

Figure 2-25. PPC stability after a side wind gust.

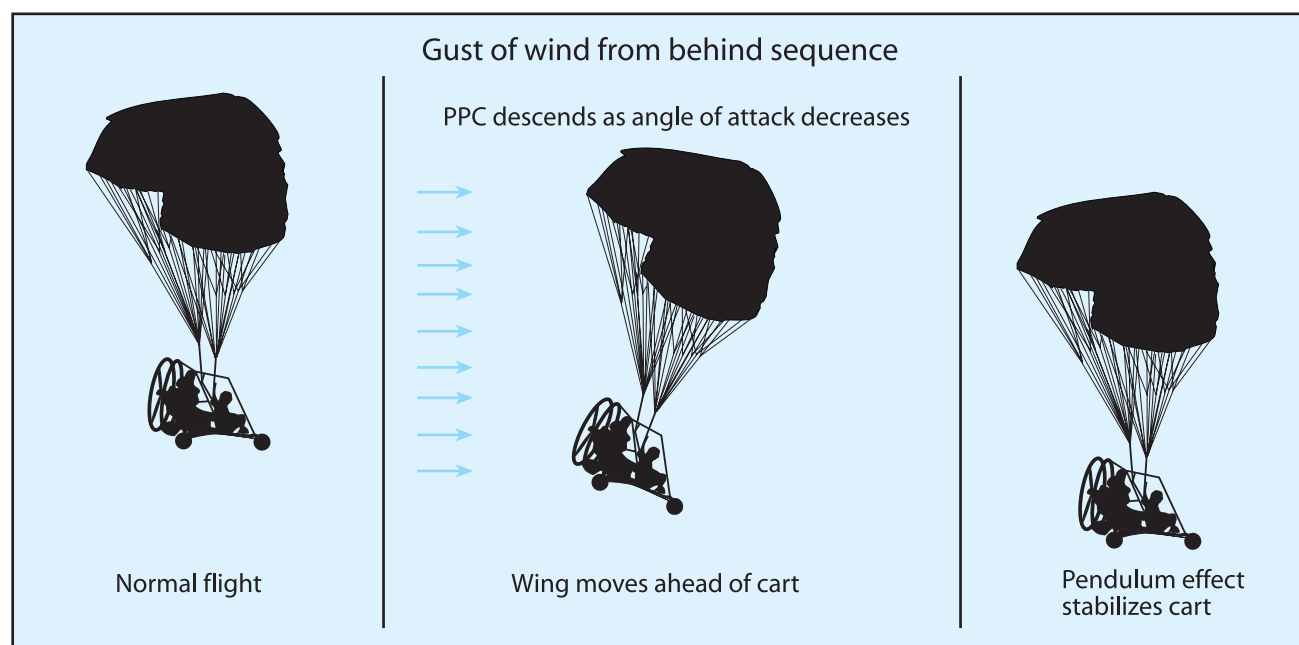


Figure 2-26. AOA changes as wind hits the airfoil.

changes the direction the air is hitting the airfoil. [Figure 2-26]

The pilot can add weight or increase loads which may also increase the angle of attack slightly.

Flaring Increases Angle of Attack

The flare (pulling down the trailing edges of the wing—and thus lowering the trailing edge) increases the angle of attack. [Figure 2-27] In a flare, the trailing edges of the wing are pulled down (usually, as both foot steering controls are pushed forward). This is similar to lowering the flaps on an airplane: lift is increased, drag is increased, and for a PPC, the angle of attack is increased. The result is that the higher drag wing slows down and thus the wing moves backward relative to the cart. So as the total weight of the pen-

dulum (the cart and occupants) moves forward of the wing, the angle of attack increases, generating more lift and more drag. The pendulum is the weight of the CG under the wing which swings forward for this transient situation due to pendulum effect.

Note that flare provides a temporary large increase in the angle of attack (AOA) until the pendulum swings back underneath the wing. This action thus returns the wing to the normal stable flight configuration — the cart (the total weight of the pendulum) under the center of the wing. Therefore, a flare will only temporarily add an increase to lift and drag. Once the pendulum swings back down, the drag of the wing, and therefore the reduced airspeed, will continue until the flare is released.