Name(s)	Project Number
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Project Title

The Effect of Lift on Angle of Attack

Abstract

Objectives/Goals

My project was to determine if Bernoulli's equation of lift can accurately predict lift by measuring the speed under and over the wing as I change the angle of attack to clarify more accurate results.

Methods/Materials

Ten different wing angles using the same wing were trialed to record various results of lift. Only one wing was used in the testing of this experiment. Each of the different angles of the wing tested, had the same amount of occurring velocity. To measure the speed under and over the wing I stationed the wing in a aquarium of water. I created a make shift propeller out of stainless steel and placed it in the top and bottom of the wing while the water pump; pushed the water against the propeller to create a spin. I video taped the propellor in 10 second time frames and then observed the total rotations. This was then plugged into Bernoulli's equation to find the occuing amount of lift in ounces.

Results

My results conclude that a wing at a positive correlation will result in the most lift until 15 degrees, which is where the most lift occurs. After 15 degrees the lift starts declining to the lower numbers because the wing begins to stall.

Conclusions/Discussion

Based from the results of my data I conclude that the majority of the data supports my hypothesis. The data supports what my hypothesis has stated which was; that more lift will occur once the wing is angled nose upward but will eventually come to a stall and facing downward will result in a restriction of velocity under the wing causing less lift to occur. By looking at these results, a wing at a positive angle will result in positive lift until it reaches a stall.

Summary Statement

My project was to demonstrate the angle of attack and how it affects the lift by using Bernoulli's equation.

Help Received

I would like to thank my grandfather in helping me in the construction of the fluid flow simulator. I would also like to thank Nolan in helping me with excel and Mrs. Miller encouragement.