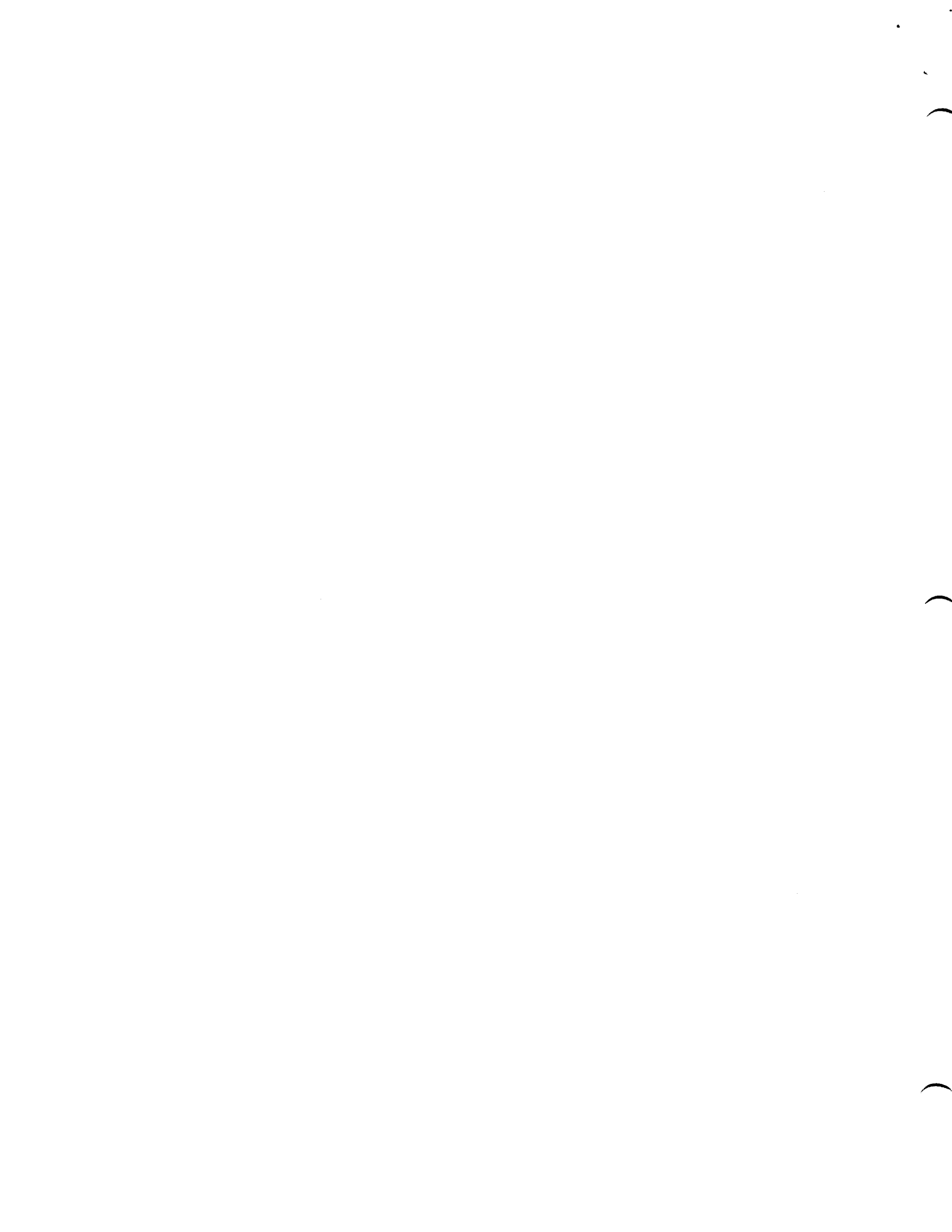


IDENTIFICATION  
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PRODUCT CODE: MAINDEC-8E-D000-D  
PRODUCT NAME: RANDOM DCA TEST  
DATE CREATED: JUNE 11, 1971  
MAINTAINER: DIAGNOSTIC GROUP  
AUTHOR: BRUCE HANSEN

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1. ABSTRACT  
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THIS PROGRAM TESTS THE DCA INSTRUCTION OF THE PDP-8/E. THE DCA INSTRUCTION ADDRESS, OPERAND ADDRESS, AND OPERANDS ARE TAKEN FROM A RANDOM NUMBER GENERATOR.

2. REQUIREMENTS  
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2.1 EQUIPMENT  
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PDP-8/E EQUIPPED WITH TELETYPE.

2.2 STORAGE  
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THE DIAGNOSTIC PROGRAM IS STORED IN LOCATIONS 0000 THROUGH 0407. THE PROGRAM USES 0410 THROUGH 7600 FOR A TEST AREA. THE BINARY LOADER MUST BE STORED IN THE LAST MEMORY PAGE.

2.3 PRELIMINARY PROGRAMS  
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MAINDEC-8E-D0A(N), AND MAINDEC-8E-D0B(N)

3. LOADING PROCEDURE  
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3.1 METHOD  
-----

THE STANDARD BINARY LOADER IS USED.

4. STARTING PROCEDURE  
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4.1 CONTROL SWITCH SETTINGS  
-----

SR0 (0) HALT AFTER ERROR PRINTOUT.  
SR1 (1) BYPASS ERROR PRINTOUT  
SR2 HOLD "FROM" CONSTANT (1). SELECT RANDOM "FROM" (0).  
SR3 HOLD "OPERAND ADDRESS" CONSTANT (1). SELECT RANDOM "OPERAND ADDRESS" (0).  
SR4 HOLD "OPERAND" CONSTANT (1). SELECT RANDOM "OPERAND" (0).

4.2 STARTING ADDRESS  
-----

0200

4.3 OPERATOR ACTION  
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1. SET SR TO 0200.
2. PRESS LOAD ADDRESS
3. SET SR TO 0000
4. PRESS CLEAR THEN CONTINUE

5. OPERATING PROCEDURE  
-----

SAME AS SECTION 4.

6. ERRORS  
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6.1 ERROR PRINTOUTS  
-----

F XXXX A YYYY O NNNN

L RRRR C MMMM

E

FROM, F XXXX WHERE XXXX = ADDRESS OF THE DCA  
INSTRUCTION

ADDRESS, A YYYY WHERE YYYY = ADDRESS WHERE DCA WILL  
DEPOSIT OPERAND

OPERAND O NNNN WHERE NNNN = THE OPERAND TO BE DEPOSITED.

LOCATION, L RRRR WHERE RRRR = A NONZERO LOCATION SOME-  
WHERE IN THE TEST FIELD.

CONTENTS, C MMMM WHERE MMMM = CONTENTS OF LOCATION RRRR.

END, E THIS LETTER IS TYPED TO INFORM THAT THE  
ENTIRE TEST AREA HAS BEEN SEARCHED FOR  
NONZERO OPERANDS.

A. THE FOLLOWING IS A TYPICAL ERROR PRINTOUT:

```
F 4572 A 0205 0 2525
L 0205 C 2527
E
```

LINE 1 IS SIMPLY A STATEMENT OF THE PROBLEM. IT SAYS THAT A DCA INSTRUCTION LOCATED AT 4572 TRIED TO DEPOSIT THE OPERAND 2525 INTO LOCATION 0205.

LINE 2 SAYS THAT INSTEAD OF FINDING A 2525 IN LOCATION 0205, THE PROGRAM FOUND A 2527. BIT 10 WAS "PICKED UP." THE E SIGNIFIES THAT A SEARCH OF THE TEST AREA SHOWED ONLY THE ABOVE PRINTED LOCATIONS DIFFERING FROM WHAT THEY SHOULD BE.

B. THE FOLLOWING IS A TYPICAL ERROR PRINTOUT:

```
F 4572 A 0205 0 2525
L 0215 C 2525
E
```

LINE 1 IS A STATEMENT OF THE PROBLEM AS IN THE PREVIOUS EXAMPLE. LINE 2 SAYS THAT LOCATION 0215 CONTAINS 2525, AND THE E ON LINE 3 SAYS THAT NO OTHER LOCATIONS WERE DISTURBED. IT IS APPARENT THEN THAT THE DCA INSTRUCTION DEPOSITED ITS OPERAND NOT INTO LOCATION 0205, BUT INTO LOCATION 0215. BIT 8 WAS "PICKED UP".

6.3 ERROR RECOVERY  
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TO ENTER A SCOPE MODE LOOP, SET SR0 TO A 0. WHEN A HALT OCCURS FOLLOWING AN ERROR, SET SWITCHES 1, 2, 3, AND 4 AND PUSH CONTINUE. A SCOPE MODE LOOP IS ENTERED USING THE CONDITIONS DESCRIBED BY THE LAST ERROR PRINTOUT.

IF IT IS DESIRED TO ENTER A SCOPE MODE LOOP USING A SPECIFIC SET OF CONDITIONS, STOP THE PROGRAM AND MAKE THE FOLLOWING ENTRIES:

- A. ENTER DESIRED FROM ADDRESS INTO MEMORY LOCATION 0167.
- B. ENTER DESIRED OPERAND ADDRESS INTO MEMORY LOCATION 0166.
- C. ENTER DESIRED OPERAND INTO MEMORY LOCATION 0170.

RESTART THE PROGRAM USING A CONTROL SWITCH SETTING OF 3600.