

# THE MISSING TRIMMING LINK

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This article is for the neophyte modeler although it may give the experienced modeler food for thought.

I've read all the different trimming procedures I've seen and they are all good, accurate and informative, as far as they go. They basically divide the trimming procedure into two steps, trimming the glide and then trimming the powered flight. The problem I've had is with the powered flight trimming. It introduces too many variables at the same time. Thrust adjustments are expected but other problems can show up under power, that were not apparent in the glide, such as too small a rudder or an unnoticed warp and since these affect the thrust adjustments they can cause all sorts of confusion at the same time. My solution, and this has really helped me, is to add an additional trimming step between the glide trimming and powered flight trimming. It might help you. Refer to your favorite trimming article to set the glide correctly and establish a CG before proceeding. This is absolutely necessary.

"Low powered flight trimming" is the missing link and can eliminate many of these variables before going to "powered" flight trimming. Consider the new model that you have carefully trimmed the glide and are ready to start trimming the powered flight. The model has a 7" prop and you expect to use two loops of 1/8"x30" as the flying motor. The idea of low power trimming is to trim the model as you would for indoors, trying for a level and circling flight pattern and a smooth glide without concern for altitude. Use a shorter and weaker motor of two loops of 3/32"x15", half the length of the flying motor (not just one long loop folded over). This shorter motor will reduce long chases and the weaker motor should provide enough power to achieve level flight. Minor thrust adjustments will probably be required but not enough to be of concern. Be sure to re-balance the model to the established CG after installing the motor. Now, you can concentrate on establishing a smooth and circling cruise pattern with a good glide without having to control a strong motor at the same time. The first flight should tell you if the model has a "natural" turn. If so, don't fight it and adjust the model to circle in that direction. Any problems with the model, that would adversely affect a successful flight, will definitely show up at this stage and can be more easily corrected. When you have completed this "missing link" you will have insured the correct CG and the correct flight adjustments for the model. Understand, if you can't accomplish this missing link you'll never get the model trimmed satisfactorily and there is a good chance you'll damage/destroy the model while trying. Before installing the flying motor replace one of the 3/32" loops with a loop of 1/8"x15" You might have to adjust the down thrust to accommodate the added power. This should give some climb before entering your cruise pattern which will insure you're on the right path and will help to boost your confidence. If satisfied, install the flying motor and re-balance to the established CG. Start out with only several hundred turns and adjust the thrust as needed. With crossed fingers and a little luck, 90% of your adjustments will ONLY be thrust adjustments. Consider this, trim side thrust for a straight out climb and down thrust only as needed. I believe there are two points to watch for while adjusting down thrust. Obviously the launch, but more importantly I think you also need to watch for the top of the climb to see if there is a smooth transition to the cruise. If there is a stall at the top of the cruise instead of a smooth transition then the down thrust was compensating for a bad glide trim and this needs to be revisited until a smooth transition is accomplished. This is really important because a high climb doesn't help if it stalls at the top and loses much of the altitude before stabilizing into the cruise. On the other hand, if it drops like a rock when the power runs out and you have no significant cruise phase, this tells you your prop/rubber combination is too strong. You probably need a longer weaker motor with less down thrust. This motor will require less down thrust and will result in a slightly lower climb angle, but will result in a longer run and more time in the air. You might also have to readjust the glide.

Take this article with a grain of salt. These are only my thoughts and observations and they seem to work for me. Try them with your next model, or better still one of your hangar queens, to see if they might work for you. I'd appreciate your comments, good or bad. [powellchp@frontiernet.net](mailto:powellchp@frontiernet.net)