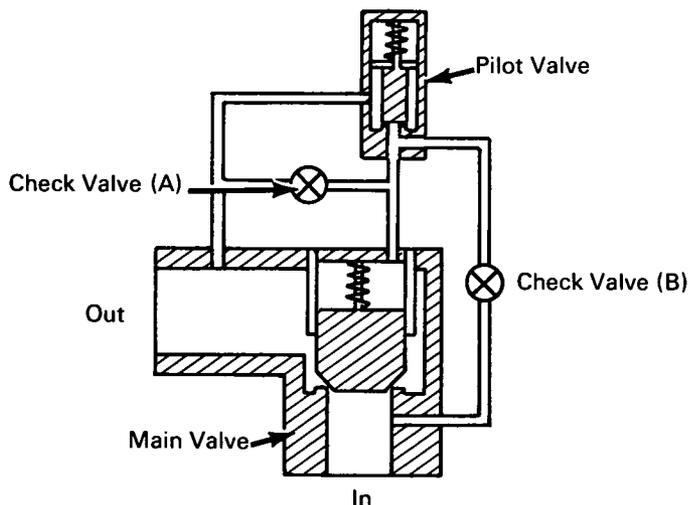


NASA TECH BRIEF



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Check Valve Installation in Pilot Operated Relief Valve Prevents Reverse Pressurization



The problem:

To prevent reverse flow through pilot-operated relief valves of differential area piston design. The reverse flow may be caused by a discharge header back pressure in excess of the relief valve inlet pressure, or the creation of a vacuum on the inlet side of the main relief valve.

The solution:

Add two check valves to control pressure flow to ensure that the piston dome pressure is always at least as great as the main relief valve discharge pressure.

How it's done:

Check valve (A) permits back pressures higher than the inlet pressure to enter the piston dome and

thereby keep the main relief valve shut. Check valve (B) prevents this back pressure from entering the inlet of the main relief valve. During normal relief valve operation, check valve (A) prevents the piston dome pressure from bleeding to the discharge pressure.

This modification is fail-safe in that the main relief valve will always operate at a pressure no higher than the set pressure, even with the failure of either or both check valves.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B66-10655

(continued overleaf)

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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