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Private Pilot Research - Weight & Balance (Weight & Balance Computations)

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Weight and balance computations are important to ensure a balanced aircraft and are different depending on the aircraft manufacturer. The three methods of weight and balance computation are computational method, graph method, and table method. All methods each determine the center of gravity position on the runway, before takeoff, and before landing.

When it comes to the computational method, we are calculating the moments of each station located in the aircraft. The goal of computing total aircraft moment is to ensure that the weight of the aircraft is within limits and that the center of gravity is within the envelope.

When it comes to the graph method, the end goal is the same as when using the computational method, however you use a graph to determine calculations instead of calculating with raw numbers. When using the graph method, a graph with the moment of each station and a graph with the aircraft weight and center of gravity limits will be used to calculate the data.

When it comes to the table method, the information given will be similar to the procedure with the graph method. One table will contain a list of moments based on weight for each station, while the other table will show moment limits based on the aircraft weight.

Because of the importance of each of these calculations and their methods, it is important to learn and be familiar with how to use them.