NASA TECH BRIEF

Parameters for Good Welding of Copper to Nickel

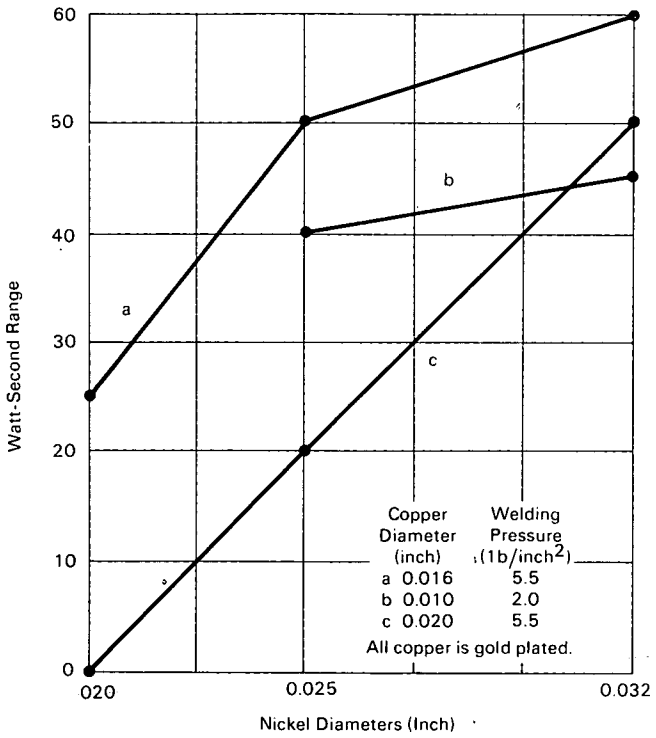

Fig. 1. Copper-to-Nickel Mass Ratios

The problem:

The quality of welding of copper leads to nickel bus wires has been so erratic that the process has been virtually discontinued.

The solution:

It has been discovered that, for quality in the weld, the nickel must exceed the copper in mass. Known mass-ratio parameters for successful welding are presented (Fig. 1).

The more the nickel exceeds the copper in mass, the greater the welding range; but beyond a nickel-to-copper mass ratio of 4:1 the improvement in the weld becomes progressively less. For ease in fabrication the ratio should be between 1.5 and 4.0 because, with nickel diameters exceeding 0.025 inch, bending of nickel bus wires becomes a problem. It has been shown that without expulsion the strength of the joint can exceed 60% of the tensile strength of the weaker metal.

(continued overleaf)

Note:

No further documentation is available. Inquiries may be directed to:

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Reference: B69-10302

Patent status:

No patent action is contemplated by NASA.

Source: L. G. Hall of
Martin Marietta Corporation
under contract to
Marshall Space Flight Center
(MFS-20353)