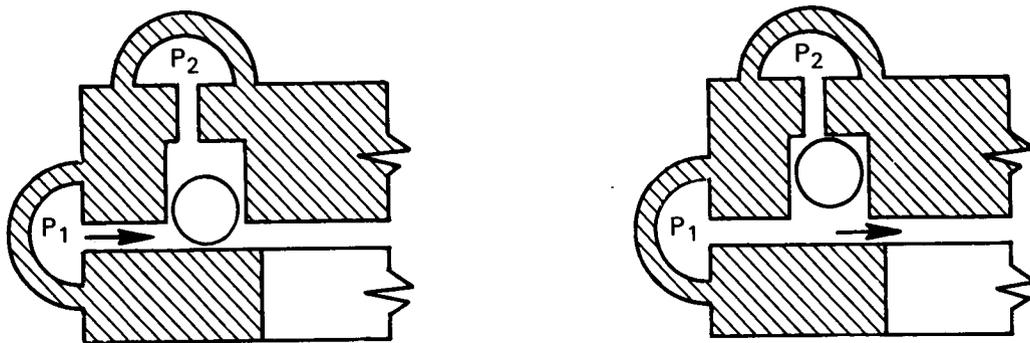


NASA TECH BRIEF



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Ring Valve Responds to Differential Pressure Changes



The problem:

To design a pressure valve that will operate automatically to sense a change or reversal of pressure, and react accordingly.

The solution:

A valve that has a moving annular ring seal that reacts to differential pressure changes across the seat.

How it's done:

The mechanical feature of the valve is a pressure riding annular ring that moves axially through its centroid. Controlled pressure differential across the top and bottom passages provides the force to move the ring either up or down, depending on the direction of the pressure differential. The ring itself is contained in an annular groove that provides guidance during motion and controls the amount of travel required.

When P_1 is less than P_2 , the valve will close as shown at left. When P_2 is vented to a lower pressure level, P_1 will act against its annular area and provide the energy to move the valve to the open position as shown at right.

Note:

The pressure response ring valve has substantial promise of commercial utility in the petroleum and chemical industries.

Patent status:

Title to this invention has been waived under the provisions of the National Aeronautics and Space Act (42 U.S.C. 2457 (f)), to North American Aviation, Inc., 1700 East Imperial Highway, El Segundo, California.

Source: North American Aviation, Inc.
under contract to
Western Operations Office
(WOO-247)
Category 05