PERMANENT MEMORANDUM

DATE
August 29, 1961

SUBJECT
Combined Reader and Punch Test

TO
PDP-1 Maintenance Personnel

ABSTRACT

This is a utility program designed to test the performance of the PDP reader and punch. As the reader reads a closed loop tape of alternate ones and zeroes, each bit read is checked against core memory. The punch punches alternate ones and zeroes from a buffer area in memory.

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Introduction

When a reader test is performed, a check is made after every rpa command. In this test, the reader channels information into bits 10 through 17 in the IO. The bits are then transferred to the AC, where a test is made. The test on these bits is dependent upon test word switches. TW switches 0 to 9 vary the time between read commands. TW switches 10 to 17 select the bits coming from the reader.

Operating Instructions

#1 Read in reader and punch test program.
#2 Push "stop" and "examine" switches to clear rim flip-flop.
#3 Put closed loop tape for rpa tests in reader and turn reader on.*
#4 Put SS #1 down.
#5 Set test address switches to 3333 and push start.
#6 Put up test word switches 10 - 17 for testing into holes of reader. Put up test word switches 0 - 9 for varying the speed of the closed loop tape.
#7 If the computer halts, the error will appear in the AC and the word just read will be in the IO.
#8 Vary the ± ten volt margins on the reader, Input Mixer, and In-Out logic while using this test. Note in the computer log book, the voltage and bit or bits that caused the computer to halt.

Punch Test

#1 Turn punch on.
#2 Put up SS #1 after reader is functioning properly.
#3 Test word switches 10 through 17 designate the amount of buffer area that the punch punches. After the punch has finished punching, the reader reads a new block, which is determined by tw switches 10 to 17, into the buffer. This is a closed loop operation.
#4 Test word switches 0 to 9 vary the timing between ppa commands.
#5 After a liberal amount of tape has been punched, stop the computer. Put the beginning of this tape into the reader and put SS #1 down. Put up tw switches 10 to 17 and push the continue button. This checks by use of the reader test.

```
,reader and punch test
org 3327
            opd jda 170000
            opd cliaf 764207
a           777000
b           000377
c           0
mask        0
start       lat
            and a
            rar s7
            dac c
            lat
            and b
            szs 10
            jmp readpunch
            dac mask
            rpa
            dio temp
            lac temp
            and mask
            sza
            hlt
            cla
            jda count
            lac c
            jda count
            rpa
            dio temp
            lac temp
            and mask
            sas mask
            hlt
            lac c
            jda count
            jmp start
count           dap x
            lac count
            cma
            dac count
q           isp count
            jmp q
x           jmp
```

```
readpunch   add z
            dac mask
            law y
            dap temp
load        sad mask
            jmp punch
            rpa
            dio * temp
            idx temp
            jmp load
punch       law y
            dap temp
return      sad mask
            jmp cleartable
            lio * temp
            ppa
            lac c
            jda count
            cliaf
            idx temp
            jmp return
cleartable  law y
            dap temp
begin       sad mask
            jmp start
            dzm * temp
            idx temp
            jmp begin
temp        0
z           ¢ & 1
y           0
jmp start end ,
```

*The following generates tape for use with the rpa test:

```
start       lio templ
            ppa
            lio temp2
a           ppa
            szs * 10
            jmp start
            cli
            jmp a
templ       000377
temp2       000000
```