

Side Force Generators That Work

by Jim Kitt

When Tom and I were at the Huckfest in Orlando a few weeks ago, we met a fellow 3D enthusiast, Bill Clark, who had homemade Side Force Generators (SFG's) on his 3D Hobby Shop Extra 300 SHP. Since we own two of these planes, the different SFG's were very obvious to me, but their shape seems so familiar, and the plane flew so docile in very high winds that I had to ask him more about them.

He said that he fashioned them around the spill plates on TF dragster wings. They also reminded me of wing fences on early jets, such as the MIG's, that were used to stop lateral flow on swept back wings at lower speeds, especially during landing. Bill said, "I did notice that I could get the plane to "snap out" in certain instances with the stock SFG's and it just won't do it with these. They help in Harrier and general flight and really locks it in to knife edge. They basically take a great 3D plane and make it better."

Well, this was all I needed to hear to start thinking about making a few for my SHP. Bill mentioned that he made them out of balsa and covered them with Ultracote. The wood was a little heavier than he wanted to make them, and covering was a real pain. So I decided to use some material I had laying around and see what I could come up with.

The first thing I thought about was making them as thin as possible and attaching them under the existing SFG which would give them plenty of support. I would also use some self-adhesive Monokote to keep from having to iron on the heat activated covering and bypass any issues with shrinking and warping. The first pass at this idea seemed to work like a charm, and the test flights seems to confirm that this design adds stability and rudder authority to the flight characteristics of an already excellent performer.

Here are some pictures of the building process. It was very simple, even with one hand occupied with managing the camera.

The first step was simply using a French Curve to outline the pattern I had in mind. I decided that 1/16 balsa would be fine for this project considering the extra support the self-adhesive Monokote would provide. When both pieces were cut out using a scissor, I used a rough Emory Board to smooth the edges.



The next step was to cut the Monokote to fit the one SFG, and fold it down the middle so that I could fold the Monokote over the straight trailing edge.



I then made sure that I had measured everything correctly.



I peeled back the paper on the adhesive side, laid the Monokote flat on the workbench, and pressed the balsa SFG in place.



After folding the Monokote onto the opposite side, I cut the excess Monokote off the SFG.



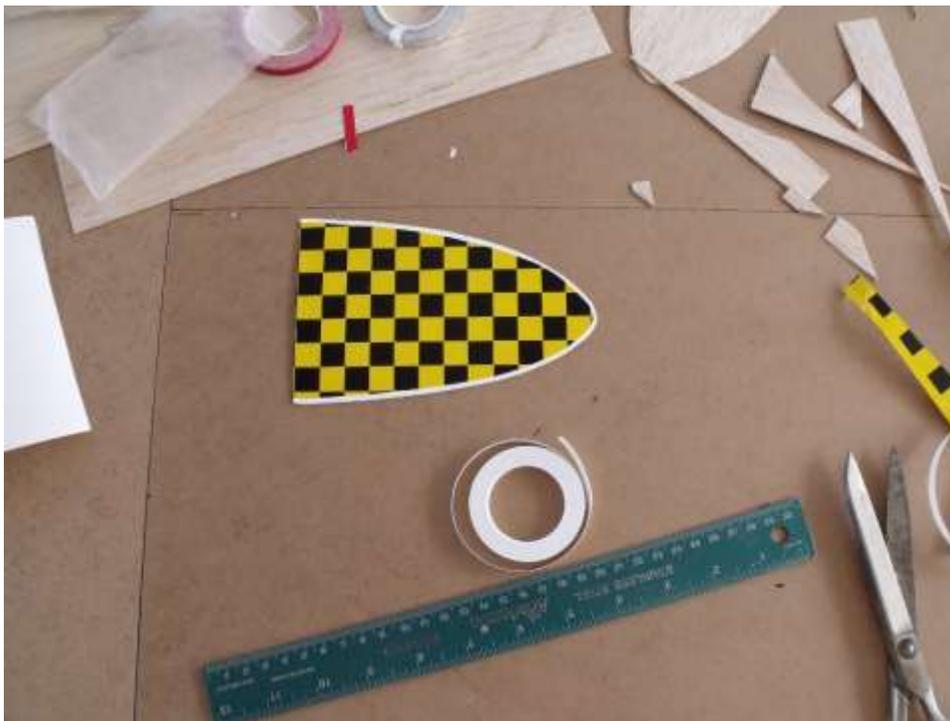
In order to make sure my Monokote would not peel back in flight, I decided to use ¼ inch trim tape to seal the edge.



The white trim tape I used is very elastic and fit perfectly around the curved surface.



The completed SFG looked close enough for a prototype.



They even came out nice and straight.



All I needed to do was duplicate the effort and install them under the existing SFG's.



And now the new additions were ready for a test flight. Of course, I had Tom maiden the plane just in case.



Here's the video of Tom testing the new stability of the plane by doing low and slow Harriers as well as a few other maneuvers.

http://www.youtube.com/embed/C7MWR_fMRkU