

# CHECKING FLIGHT TRIM USING SHORTENED MOTORS

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I have been building rubber powered models for most of my life and have found a great way to check the trim on your models after you have trimmed them to achieve maximum duration. You won't need a large field to test your model, and you can test your models flight at maximum power for a short duration flight. Here is my method for checking your models flight using a shortened motor.

Make up a rubber motor with the same number of loops that you will be using with the longer competition motor. This motor should be just slightly longer than the distance between the prop hook and the motor peg. This motor will be much shorter than your completion motor. Make the motor just long enough to allow the prop to free wheel after the motor runs down. Check the balance point of the model with this shortened motor and add weight to the tail to achieve the same balance point that you had using the longer motor. I usually use a torque meter to measure the torque when the longer motor is used for competition. Wind the shorter motor to the same torque setting as you used on the longer motor. If you aren't using a torque meter you can reduce the number of turns in the shorter motor by the ratio of the shorter motor to the longer motor. Use this formula to calculate the number of turns possible for the shorter motor:

*Longer motor length/shorter motor length x maximum turns used on the longer motor.*

The number of turns you will be able to wind into the shorter motor will be proportionally less by the ratio of the length of the shorter motor versus the longer motor. By winding to the same torque reading or the calculated number of turns your model will fly the same as when using the longer motor except that the power burst and duration of the power run will significantly shorter than when you use the longer motor.

Using this method will allow you to test your model at full power with a short duration power burst on a much smaller field. This method will also make winding the motor to maximum torque quicker than winding the longer completion motor.

When storing the shorter motor, store the weight that you had to add to the tail to rebalance the motor in the same container. Using this method will allow you to give your model a quick test just before flying it in competition.