

What will happen if Balancing is not done?

If the moving parts are not balanced

Inertia forces/moments (also known as **shaking forces/moments**) are set up in the structure

Shaking forces/moments induce **VIBRATIONS** in the structure

This will lead to:

- (i) **premature failure of machine components,**
- (ii) **faulty performance** of the machines, and
- (iii) **human discomfort.**

VIBRATIONS will:

- (i) produce excessive **NOISE,**
- (ii) cause undue **WEAR** of mating components,
- (iii) increase the component **stresses** and subject the bearings to repeated loads (**fatigue loads**).

Balancing of Masses Problems

I. BALANCING OF ROTATING MASSES

- ☞ (i) Balancing of **Single Rotating Mass**
- ☞ (ii) Balancing of **Several Masses Rotating in Same Plane**
- ☞ (iii) Balancing of **Several Masses Rotating in Different Planes**

II. BALANCING OF RECIPROCATING MASSES

- ☞ (i) Balancing of **Single-Cylinder Engines**
- ☞ (ii) Balancing of **Two-Cylinder Engines**
- ☞ (iii) Balancing of **Multi-Cylinder In-line Engines**
- ☞ (iv) Balancing of **Radial Engines**