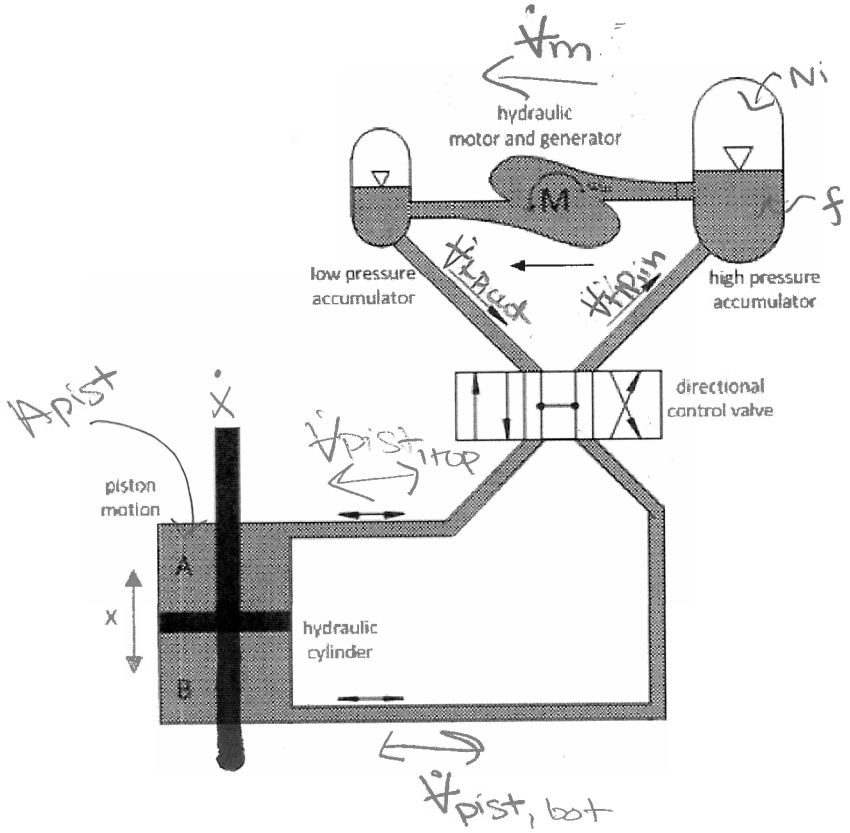


Flow EQs

$\dot{V}_{pist} = \dot{V}_{HP,in}$

$\dot{V}_{HP,out} = \dot{V}_m$

$\dot{V}_m = \dot{V}_{LP,in}$

$\dot{V}_{LP,out} = \dot{V}_{pist}$

$$\therefore \boxed{\dot{V}_m = \dot{V}_{HP,out} = \dot{V}_{LP,in}} \quad (6)$$

$$\therefore \boxed{\dot{V}_{pist} = \dot{V}_{HP,in} = \dot{V}_{LP,out} = \dot{x} A_{pist}} \quad (1)$$

Piston EQ

$\dot{V}_{pist} = \dot{x} A_{pist}$

$\dot{V}_{pist,in} = \dot{V}_{pist,out}$

motor EQs

$P_m = \tau_m \omega_m$

$\tau_m = \frac{\dot{V}_m \Delta P}{2\pi}$

$\Delta P = P_{HP} - P_{LP}$

$\omega_m = \frac{\dot{V}_m 2\pi}{\dot{V}_m}$

$$\therefore \boxed{P_m = \dot{V}_m \Delta P} \quad (4)$$

Accum EQs

$$\boxed{\dot{V}_{TOT} = \dot{V}_{Ni} + \dot{V}_f} \quad (5)$$

$\frac{d}{dt}$ $\quad 0 = \dot{V}_{Ni} + \dot{V}_f$

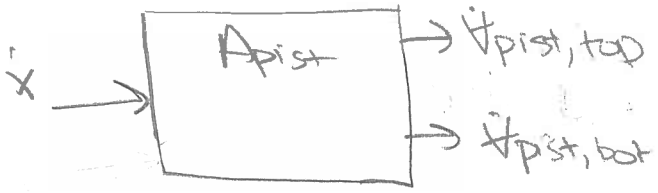
$$\therefore \boxed{\dot{V}_{Ni} = -\dot{V}_f} \quad (2)$$

$$P_{Ni}(0) V_{Ni}(0)^{1.4} = P_{Ni}(t) V_{Ni}(t)^{1.4}$$

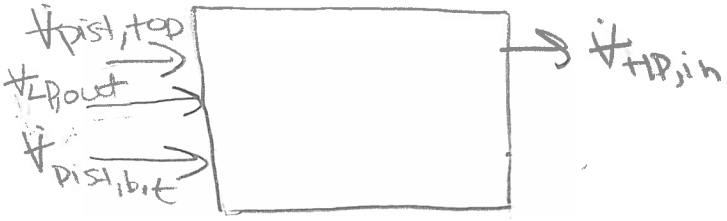
$$\therefore \boxed{P_{Ni}(t) = \frac{P_{Ni}(0) V_{Ni}(0)^{1.4}}{V_{Ni}(t)^{1.4}}} \quad (3)$$

PTO-Sim Library

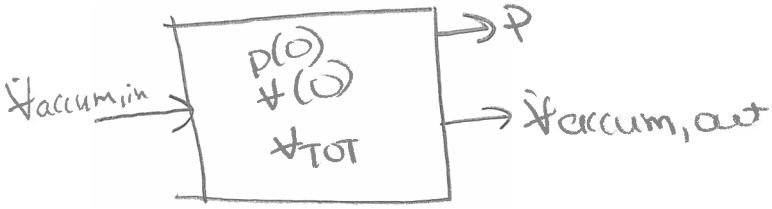
piston



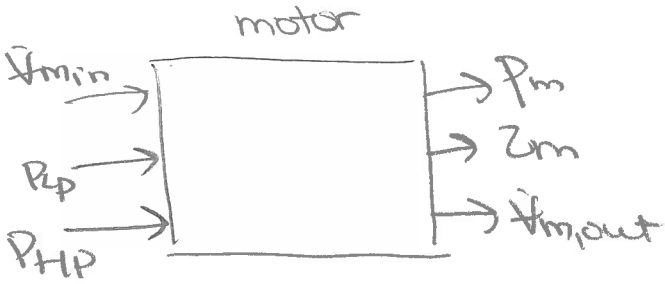
Dir Valve



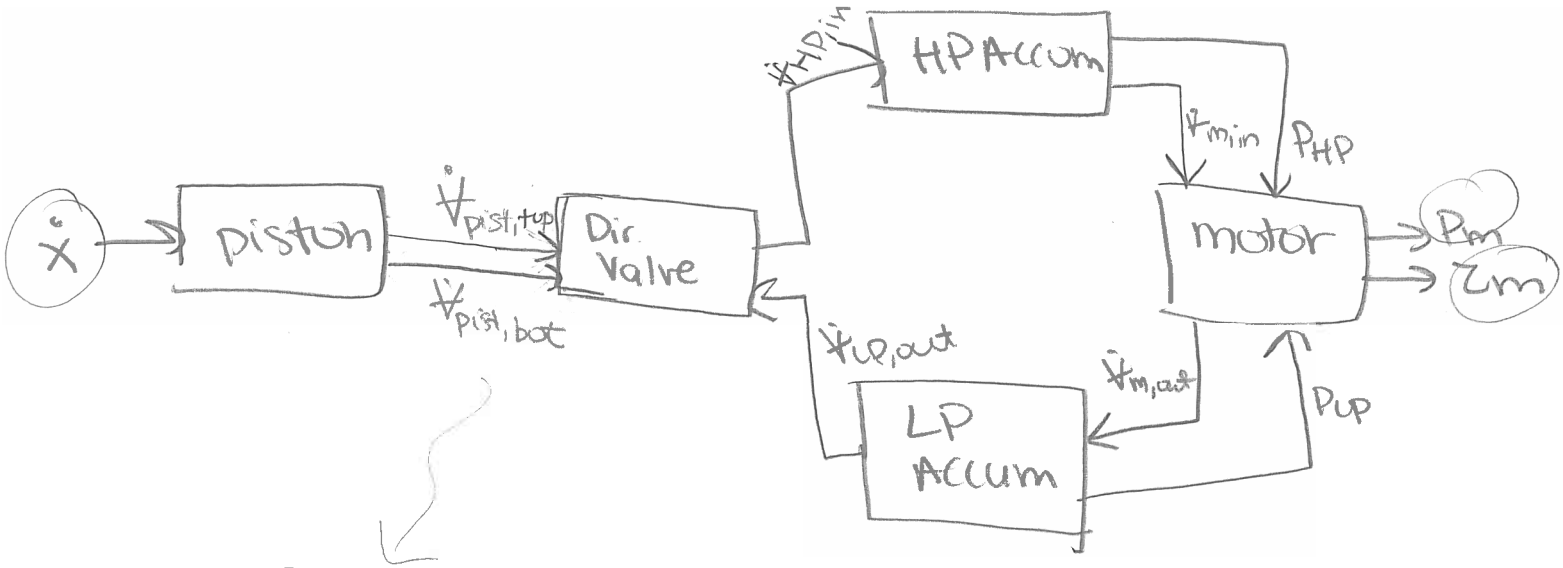
Accum



motor



PTO-Sim Application (Hydraulic PTO)



account for flow as +/-