

516-24
ADH
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SOROBAN CARD READER TEST PROGRAM

A program has been written which tests the Soroban Card Reader and the corresponding DDP-516 interface. The test program contains no timing loops, so it works with both the 200 cpm and 600 cpm readers. The program is available on "self-loading" paper tape in the so-called PAL format, which requires only the paper tape bootstrap loader in locations 1-17. The currently available test program loads into locations 1000-1264; execution begins at 1001. The program does not operate in interrupt mode, but it does test the card reader interrupt flag.

The test program has 2 modes of operation, as determined by the position of Sense Switch 1. If the switch is up, a single card is read, and the program halts with the first column displayed in A. Each push on START brings the next column into A; the 80th push reads the next card.

If Sense Switch 1 is down, the program reads a deck, comparing each card with the last card read in the "switch up" mode. In the down mode, a halt only occurs in case of error.

There are 2 kinds of program stop: idle and halt. In some cases, a status "not ready" will cause the program to idle until ready, in which case it starts (or restarts) automatically. During such an idle, the X and B registers contain 0, and the A register displays the status in bits 13-16:

A ₁₃	Trouble
A ₁₄	Pick Fail
A ₁₅	Hopper Empty
A ₁₆	Ready

The program halt occurs in case of other errors, and to verify the columns read in the "switch up" mode. It is only necessary to push START to restart the program after a halt. The list of all possible halt conditions is given below. Except as otherwise noted, the A register contains status read just prior to the halt.

X register contains 0; trouble occurred before reading the first column.

B=0: The card reader was ready, the interrupt mask was off, but the card reader interrupt flag was on.

B=1: The card reader was ready, the interrupt mask was on, but the card reader interrupt flag was off.

B=2: Reader ready but pick (select) failed.

B=3: Interrupt flag remained on after successful select.

B=4: Faulty status appeared while waiting for ready to drop.

B=5: After ready dropped, a second select succeeded.

X register contains 1-80, a column number.

B=0: Card column is in A;

Sense switch 1 up means the corresponding column is to be verified by the user.

Sense switch 1 down means the displayed column did not match the corresponding column in the comparison card image.

B=1: Faulty status encountered before the column was read.

B=2: Read failed (after interrupt flag came on).

B=3: Read did not reset interrupt flag.

B=4: A second read attempt succeeded.

X contains 81: An 81st column appeared.

X contains -1: Status could not be read.

Note on Loading PAL-format Paper Tape

Put the following paper tape bootstrap program into the protected locations:

<u>Location</u>	<u>Data</u>	<u>Symbolic</u>
1	010057	STA '57
2	030004	ØCP '0004
3	131004	INA '1004
4	002003	JMP *-1
5	101040	SNZ
6	002003	JMP *-3
7	010000	STA 0
10	131004	INA '1004
11	002010	JMP *-1
12	041470	LGL 8
13	130004	INA '0004
14	002013	JMP *-1
15	110000	STA* 0
16	024000	IRS 0
17	100040	SZE

Load the paper tape into the Teletype reader, turn on the Teletype. Master Clear, start the computer in location 1, and push the button on the reader to start reading. When the tape has been read, Master Clear and start the computer at the proper location (1001g in the case of the Soroban test program).