FLYING ON A LOW WING AND A PRAYER…

An article written a couple of years ago by Gene Smith, who writes the Free Flight Sport column in Model Aviation

While walking back from a retrieval of my Marcoux Bromberg at the FAC Nats, I encountered a gentleman who was holding his nicely done high wing Old Time Rubber model. He said "I don't know how you guys get those low wingers to fly". Sometimes I am not sure how I get them to fly, but I have certain guidelines I follow. Those guidelines have minimized my problems in trimming low wingers.

My first low wing rubber powered scale model was Don Srull's He 100 D which I built from the Flyline kit. I had some limited success with that model, the limitation being no fault of the design or the kit, but rather my lack of experience. My first real breakthrough came when I ordered a set of plans for the Fiat G-55 from David Smith. Much to my surprise and delight, there was a handwritten how-to article enclosed with the plans. The article covered building, flying, finishing, propeller and rubber motor tips. The 22" span Fiat was my first really successful low wing scale model. I referred to the how-to article many times in subsequent years. The Fiat plans and tip sheet are still available for $5 cheap. Also available for the same price are plans and a tip sheet for David's awesome Reggiane 2005. David Smith, 6715 Lake Arcadia Lane , Columbia, SC 29206

For several years I labored under the following mantra: High wingers fly to the right and low wingers fly to the left. This rule, seemingly set in stone, didn't come from just one individual, but from several sources. I followed the left turn mantra for years and had some success with my Fiat. However, there was a price to pay if the model's adjustments were off just a little. If you had too little washin of the left wing panel, the model would climb steeply, do a beautiful wingover and come zooming back in the general direction of the launch site, often in the direction of terra firma. Too much washin of the left panel and the power phase would be beautiful, but once the model transitioned into the glide, the extra washin would push it into a right turn and an ever steepening right spiral to the ground. Ouch!

Even with these problems, the left pattern can certainly work. However, I was about to learn that the scientific method employed to prove that low wingers couldn't fly to the right, was probably the same method used to prove that bumblebees couldn't fly.

At an FAC Nats in the early 90's my roommate was Charlie Sauter. Charlie had a very nice Keith Ryder Firecracker built from Tom Nallen's plan. Charlie won the event flying his model to the right. How could that be? It was heresy. It must have been an illusion. No, it really flew to the right. Hmmm. That was the first chink in the armor of the left flying low winger mantra, but it wasn't enough to make me change my ways.

My eyes were really opened by Jeff Englert, leader of the Sunflower Squadron in Wichita, KS. Not long after Charlie's win at the FAC nats, my squadron, the aptly named Kamikaze

Squadron, hosted an FAC event which included WWII combat. For those of you not familiar with Flying Aces events, mass launches involve the simultaneous launch of several models, last one down wins. I had been knocking the Kansas guys cold with my Fiat but Jeff brought a new weapon, a beautiful P-51 built from the Golden Age Reproductions kit. Confident that I still had the event in hand, I put in about ? winds, launched and watched in amazement as Jeff's P-51 flew so well it made my Fiat look like a Brewster Buffalo caught in a swarm of Zeros. Jeff won the event with ease. He let me examine the model after his win. That model was perfectly straight. No washin, no washout, no rudder offset, just some down and right thrust. How was that possible? I KNEW you had to have washin in the left wing panel but this model had none. Jeff's model just flew in large circles. I don't recall if they were left or right, but they were so big and gentle that large trim adjustments weren't needed.

The final piece of the puzzle was in an article written by Mike Midkiff. He wrote that he trimmed his models to fly straight for the first fifty feet after the launch and didn't care much which direction it went after that. (Hope I am quoting Mike correctly, it has been a few years since I read the article). I tried it. It worked. I no longer fly low wingers to the left. They all go right/right. That said, if you have success flying low wingers to the left I am happy for you. This is just what works for me.

To summarize: Build everything flat and straight. An exception is elliptical or highly tapered wing planforms. For those, use a bit of washout in both wingtips. Start with two degrees of right thrust and two degrees of down thrust. Use thrust adjustments to make the model fly straight for the first 50 feet after launch. As the torque burns off, the model will start a large right circle, tightening a bit as it goes into the glide. If the model attempts to spiral down to the right in the glide I tweak in a touch of left rudder. Sometimes this requires a small amount of additional right thrust to keep the first fifty feet in a straight line after launch.

Is that all there is to it? Sometimes it is just that simple, sometimes not. Each model has a personality of its own. I can't stress enough how important it is to build warp free and to be able to remove warps that creep into the flying surfaces. I am making the assumption that the model is a good design with adequate stab area and the balance and decalage are as per plan. Trimming a model to maximize its flight performance can be frustrating or fun. The trick is doing your best to prepare the model for success before the first flight