



"Innovative Solutions for the Mobility Impaired"

Slower Airspeed handling DRAMATICALLY improved with Vortex Generators on the Canard of the Dragonfly!

- Slower Landing Speeds
- Slower Lifftoff Speeds
- Less Runway used
- Clear 50' obstacle within about 2500' to 3000'!

Results Comparison

Indicated Airspeed Approximations Solo at 1050 lbs

	Without VG's	With VG's
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Liftoff	80	70
Climb (500 to 600 fpm)	110	75 to 80 or 110
Distance for 50' Obstacle	5000'	2800' to 3000'
Approach to Landing	90 to 95	85 to 90
Final	85	75 to 80*
Short Final	80 to 85	70 to 75*
Touchdown	75 to 80	60 to 75*
Canard Stall	60 (700-800 fpm sink)	Not Yet Tested
Cruise Speed	130 to 135	Similar**

* The slower IAS's shown are attainable on Final, Short Final, and Touchdown, etc. however are in a bit nose-high attitude / angle-of-attack reducing visibility. The higher number shown seems more comfortable.

** Cruise Not Yet Tested Fully, but from speeds in pattern I could not notice a difference.

Prior to VG's the sink rate increase dramatically below 80 IAS, while touchdown at 70 IAS was once accomplished it resulted in a hard landing and bounce. With VG's much slower airspeeds are attainable. Touchdown seems best and 70 to 75 IAS for visibility, etc. but a 60 IAS touchdown was successfully accomplished (almost full back stick at touchdown and nearly a three point landing). Also if a bounce occurs (i.e. at night the runway suddenly is closer than you thought) with VG's the plane is much more controllable and its rather easy to recover and settle back on the runway.

As you can see from the pictures below, these results were with 6" centers with 8 extra pairs with 3" centers. I plan to eventually add more for 3" centers to see if there's a measurable difference, but want to test this configuration with bugs and rain first. However I suspect the results cannot get much better with 3" center than is already achieved with 6" center spacing, plus the 6" center spacing "looks" better - less "crowded".

6/29/03 - I made Vortex Generators from 3/4" x 3/4" Clear plastic 90 degree angle material used to cover sheetrock wall corners available from Menard's. (Idea from John Finly - Q200) Quantity (1) 8' strip will cover a 22' wingspan canard if placed with 6" centers at a cost of about \$2.50, 2 strips for 3" centers. I used metal shears or "tin snips" to do the cutting and rounded off edges / burrs with a utility knife. 34 pairs are needed for 6" centers, 66 pairs for 3" centers.

It took some time to make them (5 Hrs. to make 45 pairs while watching a movie and TV), and I did not have enough made to install every 3" on center as [Nate Rambo's](#) directions say, so I installed what I had at 6" centers so I could add the others later. Simply glued on with 100% Silicone Adhesive. Within one hour it was ready to fly. I took it around the pattern 3 times, but since it was 10 PM and dark, my approaches and landings were not as consistent as in the daytime so no good test results, but I could definitely tell the VG's improved slower airspeed handling and performance.

6/30/03 - Test flew the VG's more. INCREDIBLE RESULTS! I wonder if having every 3" on center is necessary or if every 6" on center is sufficient. I can't imagine the results getting much better! I would consider these HIGHLY RECOMMENDED if not mandatory simply for safety of flight and reduced likelihood of damaging a Dragonfly in a bounce situation!

Pictures







