

August 1967

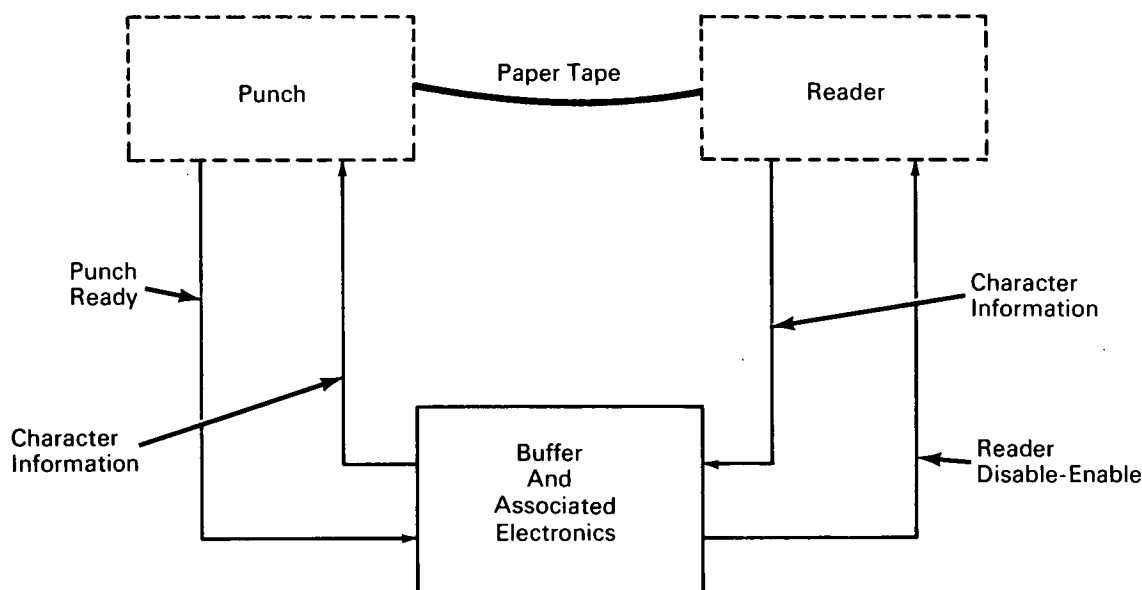
Brief 67-10267

# NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U.S. space program, to encourage their commercial application. Copies are available to the public at 15 cents each from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

## Tester Automatically Checks Paper Tape Punch and Reader After Maintenance



### The problem:

To develop a device for bench testing paper tape punches and readers under conditions that simulate their actual in-service operating environment. This device should be relatively simple and provide an automatic method for continuously checking a punch and reader following routine maintenance.

### The solution:

Operate the reader and punch back-to-back and let the paper tape output of the punch feed the reader. The leader of the tape is prepunched with an arbitrary pattern that is continuously reproduced during the check. An error that occurs at any time is continuously propagated.

### How it's done:

Any pattern of codes is prepunched on the tape, the length of the pattern exceeding the distance between punch and reader to prevent "tight tape" to allow continuous operation. Each character read by the reader causes the same character to be recorded by the punch. The 1-character buffer is used when the punch and reader operate at different synchronous speeds. In this case, the buffer stores the character for the time necessary to allow the effective reading rate to be equal to the punching rate in order to maintain slack tape between the punch and reader. With this closed loop operation, an error that occurs at any time is continuously propagated. Therefore, by

(continued overleaf)

observing the pattern that is being punched at any time, one may determine if any errors have occurred from the start of the test. If desired, a parity check bit may be used to allow stopping the operation whenever an error is detected.

**Patent status:**

No patent action is contemplated by NASA.

Source: D. D. McMurchy and L. Mazer  
(ARC-66)

**Note:**

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer  
Ames Research Center  
Moffett Field, California 94035  
Reference: B67-10267