

The wing is the thing

by Dawie and Sakkie



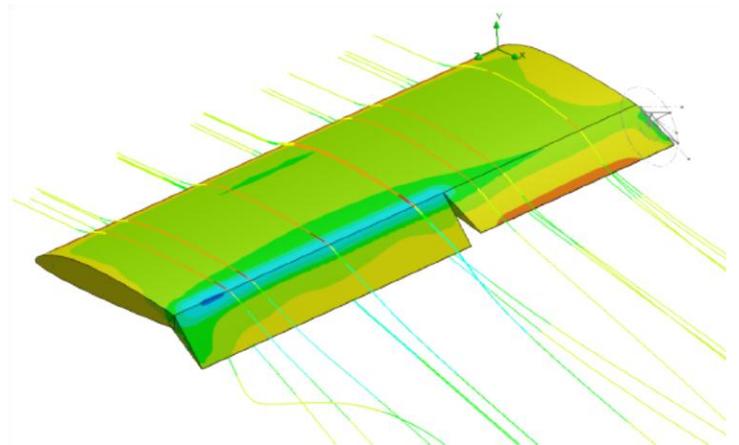
Sakkie's Wittman Tailwind was originally built and registered as Experimental in South Africa. The airplane was constructed exactly as per the Steve Wittman's plans. In 2003 the airplane was imported into Australia and has sported the local registration since then.

After more than a decade of drilling holes in the air of Western Australia we decided that the Tailwind could be even better with ... wait for it ... wait for it ... Aluminium wings!

How hard could it possibly be?

The new wings are based on the original work done by Colby Woods. However, we made a significant number of modifications. These include a completely new main spar, additional fuel tanks and a more efficient flap.

The control surfaces are also completely new. With Frise ailerons similar to those used on Richard Van Grunsven's RV designs taking the place of the original.

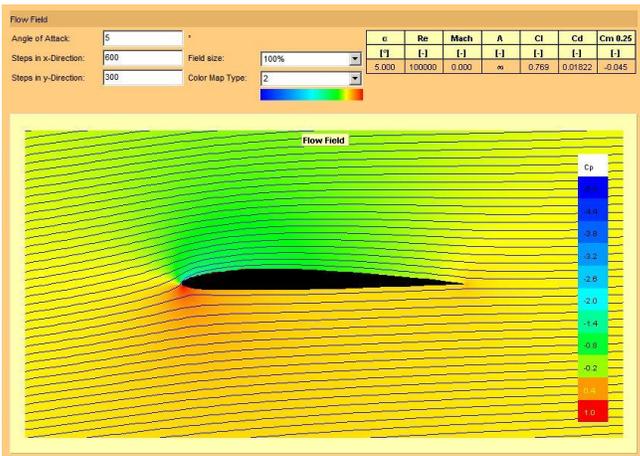


With the first design drafts complete, it was time to see if all the math and theory amounted to a hill-of-beans. Some test sections were produced and loaded to destruction. The construction was deliberately made with small imperfections, sloppy riveting and minor misalignments. It was judged that this will adequately represent the worst case in terms of amateur workmanship.

The test results show that the spar will be plenty strong enough. The ultimate strength is expected to be well in excess of 8G.

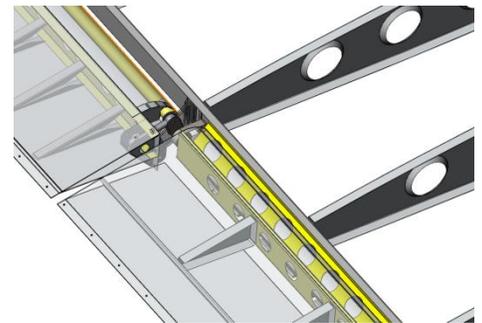
With the testing complete, construction of two spars took a few months. As always there were a few unanticipated hiccups.

Chief of these was our lack of knowledge when riveting long and thick rivets. These are used at the root and caused no end of problems. It turned out that the bucking bar we used simply did not have *enough mass!*



Side note: The new airfoil is in itself a pretty interesting as well. We used the airfoil as that was specified for the W-10 for the new wing.

The airfoil is a hybrid combination of a NACA 4309 and a NACA 0006 Airfoil. It is a unique design choice made by Steve Wittman, no doubt based on his racing experience.



At this stage the wings are starting to take shape. There were a few false starts with forming the ribs but Sakkie's attendance at an Oshkosh Forum on rib forming provided us with a push in the right direction.

Would you, the dear reader, believe that with the right technique these ribs now basically make themselves! ... No? ... I thought not!

