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COMMENTARY / THE CLASSIC INSTRUCTOR

So You Want to Fly a Taildragger

Part one

BY STEVE KROG

WHAT'S SO SPECIAL ABOUT flying a taildragger? This question is regularly asked and discussed in hangar flying sessions. There is a whole list of reasons for mastering a tailwheel aircraft. Here are but a few that come to mind:

- You learn how to use the rudder pedals, especially the right rudder.
- You'll learn to use smooth power application.
- You will master the art of slips to landing.
- You will learn "attitude" flying.
- You will become a better, safer pilot.

I have had the privilege of providing flight instruction, either part time or full time, for well more than 40 years, the last nine full time exclusively in tailwheel airplanes. Tailwheel students, whether seasoned pilots or beginners, have taught me quite a lot—be it practicing takeoffs and landings or conducting a flight review.

Nearly all low-horsepower tailwheel aircraft flown today, such as the Cub, Champ, Taylorcraft, Chief, Luscombe, and the Cessna 120/140 to name but a few, are relatively easy to fly safely. They just require learning and honing some skills different from flying a tricycle gear aircraft.

I have given many hours of dual instruction in all of these makes and models. Each has its own unique handling characteristics. The majority of my instruction time has been in the trusty old Piper J-3 Cub. It's an easy airplane to fly, but one of the most difficult airplanes to fly well, according to better and more qualified pilots than me.

There's nothing Herculean about flying a taildragger. But ask any hangar flier,

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especially those who don't do a lot of flying but are experts on all things aviation, and they will tell you a taildragger is a wild and twitchy airplane that always wants to swap ends when taking off or especially on landing. Unfortunately, that falsehood has prevented many pilots from learning to fly a tailwheel airplane.

PREPARING FOR THE TAKEOFF

Every good takeoff first begins with proper foot placement on the rudder pedals. When the above-mentioned aircraft were designed, the average height and weight of a typical pilot was approximately 5 feet 6 inches and 130 pounds. Therein lies the first obstacle: fitting a 6-foot-plus, 195-pound body frame in these airplanes. I do believe many of these early aircraft designers were eventually contracted to design seats and legroom on today's modern airliners.

Once seated in any of these tailwheel aircraft, observe how you've placed your feet on the rudder pedals. Do the rudder pedals make contact with the arch of your feet? That is an acceptable position for taxi only as this allows your heels to comfortably reach the heel brake pedals, or your toes to reach the toe brakes depending on how your aircraft is equipped.

After taxiing onto the centerline position of the departure runway in preparation for takeoff, under normal wind conditions, take a deep relaxing breath and reposition your feet so that the ball of each foot is in light contact with each rudder pedal. Rudder inputs throughout the takeoff require light but sometimes rapid tapping, which is done by pivoting at the ankle. Smooth, fluid inputs are the result. Never apply and hold rudder application on takeoff under normal conditions as this will cause over correction and initiate an interesting S-turn ground track.

Also, should your feet slide upward on the pedals so that your arches are contacting the pedals, a pilot has to move his or her entire leg to apply rudder resulting in jerky over control. On takeoff this, too, leads to runway S-turns rather than remaining on the centerline. As groundspeed increases, the S-turns become more exaggerated, and rudder pedal/foot movements increase but always a split-second behind the actual aircraft movement. Unless one can force the aircraft into the air quickly, the continued S-turn takeoff will result in an exciting side exit from the runway.

Correct foot placement is but one part of making a perfect takeoff in a tailwheel airplane. The second step is establishing the correct line of sight. The natural thing to do is to attempt to look over the aircraft nose on takeoff. Unfortunately, in many tailwheel airplanes the nose blocks forward vision. Without good visual reference it is almost impossible to make a good, smooth, and safe takeoff.

While comfortably sitting in the airplane on the ground, look over the nose and note the blocked forward visibility. Now change your line of sight approximately 30 degrees to the left or right. When you can see the runway edge forward of your airplane, you've established the proper line of sight. Make a good mental note of this before proceeding to the runway.

The third step in making a smooth, safe takeoff is proper power application. Never, never slam the throttle forward from idle to full power. It's hard on the engine and significantly increases the chance of having a less than safe takeoff. The airplane will veer hard to the left due to engine torque and propeller P-factor, sometimes making it all but impossible to overcome with right rudder. Throttle input from idle to full power should be made over an approximate 3-4 second time frame. To instill this in my primary students I have them count to four while applying power on each takeoff.

The final step in making a good takeoff is proper elevator input. Having flown with hundreds of individuals I see all kinds of different actions on takeoff. I teach a procedure that I believe to be safe regardless of the type of tailwheel aircraft. The stick or yoke is all the way back to the rearward stop. This positions the elevator in the "up" position, and the prop blast then pushes the tail down as power is increased, providing the pilot with good directional control via the steerable tail wheel. When you can feel the force or load on the elevator, ease the stick slowly forward until the tail comes off the ground. We are now half ground vehicle and half flying vehicle. Directional control is then transferred to the flying rudder.

It is important to keep the aircraft in a tail-low, nose-high attitude during the takeoff as this provides a near ideal angle of attack. When ground/airspeed is sufficient, the airplane will lift off the runway without having to be "pulled" off. The ground roll is short. If the tail is raised high enough to see over the nose, such as in a Cub, the wings are positioned in a neutral angle of attack. Little or no lift is being generated, and the ground roll will continue indefinitely until "forcing" the aircraft into the air. This may be a satisfactory takeoff method in gusty wind conditions but not for a normal takeoff.

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THE TAKEOFF

After taxiing to the runway and completing the pre-takeoff checklist, taxi into position on the runway. Straddle the centerline with the main gear and stop. Check your foot position on the rudder pedals making sure the ball of your foot is in contact with the pedal. Wiggle your feet to relax your calf muscles. Relaxed calf muscles mean smooth rudder inputs.

Establish your line of sight. On a 75-foot-wide hard surface runway, your line of sight will intersect the runway edge approximately two runway lights forward of the aircraft. As the aircraft moves forward on the takeoff roll, continue moving your eyes forward at the same speed. Do not be tempted to sneak peeks over the nose.

With a light grip on the control stick or yoke, position the stick all the way aft and hold it there. Take a deep breath and begin advancing the throttle to full power over a four-second time frame. As the power kicks in the airplane will want to yaw to the left, requiring several taps on the right rudder. Never push and hold the right rudder as this will cause an over correction and the start of an S-turn takeoff.

Once at full power the control stick will feel heavy. Move the stick slowly forward until the tail lifts off the ground. Hold this tail-low, nose-high attitude. As the tail lifts, the airplane will again want to yaw leftward requiring several more light taps on the right rudder pedal.

Hold this attitude, tap on the rudder pedals if needed, and keep your eyes on the runway edge forward of the airplane. In seconds you will feel it leave the ground. Now you can look over the nose to establish the correct climb attitude and proceed with the flight. You've just completed a smooth safe tailwheel takeoff. *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.