

Wing Loading Under Positive And Negative G

Example 1: Positive Loading



Abrupt nose-up pitch application creates positive loading from the combined effects of centrifugal force (CF) and aircraft weight, which act together in the same direction.

Example 2: Negative Loading

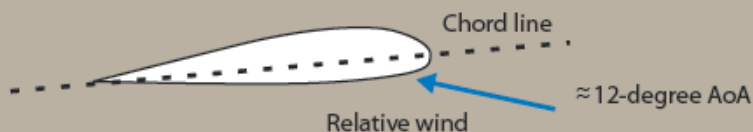


Abrupt nose-down pitch application creates negative loading from centrifugal force (CF) acting in one direction and aircraft weight acting opposite to it.

Effect Of Upward Wind Gust On Angle Of Attack (AoA)



Level flight, smooth air (no gusts), relatively low angle of attack (AoA—the angle between the chord line and the relative wind).



Level flight with strong upward wind gust (e.g., 50 feet/sec., or 30 knots) and resulting higher AoA.

A strong upward wind gust—such as those associated with thunderstorms or frontal conditions—striking from below the airplane causes the relative wind to change to an upward direction as it meets the wings. This instantly increases angle of attack, lift and load factor. The effect is the same as when applying a sudden sharp pulling motion on the pitch control.