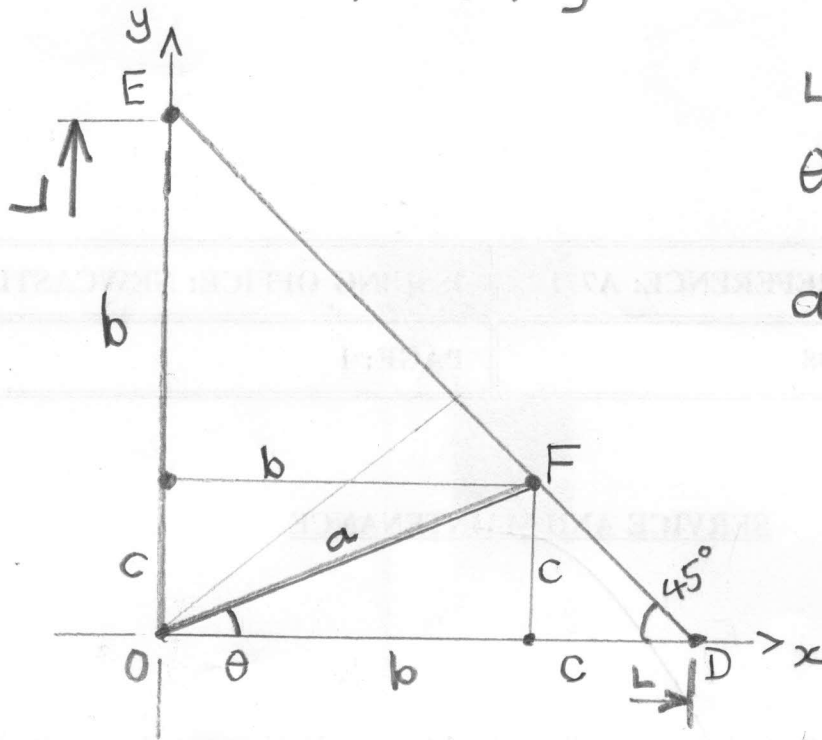


Fillet Weld Geometry

PROC 067



- L leg length
- θ angle of failure plane
- a weld thickness through failure plane

Equation of Line DE,

$$y_{DE} = -x_{DE} + L$$

Equation of Line OF,

$$y_{OF} = x_{OF} \cdot \tan \theta$$

At intersection F,

$$b \cdot \tan \theta = -b + L$$

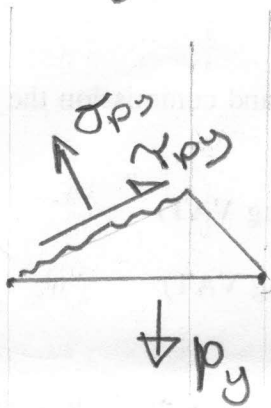
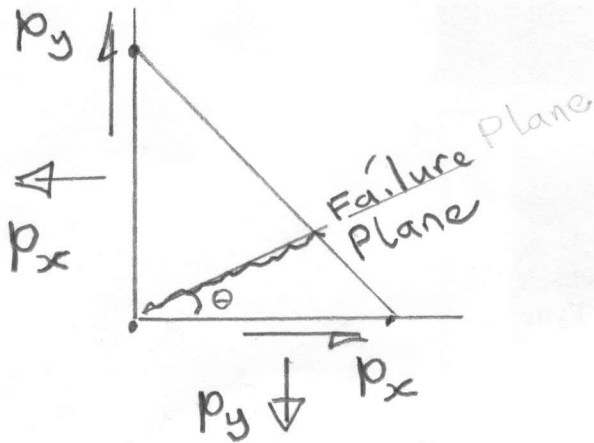
$$b = L / (\tan \theta + 1)$$

$$c = L - b$$

$$a = \sqrt{(b^2 + c^2)}$$

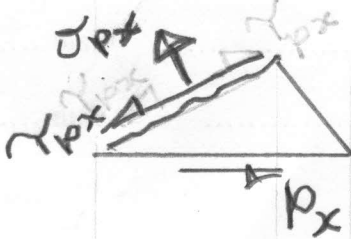
Fillet Weld Loading

p weld line force



$$\sigma_{p_y} = p_y \cdot \cos\theta / (a \cdot L)$$

$$\gamma_{p_y} = p_y \cdot \sin\theta / a$$



$$\sigma_{p_x} = p_x \cdot \sin\theta / a$$

$$\gamma_{p_x} = -p_x \cdot \cos\theta / a$$

$$\sigma = \sigma_{p_y} + \sigma_{p_x}$$

$$\gamma = \gamma_{p_y} - \gamma_{p_x}$$