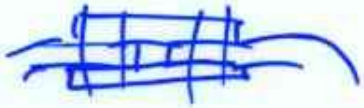
Boiler cylinder $\phi = 1.25\ m$

plate is 20mm thick

double riveted butt joint using 2 × 14mm cover plates

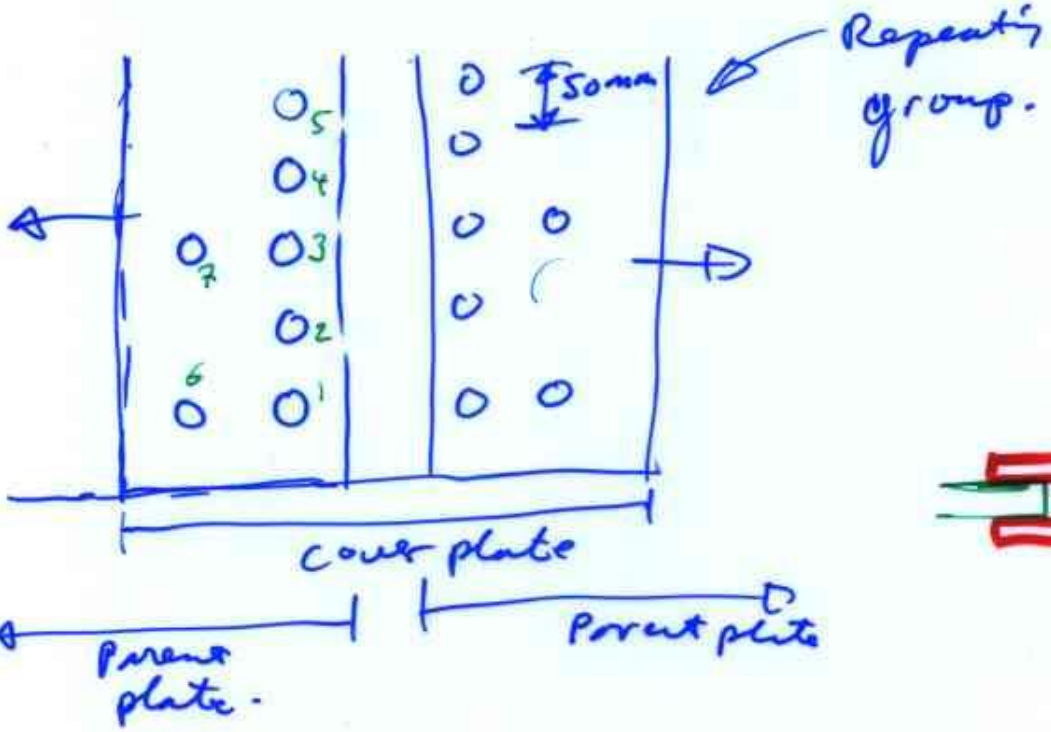
Rivets have ϕ 24mm



max stresses allowed are

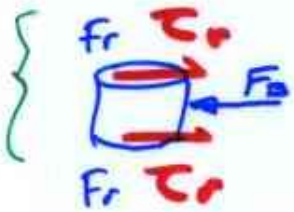
$\tau_{rivet} = 62\ MPa$

Plate $\begin{cases} \sigma_{bearing} = 124\ MPa \\ \sigma_{tensile} = 95\ MPa \end{cases}$



look at rivets first

$\tau_{max} = 62\ MPa$



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

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

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