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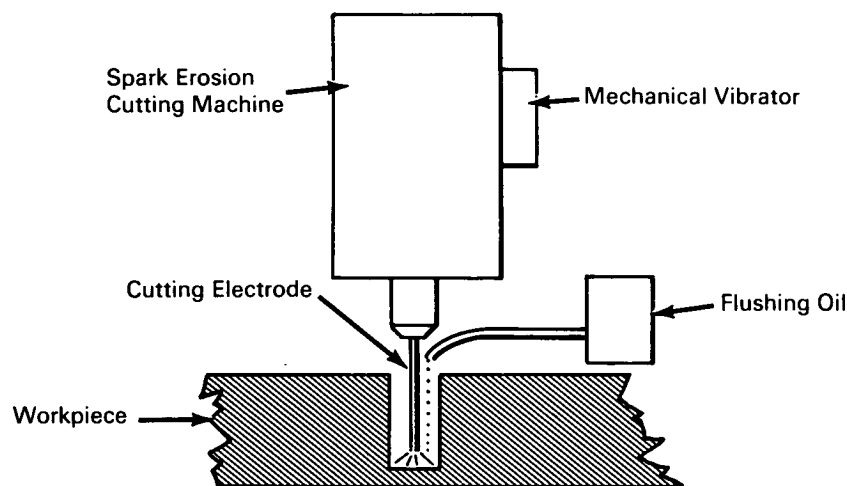
Brief 66-10333

NASA TECH BRIEF



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Vibrator Improves Spark Erosion Cutting Process



The problem:

In cutting deep holes of various cross sections in metals by the spark erosion method, much time is lost in repeatedly withdrawing the cutting electrode in order to remove residue built up in the hole.

The solution:

Mechanically vibrate the cutting electrode while continually flushing the cut area with nonconductive transformer oil during the cutting process.

How it's done:

A variable frequency mechanical vibrator is attached to the head of a commercially available spark erosion cutting machine. The frequency is adjusted depending upon such factors as material, hole cross section, and rate of residue production. The resultant

vibration of the cutting tip permits continual flushing away of residue with nonconductive electric transformer oil.

Notes:

1. This technique has resulted in reducing cutting time by as much as a factor of six while holding hole tolerance within design.
2. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
AEC-NASA Space Nuclear Propulsion
Office
U.S. Atomic Energy Commission
Washington, D.C. 20545
Reference: B66-10333

(continued overleaf)

Patent status:

No patent action is contemplated by NASA.

Source: L. R. Thrall
of Aerojet General Corporation
under contract to
Space Nuclear Propulsion Office
(NU-0071)