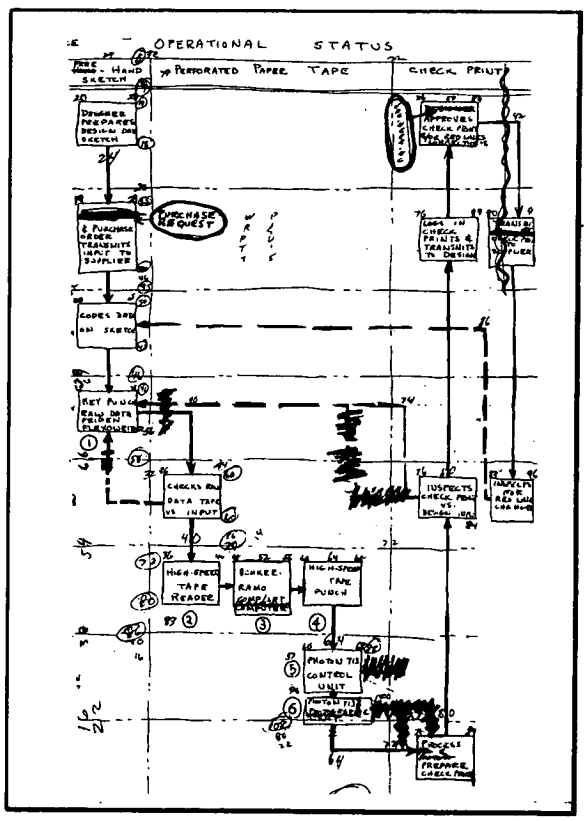
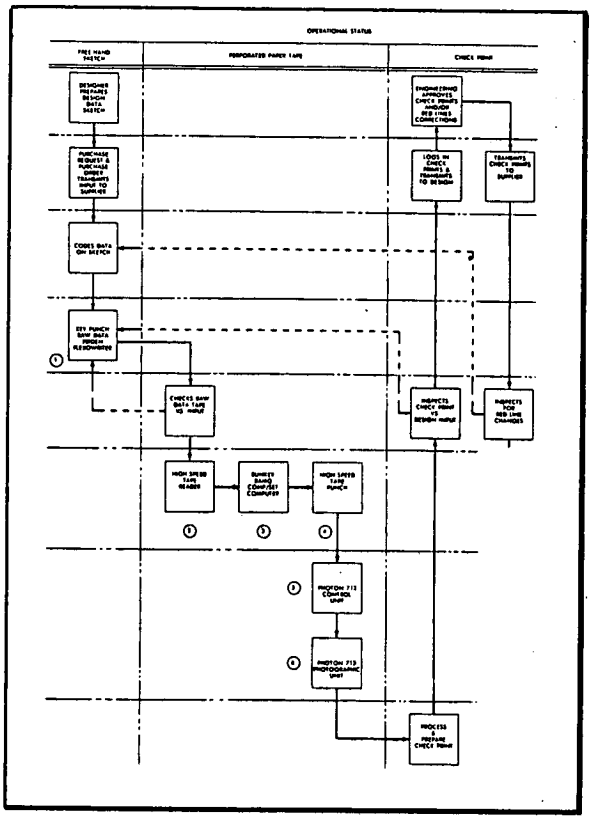
August 1966

Brief 66-10362

NASA TECH BRIEF

Automated Drafting System Uses Computer Techniques





The problem:

In implementing hardware production involving numerous complex items, large numbers of schematic and block diagrams must be produced from the design engineers' freehand sketches. Depending on complexity, a draftsman spends an average of 12 to 15 hours in producing a finished diagram. A system is needed that will eliminate this excessive time that produces no essentially "new" information.

The solution:

An automated drafting system that codes conventional drafting symbols and their coordinate locations on standard size drawings for entry on tapes that are used to drive a high speed photocomposition machine.

How it's done:

The designer's freehand sketch is marked with an alphameric code that translates the symbols, connect-

(continued overleaf)

ing lines, and coordinate locations into machine language. The coded data is converted into a raw data tape and typewritten text that can be checked for errors against the coded sketch. The raw data tape is fed to a computer that is programed to translate, arrange, and expand the raw data for transfer to a high speed output tape-perforating punch. The high speed punch converts computer impulses into holes in a paper tape that is fed into the control unit of a high speed photocomposition unit that responds to the pulsed instructions by photographically reproducing the diagram line by line and symbol by symbol in their prescribed coordinate locations.

Notes:

1. With this system, complex diagrams require only 3 to 4 hours including approximately 3 hours for translating the sketch information into machine language.
2. In one program, approximately 6,600 "D" size drawings will be automatically produced by this system at an estimated savings in excess of $140,000.00.
3. Inquiries concerning this innovation may be directed to:

   Technology Utilization Officer
   Marshall Space Flight Center
   Huntsville, Alabama 35812
   Reference: B66-10362

Patent status:

No patent action is contemplated by NASA.

Source: Donald H. Millenson
of North American Aviation, Inc.
under contract to
Marshall Space Flight Center
(M-FS-788)