

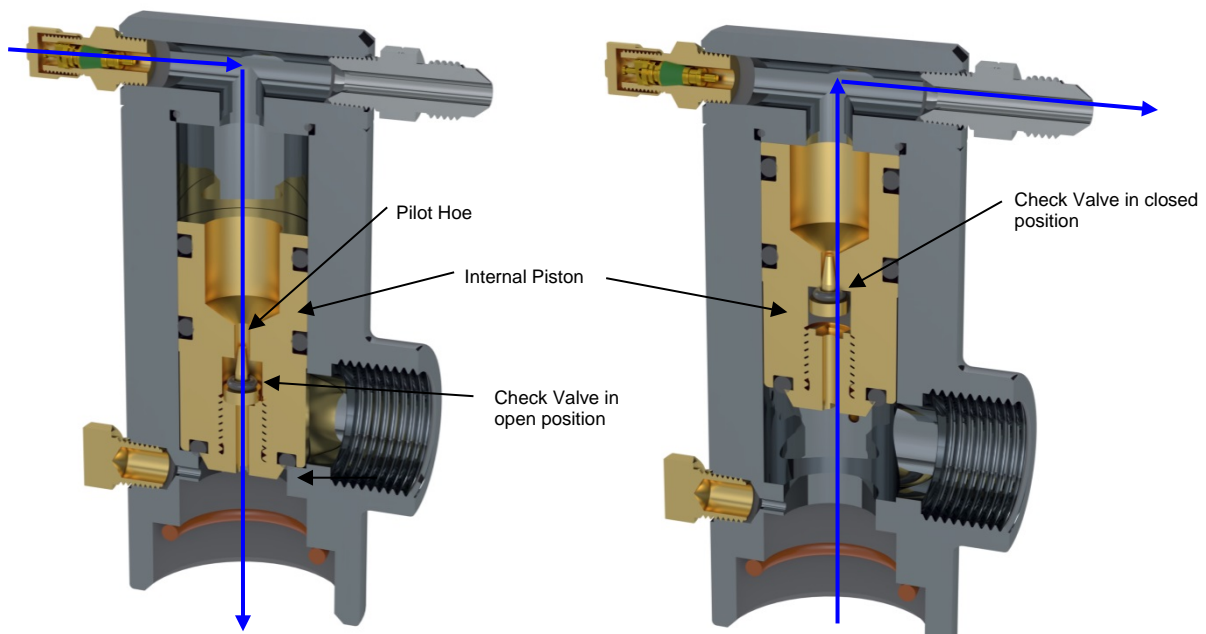
**Subject:** PEFS LOP Valve Actuation Bypass

**Product:** PEFS, PEFS F3 and PEFS C6 LOP systems

**Parts:** 28059 LOP Valve Actuation Bypass Kit

## **Existing PEFS LOP pressure balancing design**

The PEFS LOP valve is a differential pressure valve. The piston inside the valve incorporates a pilot hole to allow the pressure to equalise above and below the piston. Inside the piston is a check valve. The valve check floats within the piston and moves downward when the system is being pressurised with nitrogen. A loss of pressure above the piston forces the valve check upward which closes off the pilot hole. This allows the pressure to force the piston up, releasing the foam solution from inside the cylinder.



**Figure 1- LOP valve sectional view**

When a PEFS LOP system is pressurised the pressure in the cylinders and actuation network will be equal. The purpose of the floating check valve is to allow pressure to pass between the cylinder(s) and the actuation system to account for pressure changes that can occur during system pressurising, with temperature changes, and when minute leaks occur.

**Note:** Minute leaks occur due to the small molecular size of nitrogen (propellant) which can permeate through rubber seals and hose over long periods of time.

When pressure passes through the piston back into the actuation system, it also allows foam solution to pass into the LOP actuation system. Having foam solution in the actuation system will not prevent the PEFS system from functioning as intended but it will result in some of it being discharged out of the manual LOP actuators when they are operated.

In PEFS systems that have a large amount of actuation hose, the foam solution may also cause a few seconds delay before the cylinder valves open. A small delay between activating a manual actuator and the cylinder valves opening is considered normal.

## **PEFS LOP Valve Actuation Bypass**

The PEFS LOP Valve Actuation Bypass is available as a kit. The bypass changes the pathway for pressure to flow to and from the PEFS cylinders during pressurising and balancing. The bypass relocates the floating check valve from the valve piston to the filler port plug. Instead of the pressure balancing occurring through the valve it now occurs through the filler port plug. The bypass prevents the foam solution in the cylinder from entering the actuation system.



**Figure 2**

This bypass requires an additional hose connection outside the valve as shown in Figure 2.

## **Do I need to install a LOP Valve Actuation Bypass Kit?**

The LOP Valve Actuation Bypass Kit is an optional modification for a PEFS system.

It is recommended for use where a slight delay in actuation is a concern or where a discharge of a small amount foam solution from a manual actuator poses an issue in locations such as the operator cabins or where contact with sensitive equipment will occur.

The kit is also recommended for use on cylinders that are installed standing vertical. If the bypass is used on a cylinder that is installed horizontally, foam solution is likely to flow into the actuation system during pressure balancing.

## **References:**

Work Instruction: WI-VS04-230325 PEFS LOP Valve Actuation Bypass Kit

**Effective Date:** Immediately

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