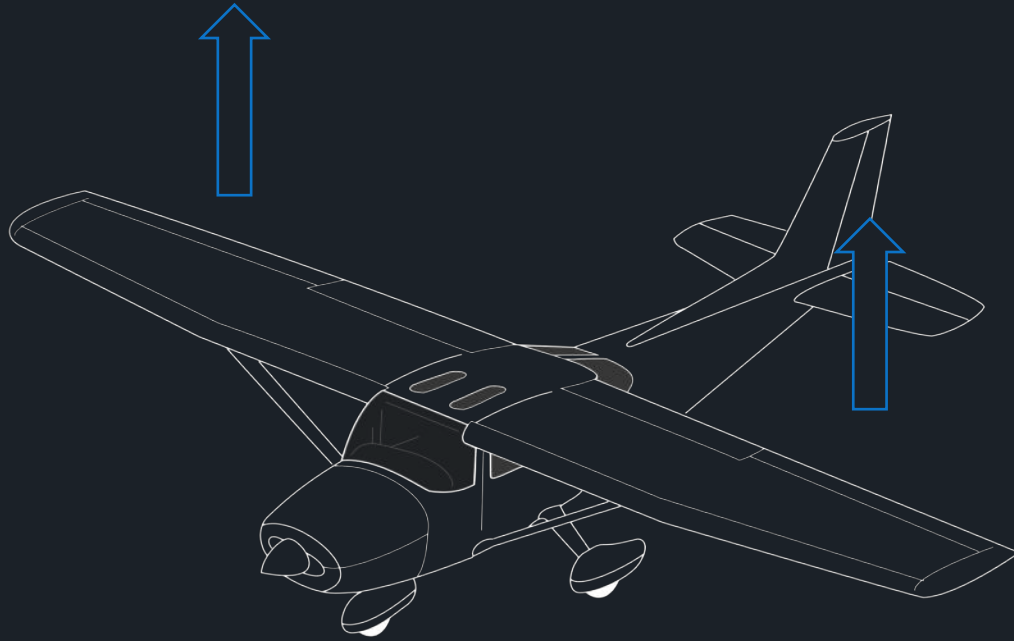




General Knowledge

Adverse Yaw

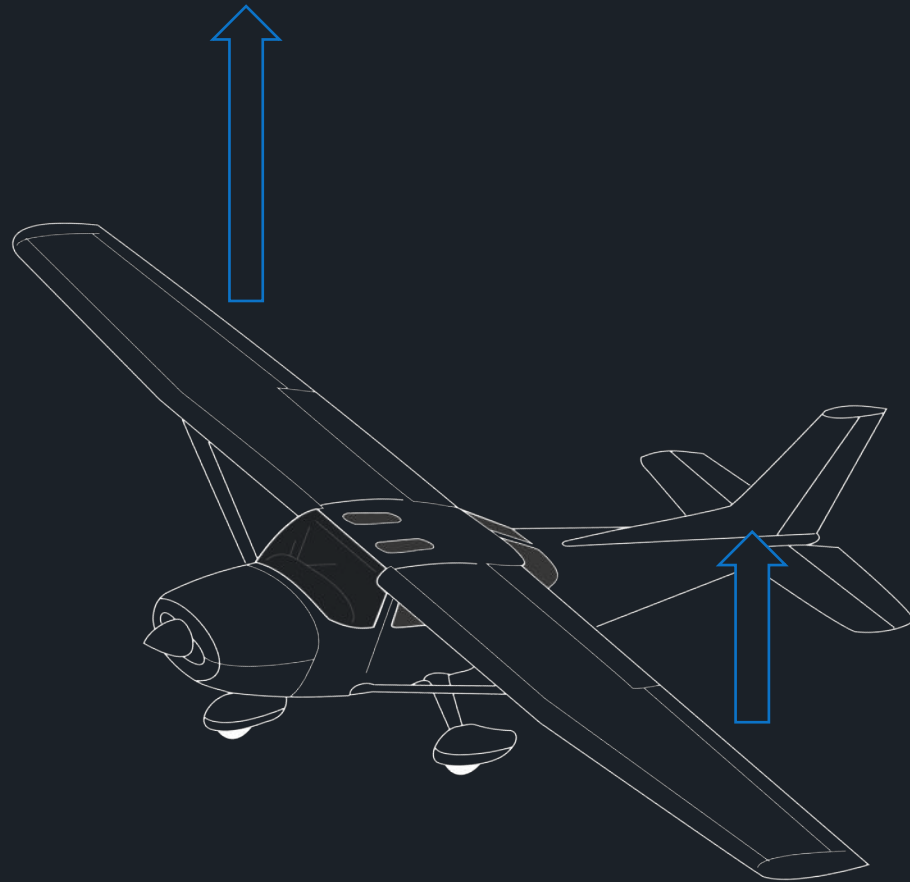
Adverse Yaw



➤ **Straight and Level Flight**

While in straight and level flight lift is evenly distributed along the wing span.

Adverse Yaw



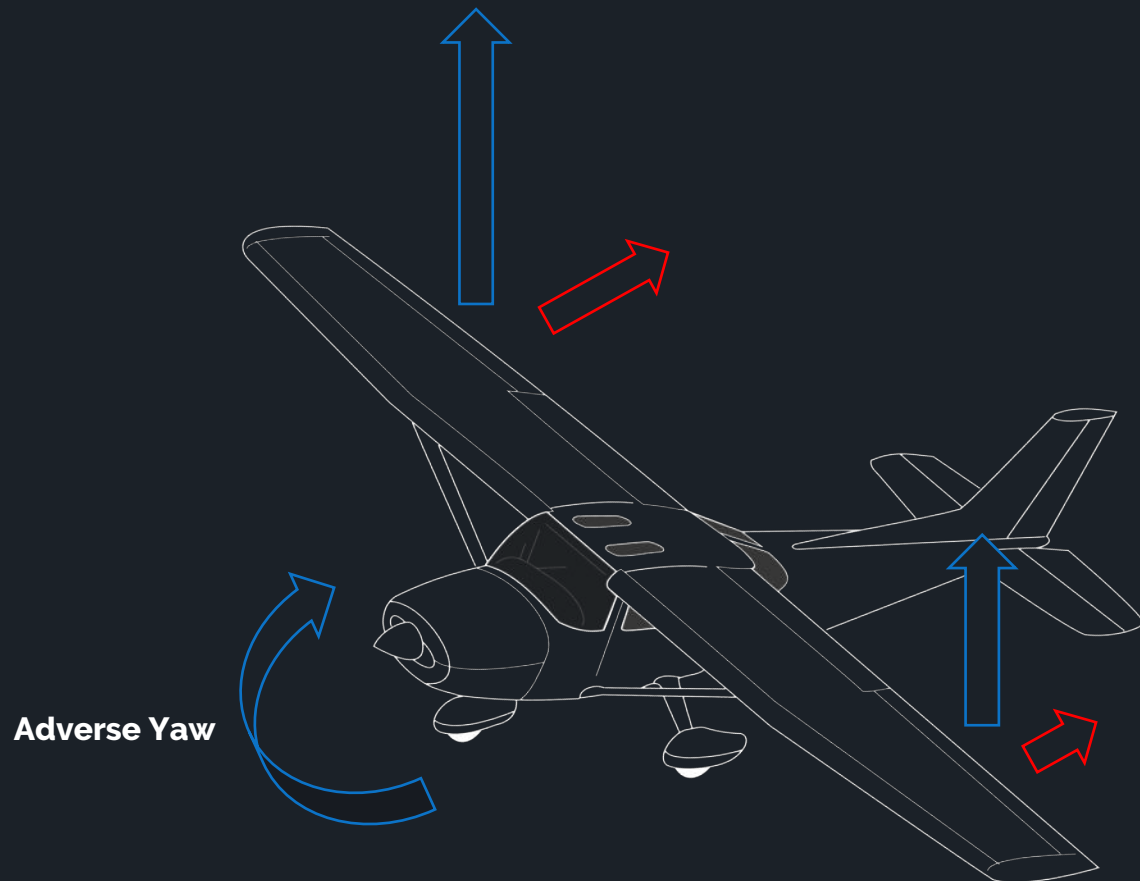
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> **Entry into a Turn**

Remember that in order to start a turn the ailerons must be deflected in opposite directions to create more lift on one wing than the other. A turn to the left will cause the left aileron to be deflected upward and the right aileron downward. A downward aileron deflection increases the camber of the wing and therefore its angle of attack resulting in more lift on one side of the aircraft causing it to roll.

Adverse Yaw



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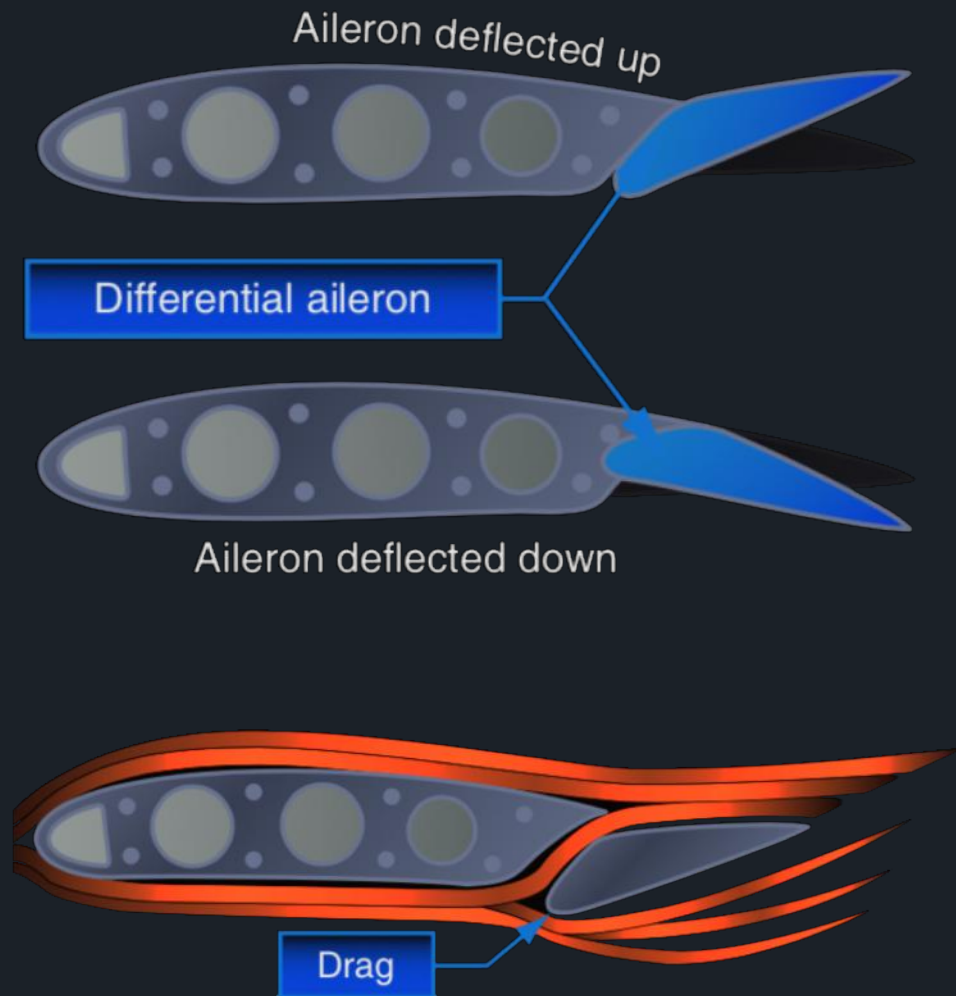
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> Induced Drag

Since the upward wing is generating more lift, it also creates more induced drag than the downward wing. This creates a yaw in the opposite direction of the turn known as 'adverse yaw'. This is an undesirable condition and is minimized/corrected by pilot rudder input and careful design of the ailerons.

Types of Ailerons



> Conventional Aileron

Straight forward and simple to design – the upward and downward going aileron are deflected by the same amount.

> Differential Aileron

Remember that the drag differential between the two wings must be minimized in order to counter adverse yaw. By careful design of mechanical linkages, the up aileron can be made to deflect more than the down aileron creating more drag in order to match the drag created the down aileron. Adverse yaw however is not completely eliminated.

> Frise Ailerons

With a frise-type aileron, when pressure is applied to the control wheel, the aileron that is being raised pivots on an offset hinge. This projects the leading edge of the aileron into the airflow and creates drag. It helps equalize the drag created by the lowered aileron on the opposite wing and reduces adverse yaw. However, adverse yaw is not completely eliminated.