Part c

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$$\dot{m}_{fh} = \frac{P_0 \pi_d \left(1 + \frac{\gamma-1}{2} M_0^2\right)^{\frac{\gamma}{\gamma-1}}}{P_{tSP}} \cdot \sqrt{T_{tSP}}$$

$$\dot{m}_{corr_2} \quad C_p \sqrt{T_0\left(1+\frac{\gamma-1}{2} M_0^2\right)} \left[\frac{T_{t4}}{T_{t2}} - \tau_c\right]$$

$\Rightarrow M_0$

$$P_{t3} = \pi_c P_{t2}$$

$$T_{t3} = T_{t2} \tau_c$$

$$T_{t4} = \frac{T_{t4}}{T_{t2}} T_{t2}$$

$$T_{t5} = \tau_t T_{t4}$$

$$T_{t8} = T_{t5}$$

$$T_8 = \frac{T_{t8}}{\left(1+\frac{\gamma-1}{2} M_8^2\right)}$$

$$U_8 = M_8 \sqrt{\gamma R T_8}$$

$$U_0 = M_0 \sqrt{\gamma R T_0}$$

$$P_{t4} = P_{t3}$$

$$P_{t5} = \pi_t P_{t4}$$

$$P_{t8} \Rightarrow P_8$$

A_8 is known

$$\dot{m} = \dot{m}_{corr_2} \frac{\delta_2}{\sqrt{\theta_2}}$$

$$\underline{T = f(\dot{m}_f, alt)} = \dot{m}(U_8 - U_0) + (P_8 - P_0) A_8$$

$$T = f\left(\frac{N_c}{\sqrt{\theta_2}}, M_0, Alt\right)$$

$$\frac{N_c}{\sqrt{\theta_2}} = \frac{N_c}{\sqrt{T_0\left(1+\frac{\gamma-1}{2} M_0^2\right) / T_{STP}}} = \% \; \frac{N_c}{\sqrt{\theta_2}}_d$$