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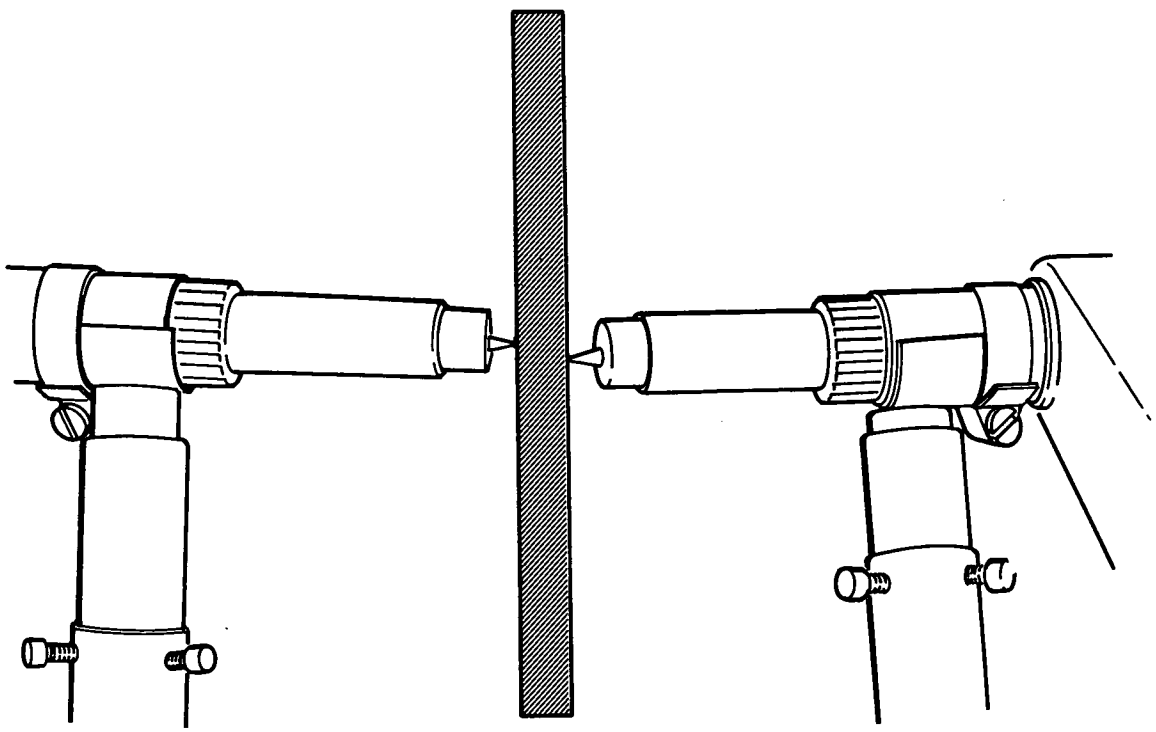
Brief 66-10513

NASA TECH BRIEF

Opposed Arcs Permit Deep Weld Penetration with Only One Pass



The problem:

In welding thick materials by conventional methods, several passes are normally required to accomplish a complete weldment. This tends to produce distortion, porosity, and zones that are weakened by heat differentials.

The solution:

An arc welding technique that uses opposed electrodes on either side of the workpiece, operated in 90°, out-of-phase, pulsating direct current.

How it's done:

A dual jig setup and dc pulsating circuitry is used to bring 90° out-of-phase current to opposite sides of the weld joint. Torch heads are horizontally offset with the electrodes inclined upwards 4° from the horizontal plane and 4° radially with the angle in the direction of the workpiece travel.

Notes:

1. Complete penetration has been obtained with this technique in metals ranging from 0.062- to 1.0-inch thickness.

(continued overleaf)

2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B66-10513

Patent status:

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

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of North American Aviation, Inc.
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