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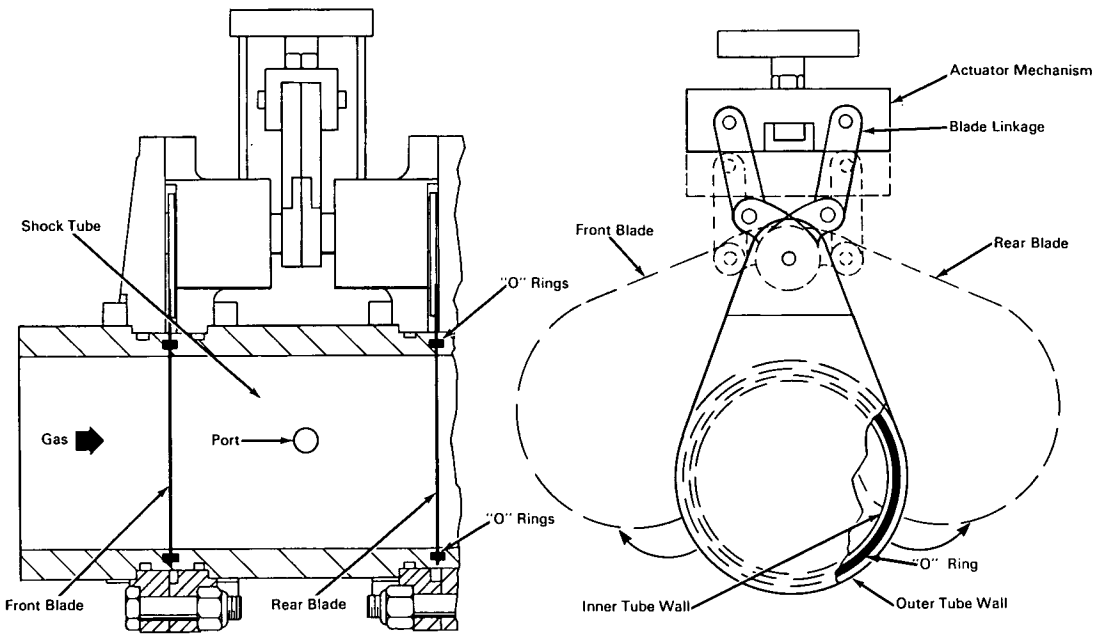
Brief 64-10188

NASA TECH BRIEF

Blade Valve Isolates Compartment in Pipe, Opens to Allow Free Flow



The problem: Providing a valve that closes to form a sealed compartment in a shock-tube portion of a pipeline and opens to allow unrestricted flow of gas through the system. Such a valve was required to facilitate the introduction of chemical reactants into the shock tube, where they can subsequently be exposed to controlled experiments in a gaseous environment.

The solution: A valve incorporating two thin blades that seal off a compartment in the pipeline when they are inserted between two pairs of butting "O" rings mounted in annular recesses around two sections of the line.

How it's done: In operation of the valve, the actuator mechanism is lifted to swing the two blades into closed positions between overstuffed "O" rings in the annular recesses. After closure of the valve, the operator can insert chemical reactants through a port which he opens in a wall of the sealed-off shock tube. The port is then closed, and the actuator is driven downward (by high-pressure gas from an explosive charge or other source), swinging the blades back into the valve housing and completely opening the pipeline to the gas flow required for experimentation. When the blades are withdrawn, the tightly butting "O" rings effectively seal the two sections of the line against leakage through the walls.

continued overleaf

Note:

1. Inquiries concerning this innovation may be directed to:

   Technology Utilization Officer
   Jet Propulsion Laboratory
   4800 Oak Grove Drive
   Pasadena, California, 91103
   Reference: B64-10188

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

Source: Robert E. Imus (JPL-585)