

Drag -

$$R_{cs} = \frac{\text{Force}}{\text{Vel}} \\ = \frac{\text{Drag}}{\text{Vel.}}$$

$$\underline{D}_{reg} = C_{drag} q S_p$$

$$C_D = \frac{D_r (\#)}{q (ft^2) (\rho (\frac{ft}{sec})^2)}$$

$$q = \text{dynamic press} = \frac{\rho V^2}{2}$$

$$S_p = \text{Flat Plate Area} \quad ft. \quad \#$$

$$C_D = 1.28 \text{ For Flat Plate}$$

$$\rho_o = 2.378 \times 10^{-3} \text{ slugs/ft}^3$$

$$V = ? \text{ Vel. } ft/sec \\ \approx .1 \text{ /sec}$$

$$S_p = 3' \cdot 2$$

$$R_{cs} = \frac{C_D \rho V^2 S_p}{2 \times}$$

$$= \frac{C_D \rho V S_p}{2}$$

$$= \frac{\#}{\text{sec}} \quad \text{dim. ck}$$

$$= \frac{1.28 \cdot 2.378 \times 10^{-3} \cdot 1 \cdot 3}{2}$$

$$Res = \frac{C_D \rho V A}{2}$$

$$= \frac{1.28 \times 2.38 \times 10^{-3} \times 3 \times 10^{-1}}{2}$$

$$= \frac{1.28 \times 2.38 \times 1.5 \times 10^{-4}}{2}$$

$$= 4.57 \times 10^{-4} \frac{\text{#}}{\text{ft/sec.}}$$

Using Wri. Pat. $C_D 5$ Fig of 5-10 ft²
 & taking worst case of $V = 1/5$ & $C_D 5 = 10 \text{ ft}^2$

$$Drag = \frac{10 \cdot 2.4 \times 10^{-3} \cdot 1^2}{2} = 12.0 \times 10^{-3} = .012 \text{ #}$$

$$Res = \frac{10 \cdot 2.4 \times 10^{-3} \cdot 1^2}{2 \cdot 1} = 12 \cdot 10^{-3} \frac{\text{#}}{\text{ft/sec.}}$$

$$\text{or } \frac{1}{12} \frac{12 \cdot 10^{-3} \text{ #}}{\text{ft/sec.}} \cdot \frac{\text{ft}}{\text{in.}}$$