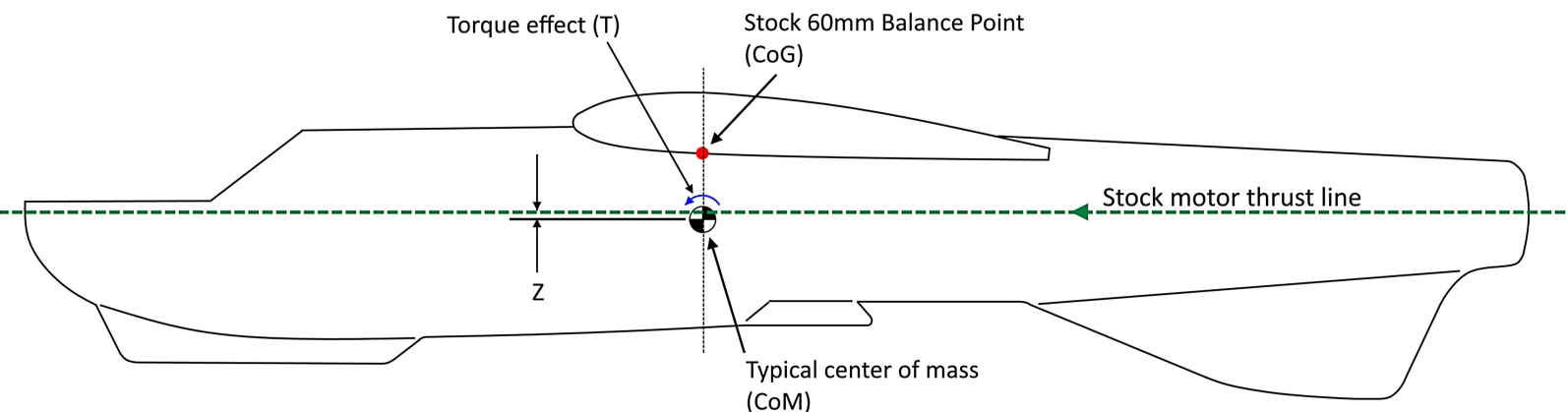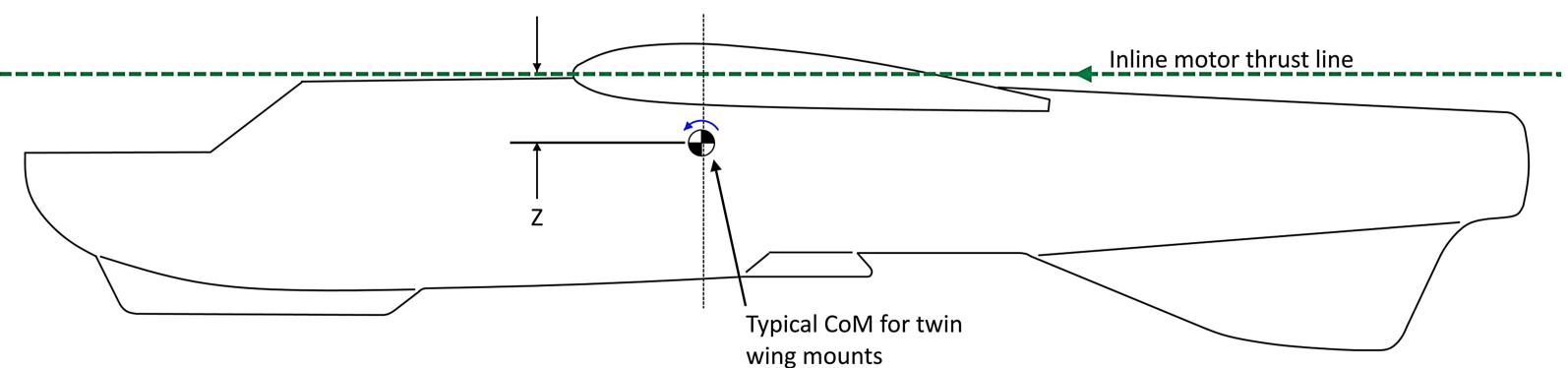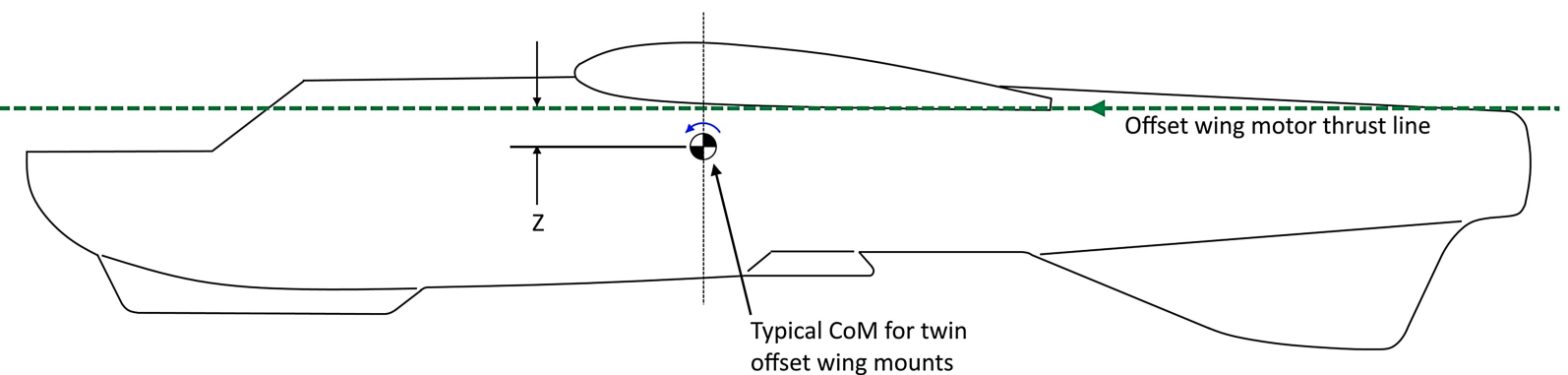# Pitch Effect from Motor Thrust

At launch, pitch change is due to the effect of the motor thrust on the airframe center of mass (CoM). The amount of torque (T) applied to the airframe is found by multiplying the motor thrust in kg times the distance (Z) from the thrust line to the CoM (called the Over-turning moment) in cm.

In a stock Mini Talon, given a thrust of 1000g (1kg), if the distance from the thrust line to the CoM is .4cm, the torque being applied to the airframe is 1kg x 0.4cm or T = 0.4kg*cm

Changing to an In-line wing mounted motor the distance Z is increased to 2.4cm so the torque increases to T = 2.4kg*cm

To counter the torque effect, move the center of mass closer to the thrust line of the motors or move the motors thrust line closer to the CoM.

Changing to an Offset wing mounted motor that halves the distance for an in-line mount, the distance Z is 1.2cm then the torque T = 1.2kg*cm