

AMA Alpha Flight Trimming Guide



Background

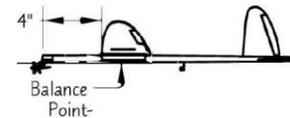
The center of gravity (CG) of a plane is the point at which it can be balanced. By balancing the wing on your fingertips on the point shown in the illustration below, you can find the center of gravity. A simple example this type of balance is a teeter-totter, like the one on the school ground. Pilots of full-scale as well as model aircraft must correctly determine the CG before flight to ensure that the airplane is balanced. To fly any aircraft safely, flight control surfaces (ailerons, elevators, rudder) must be capable of providing effective control of a carefully balanced plane in order to maintain level flight.

The CG can be adjusted by placing clay or other weight on the nose or tail of the aircraft. Placing weight on the nose moves the CG forward. This causes the plane to be more stable and the plane should tend to fly in straight and level manner. Moving the CG to the rear has the effect of making the plane less stable. Between these two extremes is an appropriate location for the CG to maximize duration and distance, typically $\frac{1}{4}$ of the way back from the leading edge of the wing.

Your Alpha comes with a unique design system that allows you to move the wing back and forth on the fuselage to change the location of the CG rather than adding weight to the nose or tail. Experiment with different wing placement. adjusting the CG, to maximize duration or distance.

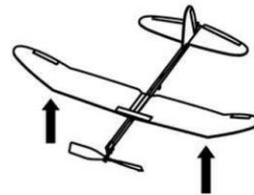
Finding the CG

You will be working with a partner to wind the motor and fly the plane to determine how changing the center of gravity affects the flight of the ALPHA. Follow the steps below.



1) As noted in the assembly instructions, position the wing about 10 centimeters (cm) from the nose of the plane.

2) Use your fingers to support your plane at the end of each wing a little way back from the front edge (about $\frac{1}{4}$ of the way back). Doing this will give you a good starting point.



3) Move the wing clip forward a little and try again. Which way did the nose move? Is the plane nose heavy or tail heavy? Move the wing clip back a little and try again. Was the plane nose heavy or tail heavy? Move the wing clip until the plane rests level on your fingertips.

4) Wind the rubber motor and launch your airplane. Time its flight.

