STEVE KROG
COMMENTARY / THE CLASSIC INSTRUCTOR

Why Do Spins Scare the Heck Out of Most Pilots?

Another look at the misunderstood maneuver

BY STEVE KROG

HAVE YOU EVER EXPERIENCED a spin, intentionally or unintentionally? The first time it can be a real eye-opener. But a spin doesn't have to be feared if the spin is understood. Regrettably, most people relate a spin to images seen in the movies. The airplane engine sputters, causing the airplane to become uncontrollable. Then the nose points at the ground as the airplane rotates around and around.

Unfortunately, this is the mental image that many pilots experience when talking about spins and stall/spins. Whether required or not, I try to share and teach spins to every student. My thinking is this: Until a pilot has experienced a spin entry and recovery from inside the cockpit, the pilot will neither recognize nor properly initiate correct recovery inputs. You can watch spin videos all day or read every spin article ever printed, but it is different than seeing one from inside the cockpit. I can assure you from experience that about 90 percent of the time the incorrect inputs are applied, further advancing the spin.

Years ago, the Civil Aeronautics Administration (CAA) required that all private pilot candidates demonstrate one- and two-turn left and right spins to a heading before earning their certificate. The spin was treated as nothing more than another air maneuver like steep turns and stalls. But in 1949 the CAA decided to eliminate the spin from training and checkride requirements. Thereafter, spins were seldom demonstrated or done by either the student or the instructor.

When the CAA became the FAA in 1958, spin training was revisited. It was decided that only CFIs needed to acquire a spin training logbook endorsement. They weren't required to teach actual spins to their students. This is still in effect decades later. CFIs are only required to "discuss" spins with students.

When I was first learning to fly, I had a bad experience during my second lesson. I managed to put the aircraft into an unintentional spin while doing a power-off stall and had no idea how to get out of it. My instructor at the time took the controls and initiated the spin recovery, but not before we had made three or four revolutions. What I vividly remember from that lesson was the ground spinning around and rushing up to bite me, pulling the yoke all the way back,

and rotating it to the right, all the way to the stop. My inputs were naively instinctual and completely opposite of what should have been done to recover from the spin. After that lesson, I left the airport thinking, *I'm never going to fly again*. Several days later, a different instructor contacted me and urged me to give flying another try. I did and continued working with him until earning my private certificate. Now, 49-plus years later, I continue flying almost every day. Had it not been for him, I would have never learned to fly nor enjoyed the many pleasures of flying and sharing those pleasures with many others.

I agonized over that spin. More importantly, I remember thinking back then that if ever I went on to become a flight instructor, I would pattern my style of teaching after my second instructor. I also made a vow to myself that I would NEVER intentionally scare a flight student of mine. My students have heard me say many times that every training flight must be challenging, safe, and fun. If a pilot is apprehensive of flying, the flight won't be fun. If it isn't fun, a pilot will find many excuses to forgo an otherwise pleasurable flight.

Overcoming apprehension can be an obstacle. When preparing a student for experiencing a spin, I'll first explain the spin, its cause, and its recovery by using a small model airplane while in the classroom. If properly done, a good deal of apprehension can be alleviated during the preflight discussion.

Before ever demonstrating a spin, I like to spend a fair amount of time working on stalls and stall recovery. When I can see that the student has become somewhat comfortable with stalls, I'll then take control of the power and the control stick or yoke, leaving the rudder and its input to the student. I will put the airplane in various stall attitudes and challenge the student to recover with rudder usage only. The student's job is to keep the wings up and the wheels down until I return all of the controls back to the student. After practicing stalls in this manner, students gain confidence in aircraft control and as pilots overall. Then it is time to try our first spin!

Many of the classic aircraft being used for primary training today don't really like to spin. In fact, most of them must be forced to spin. The J-3 Cubs we use fall into that category.

After clearing the practice area of other traffic and ensuring that we are at least 2,500 feet above the ground, select one of the four cardinal headings — north, south, east, or west — and align the aircraft with one of them. In our area this is quite easy to do as most of the surface land is well defined in 1-square-mile sections. After aligning the aircraft with a heading to the west, for example, add carburetor heat and reduce power to idle. While doing so, apply back-pressure as if you intend to do a power-off stall. Begin applying more back-pressure, raising the nose well above the horizon and exaggerating the power-off stall attitude. As the indicated airspeed approaches the stall speed, apply full back-pressure all the way to the aft stop and hold it there. Simultaneously, apply full left rudder and hold it in that position. Leave the ailerons in the neutral position.

The airplane is now stalled, and with left rudder application, the left wing is more completely stalled than the right wing. The nose pitches slightly upward as the aircraft begins to turn in the direction of the fully stalled left wing. Then the nose pitches downward in about a 50-to-60-degree attitude, and the spin is initiated. Just prior to initiating the first spin, I always alert students that it will appear to them that the aircraft is nearly vertical, and they will feel like we're rotating about 100 mph. Neither is true, but it will seem so.

Using the easily spotted section lines, I'll count off each quarter-turn of the spin. As we approach the three-quarter point, left rudder pressure is released and full right rudder pressure is applied until the rotation stops. At that instant relax the right rudder pressure and apply forward pressure on the control stick or yoke but only for a fraction of a second. Then start applying steady back-pressure to arrest the descent and return the airplane back to straight and level flight.

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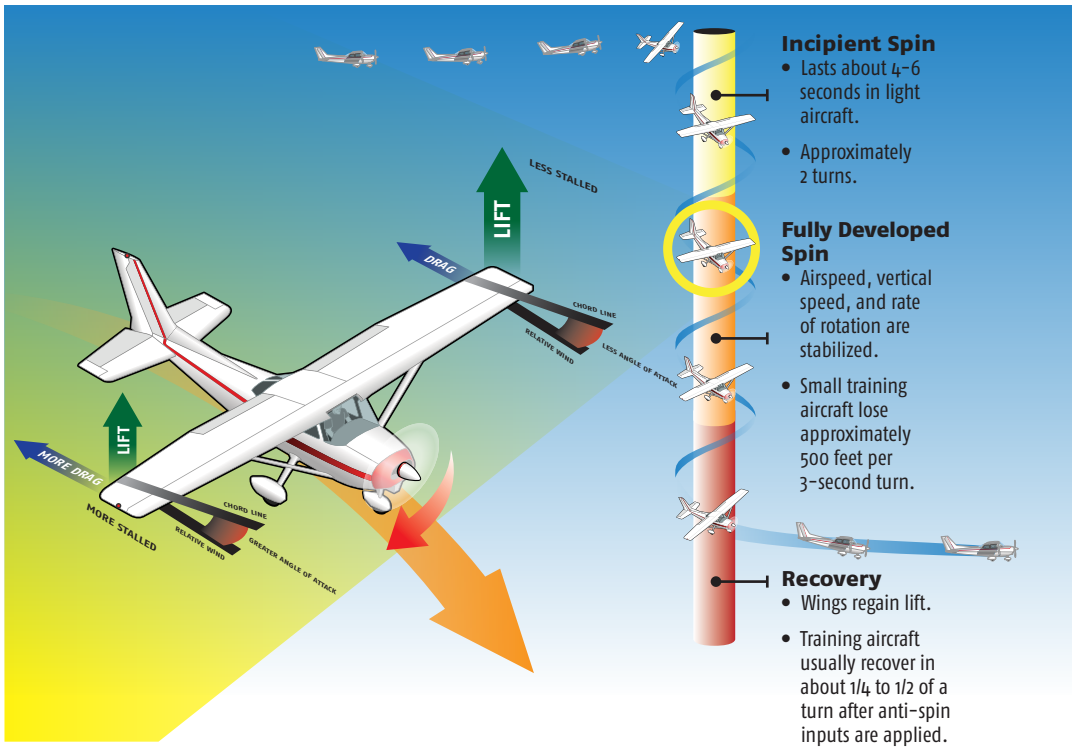

After doing the first one-turn spin together, it's time for the student to try one with me calling out all the control inputs. The recovery is usually a bit sloppy due to holding onto the rudder pressure a bit too long or forgetting to relax the back-pressure. However, after trying three or four one-turn spins, the control inputs begin feeling a bit more natural and the student will easily be able to arrive at the desired heading plus or minus 10 degrees or so.

Once the spin basics have been practiced and understood, it's time to talk about where stall/spins are most likely to occur. About 80 percent of the stall/spin accidents occur in the traffic pattern when making the turn from downwind to base or, more frequently, from base to final. Why? The cause is usually due to cross-controlling the rudder and ailerons. Perhaps the pilot overshot the runway and attempted to realign with the runway by applying excess bottom rudder, skidding the airplane. Not wanting the bank to get too steep, opposite aileron is applied. Now the aircraft is in a slow-airspeed, cross-controlled skidding turn. The low wing stalls, due in part to the skid caused by excessive rudder application, and a spin results. If you find yourself approaching this, add power and make a go-around.

I have found through practice — and research will back this up — that it will take 800-1,000 feet to recover from a spin, especially if it is unexpected and assuming that the pilot knows how to recognize and recover from a spin. Significantly more altitude is used up if the pilot does not recognize the onset of a spin and/or has had no spin training.

I'm not advocating that every pilot should go out and try to do a spin. It is imperative that you first know the aircraft you're flying. Is it certified for spins? If so, what are the weight and balance limitations to do so? Then find an instructor who is willing to work with you on spin recognition and recovery.

Spins and spin training can be a lot of fun and can greatly improve a pilot's proficiency and confidence, leading to a better, safer pilot. Isn't that what pleasure flying is all about? 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.