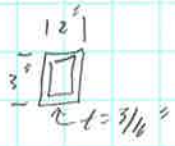
9/11/15 -SAH

LIFT BAR STRESS DUE TO TIE ROD CLAMP FORCE



$I = 2.05 in^4$

F_c = 70% OF ROD YIELD STRENGTH

ROD YIELD STRENGTH = $\sigma_y \cdot \frac{\pi d^2}{4}$ $\quad d = 7/16"$

$\sigma_y = 30{,}000 psi$

$= 30{,}000 \times .15 in^2 = 4500 lbs$

$F_c = 3100 lbs$

$M_{max} = F_c \cdot a = 6200 in \cdot lbs$

$\sigma_{MAX} = \frac{M_{max} c}{I} = \frac{6200 in \cdot lbs \cdot 3/2}{2.05 in^4} = 4540 psi$