

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

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

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.

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

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 <sup>half</sup> ~~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.*

*J. S. H.*



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