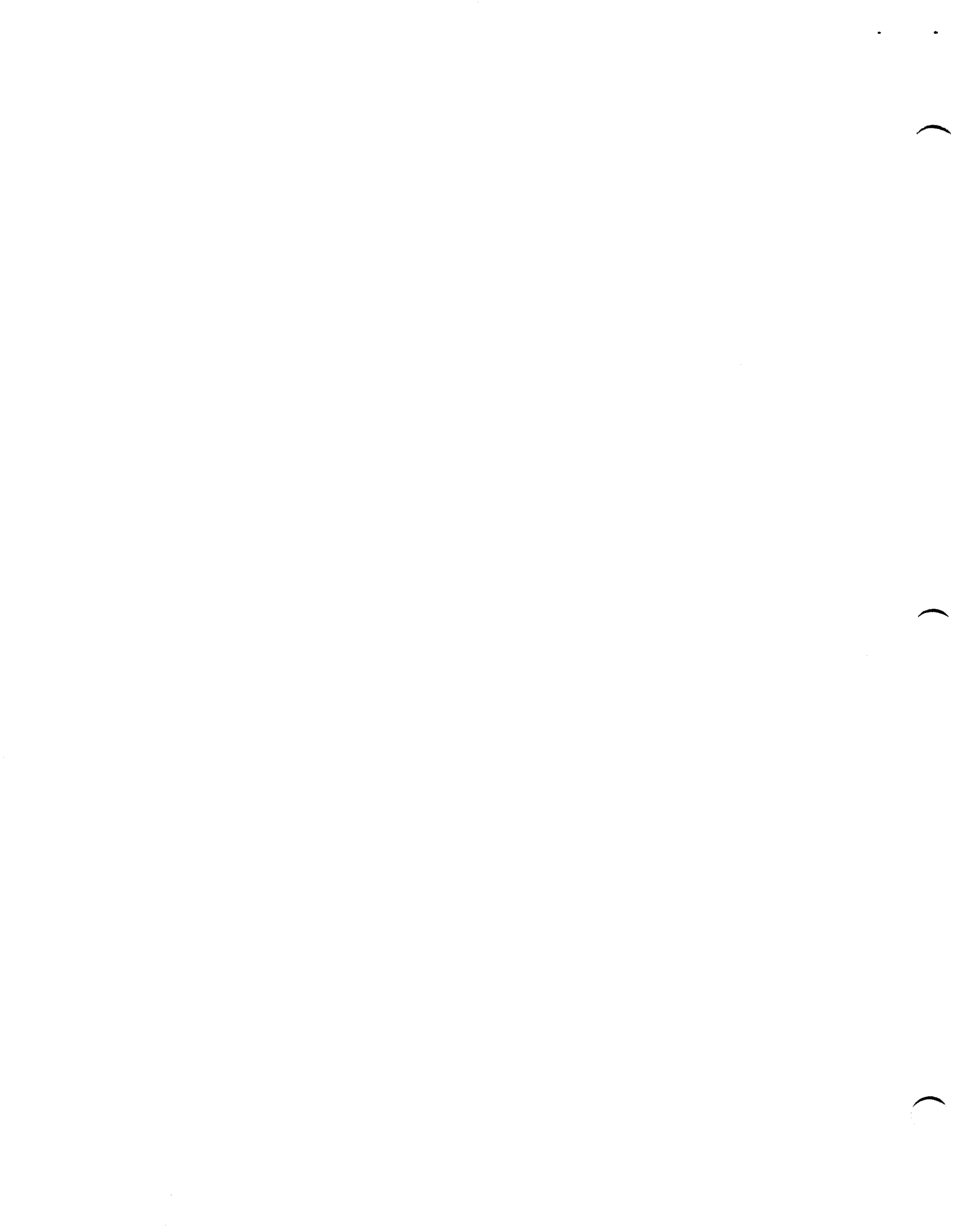


IDENTIFICATION  
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PRODUCT CODE:       MAINDEC-8E-DDDB-D  
PRODUCT NAME:       RANDOM AND TEST  
DATE CREATED:        JUNE 7, 1971  
MAINTAINER:         DIAGNOSTIC GROUP  
AUTHOR:             MICHAEL DAVIS

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1. ABSTRACT

THIS 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-DBAA, DBBA, 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  
SR08#1, HOLD DATA 1 CONSTANT  
SR10#1, HOLD DATA 2 CONSTANT  
SR11#1, HOLD INSTRUCTION CONSTANT

4.3 OPERATOR ACTION  
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4.3.1 SET SR TO 0200  
-----

4.3.2 PRESS LOAD ADDRESS SWITCH  
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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  
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6.1 RELOCATION ERROR  
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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  
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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  
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6.3.1 RELOCATION ERROR  
-----

RELOAD PROGRAM

6.3.2 DATA ERROR  
-----

SEE 6.2

6.4 LOOPING  
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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  
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NONE

8. EXECUTION TIME  
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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  
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THE PROGRAM IS INITIALLY LOADED INTO LOCATIONS 0288-1177, WITH TEMPORARY STORAGE LOCATIONS ON PAGE 0. AFTER INITIAL KEYSTART, THE PROGRAM WILL SAVE R1M AND 01N 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.