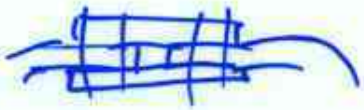
Boiler cylinder $\phi = 1.25$ m

plate is 20mm thick

double riveted butt joint using 2 x 14mm cover plates

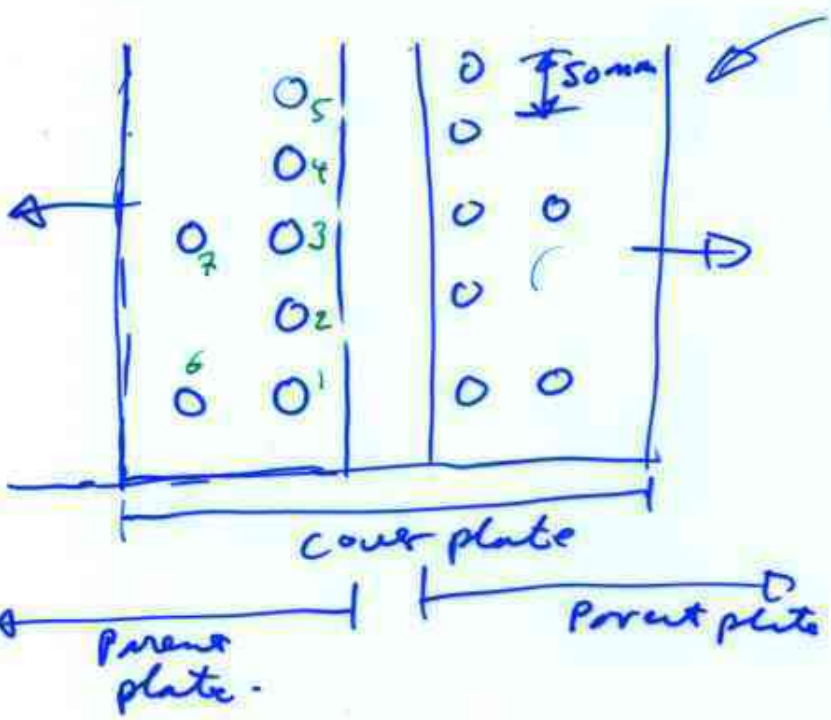


Rivets have ϕ 24mm

max stresses allowed are

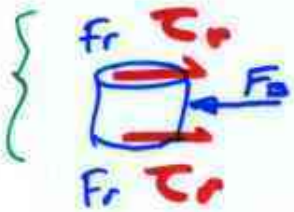
$\tau_{rivet} = 62$ MPa

Plate { $\sigma_{bearing} = 124$ MPa ; $\sigma_{tensile} = 95$ MPa



look at rivets first

$\tau_{max} = 62$ MPa



Area $\left[\frac{(\pi)(0.024)^2}{4}\right]$

$F_r = (\tau_{max})(A)$

$= \frac{\pi (0.024)^2}{4} 62\,MPa = 28kN$