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COMMENTARY / THE CLASSIC INSTRUCTOR

So You Want to Fly a Taildragger

Part four: Crosswind landings

BY STEVE KROG

CROSSWINDS, WHETHER LIGHT, MODERATE, or strong, keep many pilots on the ground on an otherwise beautiful pleasure-flying day. Mention a developing crosswind to a pancake breakfast attendee, and their stomach becomes a roaring rage of indigestion. The fear of having to make a crosswind landing back at home base often causes sweaty palms and nervous tics that wouldn't normally be experienced by a confident and practiced pleasure pilot.

A crosswind landing, like any other maneuver done in a tailwheel airplane, is not to be feared if studied and practiced from time to time. If one only performs a crosswind landing infrequently when caught in the wind after a fly-in, the crosswind landing will always create a pit in your stomach.

I recently spent nearly an entire day teaching crosswind landings to two experienced tailwheel pilots both skeptical of performing these landings. The winds were fairly light, initially: an approximate 30-degree crosswind from the right at 10 mph.

Prior to as well as upon entering the traffic pattern, it is important to visualize the wind's effect on each leg of the pattern. In this case we were landing on Runway 18 so the wind was blowing us away from the runway on the left downwind, requiring a slight crab angle to the left to compensate. When turning left onto the base leg a combination headwind and crosswind were encountered, slowing our groundspeed. This caused us to lose a bit more altitude than when flying a normal approach. Finally, as we turned left onto the final approach, the wind was trying to push us leftward requiring us to establish a crosswind landing configuration to make a safe landing on the runway centerline.

There are two safe, well-established methods for flying the final approach in a crosswind. The first is flying with one wing down into the wind with opposite rudder and the second, crab angle. Ask six pilots which method they prefer and you'll get three of each. It all comes down to what you become comfortable with. I teach both methods and let the student decide. I am also a strong proponent of tight traffic patterns, but I make an exception when initially teaching the crosswind approach and landing.



The crosswind is from left to right. Left or windward wing is down and opposite or right rudder is applied to keep the airplane aligned with the runway centerline.



The left wing is held down and right rudder is applied during the flare before touching down.



When making a strong crosswind wheel landing, the windward main wheel will touch down first, then the other main wheel.



While rolling out after a wheel landing touch down, left aileron and right rudder inputs are continued to maintain a straight ground track.

WING DOWN OR CROSS-CONTROL APPROACH

Using the wing down with opposite rudder approach, I have the student extend the downwind leg so that our final approach will be about 3/4 mile long. This gives the student time to better visualize the approach and make the inputs necessary to keep the aircraft aligned with the runway centerline. After turning final, lower the wing into the wind 2-3 degrees, offsetting the wind pushing the airplane sideways. Adjust the wing degree as needed to prevent drift. The nose of the airplane will now want to turn the opposite direction by a few degrees. Apply just enough opposite rudder to realign the nose of the airplane with the centerline. If the wind is fairly steady, continue holding these inputs for the duration of the approach. However, if the wind is somewhat gusty and it is midday with thermal activity, slight but near constant corrections will need to be made to keep the airplane aligned with the runway centerline and on the desired glide path.

Before I ever have a student land in a crosswind, we'll first fly the full pattern and approach, then level off 10 feet above the runway, adding enough power to maintain altitude, then fly the length of the runway maintaining or adjusting inputs as needed for the crosswind. Then we go around and try it again. Two or three crosswind setups followed by go-arounds will generally teach the student to visualize what is happening and, by doing so, begin to relax.

The fourth crosswind approach will lead to a landing. Continue with the wing down, opposite rudder approach. At approximately 10 feet above the runway, reduce power for landing if still carrying power, and level the nose of the aircraft as you would for a normal three-point landing, but continue holding the wing down with opposite rudder application. Flare and touch down. Depending on the wind velocity you may touch down on one main wheel and the tail wheel. As the aircraft slows the other main wheel will also touch down. Keep the stick or yoke all the way back until coming to a stop.

During the rollout continue applying opposite aileron and rudder. The aircraft is on the ground and done flying, but the wind will still want to have its way with you should you relax. As the aircraft slows continue applying more aileron until you reach the aileron stop. Hold the stick or yoke in this position until the aircraft stops. With a light to moderate crosswind from the right, for example, continued left rudder tapping is needed to keep the aircraft from weathervaning and turning to the right when you least expect it. Do not push on and hold steady pressure on the left rudder during the rollout as this will generally cause an overcorrection, creating a situation leading to runway S-turns. Once the aircraft has stopped, practice the normal aileron and rudder positioning for taxiing with a wind.

CRAB ANGLE APPROACH

The second type of crosswind approach is the crab angle method. Pattern corrections for the wind are the same. Where this approach differs is on final. Again, using the extended final approach for training purposes, turn final, then establish a crab angle to keep the aircraft aligned with the runway centerline. Depending on the wind velocity, it may only require a 3- to 5-degree crab angle. Maintain this crab angle while descending along the glide path to landing.

If the wind is gusting and there is thermal activity, minor adjustments may need to be made to maintain your ground track or runway centerline alignment as well as compensating for altitude changes. At approximately 10 feet above the runway, level off and add enough power to maintain altitude but keep the crab angle in place. Fly the length of the runway in this configuration, then make a go-around and try it again. Two or three practice approaches will help get the feel for the correct amount of input needed.

On the third or fourth approach, a landing will be executed. Upon turning final, establish the crab angle as needed and adjust power as required to maintain your glide path and desired approach speed. At approximately 20-30 feet above the ground, transition from the crab angle to a wing down into the wind with opposite rudder application. Then follow through with the level-off, flare, and landing as described above.

As mentioned previously, every pilot who flies in crosswinds will have an opinion as to which of the two approaches are best. It still comes down to whatever you become the most comfortable with.

If winds are steady, I like to fly the wing down, opposite rudder approach. However, if the winds are variable and gusting, I much prefer the crab angle approach. The wing down, opposite rudder approach is nothing more than the first stage of a slip to land. In gusty conditions the wind velocity can be quite variable. One second you have the perfect setup, and the next a wind gust pushes you away from the runway centerline, requiring more aileron wing down and opposite rudder inputs, creating a slip. Now you're not only trying to control the crosswind but also dealing with an unstable glide path created by the wind and the slip. Chasing both horizontal and vertical direction can be quite stressful. The more things you can stabilize on the approach, the better, easier, and safer your landing will be.

I've recommended to a number of students that they ease into the crosswind landings after I've signed them off. By that I mean pick a runway that has a light steady crosswind and do at least six to eight crosswind takeoffs and landings to build skill and confidence. Then on another day when there is a bit more crosswind, do the same. Sure, you'll be anxious, but that is to be expected. Practice leads to proficiency and confidence.

NOTE

The full stall and wheel landings were discussed in detail in previous articles. Either landing can be used in crosswinds depending upon the aircraft you are flying and the strength and direction of the crosswind. My personal preference when dealing with a strong, gusty crosswind is to use the crab angle approach followed by a wheel landing. Many may disagree with me, but that is what I'm comfortable with when flying in crosswinds gusting well over 20 mph. *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.