

## Spool Leakage

### Part I

- Connect the hydraulic circuit as shown
- Start the pump and shift the directional control valve to the various positions
- Note the pressures on the gauges when the valve is shifted to the various positions

-Students should recognize that when left in the centre condition spool leakage will cause the pressure to rise at pA and pB.

This may take longer than 2-3 minutes due to the low working pressure and the volume of the hoses

-Theoretically  $p_A = p_B = p_S/2$

### Supplemental

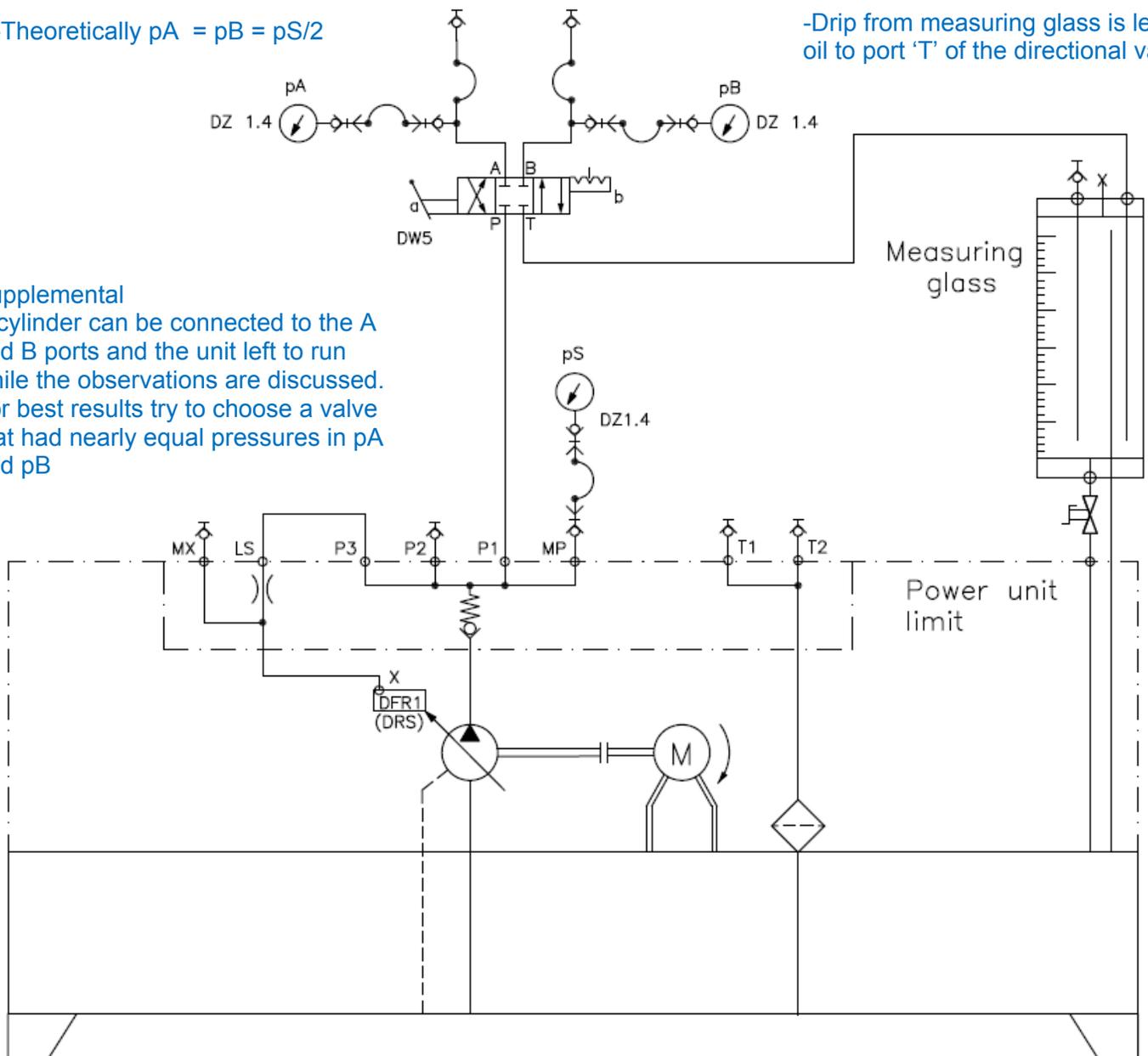
A cylinder can be connected to the A and B ports and the unit left to run while the observations are discussed. For best results try to choose a valve that had nearly equal pressures in pA and pB

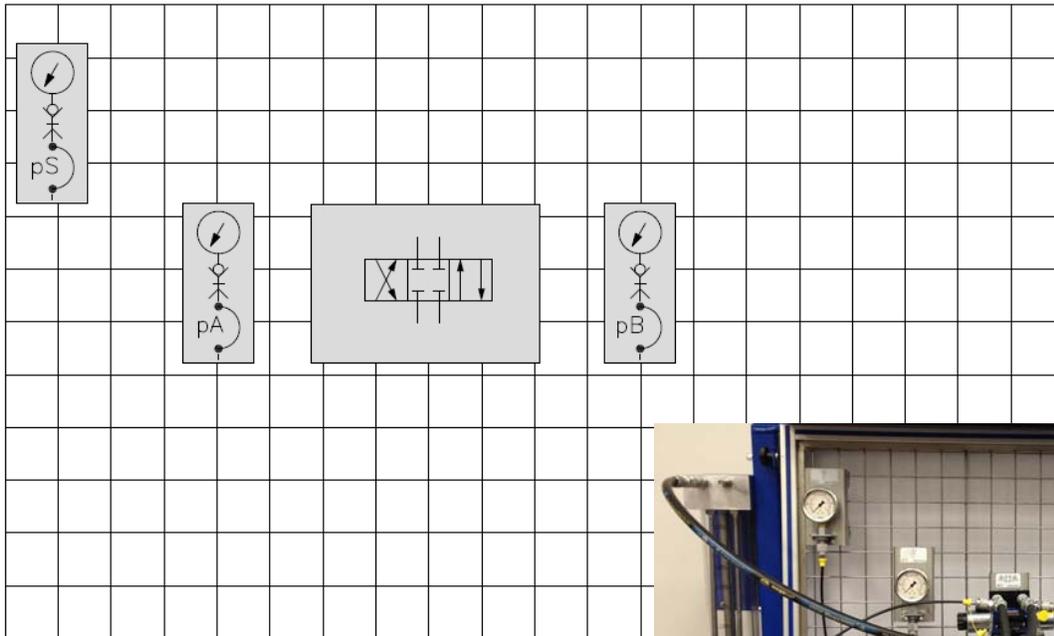
### Part II

- Shut off the pump and shift the directional valve to release all hydraulic pressure
- Return the directional control valve to the centre position
- Start the pump and **without shifting the directional control valve** note the pressures on the three gauges
- Leave the pump running for 2-3 minutes and note the following:
  - Pressures at ports P, A, B
  - Flow at the measuring glass

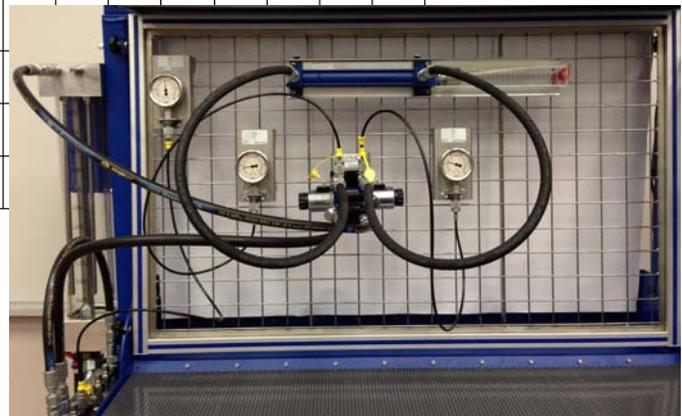
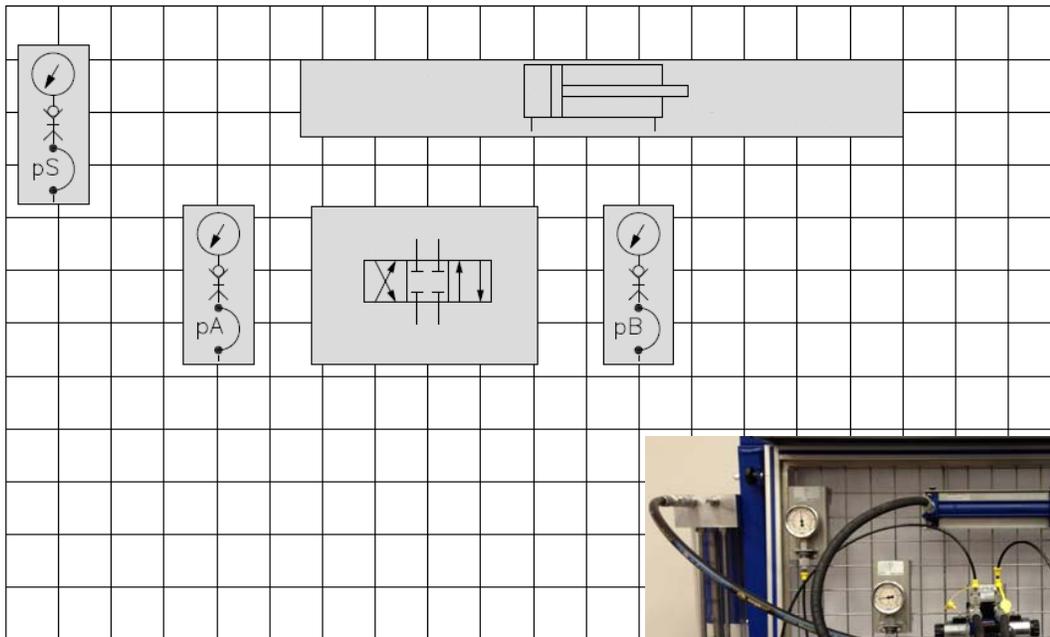
Explain what you observe

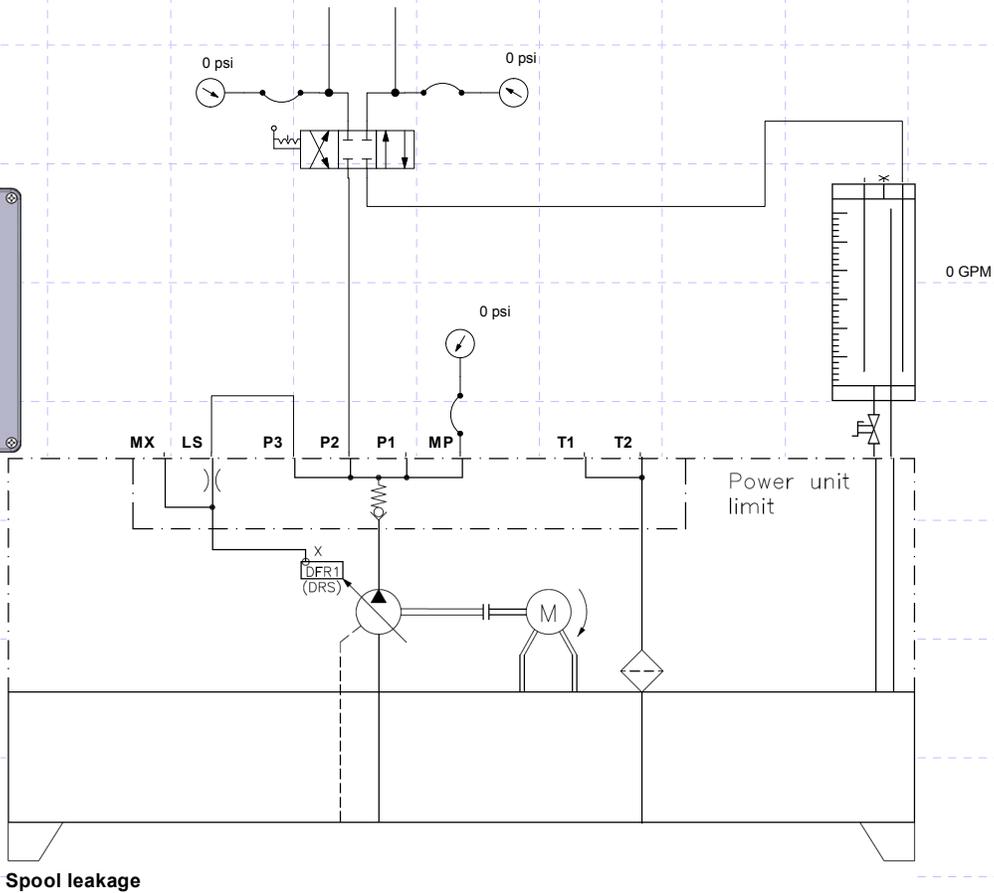
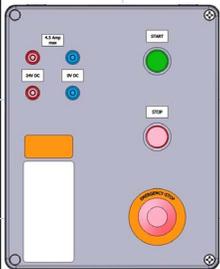
-Drip from measuring glass is leakage oil to port 'T' of the directional valve

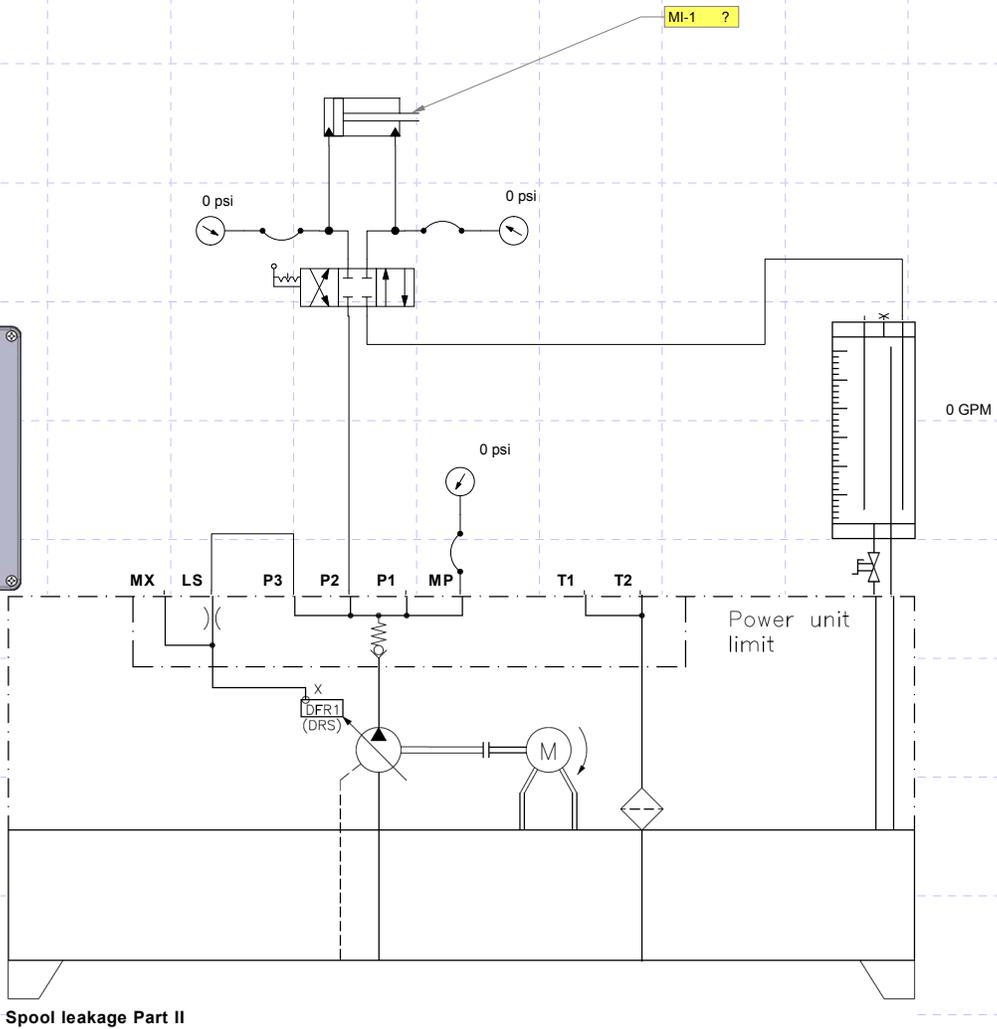
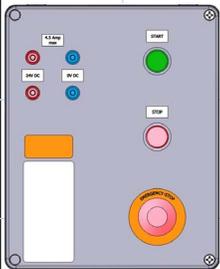




Supplemental







Spool leakage Part II