

-1 JAN 1937

"THODE FAGELUND"

If Shell Plate breaks through line A Assume TS = 28 tons

$$EFF = \frac{8.75 - 1.3125}{8.75} = \frac{7.4375}{8.75} = 85\%$$

If Shell Plate breaks through line B

$$EFF = \frac{8.75 - 2.625}{8.75} + \frac{23}{28} \times \frac{1 \times 1.35}{8.75 \times 1.25} = 80\%$$
$$= 70 + 10$$

If Butt Strap breaks through line C TS = 66900 lbs. = 29.8 t

$$EFF = \text{same as above} = 80\%$$

If Butt Strap breaks through line D

$$EFF = \frac{4.375 - 1.3125}{4.375} = \frac{3.0625}{4.375} = 70\%$$

If Rivets Shear Assuming no strength in Rivets in Old Upper Half of Butt Strap.

$$EFF = \frac{23}{28} \times \frac{7 \times 1.35}{8.75 \times 1.25} = 71\%$$

Then

$$WP \text{ Shell} = \frac{(40-2) \times 28 \times 80}{2.83 \times 186} = 162 \text{ lbs.}$$

$$\text{New Butt Strap} = \frac{(40-2) \times 29.8 \times 70}{2.83 \times 186} = 150 \text{ lbs.}$$

$$\text{Rivets} = \frac{(40-2) \times 28 \times 71}{2.83 \times 186} = 141 \text{ lbs.}$$

This is assuming no strength whatever in upper part of old Shell Plate

- But (1) There is still some strength left in rivets of upper ^{half} ~~part~~ of old Shell plate.
- (2) This is a temporary repair for short time only and there is no corrosion on shell plate.
- (3) New Butt Strap will be reinforced by electric welding in way of alternate rivets in Line D.

Therefore, it is in order to approve boiler when repaired for a working pressure of 150 lbs., *for 3 mos only.*

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