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COMMENTARY / THE CLASSIC INSTRUCTOR



So You Want to Fly a Taildragger

Part three: Wheel landings

BY STEVE KROG

WHY WHEN MENTIONING WHEEL landings to a tailwheel pilot do they get glassy-eyed and question my sanity? The wheel landing should be nothing to fear, but more often than not it does cause a serious case of sweaty palms. Why? In most instances it's because the tailwheel pilot seldom practices this type of landing.

The wheel landing has its place depending upon the landing conditions, wind direction, and make and model of the aircraft being flown. To earn a tailwheel endorsement, a pilot must be able to satisfactorily demonstrate both the three-point/full-stall landing as well as the wheel landing in both normal and cross-wind conditions.

Recently I had the opportunity to teach wheel landings to a student in his Taylorcraft. He had mastered the three-point landing and was ready for the challenge. Wind conditions were 220 degrees at 9 knots with gusts to 15 knots. Turf Runway 18 was selected.

SETUP AND APPROACH

The setup for a good wheel landing begins at midpoint of the downwind leg of the traffic

pattern, as described previously for the three-point landing. Altitude is stabilized, the radio call is made stating our position and intention, then carb heat is applied, and as we reach a point abeam the runway end markers (or numbers) power is reduced to approximately 1700 rpm. Pitch or nose attitude is positioned for 60-65 mph. Don't make the mistake of chasing the airspeed indicator as it lags behind the airplane by two to four seconds. Position the nose and let the airspeed adjust to you. At about a 45-degree angle from the runway end centerline, initiate a coordinated descending left turn to the base leg, re-evaluate altitude (does it feel like we are high, low, or about on the desired glide path?), check traffic to the right (for the unannounced straight-in pilot), then plan and make the descending turn to final.

The approach to a wheel landing is near identical to a three-point landing. Where it begins to differ is on short final — at about the same time back pressure is applied to level off, arresting the rate of descent, and power is generally reduced to idle.

While on approach, adjust power as needed to maintain the glide path in a 60-65 mph attitude. If the wind is gusting or the velocity is stronger than anticipated, slight power application may be needed to remain on path. If the winds are light, or even calm, power may need to be reduced to idle.

If a bit of power was added on short final, leave it alone until after leveling off and breaking the rate of descent. Maintain slight back pressure and gradually reduce the power. Do not let the airplane drop to the runway but rather try holding it inches off the runway. As it slows, lift is reduced and the airplane will gently settle onto the runway. As the wheels skim the runway surface, relax the back pressure you are holding, then apply just enough slight forward pressure, creating a slight but positive downward load on the main gear.

A good measure to determine how much forward pressure to use is being able to see over the nose of the aircraft. This does two things. First, it keeps the main gear in contact with the runway preventing the airplane from bouncing or "skipping" down the runway. And second, forward control stick pressure keeps the tail in the air. Directional control is maintained by the flying tail and rudder. Tap the rudder pedals as needed to keep the aircraft tracking a straight line on the runway.

With the tail in the air, the wings are in a neutral or near negative angle of attack. In this attitude they will not generate lift if encountering wind gusts, making for a safe rollout. As the aircraft slows, the tail will begin to settle. As it touches down, apply full back pressure on the stick or yoke, causing the

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elevator to provide downward pressure, keeping the tail wheel firmly on the ground for good and safe directional control. Continue flying the airplane until coming to a stop. A majority of tailwheel landing accidents occur after the aircraft has assumed the three-point attitude on the rollout.

If while on final approach you reduced power to idle while maintaining 60-65 mph, you may find it necessary to add 50-100 rpm as you level the airplane. This action helps break the rate of descent while also providing a bit of forward thrust, giving you more time to relax and set up for the desired smooth touchdown. Should you add a bit too much power, keep the airplane stable but inches off the runway. Slowly reduce power until the main gear makes contact. Forward stick or yoke pressure is then applied while reducing any remaining power to idle.

For a heavier tailwheel airplane I recommend modifying the landing slightly. Recently, I had the opportunity to check out the new owner of a Stinson L-5. It is a great airplane but considerably heavier than a Cub or Taylorcraft. The procedure I prefer to use for a wheel landing in the L-5 is to make the approach as described above, but upon touching the main gear on the runway, reduce any power being carried and don't try to keep the tail in the air. Rather, let it settle and come down. By doing so two things are accomplished: first, the aircraft, being much heavier, is not going to generate enough lift to come back off the runway once in the tail-low attitude. Secondly, the wings will act as speed brakes helping to slow the aircraft more quickly.

If you apply a lot of forward pressure, keeping the wings level and the tail well off the ground, the L-5, or most any heavier tailwheel airplane, will roll for several thousand more feet.

Many airplanes have their own unique handling characteristics. I highly recommend talking to a person with experience in the type and model aircraft in which you are about to attempt wheel landings, as the aircraft may have some peculiarities you'll want to be aware of. Knowledge followed by experience leads to a safe, fun, and challenging flight.

If you own a light single-engine tailwheel aircraft but are leery of wheel landings, I'll offer up these suggestions:

- Try to practice the first few attempts on a turf runway if possible. The turf is a much more forgiving surface on which to practice while perfecting your wheel landings.
- Fly the approach, level off over the runway as you would for a three-point landing, but rather than touching down, add power and keep the airplane a foot or two above the runway. Fly the length of the runway, then go around. This will help develop a good sight picture as well as help to relax your calf muscles.
- Fly a few approaches holding the airplane inches off the runway and don't allow yourself to push the stick or yoke forward and force the airplane onto the runway. This will induce some spectacular bounces that usually require making a go-around.
- When you plan to touch down the first time, think ahead, knowing it will only be for a second or two followed by a go-around. Try this two or three times. Be prepared to apply right rudder offsetting torque and P-factor when full power is applied.
- As you get more comfortable with the approach and smooth touchdown, roll along on the runway for a thousand feet or so, then go around. You may need to add a little power to keep the tail up allowing you to see over the nose.
- Finally, do a wheel landing to a full stop after practicing the touchdown and go-around method mentioned above. You'll find that with a bit of practice, wheel landings are a lot of fun and slightly challenging but very safe to perform.

CAUTION

Never take your eyes off the runway edge as you roll out. I taught myself a very good lesson decades ago when after making a near perfect wheel landing, I looked at my pilot friend, Stephen DeLay, who was riding with me. The Super Cub I was flying decided it had a mind of its own at that instant and proceeded to demonstrate its S-turn abilities until finally coming to rest on its nose in a snowbank. The end result was a slightly bent prop, a very badly bruised ego, and a loss of confidence that took hours of flight to regain. Now, more than four decades later, it has never again happened.

*Flying a tailwheel airplane is not only fun but also offers a bit more of a challenge than flying a tricycle-gear aircraft. I'm firmly convinced, based on my experience with students, that mastering a tailwheel aircraft will make a better, smoother, and more coordinated pilot. **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.



Maintaining light back pressure, the main gear gently touches down. Note the position of the elevator. Slight forward control pressure is applied neutralizing lift.