

DESIGN PRINCIPLES OF SOME OLD TIMERS

An article entitled "What Were They Thinking?" published in the March 2008 issue of Flight Plug, the newsletter of the Southern California Ignition Flyers, Mike Myers, Editor

Hank Sperzel out in Omaha Nebraska has built, and splattered, several Satellite 1300s over the years. He sez the design is a good one, but if built per the plan has a CG problem. He's happy with his 5th Satellite 1300 where he solved the CG problem by adding 5 inches to the nose of the fuselage.

Now the Satellite in its various permutations swept all other models before it on the FF fields in the late 1950s and early 1960s. Or at least the Nostalgia Gas flyers seem to believe so, having set up their design eligibility cutoff date to "keep the Satellites out".

So when you hear that the 1300 design has a CG problem, you wonder, *"What was Bob Hunter thinking?"* I chewed on that question with Art Swift this week. A lot of the late 40s and early 50's FF designs had stabs that were equal to 40% of the wing area. The designers intended to have a CG that was right at the TE of the wing. If you go back to the late 30's my beloved Fred Lehmborg "Goon" has a 46% stab and a CG that is at least 2 inches behind the wing TE.⁴

In my experience — which may not be representative, when these models with an extreme aft CG get upset, they just stop flying and don't recover. The Goon will make many flights without a problem (other than ground looping and breaking props)--but once it's up there and settled down in the glide, it's usually fairly stable. But every 20 or 30 flights, it'll be gliding along, and then just sort of collapse in a heap.

The SCIFs and others in the SAM and OT movement like to build models designed a long time ago. In many cases the designer is long gone, so you can't ask them, *"Why did you design the model that way?"* In some cases, I believe that they simply found a set of force arrangements that "worked" and kept designing variants of the same model. I mean no disrespect to Sal Taibi when I say that a lot of his different designs have a lot in common. He found a winning combination and repeated himself. Other designers have a certain style—you can look at a design of Ray Heit's for example, and say "That's a Ray Heit model", whether it's a Bay Ridge Mike, a Scrappy, or a Scram.

I applaud the choices made in some instances. People look at the Tomboy design with its heavy single spar in the bottom of the wing and stab and say, *"That surface will warp because the spar is in the wrong place."* I had an exchange of e-mails on that point with Vic Smeed. Smeed said the design choice was deliberate. The Tomboy was to be built by schoolboys — and the wing would probably warp. But with the spar in the bottom of the wing, *"any warp would be in a beneficial direction."*

Vic was thinking things through here. Any modeler's early models are going to have some warps built in them, or will be too heavily doped and twisted some how. Vic was compensating for poor technique on the part of the builder.

⁴ *I've at least had the benefit of talking with Fred Lehmborg before he died. He explained what he was thinking with the design — he was faced with a maximum wing area rule-so simply decided to add a bunch of lifting area to the stab — in effect a "cheater model" just like a NASCAR "cheater race car"-pushing the envelope of the rules to the max.*