STEVE KROG
COMMENTARY / THE CLASSIC INSTRUCTOR

Respect, Not Fear

The value of practicing stalls

BY STEVE KROG

MENTION STALLS TO A student or established general aviation pilot and beads of sweat appear on their respective foreheads. Movies, hangar talk, and sometimes less than adequate flight instruction have done a great disservice to understanding and safely practicing stalls. I know what I'm talking about, because I was one of those inadequate instructors when I first joined the profession of flight instruction.

I had a true fear of stalls after an instructor scared me to the point that I no longer wanted to fly. Two flight lessons and I was ready to give it up and pursue canoeing. Unknowingly entering a three- or four-turn spin out of a power-off stall was enough to convince me my passion for flying was misdirected. Thankfully, another instructor recognized my plight and took over my training program. Had it not been for him, I doubt I would have gone back to flying.

Over the past decade, I've met with individuals who began taking flight instruction but then gave it up. One of the reasons: experiencing something that caused a deep-seated fear that was never properly dealt with by his or her instructor. Thankfully, many of those who quit flight training for that reason never truly lost interest and later stepped forward wanting to try again, be it five, 10, or more years after giving it up. Most often, the desire to succeed and overcome that fear comes to mind when seeing a small airplane fly overhead.

Stalls are not inherently dangerous. The airplane wants to fly, and when stalled it is only seeking an attitude or configuration where it can fly again, provided the pilot is not fighting the situation.

I've had the pleasure of working with a number of these individuals, helping them overcome the fear and, finally, achieve the enjoyment and accomplishment of flying an airplane. When discussing this fear with students and learning what caused it, nearly every time it dealt with stalls. This anxiety was then deepened by the fear of a potential spin. What a shame these folks missed out on, in some cases, years of fun flying because of a bad experience that was unsuccessfully dealt with by the flight instructor.

WHERE STALLS OCCUR AND WHY WE PRACTICE THEM

Decades of tabulated incident and accident data tells us approximately 80 percent of all stall or stall/spin accidents occur in the traffic pattern, which also means they occur at an altitude of 1,000 feet AGL or less. The majority occur in the downwind to landing phases of the traffic pattern. Why?

A pilot, knowing when a stall will occur, will generally recover and return to safe, level flight in approximately 350 feet. However, should an unexpected stall occur, altitude loss is significantly greater, sometimes in the range of 700 feet or more, leaving a very small margin of error to recover and return to safe, level flight. That is one reason why a good instructor will spend more than an adequate amount of time on stall recognition and recovery, ensuring the student fully understands the aerodynamics while developing the skill set to comfortably recognize and handle a safe stall recovery.

PRACTICING STALLS

Practice the inherent stall by reducing power and raising the nose, bleeding off airspeed until the buffeting is felt. Then initiate normal stall recovery.

ILLUSTRATION BY **BRANDON JACOBS**

WHY AND HOW DO STALLS OCCUR

Single-engine general aviation airplanes were meant to fly. And if the center of gravity and gross weight limitations are observed, the airplane wants to fly and will seek an attitude in which it can do so. Properly trimmed and rigged, an airplane's nose will pitch downward when power is reduced and upward when power is added. It doesn't want to fall out of the sky.

It is the responsibility of the pilot to assist the aircraft in flying efficiently and in a coordinated manner. However, pilots sometimes overlook this responsibility or take the airplane's ability for granted. I've encountered situations like this when conducting flight reviews. If I ask pilots why they are, or are not, doing something, and they reply, "Don't worry, it'll handle it," I get concerned. Complacency has been the cause of many incidents.

Entering and establishing oneself in the traffic pattern is a time of possible distraction. There may be numerous other aircraft that need to be observed, passengers may want to ask a lot of questions, winds and turbulence may require adjustments, and the pre-landing checklist needs to be completed. All of these things require the attention of the pilot in command. Anxiety can add to the potential for a problem such as a stall while turning from the base to the final approach leg.

HOW TO PRACTICE STALLS AND BUILD CONFIDENCE

When teaching the stall series to students, I like to first discuss it using a model aircraft for a visual. Then, when established in the air and at a comfortable, safe altitude, I'll demonstrate a power-off stall up to the stall break, now commonly referred to by the FAA as an inherent stall. Then, I'll have students remove their hands and feet from the controls, look down at the floor, and tell me when they feel the buffeting in the seat of their pants as I maneuver the aircraft into an inherent stall. I'll temporarily disable the stall warning horn when practicing this exercise. This practice, I've found, quickly and greatly enhances the students' sense of initial stall recognition.

With a level of comfort and confidence established, I have students take the controls and demonstrate an inherent stall.

It is the responsibility of the pilot to assist the aircraft in flying efficiently and in a coordinated manner. However, pilots sometimes overlook this responsibility or take the airplane's ability for granted.

While doing so, I also have them verbally describe each step of the stall, pointing out the first "feeling" of the buffeting.

After a half-dozen repetitions, we expand to the full stall where the break occurs and recovery is initiated. Again, I'll demonstrate one or two full stalls with students following me on the controls and then turn the controls over to them. I will have students talk me through each step of the stall as it develops. I've found that when students are explaining the stall while demonstrating it, the desired level of confidence is achieved much more rapidly. It makes no difference in the age of a student, whether 16 or 66 — having students explain each step of the stall while performing it works.

Once this level of competence and confidence is reached, it's quite easy to move to the power-off stalls with shallow bank left or right. The fear of the stall is gone, and we can then concentrate on proper rudder inputs. Demonstrating and verbalizing by the instructor with the student following through on the controls allows the student to see and feel the new sensation of a wing dropping while the nose pitches downward during the full stall. After a half-dozen repetitions left and right, the student has reached a level of confidence that will enable him or her to fly with confidence, not fearing — but still respecting — a stall.

I teach power-on stalls using the same method. However, I use a progressive style when doing so. I first use about a one-third power setting, for example, 1200 rpm. Then I move to an approximate two-thirds power setting and conduct a full series of power-on stalls. Finally, full power is used. The progressive step method aids in building recognition, proper reaction, and confidence.

Should I encounter a student who is still apprehensive or gets too anxious when doing stalls, I'll have the student perform a version of the "falling leaf," whereby I handle the power, ailerons, and elevator, while the student has the rudder pedals. Entering stalls and stall breaks from various attitudes requires the student to use the rudder pedals to keep the aircraft upright. I'll usually give the student a target altitude as well, say descending 500 feet before the exercise is completed. If the student knows when the exercise is going to be over, it lessens apprehension. Practicing the falling leaf from time to time during dual flights significantly increases the student's ability to handle the aircraft while building the level of confidence.

I've found that when students are explaining the stall while demonstrating it, the desired level of confidence is achieved much more rapidly.

One final stall exercise I like to work on with students is the recognition of and recovery from a cross-controlled stall. At altitude, we'll pick a road perpendicular to our direction of flight, then simulate we're on a base leg and turning final. An approximate 15-degree left bank is entered and left rudder applied, attempting to align the airplane with the road. Power is set at a low rpm, and I have the student "stretch" the glide by raising the nose while not allowing the bank to increase. In this configuration, I've been known to gently apply additional left rudder. As the buffet is felt the student prepares for the right or high wing to drop. And all of a sudden the airplane banks hard left.

After the student recognizes the situation and initiates recovery, we discuss what just happened. It's a situation a pilot can encounter when distracted, and one nobody wants to experience in real life.

Stalls are not inherently dangerous. The airplane wants to fly, and when stalled it is only seeking an attitude or configuration where it can fly again, provided the pilot is not fighting the situation. If stalls are uncomfortable for you to practice, try a few of the inherent stalls just described. Get the feel of an approaching stall and then recover. *EAA*

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.