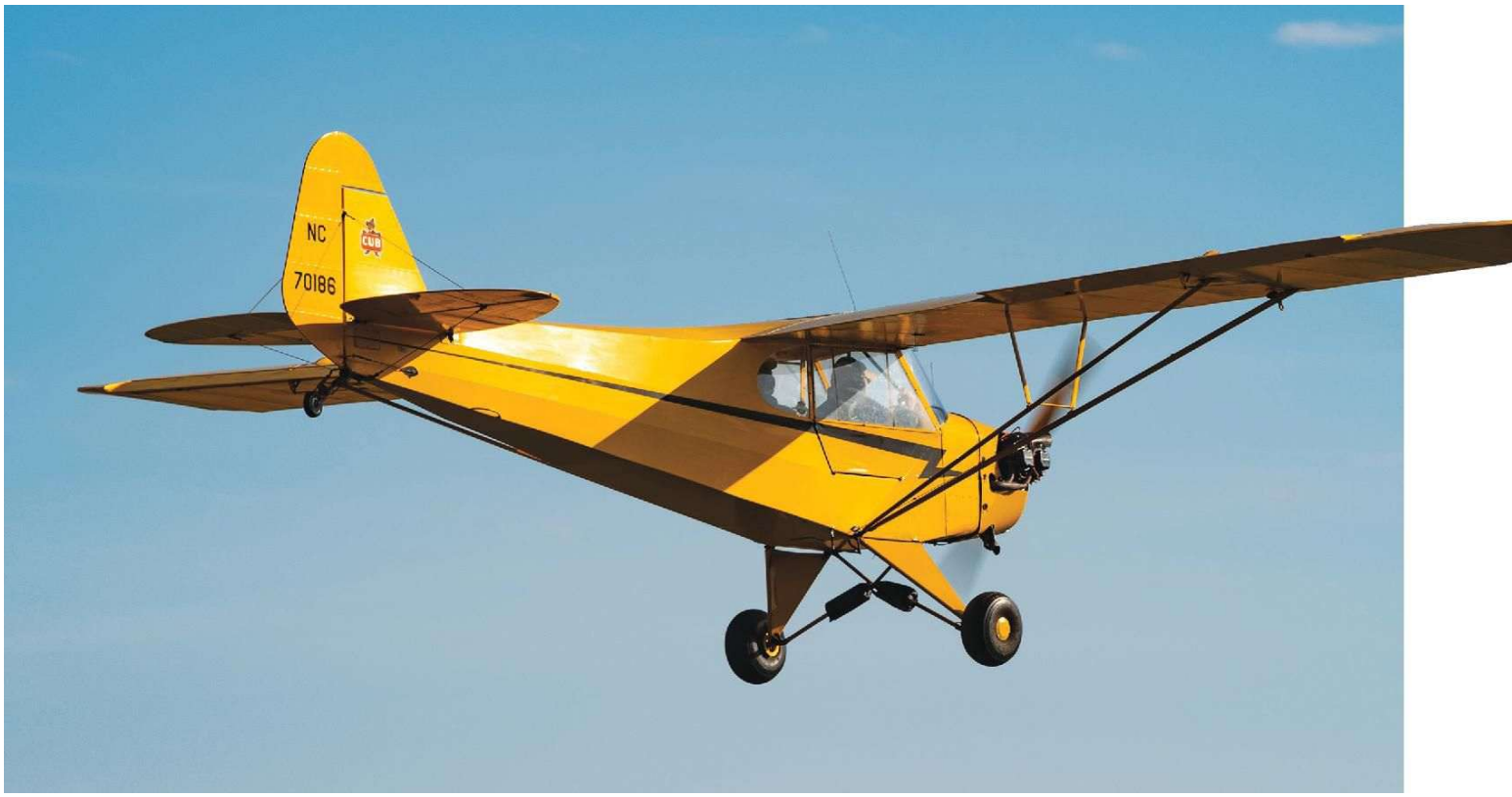
STEVE KROG
COMMENTARY / THE CLASSIC INSTRUCTOR



Tailwheel Flying

Different strokes for different folks

BY STEVE KROG

I'M CURRENTLY WORKING WITH several young students. One is just beginning her flight training, the second has a private pilot certificate but is striving for a tailwheel endorsement, and the third is working on earning her CFI with plans to instruct in tailwheel aircraft.

The beginning student has never flown a tricycle-gear aircraft. She is an eager student who has truly been bitten by the flying bug. As of this writing, we are on lesson number four. Climbs, descents (including turns), slow flight, all stalls, the falling leaf, Dutch rolls, and ground reference have been covered. I demonstrate the maneuver once, and she can perform it. With a bit of repetition, she can do it better than I can. She has the potential to become a true aviator and not just an airplane driver. Not having been exposed to hangar flying with elders, the fear of flying tailwheel aircraft has never been a part of her aviation experience. If we continue this learning path, I expect she will be capable of performing her first solo flight in less than 10 hours.

Yes, I would categorize her as an exceptional student. More importantly, there were no preconceived ideas in her head about tailwheel airplanes. Consequently, there was no fear of flying but only respect, especially when landing a tailwheel airplane.

The second student has completed her private certificate and will soon earn her instrument rating. She approached me several months ago about getting a tailwheel endorsement. When the college year ended, we began the journey. When asked why she desired to get a tailwheel endorsement, she said that she'd become a much better pilot if she had tailwheel training. I agreed.

While conducting the first preflight inspection, she asked if landing a tailwheel airplane was as tricky and difficult as she had been told. I chuckled and said we will soon find out. Unfortunately,

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she had been told by others that tailwheel airplanes are difficult to master and will do a ground loop faster than you can blink if you're not on top of it every second.

The fear of ground loops was stuck in her head. Every landing we made for the first two flights was filled with tension. When out of the pattern and performing air work, she was relaxed, was especially well-coordinated, and could perform most any maneuver well above average. But upon entering the traffic pattern, I could feel the tension building. Her grip on the stick felt like it had been covered in Gorilla Glue. I could put my finger on top of the control stick and practically take her pulse. Her feet were so firmly planted on the rudder pedals I couldn't move them without a lot of effort.

The first two or three landings were interesting but safe. I did not allow her to do anything foolish as she already had enough fear and apprehension from being told by others that tailwheel airplanes will swap ends so fast you won't know what happened until it's over.

We have the luxury of having a 200-foot by 2,000-foot turf runway to work from. What I like to do with students who have this fear of the tailwheel is set up for a takeoff. I have control of the power and the stick while the student has control of the rudder pedals.

Advancing the throttle and lifting the tail just off the ground, the student must keep the airplane tracking straight for about two-thirds of the runway. Then, full power is applied, and the controls are returned to the student. This exercise is also good for teaching a student to develop a diagonal line of sight and peripheral vision to keep the airplane tracking straight on the runway.

Once proven that we can keep the airplane on the runway during the takeoff, we can begin work on doing the same on landing. One exercise I have found that works with students is to first establish and maintain a stable approach or glide path and then go around for the first two or three attempted landings.

Now that we know what the proper sight picture is for a stable approach, we can begin working on the landings. Another exercise that seems to work is upon turning onto the final leg, telling the student to take a long deep breath, and then to wiggle their toes and fingers. This combination will help relax the calf muscles that had been tensing up on the approach to land. Relaxed calf muscles mean better, more fluid rudder inputs, and the same applies to wiggling fingers. The forearm muscles relax, and inputs are no longer stiff and jerky. Control inputs need to be smooth and fluid.

Another obstacle to overcome when transitioning from tricycle to tailwheel is positioning the stick or yoke upon landing. In a tricycle, the stick back-pressure is relaxed as the nose wheel touches, but in a tailwheel aircraft, the stick must be held in a full back position to keep a downward load on the tail. On the ground, directional control is maintained via tailwheel steering.

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Should a pilot relax on the stick, the downward load on the tail wheel is gone and steering is all but lost. Additionally, the tail may bounce, causing the stalled wing to become unstalled and changing the angle of attack and thus generating lift. When this happens, bouncing begins and three of four big bounces are usually experienced.

Adding a crosswind, even very slight, can be quite interesting at this point. The tail wheel is off the ground, and there isn't enough air movement over the rudder to keep the aircraft traveling in a straight line. When landing a tailwheel aircraft, it is critical to keep the stick in the full aft position.

If bouncing does occur, a pilot has three options. The pilot can immediately make a go-around or hold the stick all the way back and ride the bounces to a stop. Should the bounces be more than a couple feet high, a go-around is called for. The third option is to add a bit of power as the bounce occurs, pulling the airplane forward and flattening the bounce. Then reestablish the flare and touch down. Only try this if you have plenty of runway ahead of you. Shorter runways dictate a go-around.

After four lessons this student has overcome her fear of the ground loop, is relaxing the arm and calf muscles on takeoffs and landings, and is ready for a limited solo flight. In fact, her handling of the airplane was so improved, she was allowed to do several solo takeoffs and landings on the turf runway. Crosswind takeoffs and landings are next.

The third student has completed her advanced ratings and will soon be given the opportunity to do some flight instruction. She has some tailwheel experience but will need a few hours before working with her first tailwheel students. Preparing an individual like this involves covering a lot of potential problems.

This individual can safely fly the Cubs and Champ we have on our flightline. What she lacks is recognizing potential flight problems and then being able to correct them. Those of us who have gone on to become flight instructors have all gone through this process, but it becomes especially important in tailwheel aircraft.

If landing a tricycle-gear aircraft without maintaining longitudinal alignment with the runway centerline, the tires squeal but the nose will usually straighten, and the side load is reduced. The airplane then continues to roll straight.

Performing the same incorrect landing in a tailwheel aircraft can lead to an off-runway excursion through the tall grass and drainage ditch, or worse. The last thing any of us pilots want is to make a retractable-gear aircraft out of a fixed-gear aircraft. This becomes expensive, is humbling, and creates a lot of paperwork.

When I prepare a new instructor for giving tailwheel dual, I restrict them to accrue the first 20 hours on turf runways. Within the 20-hour period, they will have experienced some, but not all, of the quirks and mistakes students make without causing any damage to the aircraft while expanding their own knowledge and ability to handle the airplane. I also tell new instructors to never fly if they feel the least bit uncomfortable with the weather conditions that day. The new instructor has personal limitations, and they must be adhered to, even though a more experienced instructor may fly that day. As flight hours are accrued, the personal limitations are expanded.

As a longtime flight instructor, I get a great deal of personal satisfaction working with individuals in each of the scenarios mentioned. I strive to help every one of them to become more than just pilots. I want each to appreciate the love of flight and to share that love. Only then are they true aviators. EAA

Steve Krog, EAA 173799, has been flying for more than five 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.