

Foamflyer's RC Airplanes

Single Ailerons

What's all this about single ailerons you ask? I created this page in an attempt to explain. Many of my planes use single ailerons for roll control, that is, an aileron only on one wing panel. The idea is of course not original - I saw a plane many years ago called the "Undertaker". It was a balsa and film pylon racer powered by a little 1/2A (like an .049) glow engine. The plane had a single aileron.

In my model building endeavors to make things simple and inexpensive, I decided to try a single aileron. The first of my planes to employ this was the So.5, which was also my first twin-boom foamie pusher. Needless to say, it worked very well. All I had to do to compensate for not having the traditional two ailerons was to either have the surface area of the single aileron bigger, or have more control travel, or both. Soon I was building planes that had roll rates like planes with two ailerons. I couldn't notice the difference in flight, but was reaping the benefits of the idea.

So what are the benefits?

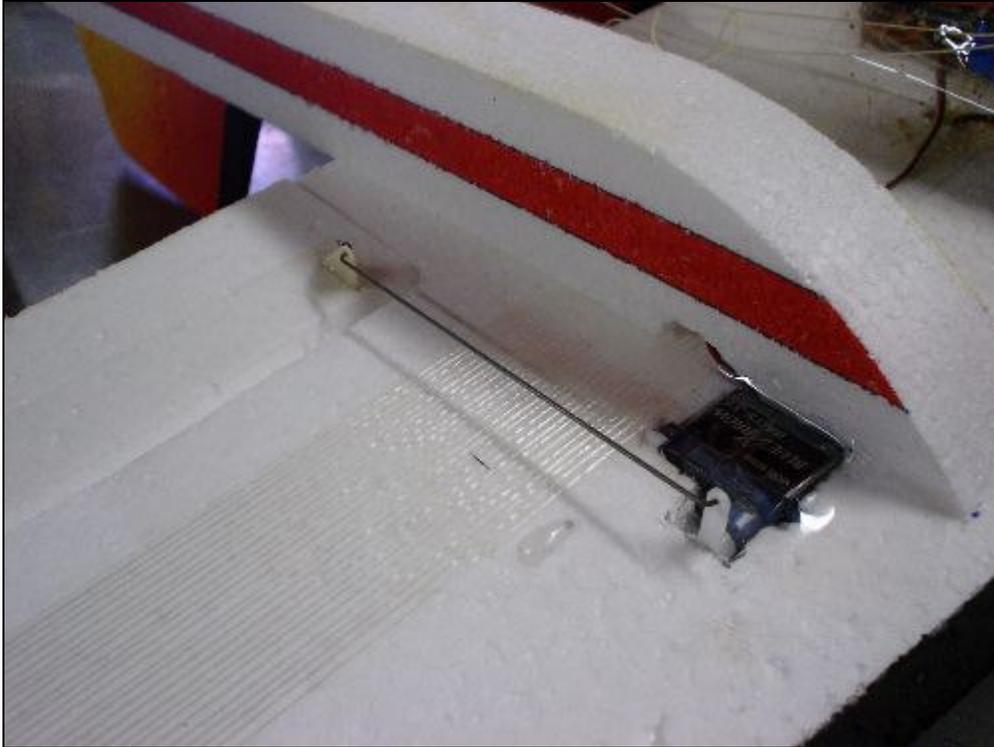
1. A simpler design - less complexity. I don't have to make an aileron torque rod arrangement to control two ailerons, or two servos.
2. Lighter weight. The lack of the aileron torque rod arrangement.

The drawbacks? One minor one - the plane looks funny! So what I normally do (if I care about the appearance of the plane) is use panel lines and draw the missing aileron. Pretty trivial huh? Aerodynamically there's probably some problem with aileron differential, and the rolls are probably not perfectly axial, but I don't really care with the types of planes I build and fly.

Some people think a plane with a single aileron won't fly. Some think you can only turn in one direction, or that the plane only turns well in one direction. I've found this to not be the case.



Here's the single aileron on my "Miss Swiss" plane. Notice this is the bottom of the wing. The servo (in this case a Hitec HS-81) is what I call "flat mounted" into a cavity in the foam with clear packing tape to secure it. Then there's the regular pushrod and control horn.



And here's the single aileron on my "Micron" plane. Again this photo shows the bottom of the wing.

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