

## Aircraft Trim Chart

TO TEST FOR	TEST PROCEDURE	OBSERVATIONS	ADJUSTMENTS
<b>1. Control Neutrals</b>	Fly the model straight and level	Use Transmitter trims for hands-off straight and level flight	Adjust clevises to center Transmitter trims
<b>2. Control Throws</b>	Fly model and apply full deflection of each control in turn	Check response of each control	<p>Aileron: high-rate, 3 rolls in 3 to 4 seconds. low-rate, 3 rolls in 6 seconds</p> <p>Elevator: high-rate to give a smooth square corner, low-rate to give a loop of approximately 130 feet diameter</p> <p>Rudder: high-rate approximately 30-35 degrees, for stall turns, low-rate to maintain knife edge flight.</p>
<b>3. Centre of Gravity (Method 1)</b>	Roll model into a near vertically banked turn	<p>A. Nose drops</p> <p>B. Tail drops</p>	<p>A. Add weight to tail</p> <p>B. Add weight to nose</p>
<b>(Method 2)</b>	Roll model inverted	<p>A. Lots of down elevator required to maintain level flight</p> <p>B. No down elevator required to maintain level flight, or model climbs</p>	<p>A. Add weight to tail</p> <p>B. Add weight to nose</p>
<b>4. Decalage</b>	Power off vertical dive, cross wind (if any). Release controls when model is vertical, (elevator must be neutral).	<p>A. Model continues straight down</p> <p>B. Model starts to pull out, (nose up).</p> <p>C. Model starts to tuck in, (nose down).</p>	<p>A. No adjustment required</p> <p>B. Reduce incidence</p> <p>C. Increase incidence</p>
<b>5. Tip Weight (course adjustment)</b>	Fly the model straight and level, upright. Check aileron trim maintains wings level. Roll the model inverted, wings level. Release aileron stick	<p>A. Model does not drop a wing</p> <p>B. The left wing drops</p> <p>C. The right wing drops</p>	<p>A. No adjustment required</p> <p>B. Add weight to right tip</p> <p>C. Add weight to left tip</p>
<b>6. Elevator Alignment. (for models with independent elevator Halves)</b>	Fly model away from you and into any wind. Pull it into an inside loop or vertical climb, roll it inverted and repeat by pushing it into an outside loop or vertical climb	<p>A. No rolling tendency when elevator applied</p> <p>B. Model rolls in same direction in both tests</p> <p>C. Model rolls in opposite directions in both tests</p>	<p>A. Elevators in correct alignment</p> <p>B. Elevator halves misaligned. Either raise one half or lower the other</p> <p>C. One elevator half has more throw than the other, (the model rolls to the side with the most throw). Reduce throw on side with the most throw or increase throw on the other</p>
<b>1. Tip Weight (Final adjustment)</b>	Fly the model high into the wind either coming towards you or going away from you, smoothly push the model into a vertical dive, pull out sharply and watch for a wing dropping.	<p>A. Neither wing drops on pulling out.</p> <p>B. The right wing drops on pulling out.</p> <p>C. The left wing drops on pulling out</p>	<p>A. No adjustment required</p> <p>B. Add weight to the left wing tip.</p> <p>C. Add weight to the right wing tip</p>

<p><b>2. Dihedral</b></p>	<p>Fly the model straight and level into any wind, apply rudder and watch for any tendency for the model to roll.</p> <p>a. Test in both directions.</p> <p>b. Make changes in increments of no more than 1/8" at a time</p> <p>c. Don't worry about the noes pitching down or up.</p>	<p>A. The model does not roll.</p> <p>B. The model rolls in the direction of the applied rudder. (Proverse roll)</p> <p>C. The model rolls in the opposite direction to the applied rudder (Adverse roll)</p>	<p>A. No adjustment required</p> <p>B. Reduce dihedral</p> <p>C. Increase Dihedral</p>
<p><b>3. Side Thrust (During tests re-trim with rudder until a straight vertical is achieved, then add side thrust to the value of half the rudder trim that was needed. Zero the rudder trim) (Go back and re-test after adjusting)</b></p>	<p>Fly the model away from you, into any wind. Pull it smoothly into a vertical climb going at least to normal maneuver height (watch for deviations to the left or right as it slows down)</p>	<p>A. Model continues straight up</p> <p>B. Model veers left</p> <p>C. Model veers right</p>	<p>A. No adjustment required</p> <p>B. Add right thrust</p> <p>C. Reduce right thrust</p>
<p><b>4. Up/Down Thrust</b></p>	<p>Fly the model cross wind, at a distance of around 100m from you, (elevator trim should be neutral as per test No 3), pull it into a vertical climb and neutralize the elevator, (watch for any deviations up or down as it slows down)</p>	<p>A. Model continues straight up</p> <p>B. Model pitches up, (goes towards the top of the model)</p> <p>C. Model pitches down, (goes toward the bottom of the model)</p>	<p>A. No adjustment required</p> <p>B. Add down thrust</p> <p>C. Reduce down thrust</p>
<p><b>5. Aileron Differential</b></p> <p>(Set the model up with 12 Degrees up and 11 to 12 Degrees down as a starting point.)</p>	<p>Fly the model level and into any wind, going away from yourself. Pull it up into a 45 Degree climb and roll to the right. (After adjusting, try again in both directions)</p>	<p>A. The model does not veer sideways.</p> <p>B. The model's path veers to the right.</p> <p>C. The model's path veers to theleft.</p>	<p>A. No adjustment required</p> <p>B. Increase differential, increase the up throw on both ailerons</p> <p>C. Increase the down throw on both ailerons.</p>
<p><b>6. Pitching in knife-edge flight</b></p> <p>(Method 1)</p>	<p>Fly the model on a normal pass and roll into knife-edge flight, maintain height with top rudder, (do this test in both left and right knife-edge flight)</p>	<p>A. There is no pitch up or down</p> <p>B. The nose pitches up, (the model climbs laterally)</p> <p>C. The nose pitches down, (the model dives laterally)</p>	<p>A. No adjustment required</p> <p>B Alternative cures:</p> <ol style="list-style-type: none"> <li>1. Move the C of G aft</li> <li>2. Increase wing incidence</li> <li>3. Add down trim to ailerons</li> </ol> <p>C. Reverse the above</p>

<b>6a. Knife-edge tracking</b>  <b>(Method 2)</b>	Fly the model on a normal pass and roll into knife-edge flight, maintain height with top rudder, (do this test in both left and right knife-edge flight)	A. The model does not pitch up or down  B. The model pitches to the canopy in both knife-edges.  C. The model pitches to it's bottom in both knife-edges  D. The model pitches in opposite directions in each knife-edge	A. No adjustment required  B. Lower both Ailerons slightly Approximately 2 turns  C. Raise both Ailerons slightly approximately 2 turns  D. Use mixing from rudder to elevator to fix the problem.
<b>7. Power off Tracking (Test #1)</b>	Fly the model level into any wind, pull the power off and watch for any roll off to either side	A. No roll to either side  B. The model rolls left  C. The model rolls right	A. No adjustment required  B. Mix 2% to 3% right aileron to low throttle, enough to neutralize the roll.  C. Mix 2% to 3% left aileron to low throttle, enough to neutralize the roll.
<b>Test #2</b>	Fly the model high at a distance of approximately 100m into or across wind but sideways to yourself, push it into a vertical dive, watch for any tendency to roll while in the dive.	A. The model shown no tendency to roll  B. The model rolls to its left  C. The model rolls to its right	A. No adjustment required  B. Mix some right aileron to low throttle, enough to neutralize the roll  C. Mix some left aileron to low throttle, enough to neutralize the roll
<b>Test #3</b>	Fly the model high at a distance of approximately 100m across any wind but sideways to yourself, push it into a vertical dive, watch for any tendency to pitch up or down while in the dive.	A. There is no pitching, the model continues straight down  B. The model pitches up, towards the canopy.  C. The model pitches down towards the bottom of the model	A. No adjustment required  B. Mix 2% to 3% down elevator to low throttle  C. Mix 2% to 3% up elevator to low throttle.

### Notes:

1. Trimming must be done in calm conditions.
2. Abbreviations are used.
3. Make multiple tests before making adjustments.
4. If any changes are made, go back over previous steps and verify or readjust as necessary.
5. A good Decalage starting point is 0 Degree Wing, 0 Degree Stab, 1.5 Degree Down Thrust, and 1.5 Degree Right Thrust.
6. The model should be perfectly aligned while it is being constructed.
7. Static balance the model prior to flying it (longitudinally AND laterally).
8. Setting the CG to between 34% and 38% of the MAC is a good starting point.
9. All vertical dives are power off.
10. Setting up the model with 12 Degrees Up Aileron and between 11 and 12 Degrees Down is a good starting point.

(Take your time - Trimming is a constant procedure throughout the life of your aircraft. If a trim condition changes noticeably, inspect all airframe and flight control components carefully to determine what caused the change!)

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