

Diversificated behavior of Tristop® cylinder with IBV compared to Tristop® cylinder with external breather pipe

When the park brake is activated (port 12 = 0 bar) and in parallel the service brake has a partial brake with e.g. 1.3 bar, a venting sound might be heard coming from the hand brake valve or relay valve.

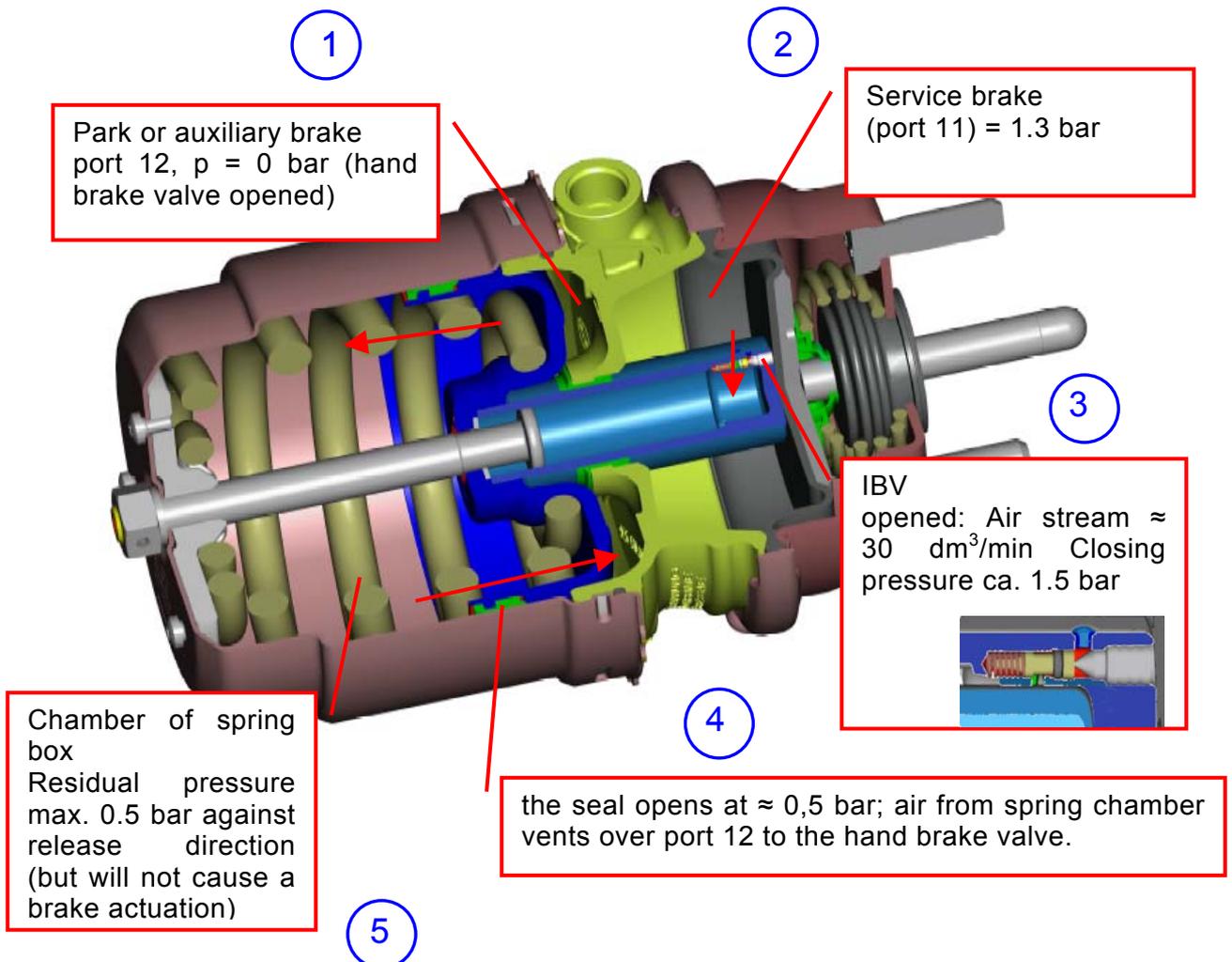
The reason is an open IBV whilst a service brake pressure lower than 1.5 bar where, with a small brake-in, a small air stream can flow into the vented spring box circuit.

This non-critical behavior is clearly outdone by the benefits of the new system.

Explanation:

The internal breather valve is integrated into the piston of the spring box. In open position the spring chamber is connected with the (pressureless) service brake and prevents an increasing pressure in the spring chamber while move of the spring piston (important for a low release pressure). When the service brake is actuated, the IBV closes in favour of a fast pressure increase in the cylinder's diaphragm part.

The situation is described in the figure below (step 1 to 5)



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