



FLYING LESSONS for February 28, 2019

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FLYING LESSONS uses recent 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 airplane have little direct bearing on the possible causes of aircraft accidents—but knowing how your airplane’s systems respond can make the difference as a scenario unfolds. So apply these *FLYING LESSONS* to the specific 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:

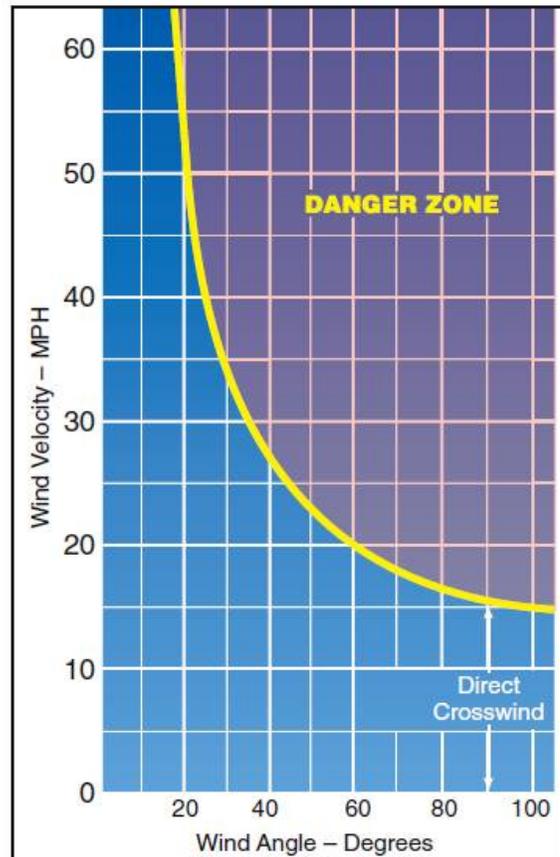
We’ve focused a lot of words and effort in *FLYING LESSONS* over the years on maintaining directional control on landing. Although it doesn’t have the appeal (if that’s the right word) of thunderstorms or ice or low clouds and fog when discussing aviation weather hazards, the wind, especially wind during takeoff and landing, is the single largest weather hazard to non-transport-category airplanes, according to the accident record.

Most pilot training texts, and most of *FLYING LESSONS’* commentary as well, hones in on the stick-and-rudder skills needed to maintain runway alignment in a crosswind. That’s absolutely essential, and crosswind control should be at the center of all your recurrent training and Flight Reviews (or international equivalent). But along with the rest of the industry *FLYING LESSONS* is remiss in presenting the single biggest factor in the success of a crosswind landing—the **decision whether or not to try it in the first place.**

Typical primary pilot training pays some lip service to the decision about accepting a landing, but addresses the issue primarily on the basis of airplane certification criteria. I recall having to memorize the [USAF T-41A Mescalero’s](http://www.nationalmuseum.af.mil/factsheets/factsheet.asp?id=403) maximum demonstrated crosswind component (17 knots), and making my students do the same for Cessna 152s, 172 and Bellanca Super Vikings, and later, for Beech Bonanzas and Barons. And then instructors tell their students this is not a limitation, but merely a maximum *demonstrated* speed. **The implication is that a “good” pilot can handle much more.**

See www.nationalmuseum.af.mil/factsheets/factsheet.asp?id=403

An example is the Crosswind Danger chart from Section 8 of the FAA’s [Airplane Flying Handbook](#). The chart depicts a crosswind “Danger Zone” that



suggests that there's nothing to worry about if the direct crosswind component is as little as 15 knots. Although that may be true from a certification standpoint, accident history paints a different picture.

See www.faa.gov/library/manuals/aircraft/airplane_handbook/

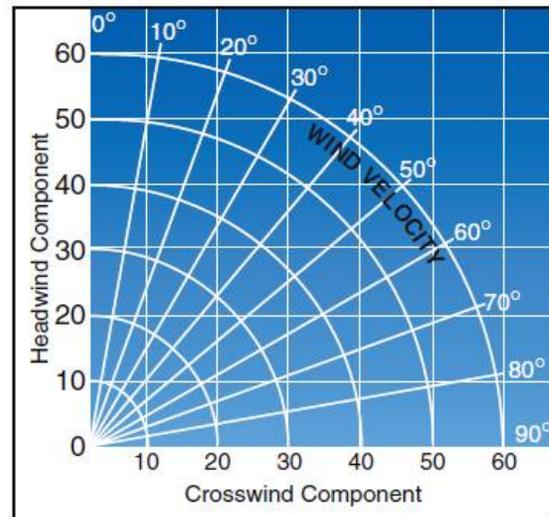
Most LODC-R (Loss of Directional Control – on Runway) landing events I read about in accident reports occur, in fact, with reported surface winds reported *below* 10 knots. Clearly the emphasis on certification-defined maximum demonstrated crosswind components is not doing everything that can be done to teach pilots to evaluate the wisdom of attempting a crosswind landing.

So why do we lose directional control in such relatively low surface winds? I suspect:

1. We're not as current in crosswind landings as we think we are.
2. It doesn't take much change for a crosswind to swing around and include a tailwind component, which is even more destabilizing to many airplanes (note the *FTH* chart shows a lower "danger threshold" once the angle between the airplane's nose and the wind passes 90 degrees).
3. Some pilots may be too rushed (or more likely, too lazy) to fly to a landing into the wind when their route of flight is nearly straight in to a more convenient, if not wind-aligned, runway.
4. Others may not be assertive or confident enough to change runways when ATC assigns a runway the pilot would not chose on his/her own, or when a preceding pilot uses a runway inappropriate for the winds. I see this contribute to runway excursions and groundloops every year at Oshkosh, when pilots are unwilling to question landings even with strong, quartering tailwinds because "that's the direction they're landing."
5. Flight instructors are not emphasizing good crosswind technique, including proper control use and "flying" the airplane all the way to the completion of the landing roll.
6. Many pilots may not bother to consider the effect of wind as part of their arrival briefing.

How can we address these possibilities? Practice; realistic self-evaluation; renewed emphasis on proper technique in flight instruction for pilots at all levels; and the confidence to refuse a runway when the winds do not favor its use...even if others are using it or if initially assigned by ATC. This means ***consciously estimating the crosswind as part of your arrival self-brief***, and the ***willingness to request another runway*** or even fly to a more favorable airport, even if it means holding for some time or landing at a less convenient destination.

Make a copy of this diagram from the [Flight Training Handbook, page 8-16](#), laminate it and keep it in your airplane. **Use it** to predict the crosswind component to expect given the difference between the heading of the runway you're considering using and the reported wind (or your best estimate based on observing ground details). Compare the result to your level of crosswind currency in the airplane you're flying. If you're at (or near) your realistic comfort zone, start to look for other options. Make certain you give yourself enough fuel to divert to an airport with less wind, or wind more aligned with the runway, while preserving a safe fuel reserve.

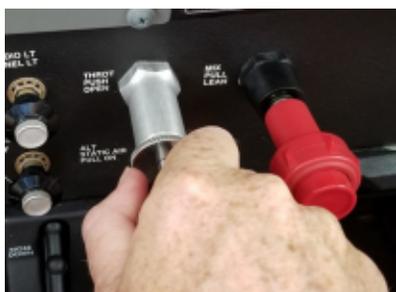


See www.faa.gov/library/manuals/aircraft/airplane_handbook/media/aa-h-8083-3a-4of7.pdf

Funny, but tailwheel pilots seem to be concerned less about their airplane's demonstrated crosswind component, and more about their personal crosswind proficiency and currency level. I owned a tailwheel Cessna 120 early in my piloting career, and recall very consciously considering the time since my most recent crosswind practice every time I considered going out to fly. Making that self-evaluation had been drilled into me when I checked out in type. Many amateur-built and modern production airplanes have free-castoring nosewheels to save weight and complexity, and as a result have many of the same "ground looping" tendencies and pilot rudder requirements as tailwheel designs. But the same tailwheel philosophy doesn't seem to be as prevalent in high-performance homebuilt and Cirrus/Diamond circles. **Perhaps all pilots need to think like a tailwheel pilot** when considering their ability to handle a crosswind.

Takeoffs are optional. Landings are not. However, landing at any one location, or on any specific runway, *is* optional. **Make a conscious decision** to accept or reject a crosswind landing by figuring the crosswind component before accepting an approach or entering the traffic circuit.

Questions? Ideas? Opinions? Send them to mastery.flight.training@cox.net



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See <https://www.pilotworkshop.com/botched-go-around?ad=tuner-qcaround-botch>

Debrief: Readers write about recent *FLYING LESSONS*:

Reader Mike Lepore writes about the January 31, 2019 *FLYING LESSONS* on fatigue management as one of **[The Unique Risks of the Business Pilot](#)**:

I am retired now, but have flown for business in years past. You highlighted fatigue as one of the risk factors inherent in such flying. It seems that we usually speak of it in terms of the physical, with 10- or 14-hour limits, for example. But the **mental fatigue can readily exceed the physical**. A business person working on things that are positive, that are moving their business ahead, that are successfully executing on a good strategy has a great deal of positive energy. You can do that 'all day long'. Conversely, if the nature or outcome of the trip is negative, dealing with problems, conflicts, lost business, or lawsuits, it drains you. **A pilot in such circumstances might want to consider much shorter time limits**. Thank you for yet another excellent article.

Excellent insight, Mike. The trick is you won't know whether you'll have positive or negative energy until after the meeting—meaning you need to be prepared to stay over when you might have flown home under different circumstances. In that regard it's no different than weather evaluation...you won't know for certain until it's time to fly. Thank you. Mike.

See <http://www.mastery-flight-training.com/20190131-flying-lessons.pdf>

Frequent Debriefeer and retired aeronautical engineer/pilot Fred Herzner responds about **[past LESSONS](#)** citing a case that reinforces the need for a thorough preflight inspection that doesn't just go through the motions of "doing a walk-around." Fred writes:

Right after I got my license, I belonged to a flying club. One Saturday I went out to the airport to fly the club's Piper Archer. When I went to fly the airplane, the pilots and passengers that flew it before me were fueling it up. While they were doing that I took the opportunity to preflight the airplane. What I immediately

noticed was that there was mud on the wings! Needless to say that got my attention. Then I noticed that the propeller was slightly bent. That ended my Saturday flying very fast!

It turns out that the night before the plane was landing at a nearby airport and apparently there was another aircraft landing in the opposite direction. The pilot flying the Archer immediately steered the airplane off to the left side of the runway into the grass, striking the prop. Then in an attempt to get the airplane back onto the runway, they got a tow truck and pulled it back onto the runway by the tail skid! Now that it was back on the runway the pilot chose to fly it back to [home base], tie it down and NOT REPORT IT TO THE CLUB or write it up in the log!

The amazing things to me are: 1) the pilot flew it back., 2) The incident was not reported, 3) The pilots that flew it the next day either didn't do a preflight or did not do a good one, 4) The pilots who flew it on Saturday had their kids in the back of the plane, and 5: (The worst of all) The club did not cancel the offending pilot's membership.

Immediately after this, I quit the club for obvious reasons.

Your message is well taken: **Do a good preflight. Your life may depend on it.**

Indeed. Thanks, Fred.

See <http://www.mastery-flight-training.com/20190117-flying-lessons.pdf>

Questions? Comments? Suggestions? Let us know, at mastery.flight.training@cox.net

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