Set-up

A few points that I follow when setting up a new model for flying:

- Paint or varnish any bare wood to **fuel** or water**proof** (if required). Do the firewall for sure and the wing saddle (any place that oil or water might seep into).

- Make sure that the **wing** and tail are **straight** (no warps).

- Check the **wing incidence** with the horizontal stabilizer level. Depending on the type of model, the incidence should lie between minus 1° (flat bottom aerofoil) and plus 2°. I usually use the Robart Incidence Meter for these measurements.

- **Control surfaces** should be free and easy. Take the extra time to ensure pushrods are straight without binding. The gap at the hinge line should be as narrow as possible.

- Measure the **Control throws** carefully at the TE (trailing edge) or with a template. If the recommended throws are not listed on the plan or instruction booklet, I would suggest 12° for the elevator, 15° for ailerons and 20° for the rudder to start with. Differential aileron (more up than down) is a good idea on slow flying models with flat-bottomed airfoils (e.g. J3 Cub). To convert linear measurement into degrees, divide the distance travelled by the width of the control surface and multiply that by 60 (**1 in 60 rule**). Therefore, an elevator 2 inches wide, which moves up ½ inch, will have moved 15 degrees (½ / 2 x 60 = 15). I also like to program some exponential into the controls if possible, say 25 to 30% for a start.

- **Balance** as per plan. I never put the balance point further aft than 30% (nor further ahead than 25%) for the first flight. You can usually deal with some nose heaviness in the air, but the first flight of a model that is tail heavy is difficult at best and often catastrophic. Take the time (in your workshop, **not at the field**) to ensure that the C of G is accurately placed. The Great Planes "C.G. Machine" works well. You can also drill a hole through the model at the designated spot and hang it by a wire. Invert low wing models. Shift the battery or add weight to the nose or tail, so that the horizontal stabilizer is level.

- Calculate the **wing area** (span times chord). I include the bit that is under or over the fuselage. For shapes other than a board wing, measure the chord midway out on each side, then join the 30% points with a line. Where it intersects the root chord is the balance point.

- **Weigh** the model.

- The weight of the model divided by the area of the wing will give you the **wing loading**. For up to .60 sized models I aim for a loading of 20 ounces per square foot or under if possible. This is a reasonable compromise and although heavier models can be steadier in gusty winds, I prefer the lower stall speeds and manoeuvrability that come with lighter loadings.

There are no guarantees. However, with careful preparation as outlined above, you should have a better than even chance of a successful first flight.

CwfG