

FLYING LESSONS for January 19, 2012

suggested by this week's aircraft mishap reports

FLYING LESSONS uses the past week's mishap reports to consider what *might* have contributed to accidents, so you can make better decisions if you face similar circumstances. In almost all cases design characteristics of a specific make and model airplane have little direct bearing on the possible causes of aircraft accidents, so apply these *FLYING LESSONS* to any airplane you fly. Verify all technical information before applying it to your aircraft or operation, with manufacturers' data and recommendations taking precedence. You are pilot in command, and are ultimately responsible for the decisions you make.

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This week's lessons:

Visibility was so limited I couldn't see the nose of the Beech Baron. I was just outside the Final Approach Fix (FAF) for the ILS approach, hard on the gauges, when without warning the six-passenger twin yawed sharply to the left. Instinctively I stomped hard on the right rudder to maintain heading, rolling the controls slightly to the right as well to counter the slower, but growing, left bank.

Engine failure! I said aloud. I was trained (and train others) to "admit" to an emergency out loud when I suspect it's occurred. It helps break the short period of denial that comes whenever something unexpected happens. Calling "Engine failure" aloud prompted me to immediately process the Engine Failure in Flight checklist.

I was intercepting the glideslope and didn't want to begin my descent toward the ground while still going through the standard procedure: Mixtures, Props, Throttles full forward; confirm Gear Up and Flaps Up; then Identify the failed engine; Verify I'd picked the correct one; attempt a Restart since I had speed, altitude and time to try; and finally Feather the dead engine's propeller when the restart proved unsuccessful.

Instead, I continued on the localizer but maintained altitude as I passed the FAF while completing the procedure. When time permitted I called Approach, told them I had an engine failure that was under control, and declared an emergency to prompt all the help I could get. I advised I was going to continue on heading and altitude and would call when I was configured for single-engine flight and ready for vectors back to the ILS.

Twenty minute later, after landing, I was in the examiner's office being handed my temporary Airline Transport Pilot (ATP) certificate. Visibility had been so poor (at least for me) because I had been wearing a view-limiting device for the checkride. And of course the engine failure just outside the marker had been simulated; the examiner had prevented me from actually feathering the "dead" engine's propeller and instead adjusted the throttle and propeller controls to "zero thrust" for the remainder of my evaluation.

The examiner had several suggestions that helped me become a better ATP. But he also had a negative comment...at least he couched it as such. My examiner was critical of my decision to hold altitude while I secured the engine, and only then call for vectors to realign with the approach.

Instead, he said, I should have extended the landing gear upon intercepting the glideslope, completing the Engine Failure in Flight procedure and eventually securing the engine as I descended toward the ground. "You're an ATP now," I recall he told me. "You should be good enough to continue the approach."

I politely defended my decision based on what was then over eight years of studying general aviation accidents. But I knew it was time to thank my examiner for his confidence in my flying, take my temporary certificate before he decided I didn't meet his standard of capability, and head straight to the commercial terminal for my flight home.

I couldn't quite put my finger on it at the time, but over the years I've come to see this experience as an example of how the Practical Test Standards are good objective measurements of our ability to fly airplanes, but they may also be stressing the performance of "checkride tricks," instead of verifying applicants have learned (and instructors have been teaching) the things we need to know *after* the checkride to keep us and our passengers alive.

In my ATP example, I had been judged at least slightly inferior because I wasn't "good enough" to intercept the glideslope and extend the landing gear while at the same time processing my way through an engine failure, a restart attempt and, finally, transition to single-engine flight. I was "wrong" to stay on altitude and in the same configuration, deal with the engine failure, and only then fly a stable, single-engine approach. It was only because my judgment was not specifically contrary to the published Standards, I believe, that I was not "busted" for this perceived lapse in judgment.

Are there any TASKS in the FAA Practical Test Standards that are evaluating skills in a manner contrary to the way they should actually be flown in practice? I think the answer is "yes." Look at this excerpt from the Private Pilot PTS for the successful demonstration of stall recovery (both power off and power on). The successful applicant:

- Maintains a specified heading, $\pm 10^\circ$, in straight flight; maintains a specified angle of bank not to exceed 20° , $\pm 10^\circ$; in turning flight, while inducing the stall.
- Recognizes and recovers promptly after the stall occurs by simultaneously reducing the angle of attack, increasing power to maximum allowable, and leveling the wings to return to a straight-and-level flight attitude with a minimum loss of altitude appropriate for the airplane.
- Retracts the flaps to the recommended setting; retracts the landing gear, if retractable, after a positive rate of climb is established.
- Accelerates to VX or VY speed before the final flap retraction; returns to the altitude, heading, and airspeed specified by the examiner.

Now think about what you need to do to successfully complete (i.e., survive) an unexpected stall near the ground, either on landing or just after takeoff. Sure, you'd need to maintain heading, promptly recognize the stall (perhaps stating "the wing is stalled" aloud to prompt your own action), and reduce the angle of attack while you increase power as needed to minimize altitude loss.

But what about the standards for the recovery? The PTS calls for the pilot to retract the flaps and landing gear, if applicable, then "return[ing] to the altitude, heading, and airspeed specified by the examiner."

That's what we evaluate, so that's what instructors teach and what pilots practice. Stall the airplane, power up and clean up the airplane and *level off* at the entry altitude. If you stall for real close to the ground, however, you need to reduce angle of attack, power up and clean up the airplane, then *enter a Vx or Vy climb* and maintain that climb until well *above* the altitude at which you stalled. That's what it takes to survive.

Maybe it's a minor point. But perhaps it's important that we present (and evaluate) critical pilot TASKS in a manner that reinforces the life-saving techniques we actually need to instinctively employ in hazardous situations. Sure, the ability to enter and recover from a stall within a very narrow altitude band is a feat of good **showmanship** necessary to demonstrate mastery of the airplane. And it's easier to objectively evaluate "within X-hundred feet" than "established in a stable, Vx or Vy climb."

But isn't it really the **airmanship**, the act of doing what's right for the circumstances, that we need to teach, learn and employ as lifesaving skills for the remainder of our lives as a pilot? Shouldn't we be trained and evaluated on our ability to enter a stable climb after the airplane stalls?

Do what you have to do to achieve the Practical Test Standards, because unless things

change the PTS are the objective goals we need to master to pass the checkride. But ask yourself if your true objective is **showmanship** or **airmanship**, and conduct your post-checkride practice accordingly. Your choice may save you and your passengers years from now if your skills are put to the *real* Practical Test.

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Debrief: Readers write about recent *FLYING LESSONS*:

Reader and light twin owner Woodie Diamond continues the recent *LESSON* about the safety impact of properly maintaining an airplane. Woodie writes:

One very real reason why lack of maintenance seems to be increasing is because airplanes are cheap. “What? Are you kidding me?” Not kidding at all; it’s a fact that aircraft acquisition today is far more a financial reality than ever before. I’m walking/talking proof of that. The problem is that buyers do not understand that **the cost of an airplane is divided into two separate and distinct budgets: purchase and ownership.**

I get contacted by at least 3-4 new people a week asking for help in locating and buying an “affordable” bottom-dollar airplane, most of [whom] actually purchase what I am able to find. At the onset of each conversation is of course money. **If someone says that they have \$30k to spend, that actually means they have \$10k to buy the airplane and \$20k to own the airplane. When someone has \$30k to spend, and they end up buying an airplane for \$30k, they always call me back within 6 months (or at next annual) because the airplane is now parked and they are trying to sell it.**

There are ways to mitigate the ownership budget, but in the end no way to eliminate it. In my case, I swap money for labor, and everyone can do the same thing. I have a well established “maintenance plan” that lasts all year long (not just at annual time), and equates to about 1 hour of maintenance for every hours of flight time. The first step for everyone who is interested in purchasing and owning an airplane, and keep their ownership budget at a minimum, is to have a maintenance plan and “partner” with an IA. This “partnership” is not an actual vested ownership in the airplane, but a personal partnership in the maintenance of the airplane. Establishing this relationship before purchasing an airplane is absolutely vital to ownership success. This may seem like putting the cart before the horse, but it works.

The reality is that everyone who owns an airplane has a silent partner, their IA. Most of the IAs that I have ever known are very attached to the aircraft that they maintain, though often lack the same attachment to the airplane’s owner. It’s this relationship that is the most important, not only for mitigating the ownership budget, but increasing operational safety. An IA, even those whom have never flown, has an incredible wealth of aircraft operational knowledge and would love to share it: all you have to do is ask. **Before considering the purchase of an airplane, the buyer should first talk to his IA;** establish the personal relationship; tell the IA what the buyer is looking for, what kind of flying he intends to do, etc. The IA will have more real-world “aircraft ownership” knowledge than any flight instructor or broker out there. Talk frankly with the IA about actual ownership dollars; he will be able to help you establish a “maintenance plan” to fit your budget. Once you have your IA “partner”, then it’s time to start shopping for an airplane. The one thing that I will add here is that IAs, just like flight instructors, are numerous. If you and your IA are unable to make that “personal” connection, go find another.

Tremendously helpful advice for the prospective airplane owner. Thanks, Woodie!

Reader Paul Hekman teaches us more about RLOC...Runway Loss of Control:

Tom, there is one other element of RLOC that I have experienced with my [Beechcraft V-Tail] Bonanza, a V35B: braking after touchdown.

The Bonanza, like many aircraft, has separate left and right brakes attached to the rudder pedals, and the

brakes are very effective. **If one of the pedals is depressed to correct for crosswind, uneven braking may occur.** I've done more than one unexpected swerve after touchdown for that reason. If one has big feet, this increases the hazard.

Good *LESSON*, Paul. That's why we're taught (but frequently forget) to put your heels on the floor for takeoff and landing—to keep your toes away from the brakes. It's a bit of a challenge in airplanes with free-castoring nosewheels, which may require braking for “gross” steering, while flight controls and rudder should be adequate in most cases.

Frequent Debrief and active instructor pilot Dave Dewhirst continues:

Great article on crosswind landings. Here are a couple of points:

1. Most pilots do not push hard enough on the rudder to bring the nose around far enough to cause the airplane to be aligned with the runway. The extra rudder pressure is unnatural. The pilot pushes to the point of reaching a comfortable rudder pressure and stops pushing. The result is that the airplane lands without being in correct alignment.
2. As soon as one wheel touches the runway the pilot stops flying the airplane and just relaxes all controls.

As a way of dealing with these issues for candidates for Commercial, ATP, or CFI ratings, we teach the one-wheel touch and go. It takes a high-wing airplane and a meaningful crosswind component. Use approach flaps and land on the upwind wheel with just enough airspeed to keep the downwind wheel from touching the runway. The pilot has to continually adjust rudder to maintain alignment and aileron to maintain bank angle into the crosswind to manage side drift. The pilot is now learning how to fly the airplane totally through the landing sequence.

This pilot will never be blown off the runway in a crosswind. It takes a continuous roll of at least 2,000 feet to make the maneuver meaningful. As the pilot adds power for the takeoff he learns the correct way to make a takeoff in a crosswind.

The only downside is that it grinds up tires.

Sounds like a challenging and useful exercise, Dave, as long as the CFI is highly experienced and current in make and model under similar conditions.

Reader Craig Sherman lets us know...

There is a great, and cheap, cross wind tool for iPhone and iPad called WINDSOCK available on the iTunes App Store. I highly recommend it.

I'll take a look. Thanks, Craig. Reader Tom Allen adds:

Great article on crosswind landings. I am a believer in personal limits and knowing what those are based on practice. Over time, my limits for landings have increased. 35 knots sustained or 35 max with 15 max gust.

I was recently landing at Tallahassee, FL. Winds were reported as 20 gusting 35, about 15 degrees off runway heading which is right at my upper limit for gusts. I had already determined that calmer winds were over 100 miles away. I had enough fuel if I needed to divert. It was a rough ride on final, the controller announces, “20 knot wind shear has been reported 1 mile from the approach end.” I landed without incident, but had plans and was prepared to divert if it didn't work out.

[On another trip] I was landing at McKinney [near Dallas, Texas] after departing Eagles Nest to move my plane. (One of those short minimal planning trips). Winds, 20 gusting 30. On short final, “be advised winds are now 19 gusting 39”. I was by myself, no diversion plans, and gave it a try. Got on the ground OK. A [Cessna] 152 behind me could not get down.

I will print the chart [the FAA's crosswind component chart, copied in last week's *FLYING LESSONS*—tt] and add it to my personal check lists. Thanks again.

Thanks, Tom. And reader/tailwheel instructor Tony Johnstone wraps up this week's Debrief on crosswinds and RLOC:

Excellent commentary on crosswind landings. Your thought about tailwheel pilots [that they tend to think more about personal recency of experience and less about the airplane's maximum demonstrated crosswind component when deciding whether to accept a runway—tt] **were right on the mark.**

I believe the prime reason is that tailwheel airplanes are totally unforgiving of any deviation from straight-

line tracking down the runway, while a tricycle will allow a less-than-precise pilot to get away with landing sideways. I think (and teach all my students) that the most critical aspect of dealing with a crosswind that may exceed the limits of the airplane (or pilot) is **establishing a sideslip far enough [out] on final to be sure you have enough rudder available to keep tracking down the centerline**, and, most importantly, **keeping the aileron into the wind all the way through the rollout**. A crab down final is fine to a point, but if you hold it to the last minute and then try to "kick it out" into a side slip as you are flaring (which I see more often than I would like), you have no way to know if you can maintain that straight rack down the centerline. **After touchdown, many pilots simply let the ailerons go to neutral, which may result in your inability to stay on the runway.**

I landed my Decathlon at ICT [Wichita, Kansas' Mid-Continent Airport] yesterday afternoon with a 40 degree crosswind at 28 gusting to 36 knots. Nailed the centerline and rolled out just fine using all available inputs. The hardest part was taxiing to the ramp crosswind!

As always, great advice, Tony. Look me up next time you're at KICT!

Readers, tell us what you think...at mastery.flight.training@cox.net.

Share safer skies. Forward FLYING LESSONS to a friend.

Flying has risks. Choose wisely.

Thomas P. Turner, M.S. Aviation Safety, MCFI
2010 National FAA Safety Team Representative of the Year
2008 FAA Central Region CFI of the Year



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