

DATE 10-1-48

SUBJECT OF EXPT. Stress Calculations for Report in
Products Engineering Article

Barrel Stressed

Formula Lamé's

$$S = \frac{P(r_2^2 + r_1^2)}{r_2^2 - r_1^2}$$

S = stress tang.
P = Int press.

$$r_2^2 - r_1^2$$

$$r_1 = 1.750" = .0625"$$

r₁ = inside r
r₂ = outside r

$$r_2 = .598" = .331$$

$$P = 84,000 \text{ PSI}$$

$$S = \frac{84,000(.393)}{.269}$$

$$= 123,000$$

$$= 123,000 \text{ PSI}$$

$$S' = 18,300 \text{ tang.}$$

$$= \frac{1}{3}(.250) \frac{84,000}{.598}$$

CORDANCE

$$\sigma = \frac{P}{r^2}$$

$$= \frac{3}{2} \left(\frac{r_2^2 - r_1^2}{r_2^2 + r_1^2} \right)$$

$$= \frac{84,000}{.269}$$

$$= \frac{3}{2} \left(\frac{.393^2 - .0625^2}{.393^2 + .0625^2} \right)$$

$$= \frac{84,000}{.598}$$

$$= 150,000$$

at elastic limit

at yield point

EXPERIMENTER

WITNESS

DATE

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