Section 6 - Load Weight, Center of Gravity, and Weight Distribution

Objectives

When you have successfully completed this section, you should be able to:

- ❑ Estimate the weight of a load using approximate volume and density information.
- ❑ Determine mathematically the weight of the load using volume calculations and density factors.
- ❑ Estimate volume and weight by converting complex shapes into simplified shapes.
- ❑ Use a dynamometer to measure the weight of a load by lifting .
- ❑ State the definition of load center of gravity and the requirements for correct positioning of a load with respect to its center of gravity.
- ❑ Explain how the position of the fulcrum in a balanced seesaw compares to the location of the center of gravity in a load.
- ❑ Use length and width measurements to determine the center of gravity for a load with symmetrical shape and uniform density.
- ❑ Determine the center of gravity of a load with an asymmetrical shape and uniform density by hanging a model in different positions.
- ❑ Estimate the center of gravity of a load with an asymmetrically shape and nonuniform density using calculations when the weight and the length of each side of the load are known.
- ❑ Estimate the corner weights of the load using the weights of each side.

To plan a **safe** and **stable** lift, you must determine the physical parameters of the load. The most critical characteristics of the load that must be considered are

- Load weight.
- Location of the center of gravity.

In good rigging practice, you should also consider other physical parameters of the load, such as the dimensions and the hardness of the surface material. These factors will be considered in later sections concerning choosing the proper hardware and rigging for lifting or moving a load.