33. A tensional force $P \sim N(2000, 200^2)$ lbf is applied to a bar shown in the figure. The bar has a cylinder portion with diameter $d_1 = 2$ in and length $l_1 \sim N(6, 0.06^2)$ in, and a tapered portion with length $l_2 \sim N(6, 0.06^2)$ in and a diameter $d_2 = 4$ in of the end cross section. The modulus of elasticity is $E = 60$ Mpsi. If P and l are independent, determine the mean and standard deviation of total axial elongation. Note that the elongation of tapered portion is given by $\delta = \frac{4}{\pi} \frac{Pl}{d_1 d_2 E}$.

Answer: $\mu_{\delta_t} = 9.5493(10^{-5})$ in, $\delta_{\delta_t} = 9.5758(10^{-6})$ in