



Situation 1

- Metering valve opened (increasing $A \rightarrow$ to increase flow rate).

[Now regulator has work to maintain constant ΔP]
 has to
 Assuming regulator maintains a drop of 10 psi irrespective of inlet pressure.

- Pressure downstream ~~&~~ increases (load increases)
- Diaphragm experiences greater pressure, spring moves it down.
- Opens regulator (Down = open), ~~also releases~~ which increases upstream pressure.
- Thus it brings back the desired decreases the ΔP across load to desired 10 psi

Situation 2 - Decrease flow rate - Vice versa