

$$l_c = \frac{\sigma_f^* d}{2\tau_c} = \frac{(3537 \text{ MPa})(0.015 \text{ mm})}{(2)(80 \text{ MPa})} = 0.33 \text{ mm} \quad (0.0131 \text{ in.})$$

Since $l > l_c$ ($5.0 \text{ mm} > 0.33 \text{ mm}$), our choice of Equation 16.18 was indeed appropriate, and $\sigma_f^* = 3537 \text{ MPa}$ ($515,700 \text{ psi}$).