

48

DATE 9-27-44

SUBJECT OF EXPT.

Main Spring m 722

To work freely in 420. Room Wall

" " " one 283" " Pin

max solid height 1.600" Free length

0.55 wire

29 total coils

400 outside

27 outside

$$\text{Spring Rate } \frac{F}{\delta} = \frac{G d^4}{8 D^3 N} = \frac{11,500,000 (0.000915)^4}{8 (29) (4+12)} = 1.2 \times 10^4$$

Coiled length 2.498

27 #

Fixed length 2.815

47 #

Stroke

3.13

Plot 0.54

$$\begin{array}{r} 2 \overline{) 5.313} \\ 2.656 \\ \hline 1.490 \\ 1.490 \\ \hline 0.000 \end{array}$$

3.942

1.844

2.094

1.544

5.2

$$S(\text{stacked}) = \frac{8 F D K}{\pi d^3} = \frac{8 (3.13) (3.45) (10^6)}{3.14 (0.000915)^3} = 1.1 \times 10^8$$

$$\text{Unit Coiled } d = 4.2 - 2.498 (11.8) = 20.8 \text{ #}$$

$$\text{Unit Fixed } d = 4.2 - 2.815 (12.8) = 16.3 \text{ #}$$

$$18.5 \times 2.97 = 5.49 \text{ " in Energy}$$

$$\text{Max Working Stress} = 117,000 \text{ #}$$

EXPERIMENTER

WITNESS

DATE

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