

DATE

SUBJECT OF EXPT.

10-1-48

New Calculations for Report in
"Products Engineering Article"

BARREL STRENGTH

FORMULAE

Lame's

$$S = \frac{P(R_2^2 + R_1^2)}{R_2^2 - R_1^2}$$

$$R_1 = .750" = .0625$$

$$R_2 = .575" = .393$$

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

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

$$= 123,400 \text{ PSI}$$

S = stress tang.

P = int press.

R₁ = inside r.R₂ = outside r.

$$S' = \frac{1}{2} \frac{KP}{t} \quad t = \text{thickness}$$

$$= \frac{\frac{1}{2}(250)84,000}{.575}$$

$$S' = 18,250 \text{ tangit.}$$

$$\frac{123,400}{104,750}$$

ORDNANCE

$$\sigma = \frac{P}{\frac{3}{2} \left(\frac{R_2^2 - R_1^2}{R_2^2 + 2R_1^2} \right)}$$

$$= \frac{84,000}{\frac{3}{2} \left(\frac{.269}{.729} \right)}$$

$$= \frac{84,000}{.588}$$

$$= 142,857$$

σ = Elastic limit
of material
used.

EXPERIMENTER

WITNESS

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