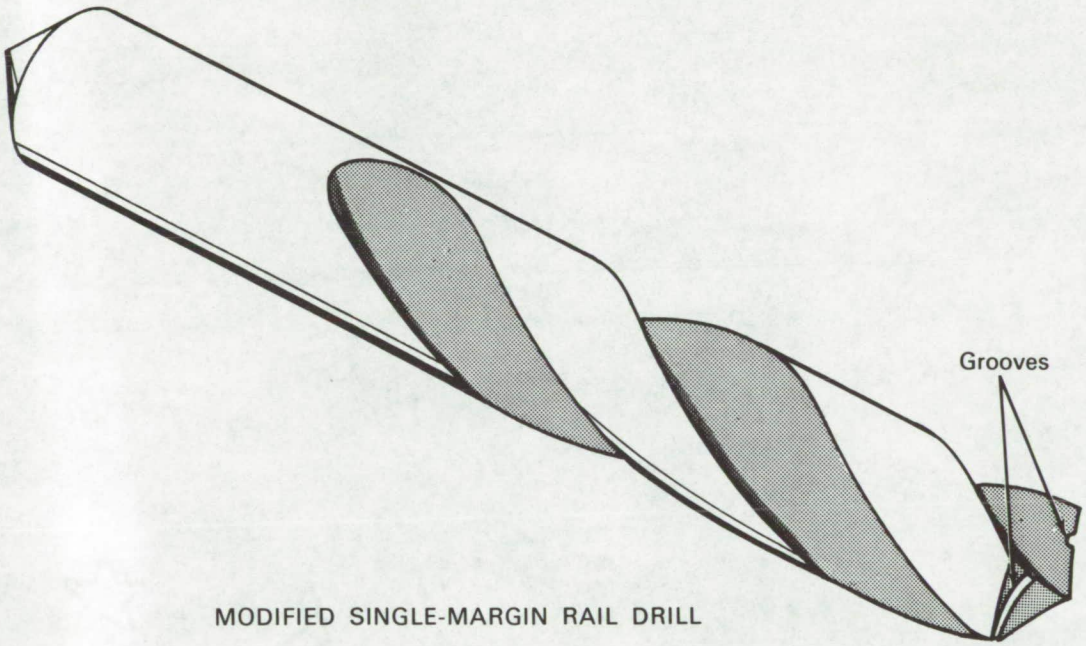
April 1966

Brief 66-10169

NASA TECH BRIEF

Modified Drill Permits One-Step Drilling Operation



MODIFIED SINGLE-MARGIN RAIL DRILL

The problem:

To eliminate the necessity, when drilling medium-diameter holes in hard materials, of first drilling with an undersized drill, deburring, and finally reaming the hole to the required size.

The solution:

Modifying the cutting faces of a drill having the same diameter as that of the desired hole. The drill can then be used in a one-step drilling operation, without chatter upon contact and premature wear.

How it's done:

The modification consists of a groove across the bottom of each of the cutting faces of the drill flutes. For a drill that has a diameter of 17/32 inch, the proper groove would have a depth of 1/32 inch and a radius of 0.030 inch; other size drills would require grooves of corresponding proportions. The area from the point of the drill to the groove, which is in essence a built-in center drill, functions to eliminate chatter.

Notes:

1. All drills with flutes of adequate size to contain a groove can be modified in this manner.
2. Inquiries concerning this invention may be directed to:

   Technology Utilization Officer
   Marshall Space Flight Center
   Huntsville, Alabama, 35812
   Reference: B66-10169

(continued overleaf)

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C., 20546.

Source: Charles Libertone
of North American Aviation, Inc.
under contract to
Marshall Space Flight Center
(M-FS-559)