

**Control Throws:** Here's where things can get sticky and settings will really vary with each pilot's personal abilities and preferences. I use JR's flight modes to control all of my rates with a single switch. For me, using flight modes helps me avoid confusion.

However, you should set up your radio close to the manner with which you are most comfortable. After you get more comfortable with the airplane, you can experiment with new switches and rate types, such as flight modes. If you're fairly new to 3-D, be sure to have a quick and easy way to escape the 3-D setting, and never fly a new model that does not have the option for a reduced-rate elevator.

For starters, let's set up the Extra with two sets of control rates. The elevator is the control that can get you into a lot of trouble fast, so I'll concentrate on that. We'll have a standard rate for everyday flying which can be later optimized for precision, and a setting for maximum control throw, which is the 3-D mode.

Setting surface deflection is another initial step where so many pilots tend to rely on the TLAR ("that looks about right") method. But really, this stuff is critical to an airplane that flies in a neutral manner and won't fight your every input. For control setup I use CRC Throw Meters to tell me, in degrees, exactly where the control surfaces are set. The CRC gauges are available from Central Hobbies at [www.centralhobbies.com/](http://www.centralhobbies.com/).

One often-overlooked step in setup is matching aileron throw left to right and up and down. It's nice to have two gauges for matching ailerons. Before you adjust throw, match the neutral and endpoints for the ailerons. I make these adjustments at maximum deflection or 100% travel. Then as you adjust the total throws or rate settings, the control surfaces should stay in sync.



**Erik and Mike used a CRC deflection gauge to ensure the desired (and equal) amount of deflection on both sides.**

To make sure the elevators are in sync, Erik likes to use a 24-inch length of carbon tubing taped to each elevator half as a pointer. The carbon rod is stiff and does not flex at this long length, so it stays accurate. Line up the elevators at the counter balances to make sure they're level, then tape the tubes to the surface so that they point directly to each other when centered. Erik used a toothpick in the end of each tube for further accuracy.

Move the surfaces slowly and watch for differences along the length of travel; some offset as the elevators move is normal. The pointers are so long that a fairly large gap of, say, a half inch, only reflects a minimum offset, so don't get too worried unless the differences are huge. With the transmitter you can now adjust the endpoints to match perfectly at the extremes of each throw and you are assured of even elevator adjustment.



**To ensure that the elevator deflection is equal in the center at its maximum endpoints, Erik used a set of carbon rods taped to each elevator half as a pointer.**

For the beginning setup and initial flight testing, set the ailerons to  $15^\circ$  of throw each way and the elevators to  $20^\circ$  each way. To set the rudder, you must turn the fuselage on its side with the wings and stabilizers removed from the airplane. Initially set the rudder to  $35^\circ$  each way. After you get comfortable with the model, readjust all of the deflections and settings to suit your flying style.