dec PERMANENT MEMORANDUM

DATE

August 9, 1961

SUBJECT

Memory Addressing Test Program

TO

PDP Distribution List

ABSTRACT

This is a maintenance program designed for checking memory address registers and decoders. The program checks for incorrect addressing and is capable, by use of sense switches, to continuously check any address designated by the test word switches.

FROM

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INTRODUCTION

To test memory address registers and decoders, all addresses not used by the address test program are loaded with their own address. That is to say, each register contains its own address. Then each register is checked for proper contents. Should an error be found, the address at which the error occured will appear in the IO and its contents in the AC.

There are two control sense switches in this program. Sense Switch 1 is used if it is desired to continuously check one register and the contents of all other registers to be sure that only one register contains a given address. This is done by first clearing memory, then storing the address located in the test word switches at the address designated by the test word switches. Now, a check is made on memory to find all non-zero registers and compare them against the address set in the test word switches. If there is more than one address that contains the contents of the test word switches or a wrong address that contains the contents of the test word switches, then the computer will come to a halt indicating the address in the IO and its contents in the AC.

OPERATING INSTRUCTIONS

#1 Put up sense switch #2

#2 Load tape into reader, turn reader on and activate read in mode switch.

#3 Set address in test word switches and put up SS#1 if it is desired to check one register. SS#1 down, tests all addresses designated by the program.

#4 Select +10 margin switches of memory address registers and decoders. Vary the margins until the program stops. Record what happened in the computer log book.

#5 The first program read in starts at register 7700. To read in the low version, put SS#2 down. After the reader begins reading in the new program, put SS#2 up immediately. Otherwise, the reader will continue reading in after the new program has read in.

NOTES:

Sense switch 2 is used in this program to keep it in a closed

loop. Otherwise, a new program will be read in on top of the old.

There are two address checking routines. The high version starts at register 7700. The low starts at register 0.

The following indicates how address checking is done.

Address	Contents	
0	0	
1	1	
2	2	
.	.	
.	.	
.	.	
100	100	
101	101	
102	102	
.	.	
.	.	
.	.	
1100	1100	
1101	1101	
1102	1102	
.	.	
.	.	
.	.	
7677	7677	
7700	----	Program starts here

The address is checked against contents.

```
,Address checker test program
,7/24/61
,S. Lambert
,High Checker
org 7700
start          law 0                ,initial location
               dap ¢ & 4
               dap check
               dap temp
               dzm * ¢ & 1
               dap
               idx ¢ - 1
               sas finish           ,final location
               jmp start & 4
```

```
                lio temp            ,IO contains address
check           lac
                sas temp
                hlt                 ,incorrect address
                idx temp
                idx check
                sas trailend
                jmp check - 1
zhit            szs 10              ,check one reg. continuously
                jmp hit
                szs 20              ,read in new tape
                jmp start
read            rpb
                dio temp
                lac temp
                dap stop
                and stop
                sad stop
stop            jmp
                rpb
                dio * temp
                jmp read
hit             lac start           ,clear memory
                dap ¢ & 2
                dap x & 1
                dzm
                idx ¢ - 1
                dzm
                idx ¢ - 1
                sas last
                jmp ¢ - 3
                lat
                and stp
                sad stp
                jmp zhit
                lat
                dap ¢ & 1
                dap
x               lac                 ,check all reg. to find the
                sza                 ,location of test word & address
                jmp ¢ & 6
                idx ¢ - 3
                lio ¢ - 4           ,IO has address of reg. being checked
                sas trailend
                jmp x & 1
                jmp zhit
                sas * x
```

```
                hlt
                jmp zhit
temp            0
finish          dap 7700
stp             7700
last            dzm 7700
trailend        lac 7700
jmp start end .
```