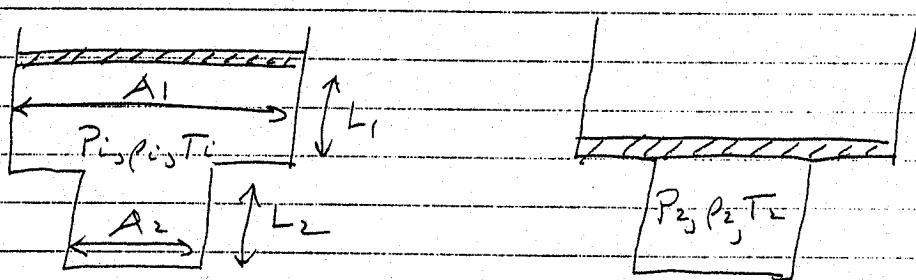


2.6

First step is a sequence of constant pressure equilibrium states (i.e. at any step system must be in equilibrium, any pressure imbalance will cause a transient).

Note: this is so we can use equil. thermo
May not be true!



$$P = \rho RT$$

$$m = \rho V = \text{const.}$$

$$P_i = \rho_i R T_i$$

$$m_i = \rho_i (L_1 A_1 + L_2 A_2)$$

$$P_2 = \rho_2 R T_2$$

$$m_2 = \rho_2 (L_2 A_2)$$

then

$$P_i = P_2$$

$$m_2 = m_i$$

⇒

$$\rho_i T_i = \rho_2 T_2$$

$$\rho_i (L_1 A_1 + L_2 A_2) = \rho_2 L_2 A_2$$

$$T_2 = \frac{\rho_i}{\rho_2} T_i$$

$$\frac{\rho_i}{\rho_2} = \frac{L_2 A_2}{L_1 A_1 + L_2 A_2}$$

$$T_2 = \frac{L_2 A_2}{L_1 A_1 + L_2 A_2} T_i$$