FLYING LESSONS for April 14, 2011

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:

When an airplane comes up a mile short of its planned destination, it's often a fuel-related issue. Most frequently it is the result of fuel starvation when the pilot changes fuel tank selection as part of a GUMP (Gas, Undercarriage, Mixture, Propeller) check, like that taught to most pilots of retractable-gear airplanes.

The G for Gas, however, is a *verification*, not an action, step in the traffic pattern. Final fuel tank selection should occur when beginning the descent from cruise altitude, the so-called "top of descent" [TOD]. Although systemically and intellectually it should be possible to immediately switch back to a tank with fuel on board in most airplanes, the NTSB record reveals that fuel starvation leads to many accidents even after the pilot moves the fuel selector to a tank with gas.

Include selecting a tank with enough fuel for descent, approach, landing, go-around or missed approach, and a climb back up to a safe altitude without having to switch to another tank on your checklist for leaving cruise altitude.

I have flown with a lot of pilots whom I've had to train to avoid programming the GPS when the airplane is in motion. I have to fight the temptation myself almost every time I fly.

Make this an absolute rule for yourself: If the avionics are not set before you begin to taxi, do not program them until you have come to a complete stop and set the brakes in the run-up area.

If you're using an electronic depiction of an airport diagram for taxi, use it like you'd use the GPS in your car...quick scans, but with your attention focused almost exclusively outside of the vehicle. Ramps can be crowded, and taxiways are usually fairly narrow--it takes only a couple seconds of inattention to run off the pavement, or into something. And there might be people walking around on the ramps as well.

You might think the taxi *FLYING LESSON* results from the dramatic footage of an Airbus A380 collision with a Canadair RJ700 during taxi that has made the rounds of the internet this week. Actually, I wrote this portion after reading preliminary reports this week of a Baron 58 that taxied into two airplanes, and a King Air that struck a parked aircraft on the ground. The Air France-Comair/Delta Express event just happened to be caught on film (quite ironically, with a lead-in advertisement by Delta airlines, the Comair code-share, using the tag line "building a better airline, not just a *bigger* one").

See www.msnbc.msn.com/id/42548948/ns/travel-news

The *FLYING LESSONS* from these reports: Keep your eyes focused outside the cockpit, don't trust the painted taxi centerlines to keep your wings clear of obstacles, and if you're riding in the back of an airliner and the crew makes an announcement to remain in your seat with your seat belt fastened until the captain turns off the fasten seat belt sign, *believe it!*

(Apologies to reader Rob Finfrock, a former editor of mine, who made a similar comment on Facebook last night. Rob, I really did write this before I saw your post!)

Comments? Questions? Tell us what you think at mastery.flight.training@cox.net.

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This week we wrap up discussion of the eighth most common cause of fatal general aviation accidents, according to the U.S. Federal Aviation Administration. Number 8 on the list your really want to avoid is En Route/Cruise—Loss of Control. With your comments, we can summarize the *FLYING LESSONS* of Cause #8 as follows:

1) Understand that an airplane is not a car, it is a three-dimensional, aerodynamic vehicle. Operating an airplane takes much greater skill and finesse. It also takes a good feel for what is happening to the vehicle at all times…the equivalent of visualizing how the water is flowing through the tread of your car's tires in order to best control the car on a wet street. You cannot develop this feel by using the autopilot; you need to practice hand-flying the airplane frequently to attain and retain this level of aircraft control.

2) Although along with most other aviation safety publications *FLYING LESSONS* focuses on the decision-making skills that will keep us safe, we must realize that cockpit resource management (to use the now-archaic term as generic for crew resource management and single-pilot resource management) is but one tool for aviation safety. Flying involves multiple layers of safety, with decision making (whether or not to be up there) first, stick-and-rudder skills (what to do now that you're up there), and systems management (how do we manipulate airplane systems, avionics and automation in all phases of flight, including abnormal and emergency conditions) all parts of the flying-safety whole.

3) Practice maneuvering at the slow end of the speed range, so control in slow flight and at the approach to (and into) stalls is instinctive, and correct.

4) In an appropriately certificated aircraft, with an appropriately experienced instructor, get some unusual attitudes and introductory aerobatics training, to develop the muscle memory needed to survive a severe attitude excursion.

5) Be very familiar with and recently practiced in partial panel instrument flight, to avoid, recognize and recover from unusual attitudes. Know how to use backup instruments if they're available. But if they're not, evaluate whether installing backup instruments (if you own the airplane), or if your better option is paying for some regular, serious instruction in partial-panel flight, including occasional use of a simulator so you can practice the critical identification phase (which is impossible to teach in the airplane).

6) Schedule time, then, for slow flight, stalls, spin training (in an appropriate aircraft) and partial panel flight every couple of months, and as part of your it-doesn't-all-have-to-be-practice-IFR-approaches recurrent training.

You might be surprised to learn that what is usually considered to be the #1 killer in general aviation, attempted visual flight into Instrument Meteorological Conditions (VFR into IMC), is in fact #7 on the FAA's list of the Top 10 causes of fatal GA accidents.

We all know the right answers to the questions "how do you avoid VFR into IMC?" (get a good weather briefing, keep looking outside the airplane, divert or land before conditions get too bad) and "how do you escape IMC if you stumble into it?" (engage an autopilot if available, make a 180° turn back into clear air, if that doesn't work climb or descend into clear air based on your observations of cloud tops and bases, as well as terrain, prior to entering low visibility conditions or clouds). Chances are every one of the VFR into IMC pilots would have echoed those very same answers to the questions on the days before they died.

So instead of harping on those same questions and the "canned" answers, in focusing on Cause #7 *FLYING LESSONS* asks readers to consider the factors that lead pilots to take off or press on into IMC when not flying on an IFR clearance, or not equipped or trained for instrument flight. We know the "how" to avoid and escape VFR into IMC. But that knowledge doesn't do enough to save lives. Let's zero in on the "why" pilots are up there under those conditions in the first place…with the hope that, by recognizing how any one of us might be lulled into the same predicament, we can recognize the warning signs and prevent repeating accident history even though we "know the right answers."

Next week we'll look at some case histories to comment on specific cause factors. But first, to confirm (or dispel) some "common knowledge" about VFR into IMC, let's start by asking what *you* think constitutes the "typical" VFR into IMC mishap. So let us know what you think are the common characteristics of a VFR into IMC scenario, including:

1. Is the pilot usually VFR only, or is he/she instrument rated?
2. What type of airplane is the pilot flying (single engine fixed gear, single engine retractable, multiengine, or turbine airplane?)
3. What is the length of the trip being flown?
4. Are there passengers on board the aircraft?
5. Does the pilot lose control of the airplane, or does he/she end up as a Controlled Flight into Terrain statistic by flying, under control, into an obstacle?
6. What day of the week and time of day (morning, afternoon, evening, night) correlates to most VFR into IMC accidents?
7. What other factors do you feel are pertinent?

We'll treat your responses anonymously, so no one is "proven wrong." Kick off the discussion of Top 10 Cause #7 with your comments and ideas at mastery.flight.training@cox.net.

Share safer skies. Forward *FLYING LESSONS* to a friend.

Fly safe, and have fun!

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