

FLYING LESSONS for October 22, 2009

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.

If you wish to receive the free, expanded *FLYING LESSONS* report each week, email "subscribe" to mastery.flight.training@cox.net.

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This week's lessons:

I spoke with a pilot this week who had been flying in an IFR airplane equipped with a wing-leveler autopilot. Wing levelers are simple autopilots that maintain a constant bank angle that normally translates into holding a heading. They normally reference a turn-and-bank indicator or turn coordinator. More sophisticated wing levelers may be able to hold a specific heading or even track a navigation signal.

The pilot was at 9000 feet in IMC when he reached behind the copilot seat to get a chart. Just as he was turned around the airplane hit turbulence and banked excessively. The wing leveler did not disengage; perhaps bank angle was so great it "chose" to return to level flight by rolling the airplane all the way over. Regardless, the airplane lost 3000 feet before returning to level flight, approximately on its original heading, still in the clouds. The pilot declared an emergency, then determined everything was under control; the airplane seemed fine, and the pilot landed the airplane.

During the upset two things happened: First, the pilot was violently shaken around the cabin. If had not been wearing his seatbelt and shoulder harness tightly, he told me, he may have hit his head and been unable to complete the flight. Second, his portable oxygen bottle flew forward from the aft baggage area and into the pilot seats area. It could have seriously injured the pilot had it struck him, and it could have significantly damaged the instrument panel, broken the windshield or interfered with flight control movement if it has been propelled against those items. Pushing the oxygen bottle out of the way during the upset maneuver made orientation and recovery much more difficult, according to the pilot.

Last week *FLYING LESSONS* reviewed the need to secure baggage in the cabin and to wear seat belts and shoulder harnesses at all times, because there is usually no time to take care of these things prior to an off-airport landing. This week's report reminds us to ensure all items are secure, including the pilot and passengers, in case of turbulence or an upset in flight as well.

The continuing high number of runway excursions on landing, even in light crosswinds, points to a lack of basic understanding of the aerodynamics of the ground roll. The slower the airplane is traveling the more its control surfaces must be moved to provide the same force. If propeller speed and/or engine power varies, the amount of control force needed to maintain runway alignment will change as well.

Watch a tailwheel airplane land and you'll see a demonstration of control input during the landing roll. Tailwheel airplanes are by their nature less stable longitudinally on the ground, meaning it takes active control input just to keep going in a straight line even in calm winds—you'll see the rudder wiggle and the ailerons gradually move as the airplane decelerates. Flying a

tricycle gear airplane? You'll have to do the same thing, to a lesser degree, to remain precisely on runway alignment.

A common mistake is to release control pressure as soon as the airplane touches down. The proper technique is to hold whatever control deflection was needed to compensate for winds as you touched down, increasing the deflections as the aircraft slows and control surfaces become less effective at countering the wind.

Done correctly, you should transition smoothly from touchdown control deflections to have the proper crosswind control inputs when landing turns to taxi. If you fail to "fly" the airplane through the ground roll into taxi you run the risk of losing directional control—and the record shows this is unfortunately common even in very light winds.

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

FLYING LESSONS comes to North Texas

Saturday, December 12th, Denton, TX: *FLYING LESSONS* is hosted by Aircraft Precision Maintenance, Inc. The day-long program includes:

- Running out of fuel: Lessons from three case studies
- Keep it on the runway: The lost art of directional control
- A pilot's guide to aviation insurance
- Those who won't: Avoiding gear up and gear-collapse mishaps
- What *really* happens in IMC

Check [here](#) for complete details. Contact Aircraft Precision Maintenance at 940-765-7975 or Wesley@amptx.com to enroll.

See www.thomaspturner.net/Denton%20Dec%202009.pdf

Watch for additional [FLYING LESSONS events](#) in 2010. Contact mastery.flight.training@cox.net if you'd like to arrange a presentation at your conference, FBO, safety meeting or flying club.

Cautions for carburetors

Flying an airplane equipped with one or more float-type carburetors? FAA has published Special Airworthiness Information Bulletin (SAIB) [NE-10-05](#) to remind you carburetor floats have a history of deterioration over time. The airworthiness concern is not an unsafe condition that would warrant airworthiness directive (AD) action. It does, however, recommend pilots of carburetor float-equipped airplanes inspect the area around and under the carburetor for fuel leaks during preflight, and to watch for SAIB-identified conditions that suggest the carburetor float is leaking or deteriorating. It also recommends the carburetor be overhauled at every engine overhaul, 2400 hours Time in Service or 12 calendar years, whichever comes first.

SAIBs are not considered mandatory, but compliance is highly recommended. For full details see [SAIB NE-10-15](#).

See [http://rql.faa.gov/Regulatory_and_Guidance_Library/rgSAIB.nsf/\(LookupSAIBs\)/NE-10-05?OpenDocument](http://rql.faa.gov/Regulatory_and_Guidance_Library/rgSAIB.nsf/(LookupSAIBs)/NE-10-05?OpenDocument).

Do you have a question or comment? Email me at mastery.flight.training@cox.net.

Fly safe, and have fun!

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



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