



THE LANDING DOCTOR^{.com}

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There has been some talk recently about the stall and spin characteristics of LSA aircraft. I became "The Landing Doctor" a few years ago to help educate pilots on how to land safely and smoothly, especially during crosswind landings. You can find my tips free of charge at www.thelandingdoctor.com. Today's article is:

How to avoid a Spin

YOU CANNOT SPIN IF YOU DO NOT STALL.

LSA aircraft are certified under ASTM standards which does not require spin testing. Well, I can tell you from experience, the Bristell can recover from a spin. I was giving a demo flight a few years ago and the potential Bristell buyer asked if he could do a departure stall. I said yes. He used full power and entered the departure stall with too much speed, a ball that was not centered and the plane was in a very high nose up attitude when the stall occurred. Due to the uncentered ball, when the stall occurred, the right wing dropped and the Bristell entered a spin to the right. The customer did not take any corrective action, so I took the controls, added left rudder, closed the throttle, and lowered the nose slightly. After a quarter turn in the spin the Bristell recovered nicely.

WHAT DID I LEARN FROM THIS AND WHAT DID I DO TO MAKE OUR SCHOOL AND OUR INDUSTRY SAFER?

1. The Bristell is very light and climbs steeply with full power. A departure stall with full power is dangerous in very powerful aircraft. The Private Pilot Test Standards say a departure stall can be done with 65% power. We now teach our new Bristell owners and the cadets in our Flight Academies to do departure stalls as follows:

- a. Climb to 4000 feet AGL. Put the plane in the Take Off configuration. Trim neutral, 10 degrees of flaps.
- b. Close the throttle and slow to lift off speed of 45 knots.
- c. While maintaining a slight nose up attitude bring the throttle to 4000 RPM.
- d. Continue to raise the nose very smoothly until you are in a normal climb attitude (about 20 degrees up)
- e. Keep the ball centered.
- f. Wait for a sign of the stall, a buffet, the AOA horn, a burble, then lower the nose and add full power.

USING THIS TECHNIQUE, THE DEPARTURE STALL IS VERY COMFORTABLE AND SAFE. EVEN SO, WE DO NOT LET OUR STUDENTS OR RENTERS PRACTICE DEPARTURE STALLS SOLO.

2. The next tip on how to avoid a spin, is a CLIMB OUT TIP.

YOU MUST SEE OVER THE NOSE

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If you can see land over the nose, you will not stall.

There are many documented accidents where pilots stall and spun on takeoff as they make the turn on to crosswind. We teach that the turn onto crosswind is not initiated until within 300 feet of the downwind leg altitude. You do not want to be climbing as you enter downwind as you will not be able to see traffic entering the traffic pattern. In order to make that turn even safer, we teach trainees to lower the nose and increase the climb speed to $V_y - 75 \text{ KIAS}$ plus 10 kts of 85 KIAS. We call this maneuvering climb speed V_{mca} . Last year I was discussing stall/spin accidents on takeoff with my son Mike Mancuso (retired airshow pilot with 14,000 hours) (He now flies a Corporate Jet). I said to him, "Mike, how come we have never had a stall spin accident on takeoff in our flight school in NY in 74 years. He said, "Grandpa taught that you need to lower your nose in all turns in the traffic pattern, because the wing loses lift in the turn. We have taught that one simple concept in our school and that is why there has not been a stall spin accident at Mid Island Flying School for over 74 years."

3. The next most likely place in the traffic pattern that is known for accidental spins is the turn from base leg to final approach.

When there is a left crosswind in a left had pattern, the ground speed increases on base leg and often pilots will overshoot the turn from base to final. When this happens, we say you have entered the coffin corner. Pilots who put the plane in a 30-degree bank to get back onto final have occasional spun in. We teach if you overshoot the turn from base to final, you GO-AROUND!!!

Follow these simple tips and you will not stall in the pattern.

IF YOU DO NOT STALL, YOU WILL NOT SPIN

ALL LATE MODEL BRISTELLS SINCE 2016 ARE EQUIPPED WITH GARMIN G3X TOUCH AVIONICS WITH ESP. ESP, IS ELECTRONIC STABILITY PROTECTION. IF YOU PUT THE BRISTELL IN A STEEP CLIMB, or FAST DESCENT or STEEP BANK, THE ESP WILL TAKE OVER AND TRIM THE PLANE ACCORDINGLY. REMEMBER TO RE-TRIM THE PLANE IF THIS SHOULD OCCUR. YOUR CFI MAY CHOOSE TO DISCONNECT THE ESP WHEN DOING STALLS, SO IT DOES NOT RE-TRIM THE AIRCRAFT.

[Louis Mancuso](#)