

FLYING LESSONS for December 3, 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.

FLYING LESSONS is an independent product of MASTERY FLIGHT TRAINING, INC. www.mastery-flight.training.com

This week's lessons:

Look at these recent FAA mishap reports:

- The Twin Comanche crashed under unknown circumstances....
- The Skylane crashed under unknown circumstances....
- The experimental Searey crashed under unknown circumstances....
- The Saratoga crashed under unknown circumstances....

What can we learn from these reports? "Don't fly under unknown circumstances." OK, that's not fair, and it's not funny, because "unknown circumstances" refers to the status of the accident investigation, not the conditions of the flight. But it does serve as a reminder to...

Strive to know all the circumstances of your flight. Before you take off you should understand completely the circumstances of:

- Weather, including chances and extent of the five hazards (thunderstorms, turbulence, low-altitude wind, reduced visibility and ice), your options for avoiding each, and an escape route if your avoidance technique fails.
- Fuel, including not only fuel to destination, an alternate plus reserves, but also expected fuel burn in climb and en route, with checkpoints to compare expected fuel burn to actual along your route so you can divert if needed before entering a low fuel state.
- Airworthiness, including the maintenance state of the aircraft, known discrepancies and the status of required and recommended inspections.
- Yourself, including training and currency, health fatigue, stress, hydration and nutrition.

Several mnemonics

exist to help pilots "know the circumstances" and make appropriate decisions, whether related to the environment (including

PAVE Checklist (to identify hazards and personal minimums)

P ilot	experience, recency, currency, physical and emotional condition
A ircraft	fuel reserves, experience in type, aircraft performance, aircraft equipment (e.g., avionics)
e n V ironment	airport conditions, weather (VFR & IFR requirements), runways, lighting, terrain
E xternal pressures	allowance for delays and diversions; alternative plans, personal equipment

weather), the aircraft (airworthiness, fuel and equipment), and pilot factors (experience, currency, condition and stressors). Most common of late is the “PAVE” checklist from the [Pilot's Handbook of Aeronautical Knowledge](#).

For more intricate decision-making other tools exist, including a [weather go/no-go decision matrix](#) from the [Tools for Flying Safely](#) page of the [Mastery Flight Training](#) website. An entire chapter ([Chapter 17](#)) of the *Pilot's Handbook of Aeronautical Knowledge* is devoted to risk management and decision-making.

See:

www.faa.gov/library/manuals/aviation/pilot_handbook/media/PHAK%20-%20Chapter%2017.pdf
www.thomaspturner.net/Categorical%20outlook%20matrix.htm
www.thomaspturner.net/Tools%20for%20Safe%20Flying.htm
www.mastery-flight-training.com

U.S. Federal Air Regulation 91.103 leaves no leeway for preflight information gathering:

§ 91.103 **Preflight action.** Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight [including]:

- For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by ATC;
- Runway lengths at airports of intended use.
- Takeoff and landing distance data [from an Approved Flight Manual or otherwise computed using] reliable information appropriate to the aircraft relating to aircraft performance under expected values of airport elevation, runway slope, aircraft gross weight, wind and temperature.

What 91.103 doesn't say is that we not only need to consider these things during preflight (along with the unstated but not-inconsequential *human* side of risk management), but we also need to continually update our information and make revised go/no-go decisions *during* flight as well.

Eventually, we hope, the circumstances of the mishaps related at the top of this report will become known, and their lessons learned for the benefit of all. As pilot-in-command you are tasked with ensuring all circumstances that can possibly be known are indeed known before you fly, actively updated as circumstances change and new information becomes available en route.

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

Next week! 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@apmtx.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.

DEBRIEF: Readers comment on past *FLYING LESSONS*

Regarding last week's *FLYING LESSONS* on the seemingly lost art of directional control on takeoff and landing, AVEMCO president and high-time flight instructor Jim Lauerman writes:

Your best [*FLYING LESSONS* report] yet, from where I sit. Directional control and wind, especially in instrument approaches with a crosswind, cost our industry (General Aviation) tens of millions of dollars each year.

Interesting comment, Jim, about crosswind damages when landing out of instrument approach procedures. As time permits I'll try to investigate those numbers further.

Another reader from the insurance industry, Randy Kenyon, notes:

As an insurance agent, I have seen transition pilots (fixed wing) now be required to perform [a defined] number of landings to a full stop by the insurance carrier training requirements. That has improved the loss ratio of pilots that have been veering off the runway, and landing gear incidents. However, I feel it's sad when the aviation insurance industry is the source of required training for pilots. A little extra time and training cost now can save a lot of down time and repair cost later. Keep up the great training tips!

Thank you, Randy. I agree that pilots should proactively request, and even enthusiastically seek, true competency before exercising the privileges of pilot-in-command. Randy also addressed the *FLYING LESSON* on touch-and-go landings, saying:

Not being fixed-wing rated or a CFI, I wanted to put my \$0.02 in on the discussion for touch and go landings. They remind me (a commercial rotorwing pilot) of training auto rotations to a power-on hover. You never quite get the "feel" of the rest of the landing. Looking at the sad NTSB statistics for helicopters landing hard and many rolling over after bouncing, you can tell the training is incomplete or lacking in practice. As in the military, train through the landing!

And reader Steve Weintraub adds:

I never do touch and goes in my airplane. Even without the issue of inadvertent gear retraction, there's just too much to do--retracting flaps and readjusting the trim--to do it while rolling down a runway. Instead, on occasions when I would otherwise do touch and goes, I do stop and goes instead. The extra brake wear and time on the runway is negligible.

Thank you *all* for your input!

QUESTION OF THE WEEK

December's Question of the Week #1

Do you have a favorite proficiency training maneuver? What is it, and why do you think it's valuable practice?

Win your choice of a Mastery Flight Training hat or the instructional DVD *Those Who Won't: Avoiding Gear Up and Gear Collapse Mishaps*. Answer this Question of the Week to be included in the random drawing for October. Copy and paste the question with your response to MFTsurvey@cox.net...then come back to read the rest of *FLYING LESSONS*.

Last week we asked: **Do you perceive there's been an increase in accidents lately? If so, what do you attribute it to?** Only one reader responded, writing:

Yes, I have seen an uptick in accidents lately. What I attribute it to is a combination of assumptions and rust. The rust comes from the economy, clamping down on our available income to spend on flying, which in turn leads to an atrophy of skills. While the skills aren't lost, they aren't exercised as frequently and become rusty.

The assumptions come from not looking at the pattern change in our logbooks (less frequent flying), and feeling that "it is just flying, I can pick it up again."

The best analogue to this comes from a framed poster at the Dwight (IL) Airport line shack. It shows an airplane in a tree with some words of advice or warning, depending on how you look at it. I don't recall the exact words, but they were along these lines: "Flying is a great deal of fun, but as a hobby or occupation, it is particularly unforgiving to any lapses in judgment or skill on the part of the pilot."

Flying is a unique skill. Where else can you do what pilots do, pretty much where and when they want to, as easily? With that freedom comes a strong measure of responsibility. What we have to do as pilots is recognize this change in our flying habits, and approach our flying with a little more caution. We need to ask ourselves whether or not it is wise to go flying tonight because of any number of reasons. We need to get more training to help keep our skills honed and ready, to supplement our time away from the cockpit. I guess I am trying to say that we need to take flying seriously, since the consequences of a mistake or problem can be pretty severe.

What do you think? Let us know at mastery.flight.training@cox.net.

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



FLYING LESSONS is ©2009 Mastery Flight Training, Inc. Copyright holder provides permission for FLYING LESSONS to be posted on FAASafety.gov. For more information see www.mastery-flight-training.com, or contact mastery.flight.training@cox.net or your FAASTeam representative.