

Subject: [c-a] VG questions, comments

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[The Canard Aviators's Mailing list]

I'll comment on a few points my friend Byron McKean brought up + add a few comments that I've received.

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<<To Jim Price, Could you point out several things that must be considered in using VG's for the purpose of a slower stall speed. First, the location of the VG's for the purpose of lowering the stall speed is different from the location of installation for solving the in rain loss of lift. TheVelocity does not have an in rain problem with loss of lift.

Second, thenumber and spacing of the VG's and the ratio of VG's on the canard in reference to the wing is most important because the increase in lift, i.e. lowering of stall speed, must never allow the main wing to even approach stall before the canard.

And third, each different type aircraft and even each individual aircraft will respond differently. This is no area to be playing around with without careful consideration and probably a gradual approach in testing to reach maximum benefits. There is no question that properly installed and tested VG's for the purpose of lowering stall speeds is the best safety measure that has come along recently. Flaps could do no better and cost and weigh far too much, look at Beechcraft and their Star Ship!

Best Regards, Byron McKean>>

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JP 1. Byron's point is that... I put my VGs on at 20% of chord (main & canard). For the rain trim pitch fix for the GU canard, the vgs are placed much further aft. The data that I generated in the wind tunnel indicates that additional lift that the vgs will generate falls off radically when vgs are placed aft of the 20% of chord position. I have been told by one person that the vgs in the 20% position (the position that I use) will not help the rain pitch problem that a GU canard can have. In other words the vg(s) for rain and added lift applications are compleatly different. I don't have any experience about the Velocity canard in the rain, so I'll just leave that one as Byron stated.

<<Second, JP 2. I use 9" spacing between each pair of vgs & each pair is 1.5" apar and 20 degrees off wind line (remember the sweep of the main wing). 12 pairs on each side of the main airfoil & 6 pairs on each side of the canard. I did find that max lift was generated at 4" spaceing. I ended up using the 9" because it gave me what I wanted without adding too much drag. Wind tunnel data gave me a 25% increase in lift with a 2% drag increase with the 4" spaceing. Byron's point is that one would NOT want to add vgs at the positions that I have without adding the same number to the main wing. Never, ever think of putting vgs on the canard at the positions that I have mine without having the same number and spaceing on the main wing. Remember that the GU canard rain fix is a different application.

JP 3. I thought that I would find a different optimum position on the main vs the canard .. (i.e. different airfoil) ... wind tunnel data indicated that they were the same. Friends have tried vgs on the Veri with a GU canard + Cozy and found the same position works well for them. .. I have only tested the Long-EZ main wing & the Roncz canard. As Byron stated & I did before, one needs to be careful. I would never install vgs without doing

