

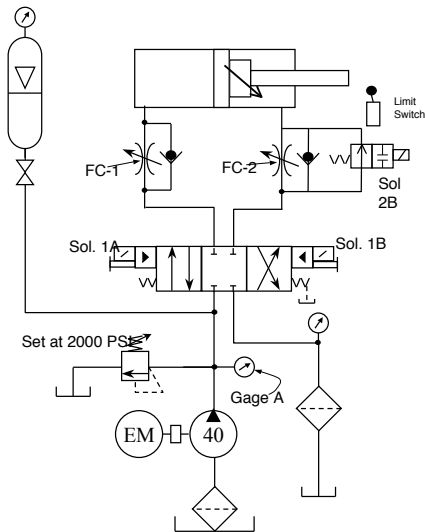
PROBLEM: Cylinder Speeds Up When It Should Slow Down

A parts manufacturer has a press that cycled once every 30 seconds. The extend stroke speed was very fast for the first 23 inches, and a limit switch would trip at this point to slow the speed down to approximately half the speed by closing a two-position directional valve. The cylinder had an extension cushion on the rod side to keep the piston from slamming into the cylinder end cap. The simple circuit shows the set-up.

They developed a problem with the cylinder not slowing down when the limit switch was tripped and the piston was slamming into the end cap. The operator insisted that the cylinder would speed up instead of slowing down when the limit switch was tripped. Timing the cycle did in fact verify that the cylinder did speed up.

Maintenance adjusted the needle valve to the fully closed position, and the cylinder would still travel at high speed. Thinking the bypass check in FC-2 flow control was sticking in the open position, they replaced it with a new one. However, this did not fix the problem. They then checked the control circuit from the limit switch to Sol-2B and found it worked each time the cylinder was cycled, so they changed the two-position directional valve but to no avail.

They then removed and inspected the cushion needle valve and ball check finding it in good operating order. They felt the cylinder was working fine since it would press the part and cycle back and forth.



PREVIOUS SOLUTION: ABS Brake Test

Pressure-reducing valves require a minimum pressure differential across their ports to operate properly. This needed pressure limits the minimum pressure they can obtain and hold accurately. The ABS manufacturer needed an unusually low pressure of 15 psi, far below the minimum 75 psi they could maintain with the current system. They had a good, reliable testing system other than it would not accurately go to the 15 psi needed. Jason Kauffman of Baltimore Hydraulics suggested they just add a 65 psi check valve in line after the pressure-reducing valve to provide an additional pressure drop, reducing the outlet pressure to the needed 15 psi. Such a simple idea that worked well.



Any idea what was causing the cylinder to speed up when it should have slowed down?