



$$I_p = \frac{\pi}{64} (D_o^4 - D_i^4) = 33.63 \text{ in}^4$$

$$A = \frac{\pi}{4} (D_o^2 - D_i^2) = 11.34 \text{ in}^2$$

$$d^2 = 14.300 \text{ in}^2$$

$$I_{WEB} = \frac{bh^3}{12} = \frac{(1 \text{ in})(2 \text{ in})^3}{12} = 0.667 \text{ in}^4$$

$$I_{COMP} = 2(I_p + Ad^2) + I_{WEB}$$

$$= 2(33.63 \text{ in}^4 + (11.34 \text{ in}^2)(14.3 \text{ in}^2)) + 0.667 \text{ in}^4$$

$$= 392.25 \text{ in}^4$$

$$\sigma = \frac{mc}{I} = \frac{(73750 \text{ ft lb})(6.563 \text{ in})(\frac{12 \text{ in}}{\text{ft}})}{392.25 \text{ in}^4}$$

$$\sigma = 14,800 \text{ psi.}$$