



STEVE KROG
COMMENTARY / THE CLASSIC INSTRUCTOR



Stalls Revisited 2.0

They must be respected, but don't need to be feared

BY STEVE KROG

"LET'S GO DO SOME stalls today!" If you were on the receiving end of that statement, what would be your first reaction? Fear? Uneasiness? Would your response be, "Let's *not* go do some stalls?"

I have written articles in the past discussing stalls, but after recently chatting with several FAA designated pilot examiners, I feel the need to revisit stalls. Each examiner mentioned having to regularly fail students due to their inability to satisfactorily perform a stall, especially a turning stall. Why?

When tailwheel students come to Cub Air for an endorsement, the first thing we do is get them familiar with the Cub, including doing a series of stalls. I have found it shocking the number of pilots who tell me they were never taught nor had to demonstrate a full stall with a break, and never did one with more than 5 or 10 degrees of bank.

As flight instructors, we are really doing a disservice to these pilots young and old by not spending more time teaching, demonstrating, and practicing stalls. After all, the turning stall in the traffic pattern is where a significant number of incidents and accidents occur. So, why do we spend so little time teaching stalls? Why is there such a fear of stalls among pilots, sometimes even among pilots with a lot of flight time? I can only assume it reflects on the instruction the students initially received.

New instructor candidates generally study to become a CFI for one of two reasons. First, they have a love of flight and a desire to share that love. Or, second, it is a necessary steppingstone to advance a flying career in the corporate or airline world. Unfortunately, flight instructing is looked upon as a lesser profession and something one must do to get ahead in the aviation world. And a mindset like that instantly reflects on the instructor's attitude as well as their ability to teach and provide good instruction. If the instructor is only going through the motions to build time and get by, students pick up on this and either become lackluster pilots themselves or they quit learning to fly. But some students have a passion for flying, thankfully, and find another instructor or flight school. I have often wondered how many more pilots there might be today if lackadaisical instructors hadn't driven away so many students.

UNDERSTANDING STALLS

Stalls, when understood and then properly taught, should never need to be feared. If you still have an inherent fear of stalls, you probably were not taught correctly.

Standard category aircraft were designed to fly and do so quite well when the correct inputs are made on the controls. Then why do we have such a problem with or fear of stalls? Some of this fear first comes from limited experience operating in a three-dimensional environment. We forget that we have several thousand feet of vertical space to work with when practicing stalls. But some of the fear derives from improper training.

When learning to fly, your instructor should have first discussed and then used a model to visually explain what occurs in a stall. Oftentimes, though, the instructor is in a hurry and forgoes the ground time explanation, and off you go skyward to do some stalls. You were apprehensive before getting to the airport because you knew stalls were on today's agenda. Now, you are even more on edge because you're in the plane and climbing for altitude not knowing what to expect! My first instructor did this to me, so I have an understanding of this situation from a student's perspective.

Your instructor demonstrates a power-off stall and then asks you to perform one. Not understanding the dynamics, you go through the motions. The airplane begins to shake a bit, followed by the nose pitching downward and the left wing dropping. The instructor

assists with the stall recovery, but you are still uncertain as to what just happened. The apprehensive knot in your stomach is now the size of a melon!

Taking it step by step, the wings were at such an angle to the relative wind that smooth airflow over the top of the wing could no longer be maintained. Thus, the wing is not generating enough lift to remain in that nose-high attitude. The airplane is designed to and wants to fly so it automatically pitches downward seeking smooth relative wind airflow once again. Relaxing the back-pressure on the control stick or yoke aided in lowering the nose and once again generating lift.

But why did the airplane roll to or drop the left wing? This could happen for any one of several reasons. If the power setting was somewhat more than idle, the engine was developing torque and the prop was developing P-factor. Together these two forces were pulling the nose leftward. The relative wind was no longer coming straight on at the airplane but rather at an angle of perhaps 10 degrees from the right, partially blanking out the airflow over the left wing. Consequently, it stalled just slightly before the right wing, causing the left wing to drop. I will bet that this was never truly explained to you when first doing stalls.

One possible reason for the left wing to also drop is the rigging of the airplane. Have you ever flown an airplane that seems to want to drop a wing or turn slightly in one direction when flying straight and level with your hands and feet off the controls? If this occurs, the rigging is not properly adjusted. As an example, if the right wing's angle



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of incidence is 1 degree greater than the left wing, the aircraft is going to tend to roll to the right every time you do a stall. Encountering a rigging issue is somewhat common among the aircraft being used for primary flight training today. They have accumulated many hours of flight time and been put through all kinds of situations and repairs.

Another reason for the wing to drop during a stall is due to rudder inputs or lack thereof. I have worked with students who over anticipate the aircraft's movement during a power-on stall and begin applying a significant amount of right rudder, overcompensating for the torque and P-factor. When the stall occurs, the right wing drops rather than the left wing as anticipated. Now you are surprised by the aircraft's actions and your fear of stalls only increases, unless your instructor explained what happened and why, and then demonstrated it for you to see and feel. And if your instructor is thorough, he or she will have you perform one or two more stalls showing both the improper and then proper way of performing the power-on stall.

Stalls occurring out of a turn is where most students fail a checkride. Again, I can only surmise that this is the fault of the instructor in many instances. Perhaps the instructor had a less-than-good instructor, who also had a less-than-good instructor. Now, we have three generations of instructors who are all weak in the teaching of stalls. The student then receives inadequate training and understanding of stalls and cannot satisfactorily perform



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them for the designated examiner. And the chain continues.

Turning stalls need not be feared. Remember, the airplane wants to fly and is doing its utmost to do so despite what you are doing with the controls. We teach these stalls so that you can recognize the approach of a stall, or a full stall, and can then take instant and correct action to recover from the stall.

What happens in a turning power-off stall? If performed correctly, the high wing will generally stall first causing the aircraft to begin rolling in the direction of the high wing. At that point back-pressure on the yoke or stick is relaxed, helping the nose pitch downward and leaving the ailerons in a neutral position while

simultaneously applying left rudder to bring the wings back to a level configuration.

If you over anticipate the high wing stalling first and start applying opposite rudder before the stall occurs, the airplane may well surprise you and roll in the direction of the downside wing. Thus, the fear of stalls is reinforced. If not rectified, corrected, and practiced, you are left with that pit in your stomach and continue to fear turning stalls.

When younger and first learning to drive an automobile, did you have a fear of driving on the interstate highway? Most of us did, but then our driving instructor took us out and made us drive on the interstate, learning and practicing how to enter and exit, overtaking

slower traffic by moving into the left lane, and then transitioning back to the right lane.

Stalls are nothing more than this example. If stalls are uncomfortable to you, then find an instructor and push yourself a bit to learn more about them. Once you understand the stall and the stall messages your airplane is giving you, you will become much more competent and confident when flying your airplane and knowing what it can and cannot do.

Stalls need not be feared and only performed once every two years during your flight review. Make yourself practice a few each time you enjoy a pleasure flight. Push your limits a bit to become a better, safer pilot.

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Steve Krog, EAA 173799, has been flying for more than four decades and giving tailwheel instruction for nearly as long. In 2006 he launched Cub Air Flight, a flight training school using tailwheel aircraft for all primary training.



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