MSO-311

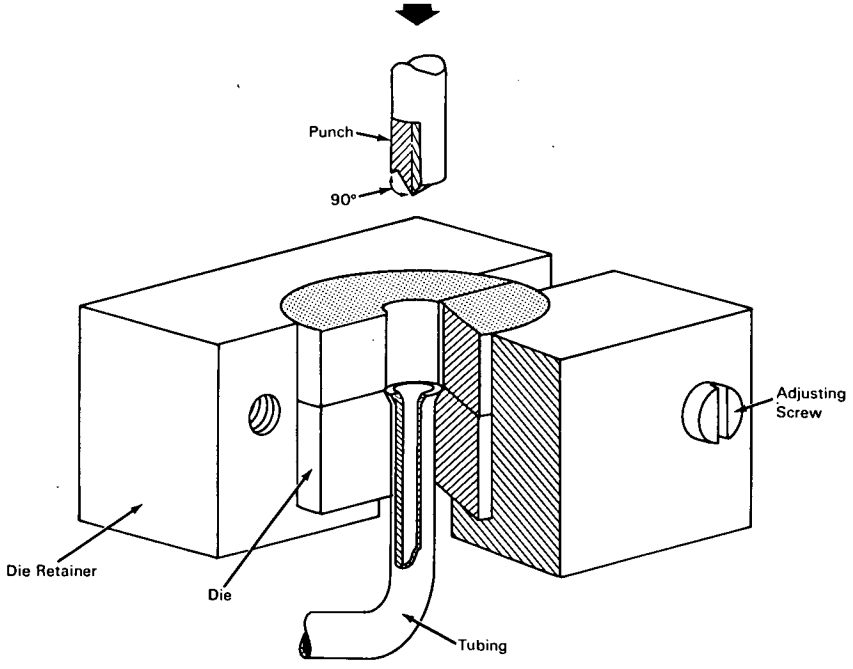
January 1966

Brief 66-10001

NASA TECH BRIEF

NASA Tech Briefs are issued to summarize specific innovations derived from the U. S. space program and to encourage their commercial application. Copies are available to the public from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

Forming Tool Improves Quality of Tubing Flares



The problem: To improve the quality of tubing flares for use with standard flared-tube fittings in high-pressure systems. Standard tools do not form flares of sufficient dimensional accuracy for reliable sealing of connections in such systems.

The solution: An improved punch and die set that forges a dimensionally accurate flare in the tubing. The die also forces more tubing material into the high-stress areas to improve the strength and tightness of the tubing connection.

How it's done: The tubing is placed in the die and struck with a matching punch to form the flare. The die is held in a retainer which accommodates dies of different size corresponding to the tubing diameter.

The apex angle of the punch is ground a few degrees less than the angle of the die to permit tubing material to flow into high-stress areas. A 90° edge at the base of the apex pushes tubing material down toward the high-stress areas in the bend of the flare.

(continued overleaf)

Notes:

1. This punch and die set can be used to form flares in standard fittings in applications requiring a reliable, strong flared-tube connection.
2. Inquiries concerning this innovation may be directed to:

   Technology Utilization Officer
   Western Operations Office
   150 Pico Boulevard
   Santa Monica, California, 90406
   Reference: B66-10001

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated by NASA.

Source: General Dynamics/Astronautics
under contract to
Western Operations Office
(WOO-231)