

FLYING LESSONS for June 4, 2009

suggested by this week's aircraft mishap reports

FLYING LESSONS uses the past week's mishap reports as the jumping-off point 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.

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This week's lessons:

In the northern hemisphere when wind gusts at the surface it tends to change direction to its own left. A wind from 320°, for instance, would become a wind from as much as 300° to 270° at the time of each gust.

In tailwheel airplanes with most engines the propeller effects tend to turn the airplane to its left. This means that tailwheel airplanes usually are the least controllable with a left-quartering tailwind, which pushes the tail to the right and adds to the tendency to turn left.

The pilot-in-command has the final say in runway selection. There comes a point in any given combination of airplane/pilot/currency/conditions when we may have to pick a different runway or, in some cases, a different airport when the winds blow.

Pilots must evaluate the runway even when cleared by Air Traffic Control. We have the authority—and the responsibility—to accept or reject any clearance, including landing clearance. If for any reason we do not want to use the runway assigned we can, and must, ask for something else...even if that means delaying takeoff, or diverting to another airport.

Further, receiving a controller's clearance onto a runway does not alleviate our responsibility to see and avoid. The National Transportation Safety Board today announced this investigation:

The National Transportation Safety Board is investigating a runway incursion that occurred on Friday morning [May 29] at the Charlotte Douglas International Airport (CLT) involving a general aviation aircraft and a regional jet airliner bound for New Bern, NC (EWN). At about 10:17 a.m. on May 29, a PSA Airlines CRJ-200 regional jet operated as US Airways Express flight 2390, was cleared for takeoff on runway 18L. After the regional jet was into its takeoff roll, a Pilatus PC-12, a single engine turboprop aircraft, was cleared to taxi into position and hold farther down the same runway in preparation for a departure roll that was to begin at the taxiway A intersection. After the ground-based collision warning system (ASDE-X) alerted controllers to the runway incursion, the takeoff clearance for the regional jet was cancelled. The pilot of the PC-12, seeing the regional jet coming down the runway on a collision course, taxied the PC-12 to the side of the runway. The FAA reported that the regional jet stopped approximately 10 feet from the PC-12. Visual meteorological conditions prevailed with 9 miles visibility. There were no reported injuries to any of the 42 passengers or crew of three aboard the jet, or to any of those on the PC-12.

I teach that when you receive a clearance onto the runway, you should check—and call out loud—the “the runway is clear, the approach is clear, I'm cleared into position and hold” or “...I'm cleared for takeoff”. The fortuitous airfield warning technology and especially the quick thinking and actions of the PC-12 pilot averted what would have been almost certain disaster.

Fatigue is very poorly understood in aviation mishap prevention. The symptoms of fatigue are very similar to those of alcohol intoxication—impaired judgment and decision-making

ability, hindered motor skills, reduced vision, and loss of consciousness. Perhaps some emerging studies in other disciplines and in motor vehicle accidents will benefit pilots as well.)

Questions? Comments? Email me at mastery.flight.training@cox.net

QUESTIONS OF THE WEEK

June Question of the Week #1

- **Have you ever been cleared onto a runway, to take off or to land when the way was not clear?**
Copy and paste the question with your response to MFTsurvey@cox.net.

One randomly selected reader in June will win his/her choice of a **Mastery Flight Training hat** or the MFT DVD **Those Who Won't: 10 Tips for Avoiding Landing Gear Mishaps**. Your email address goes in the drawing once every week you respond to a question. All responses will remain confidential, but I will publish a review of the results. Like PIREPs, this works best if *everyone* participates. So take a moment to answer this week's question... then come back to read the rest of *FLYING LESSONS*.

Congratulations to Larry Olson of St. Petersburg, FL, who won the DVD for May. Larry is a retired international airline captain who now owns and flies a Beech Baron.

May Questions of the Week #3 and 4 Response:

What *visual* flying skill did you learn after earning your Private, Recreational or Sport certificate that you wish you'd learned earlier? How did you learn this skill?

- Crosswind landings. For some reason, my instructor never showed me how to handle crosswinds in the C150 I learned in....we never encountered any during my landings with him. I learned the "hard way" getting caught solo in a crosswind in a C172 and doing a little side-hopping down the runway until I added power and did a go around...."what was that??!!" I remembered my "book learning" and stayed in the circuit until I figured out how to make the correct touch down and rollouts. Today, I grease my Arrow on crosswinds and am glad that I learned the proper technique on a "club airplane" and not my own! If I were instructing, no student would get a sign off until he/she could demonstrate crosswind proficiency. I was lucky but could have dinged that C172 I became self-taught in.
- It was only after lots of intensive practice of the commercial maneuvers, particularly chandelles and lazy eights, that I began to develop any feeling for whether the airplane was coordinated. In retrospect, I wish my private training had included Dutch rolls (which I still can't do very well).
- Crosswind landings. After I had my *CFI* certificate, a former Air Force pilot took me into a deliberately difficult crosswind situation where we made multiple low passes over the runway in landing configuration and at final approach speed, but without touching down. After several of these my feet and hands started working together correctly. We then did some one wheel touch and goes (the nose wheel not touching down either), only then actually making a few full stops, bringing the ailerons gradually into the crosswind until they hit the stop. Then we taxied back applying full aileron appropriately for the wind conditions. I later used those exercises and techniques with *all* of my students, none of who (to my knowledge) have ever damaged an aircraft in a crosswind landing.
- The insurer of the Part 141 school I attended would not let its instructors operate from grass runways less than five thousand feet long (or something like that), with the result that none of us ever attempted real soft-field operations. The airplane I fly now isn't a good soft-field performer anyway, so I've dealt with this by sticking to paved runways. I would still like to learn to do it for real, but not without initial supervision from someone experienced in that specialty.
- Evaluating weather-not enough emphasis is given in the Private Pilot training. Sure you learn about decoding METARS, cloud types and chart symbols. But where are the practical evaluations on go/no go [decisions]? For example, what pilot hasn't been surprised by what marginal VRF really looks like in the summer muck? Or by their first rain up there? Weather can be dangerous and new PPs have very little experience with it from the PP training. I learned a lot about weather from [Robert N.] Buck's book [[Weather Flying](#)]. I recommend it to pilots beyond the checkride.

See www.sportys.com/acb/showdetl.cfm?DID=19&Product_ID=887&CATID=180

What *instrument* flying skill have you learned after earning your instrument rating that you wish you had known before the checkride? How did you learn this skill?

- My check ride was very long ago and I believe the examiner was much to kind in his evaluation and signing. What I remember most are his words “You are now authorized to learn how to be instrument proficient and must never stop learning!” When thinking back to the check ride, I am not sure that at the time I had any skill!
- During routine hood work, a friend who's a very experienced CFII showed me how to use little kicks of the rudder pedals to keep the airplane on the localizer. This produces smaller changes of heading more quickly than trying to bank towards the needle, thus reducing the tendency to overcorrect.
- My first response is that I wish I learned to fly IFR with all the glass and GPS that we now have available. I received my instrument rating in 1984 and of course NONE of that technology was available at that time. I had good training, but something that was a no-no in training during that time was the use of an autopilot. Old school instructors (and examiners) never taught or allowed us to use the autopilot. As we now know, autopilots are a great tool when used correctly. When I train pilots, I make sure that they can hand fly all IFR procedures and do so with and without the moving maps, glass etc. However, in the real world, I want to show them how to reduce workload whenever possible to avoid fatigue, especially on IFR flights. All autopilots should be used responsibly and should be taught by CFII's.
- On an ILS your VSI should be about half of your ground speed, i.e., ground speed of 120 KTS your VSI should indicate 600 FPM down.
- On my IFR checkride the plane had an autopilot so therefore I was required to do an approach on full auto pilot to show my ability to monitor it. The DE selected a GPS approach on full autopilot. I thought, "Hooray! this is a no brainer. All I have to do is put AP on 'Nav' mode and monitor altitude." So, we are heading to our IAF in 'nav' mode and we are just chit chatting and when we arrive at IAF I am expecting a 90° turn to the left maintaining the same altitude. When we get to IAF the plane continues to go straight ahead! What to do? I pushed the 'heading' button to make the approach turning the heading knob. I looked at AP panel and 'nav' and 'heading' were BOTH lit! Never seen that before! What to do? This had never happened in practice! I salvaged the approach by disengaging the AP and then re-engaging it and flying it with 'heading' mode. It was not pretty, but it was close enough. This was a rental plane with a G-1000 package. The lesson? Be VERY familiar with your autopilot before you fly in actual IMC and especially be familiar with what CAN go WRONG, not just flying on AP when everything is working perfectly.

Great responses, everyone! Instructors, these are some things you might work into scenario-based training preparing your students for a checkride, and make a part of a worthwhile Flight Review or Instrument Proficiency Check (IPC)—true, valuable learning instead of merely filling a training requirement.

DEBRIEF: Readers discuss past *FLYING LESSONS* reports

Regarding the discussion of hard landings and go-arounds, instructor and *FLYING LESSONS* reader Dylan Lamb writes:

Pilot induced oscillations are to be avoided at all costs, as you well know. One technique I've seen used a lot, that I don't necessarily agree with, is the overuse of electric trim to help lighten the nosewheel control load during the flare. I often see 18 to 21 up on the [trim] wheel when we exit the runway [in some nose-heavy airplanes]. I believe that if you are landing at the right speed, the trim should be pretty close to what it was during takeoff, since rotation and landing speeds are so close. If the trim is fully deflected electrically, a go around scenario is almost disastrous for someone who is slow to respond.

Thanks, Dylan. I agree with you about overuse of trim on landing. To drive home the point I put the pilot in the trimmed, full flaps and gear down condition and perform simulated go-arounds at altitude when training pilots in the nose-heavy airplanes. Even though we discuss it beforehand

on the ground and review it briefly just before practice, most are amazed at how much forward pressure it takes on the controls initially to hold climb attitude. Load the aft end of the airplane (move the c.g. aft, reducing stability) and you can see where takeoff and go-around stalls come from. See my article "[Trimmed Stalls.](#)"

See www.ipilot.com/learn/article.aspx?ArticleID=840

Questions? Comments? Send your insights to mastery.flight.training@cox.net

Fly safe, and have fun!

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2008 FAA Central Region CFI of the Year



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