$\Rightarrow$

$$\boxed{\frac{F}{\dot{m}_c + \dot{m}_F} = \frac{a_0 M_0}{1+\alpha}\left[\left(\frac{u_9}{u_0} - 1\right) + \alpha\left(\frac{u_{9'}}{u_0} - 1\right)\right]} \quad (1)$$

from part (a):

I) aft burner off:

$$\frac{u_9}{u_0} = \sqrt{\frac{T_9}{T_0}}\frac{M_9}{M_0} = \sqrt{\frac{\tau_\lambda}{\tau_c \tau_r}}\frac{1}{M_0}\sqrt{\frac{2}{\gamma-1}\left(\tau_{tb}\tau_{ta}\tau_c\tau_r - 1\right)}$$

$$\boxed{M_0\left(\frac{u_9}{u_0} - 1\right) = \left[\frac{2}{\gamma-1}\frac{\tau_\lambda}{\tau_c\tau_r}\left(\tau_{tb}\tau_{ta}\tau_c\tau_r - 1\right)\right]^{1/2} - M_0} \quad (2)$$

this should be same as turbojet but with $\tau_t = \tau_{ta}\tau_{tb}$ $\rightarrow$ this checks.

difference is that power balance to compressor only applies to τ_{ta}

$$\boxed{\tau_{ta} = 1 - \frac{\tau_r}{\tau_\lambda}(\tau_c - 1)} \quad (3)$$

for fan go through bypass stream should be essentially same as turbofan except for power balance.