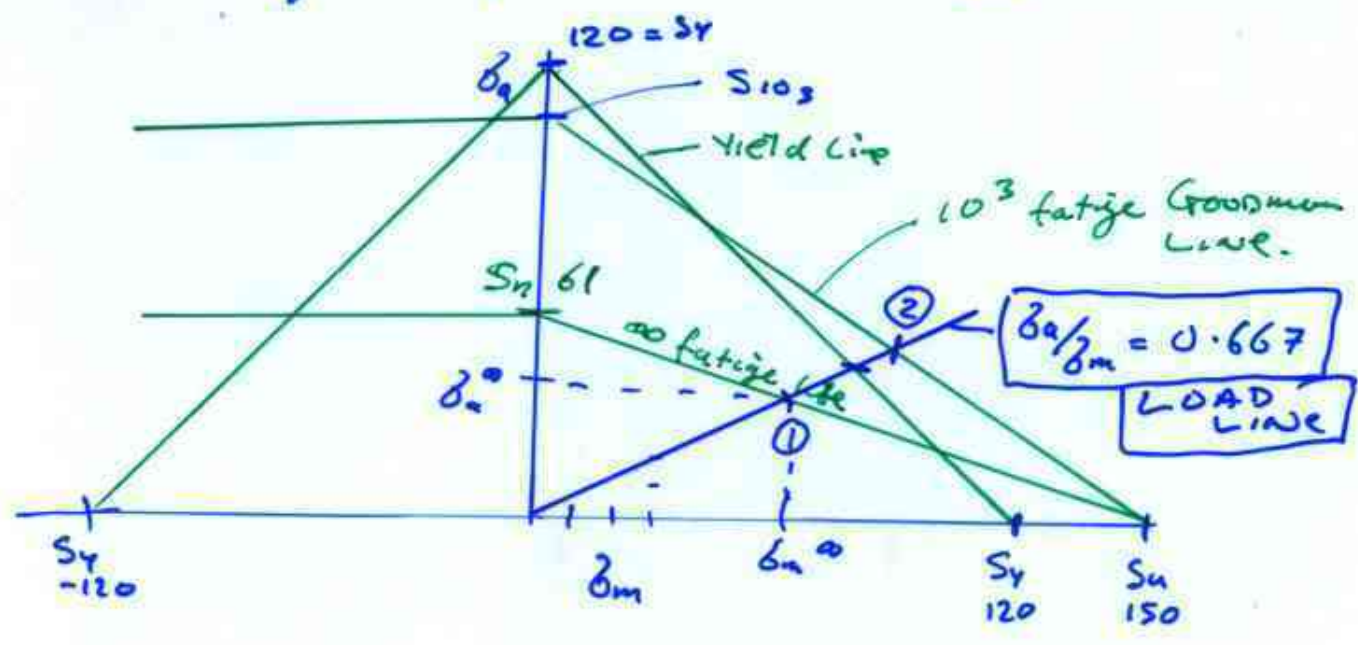


Constant life Fatigue curves.

Linear plot MS



Round tensile link

negligible stress concentration

fluctuating load 1000 lb \rightarrow 5000 lb
min max

Precision manufactured

Polished $S_u = 150$ kpsi $S_y = 120$ kpsi

F.S. of 2 to be used

find diameter for ∞ life
 " " " 10^3 cycles.

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

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

$\sigma_m = P_m/A$ $\sigma_a = P_a/A$ 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