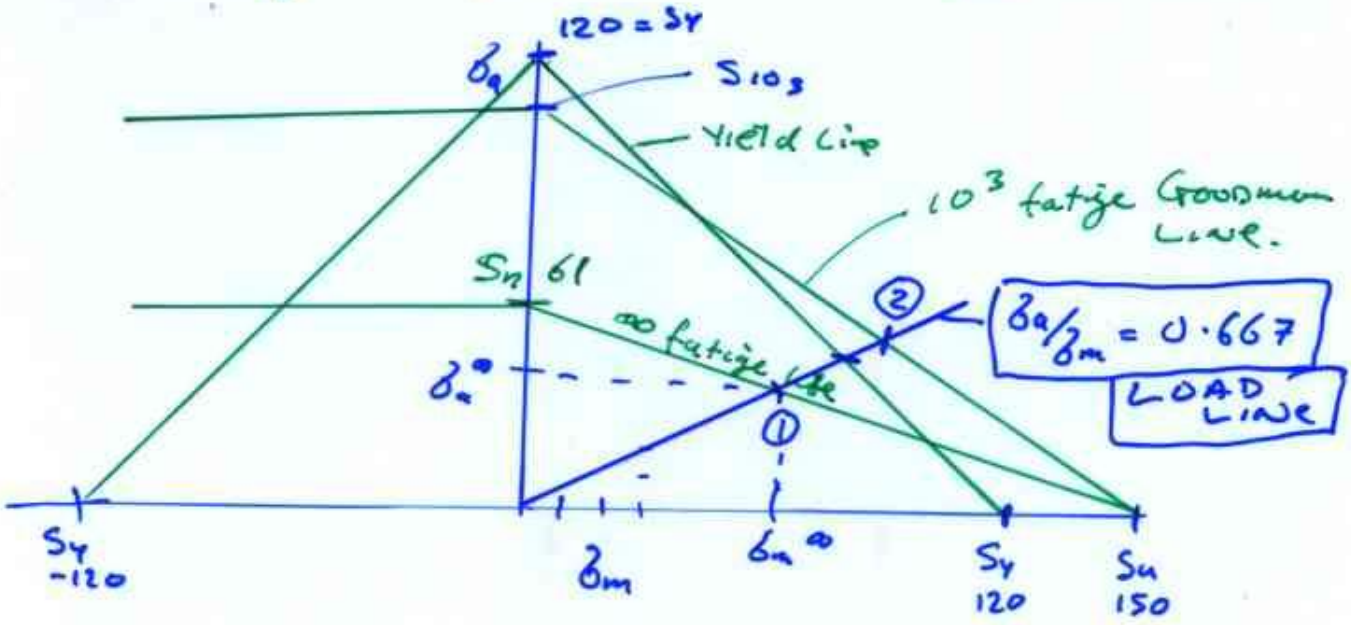
Constant Life Fatigue curves. Linear plot NJ.



Round tensile link
negligible stress concentration
fluctuating load 1000 lb → 5000 lb
min max
precision manufactured
polished Su = 150 kpsi Sy 120 kpsi
F.S. of 2 to be used
find diameter for ∞ life
" " " 10^3 cycles.

"P" load P_m mean $= \left(\frac{1000 + 5000}{2}\right) \times FS = \underline{6000}$

$P_a = \left(\frac{5000 - 1000}{2}\right) \times FS = \underline{4000}$

$\sigma_m = P_m/A \quad \sigma_a = P_a/A$ A is cross sectional area.

$\frac{\sigma_a}{\sigma_m} = \frac{P_a/A}{P_m/A} = \frac{P_a}{P_m} = \frac{4000}{6000} = 0.667$

$\frac{\sigma_a}{\sigma_m} = 0.667$ LOAD LINE