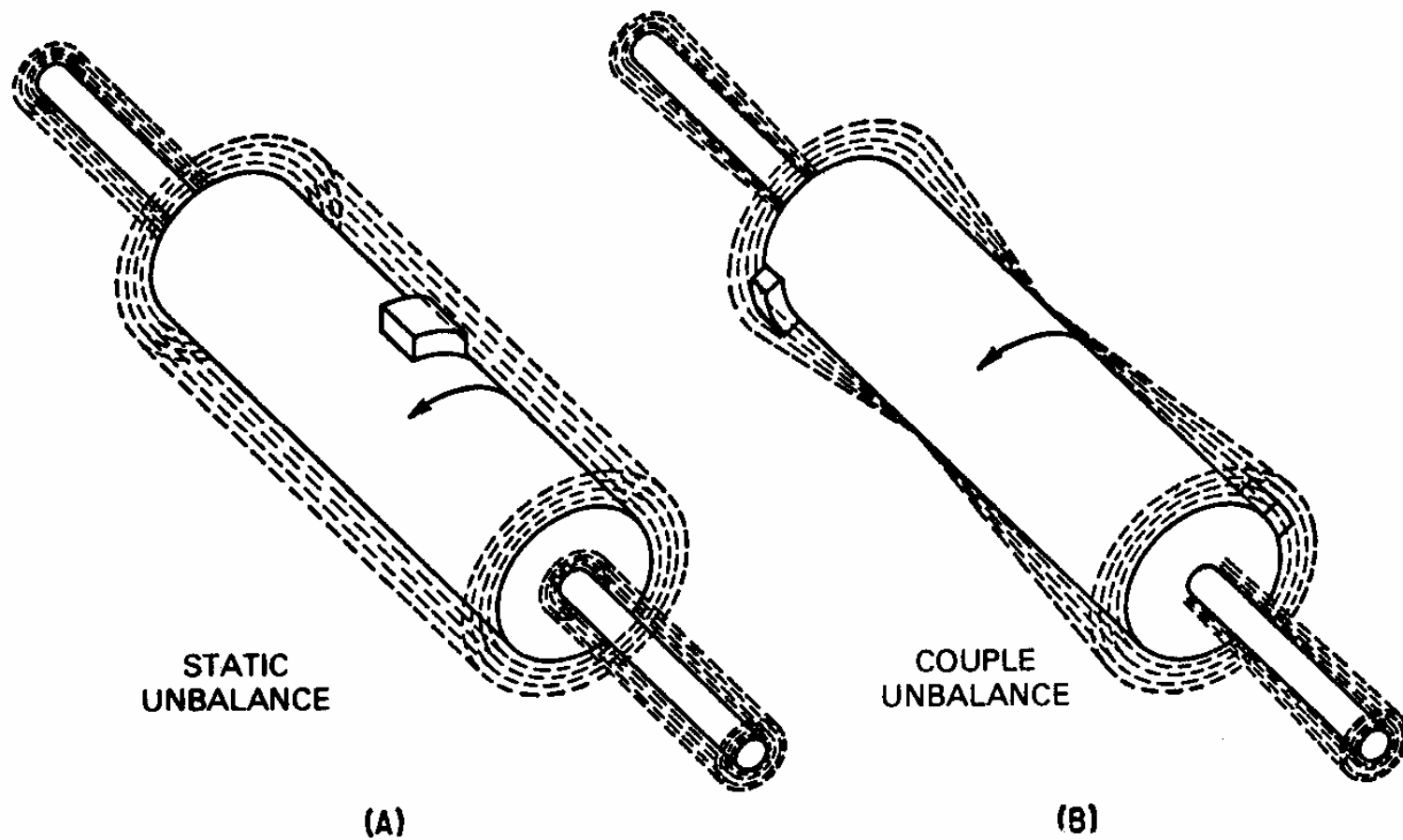
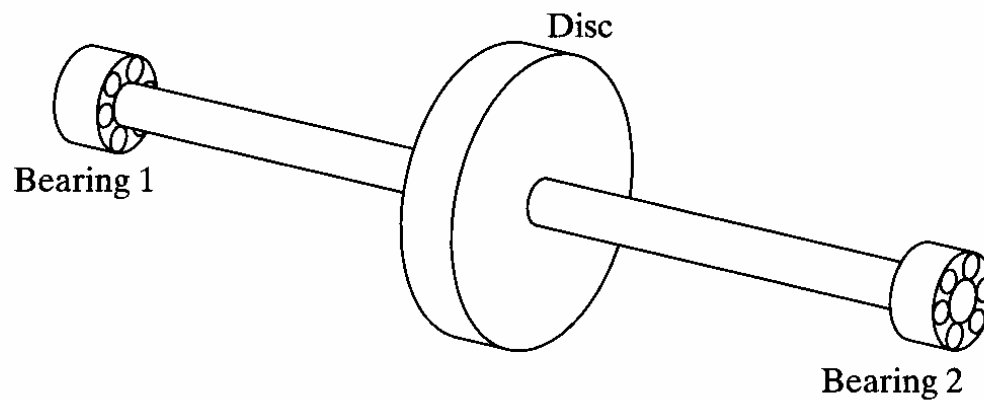


# Balance of Rotors

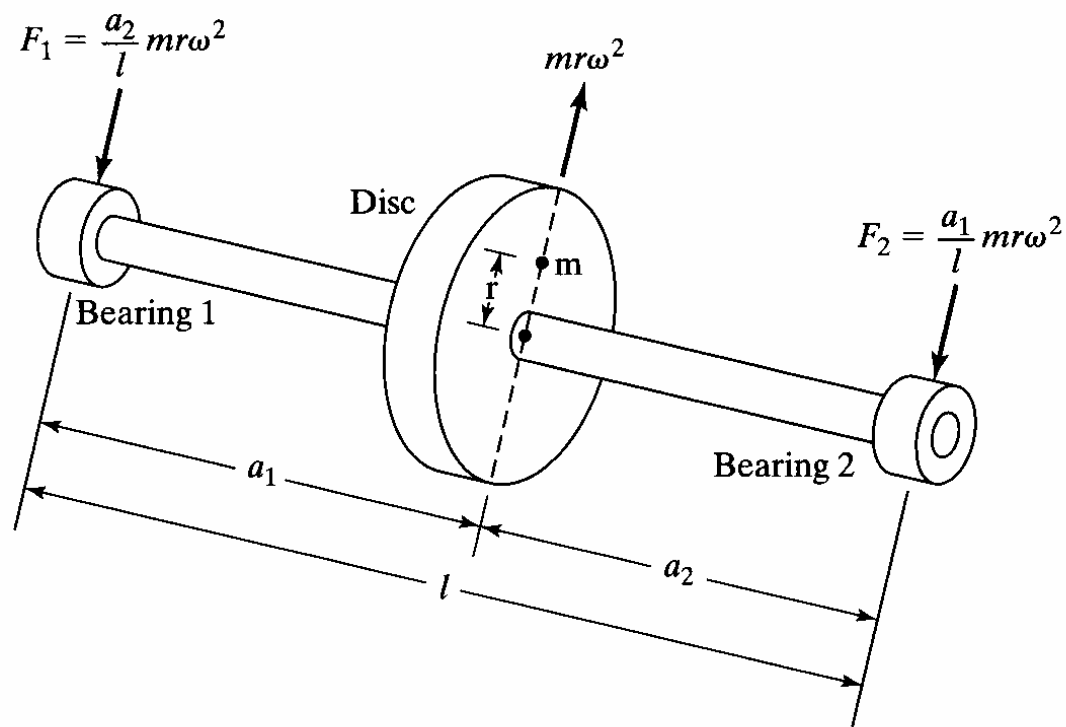


# Static balancing

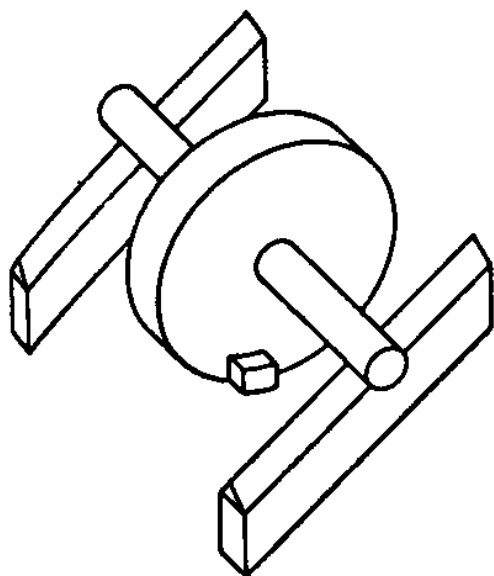
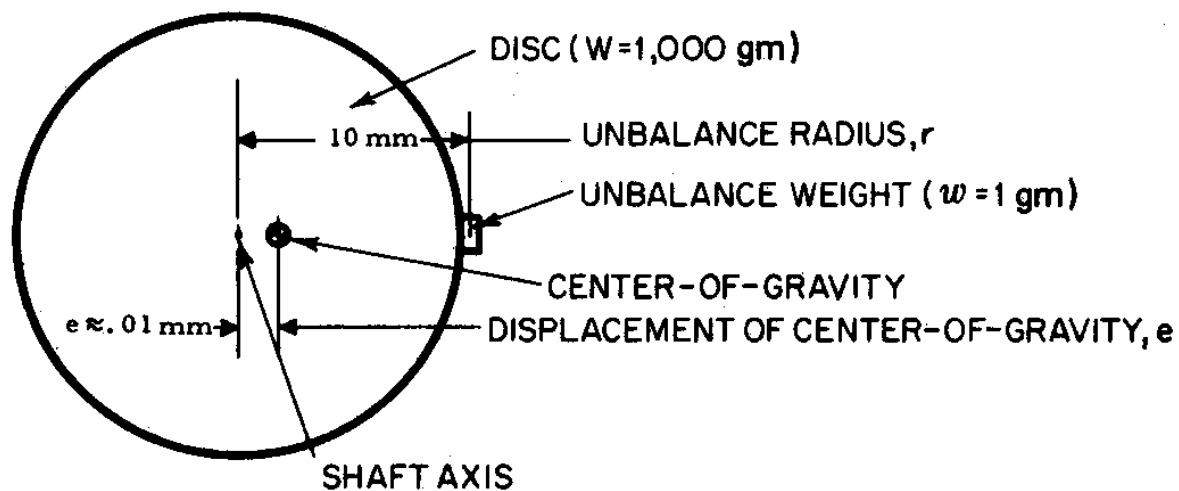




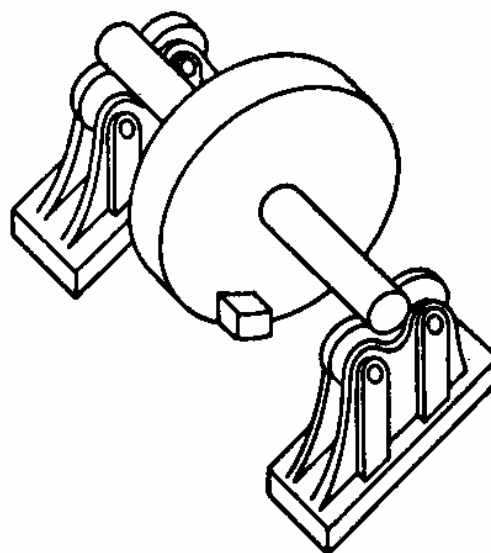
(a)



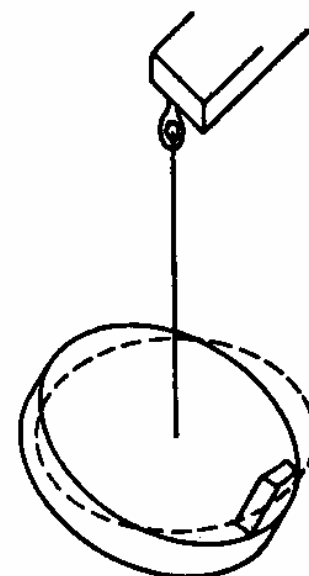
(b)



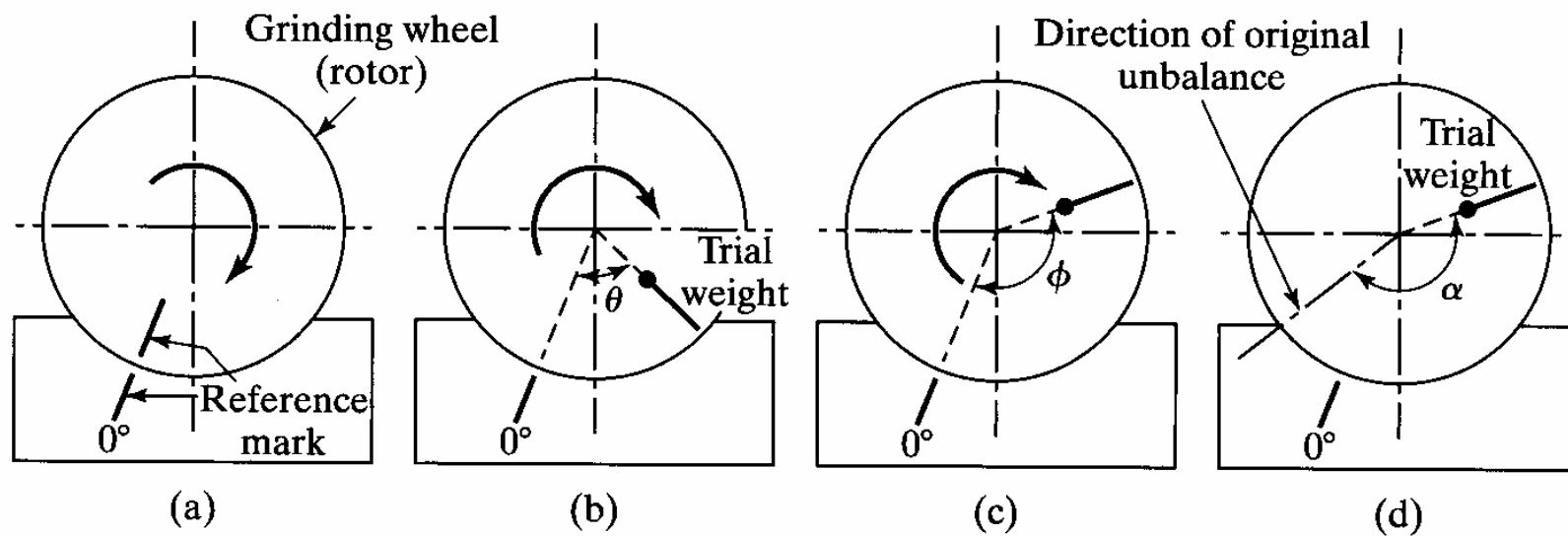
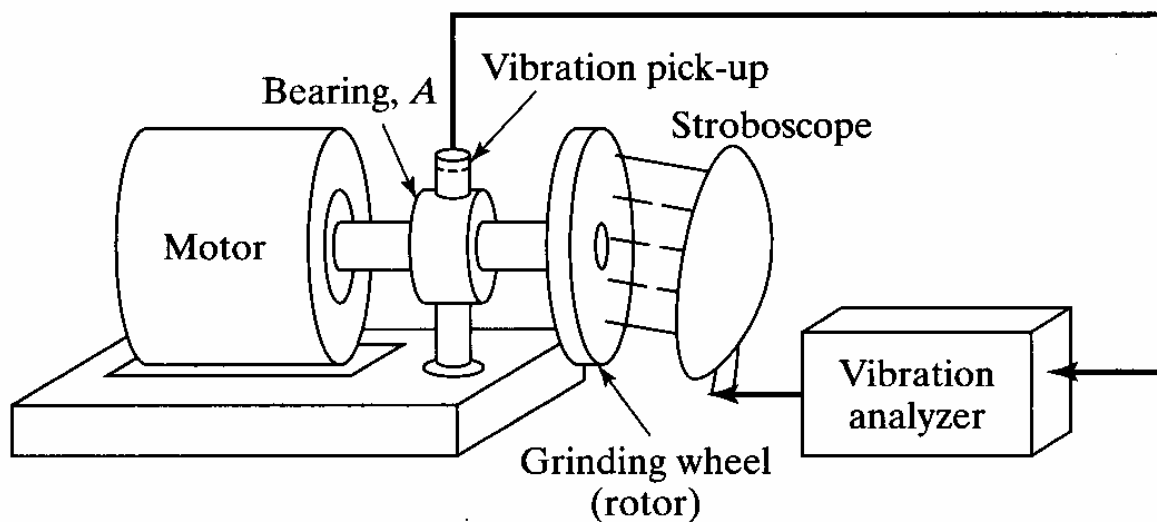
(A) HORIZONTAL WAYS

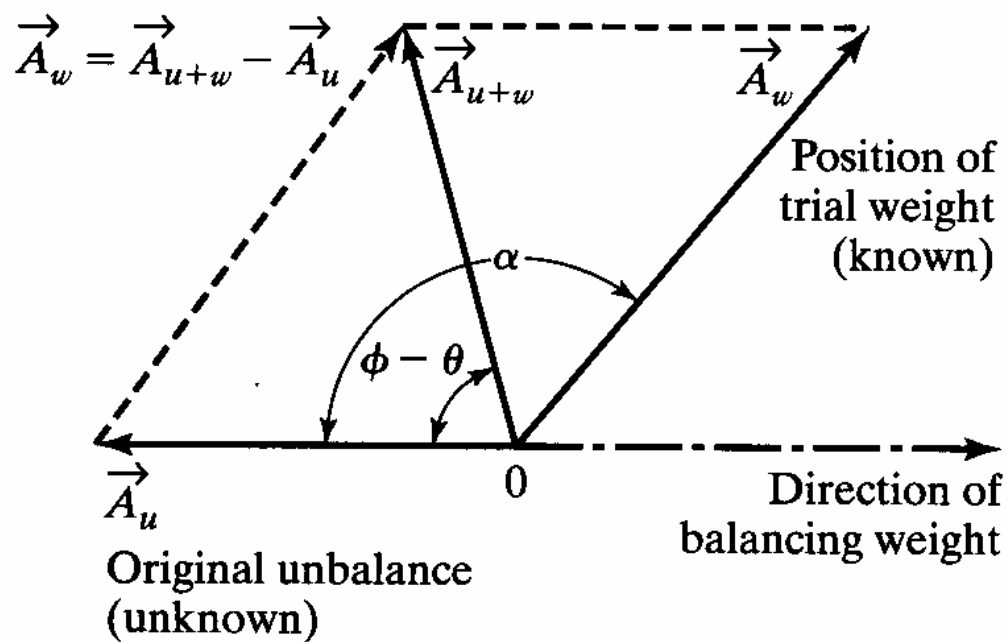


(B) ROLLER



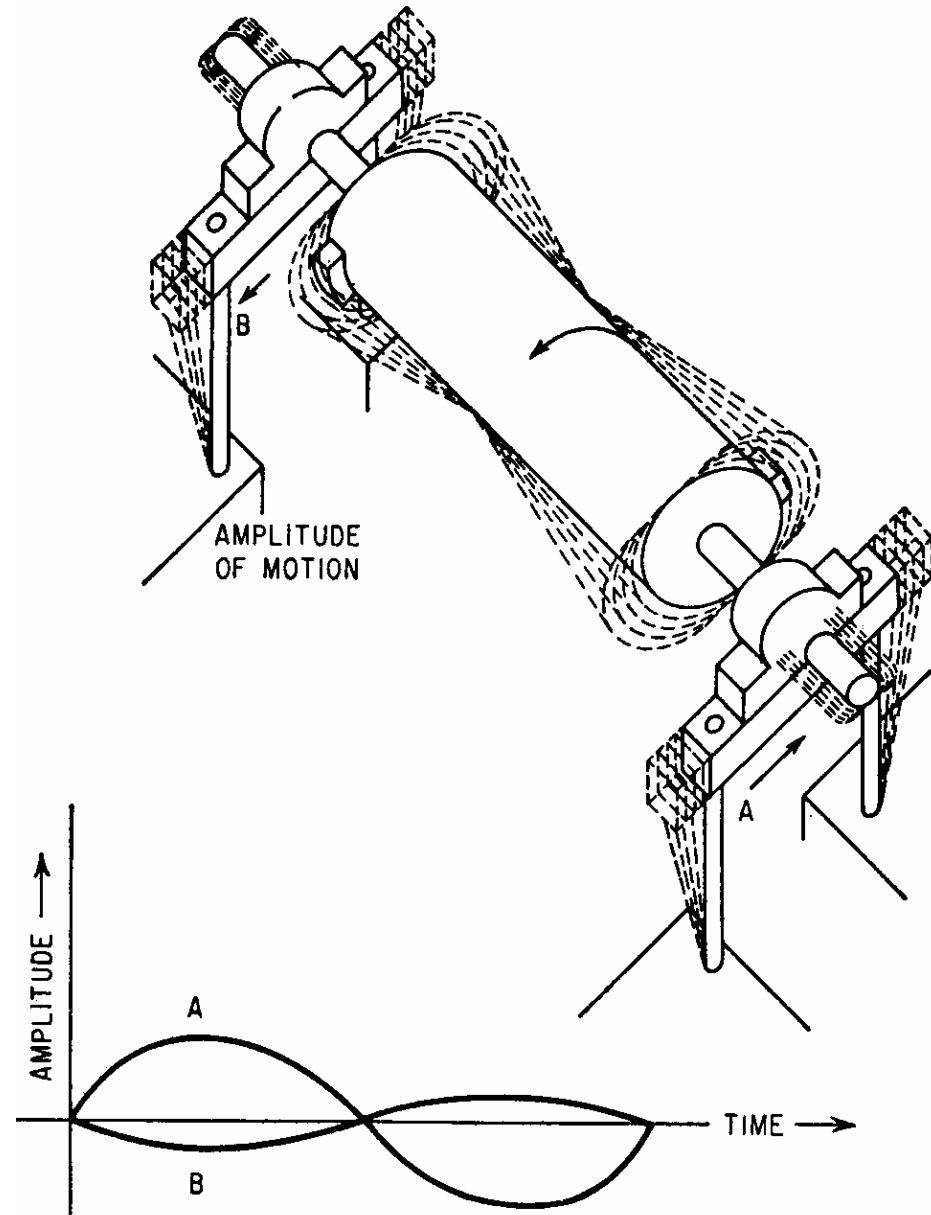
(C) PENDULUM

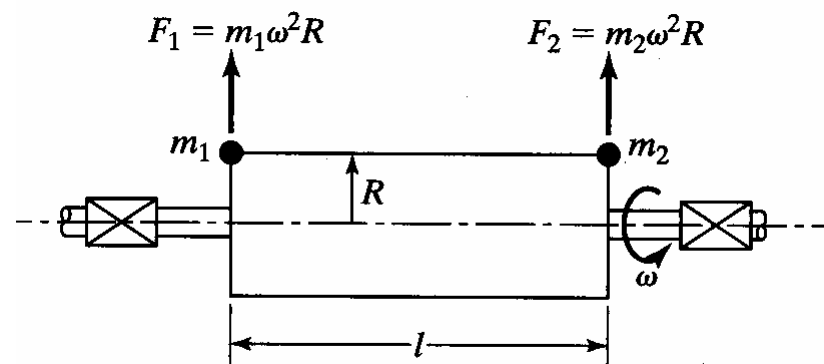
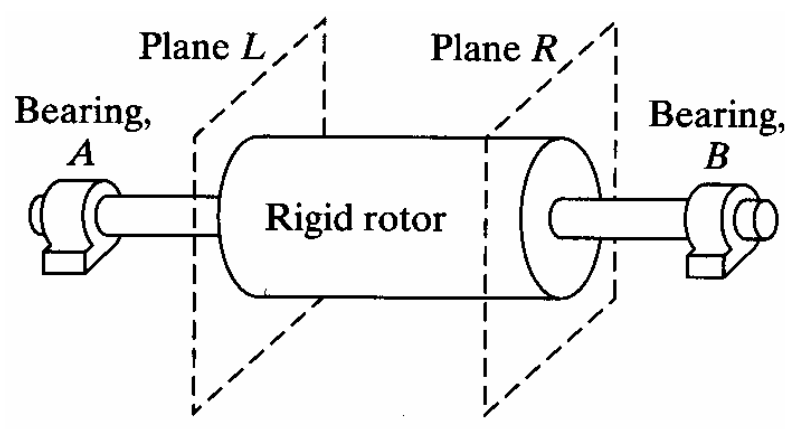
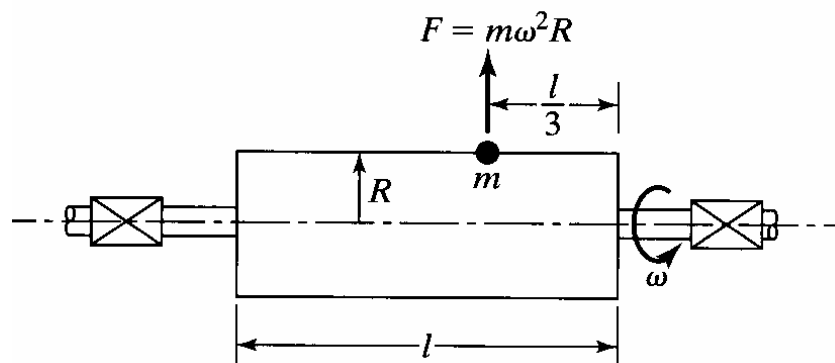




Find  $\vec{A}_w$  and  $\alpha$

# Dynamic balancing

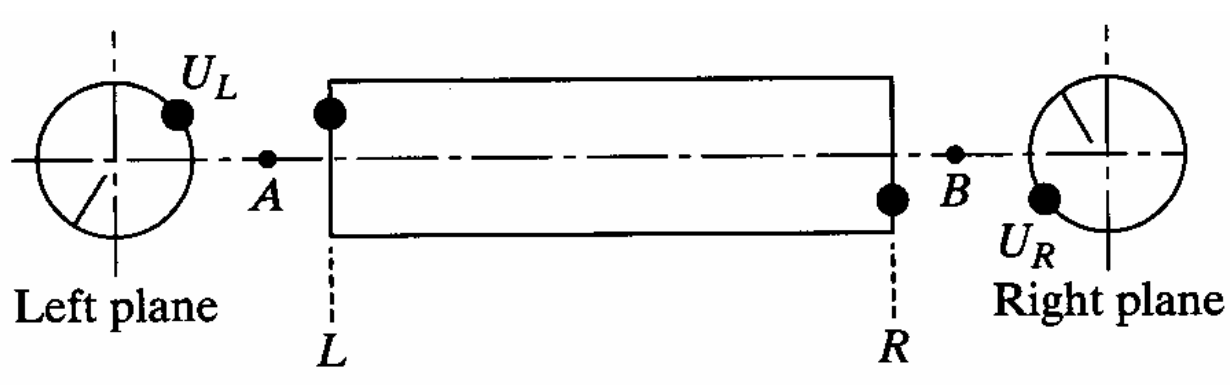






$$\vec{V}_A = \vec{A}_{AL} \vec{U}_L + \vec{A}_{AR} \vec{U}_R$$

$$\vec{V}_B = \vec{A}_{BL} \vec{U}_L + \vec{A}_{BR} \vec{U}_R$$



$$\vec{V}'_A = \vec{A}_{AL} (\vec{U}_L + \vec{W}_L) + \vec{A}_{AR} \vec{U}_R$$

$$\vec{V}''_A = \vec{A}_{AL} \vec{U}_L + \vec{A}_{AR} (\vec{U}_R + \vec{W}_R)$$

$$\vec{V}'_B = \vec{A}_{BL} (\vec{U}_L + \vec{W}_L) + \vec{A}_{BR} \vec{U}_R$$

$$\vec{V}''_B = \vec{A}_{BL} \vec{U}_L + \vec{A}_{BR} (\vec{U}_R + \vec{W}_R)$$

Find

$$\vec{A}_{AL} = \frac{\vec{V}'_A - \vec{V}_A}{\vec{W}_L}, \quad \vec{A}_{BL} = \frac{\vec{V}'_B - \vec{V}_B}{\vec{W}_L}, \quad \vec{A}_{AR} = \frac{\vec{V}''_A - \vec{V}_A}{\vec{W}_R}, \quad \vec{A}_{BR} = \frac{\vec{V}''_B - \vec{V}_B}{\vec{W}_R}$$

$$\vec{U}_L = \frac{\vec{A}_{BR}\vec{V}_A - \vec{A}_{AR}\vec{V}_B}{\vec{A}_{BR}\vec{A}_{AL} - \vec{A}_{AR}\vec{A}_{BL}}$$

$$\vec{U}_R = \frac{\vec{A}_{BL}\vec{V}_A - \vec{A}_{AL}\vec{V}_B}{\vec{A}_{BL}\vec{A}_{AR} - \vec{A}_{AL}\vec{A}_{BR}}$$