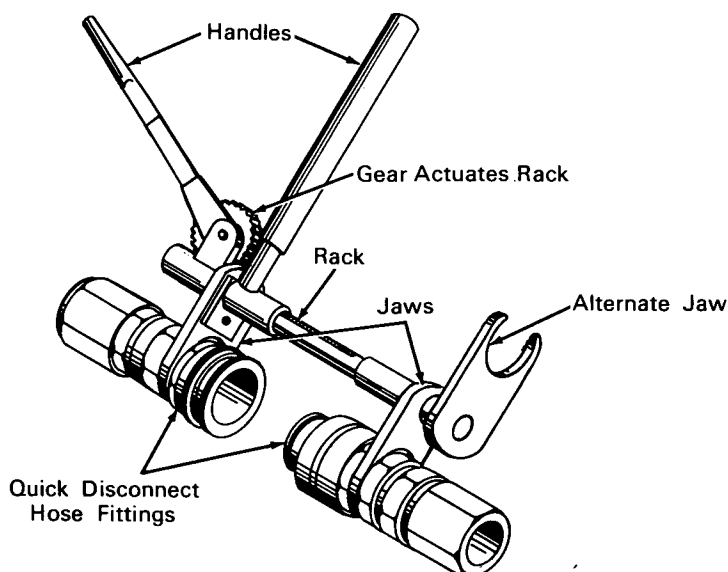


NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the NASA space program.

Special Pliers Connect Hose Containing Liquid Under Pressure



The problem: Connecting large self-sealing, quick-disconnect fittings when the hose is carrying a liquid under pressure. The operator must cope with the pressure of the liquid, the spring pressure of the fitting, and the weight of the heavy hoses. If the connection is not made quickly, the liquid can spray out in a hazardous manner.

The solution: A special kind of pliers, incorporating a gear and rack mechanism, and two or more wide-opening U-shaped jaws that fit onto the quick-disconnect fittings.

How it's done: In making a connection, one of the U-shaped jaws is placed over one of the hose fittings and the other jaw over the second hose fitting. After first adjusting the pliers to bring the fittings close together, the operator squeezes the plier handles to

complete the connection. Leverage of the handles multiplies the force exerted and easily overcomes the resistance encountered. Because the user can force the fittings together quickly and easily, there is little or no loss of fluid. An alternate, larger jaw which can be swiveled and locked in place, is provided on the pliers. The additional jaw facilitates the use of the tool with a variety of hose sizes.

Notes:

1. This device is recommended for any situation where large quick-disconnect fittings must be joined. Such fittings are widely used throughout non-aerospace as well as aerospace industry.
2. Quick-disconnect fittings could be designed so that this mechanism would be an integral part of the

(continued overleaf)

coupling. Alternatively, it could be incorporated as a modification to existing fittings.

3. Adaptation of this principle to other operations in industry might be considered. For instance, in welding or joining lightweight pipe, wrenches

with an extra large jaw opening would be distinctly useful.

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

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