

DATE

May 8, 1944

SUBJECT OF EXPT.

New barrel breach diameter

$$S = \frac{P(K_1^2 + K_2^2)}{(R_1^2 - R_2^2)}$$

Pitch Dia. of 1.067

274 mag.
PRESSURE = 84,000 psi

$$\begin{aligned} 1/8 \quad 1.067 \quad R_1^2 &= (.474 - .2)^2 = .237^2 = .056 \\ 1/16 \quad 1.018 \quad R_2^2 &= (.1067 - .2)^2 = .534^2 = .285 \\ R_1^2 &= (.1018 - .2)^2 = .509^2 = .259 \end{aligned}$$

$$1/8 \quad S = \frac{84,000 (.3412)}{2788} = 125,000 \text{ psi. } (270 \text{ Win})$$

$$1/16 \quad S = \frac{84,000 (.3152)}{2028} = 130,000 \text{ psi. } (270 \text{ Win})$$

284 mag.
PRESSURE = 84,000 psi

$$\begin{aligned} 1/8 \quad 1.067 \quad R_1^2 &= (.514 - .2)^2 = .257^2 = .066 \\ 1/16 \quad 1.018 \quad R_2^2 &= (.1067 - .2)^2 = .534^2 = .285 \\ R_1^2 &= (.1018 - .2)^2 = .509^2 = .259 \end{aligned}$$

$$1/8 \quad S = \frac{84,000 (.351)}{219} = 135,000 \text{ psi. } (284 \text{ mag})$$

$$1/16 \quad S = \frac{84,000 (.325)}{193} = 141,000 \text{ psi. } (284 \text{ mag})$$

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