

Since the trim angle is measured at full inflation and at equilibrium a change in the lift coefficient must be accompanied by a corresponding change in the car load to maintain equilibrium. Therefore, when the lift is greater, the load will also be greater, and the ship will trim at a greater nose down angle. A difference between the summer and winter trim angles may be observed because of this factor.

At less than full inflation the trim of the ship is affected by the above factors, and also by the relative inflation of the ballonets.

(3) Dynamic Lift

The dynamic lift of an airship is the lift which depends upon the forward motion and the angle of attack of the ship with respect to the air. See Fig. III for dynamic lift at various forward speeds.

The curves plotted in Fig. IV show the variation of the minimum length of the take-off run of model K-airships with heaviness and head wind.

The assumptions on which the curves are based are neither exact nor invariable, but they are on the safe side, giving an over estimate rather than an under estimate of the required length of the take-off run.

(4) Factors of Safety

The suspension system and the car structure of the K-airship are designed for a total car load of 16,000 lbs. The minimum factors of safety at this load are 3.00 for the car structure and 4.00 for the car suspension.