

D-30
DON'T SAY IT—WRITE IT

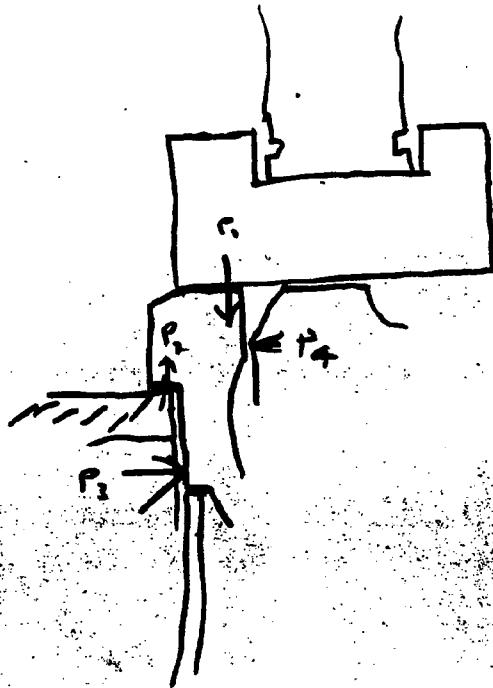
To _____

DATE 3/11/69

FROM _____

Breach Forces

pg 1



$$\Sigma M = 0$$

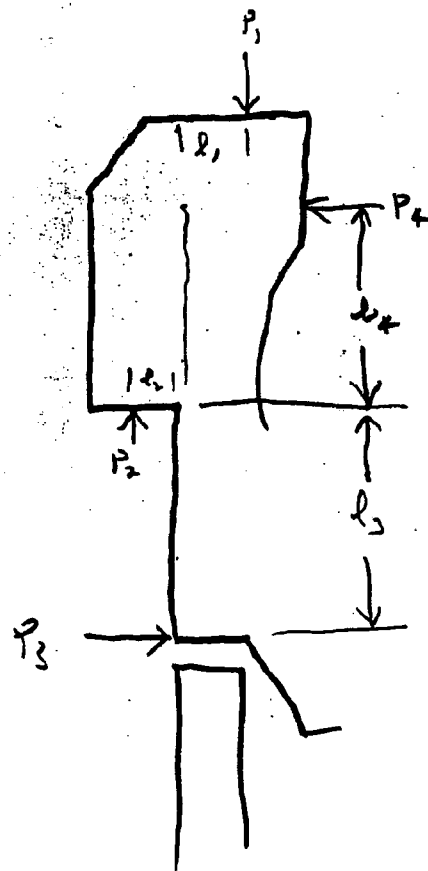
$$P_1 l_1 + P_2 l_2 = P_4 l_4 + P_3 l_3$$

$$\Sigma F = 0$$

$$P_1 = P_2$$

$$P_4 = P_3$$

$$P_1 (l_1 + l_2) = P_3 (l_4 + l_3)$$



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(P2)

$$P_1 = \frac{1}{2} \text{ Cartridge Thrust Load}$$

$$\text{Thrust (max.)} = P_{\max} A_{\max} = 50,000 \times \frac{\pi}{4} \times .53^2$$

$$Th. = \underline{11,114 \text{ lbs}}$$

$$P_1 = \frac{1}{2} \times 11,114 = 5,557 \text{ say } \underline{6000 \text{ lbs}}$$

$$\text{Max inside case dia. } .513' - (.020'') = .484$$

$$Th = 50,000 \times \frac{\pi}{4} \times .484^2 = 9200 \quad P = \frac{9200}{2} = 4600$$

$$\therefore S.F. = \frac{6000}{4600} = 130\% \text{ inherent}$$

$$P_1 = 6000$$

$$l_1 = .060$$

$$l_2 = .060$$

$$l_3 = .400 \text{ (assume @ present)}$$

$$l_4 = .120 \quad " \quad " \quad "$$

$$P_1 (l_1 + l_2) = P_3 (l_4 + l_3)$$

$$6000 (.120) = P_3 (.520)$$

$$P_3 = \frac{6000 \times .120}{.520} = \underline{1385 \text{ lbs.}}$$

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G-10

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pg 3

Shear Stress on lug

$$S_s = \frac{P_1}{A} = \frac{6000}{.400 \times \pi \times .750 \times \frac{86^\circ}{360}}$$

$$S_s = \frac{6000}{.22514} = \underline{26,650 \text{ psi}}$$

Bearing Stress on lug (& receiver ring)

$$S_B = \frac{P_1}{A} \quad \text{Area from planimeter} = .0661 \text{ in}^2$$

$$S_B = \frac{6000}{.0661} = \underline{90,771 \text{ psi}}$$

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