FLYING LESSONS for September 22, 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:

About three minutes. That's how long the pilot of a high-performance, glass-cockpit single lived after brake release on a VFR flight, destination unknown.

Two minutes before the crash, or about the airplane lifted off, the surface weather observation at the departure airport indicated an overcast ceiling at 600 feet, visibility three miles—Instrument Meteorological Conditions (IMC) that were not likely to be variable or isolated given the reported zero-degree temperature/dew point spread.

The pilot was not instrument rated, likely a relevant factor in the airplane's impact into a cornfield after an apparent loss of control six miles from the departure airport. The airplane burned…but the fire may have not made any difference in the death of the solo pilot.

Sure, the pilot could have been planning to remain beneath the clouds in Class E airspace, perfectly legal. But did the pilot truly intend to fly at 500 feet AGL, with only a minute's flight visibility (have you ever heard of a scud-runner who slows the airplane significantly to reduce ground speed)? If he had intended to remain below the clouds, what went wrong?

It's possible the 2004-model airplane may have been upgraded to Synthetic Vision Technology (SVT). But wouldn't that have simply added a level of false security to the attempted flight? Could it have encouraged the pilot to depart in conditions well below his minimums?

What in our flying culture makes a pilot think he or she should attempt visual flight in IMC? Do we think we are immune to situations that would kill "lesser" pilots? (The accident pilot was 51 years old, a point in life where most people are keenly aware of their mortality). Do we teach pilots that advanced cockpit technology compensates for the limitations of our certificates, ratings and experience?

Forward-looking aviation advocates talk of the "unreachable" pilots that so often are those who end up the subject of this sort of discussion. How can we affect change among this group of pilots who don't *want* to get the message? As an industry, we certainly can't afford to let them take their own chances without at least trying to make positive change, if for no other reason the impression these sorts of accidents (and pilots) have on potential new pilots, and the regulators and legislators who decide what is "safe" for the rest of us. We don't yet have the answers, but we must all puzzle with the question.

I don't have any hard data because almost no taxi accidents are NTSB-reportable. They happen, they usually don't cause much damage and almost never any injury, they're sometimes noted in an FAA preliminary report that is purged from the internet after two weeks, and they're never investigated.

But reading the FAA "prelims" every day, I have to think that the rate of taxi mishaps has gone up over the past few years, and continues to climb. What might cause this apparent trend?

The most common distraction I see during taxi occurs when the pilot attempts to program his/her GPS while the airplane is moving. Modern navigation takes time and concentration to set up. Divert your attention to the GPS only while the airplane is sitting still on the ramp, or after you have brought the airplane to a complete stop in the run-up area or some other out-of-the-way part of the airport.

If you're in so much of a hurry that you have to program your avionics during taxi, I submit that it's likely you're suffering from external stress that may adversely affect your flying and decision-making in other ways as well. Take a breath, slow down, and do it right.

Taxi mishaps don't hurt people or ground airplanes, but they *do* add to the cost and parts scarcity of general aviation--two adverse factors we can do without. Just a little bit of discipline to keep your eyes away from the avionics during taxi and outside the airplane where they belong could do much to reduce these "nuisance" accidents that are eating away at our shrinking general aviation fleet.

Questions? Comments? More mnemonics to share? Let us know, at mastery.flight.training@cox.net

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Debrief: Readers write about recent *FLYING LESSONS:*

We heard from a reader about last week's discussion about Reliability Centered Maintenance (RCM) and its inherent requirement for increasing the frequency and depth (and costs) of inspections in order to safely go beyond rote adherence to recommended overhaul schedules (when not mandated by other directives):

> Great issue this one, Tom; above average.
>
> It brought to mind the regular conversations between my wife/business partner/Pinch-Hitter Co-Pilot when maintenance, upgrades or fixing failures in our aircraft were the topics. A couple of things started and remained SOP for us, throughout:
>
> First -- any upgrade with an element of improving safety was usually a no-brainer; maybe the upgrade needed to wait a pay period, maybe not...but if it provided a reasonable measure of safety enhancement it was an easy sell to the <ahem> Managing Director of our small firm. Examples: Shoulder harness upgrades to the seat belts -- while also replacing ALL the belts...no FAA requirement, just common sense that at their age (then more than 30 years) they probably no longer had their original tensile strength; and shoulder harnesses, too, a friend asked? They required an STC and an airframe mod...no brainer. Really.
>
> Second -- any failure of a component automatically launched us on a search for a replacement with improved performance, life expectancy or serviceability. Examples: failed beacon -- replaced with a no-moving parts flashing beacon that used less current...yeah, it cost a bit more...but had fewer failure points and performed better. Failed generator -- replaced with an alternator upgrade that saved weight, provided more power, more reliably...yeah, another significant mod and a bit more money...but in addition to the just-cited benefits, it added its own element of safety. Suction pumps were another hot-button; when one failed on our first plane -- hours after a backfiring shutdown that reversed engine rotation -- we upgraded to a pump designed to rotate in either direction...if it happened once...
>
> Third -- Never re-use parts in important systems when new was available...suction-system is again the example. When that pump failed and the new one was installed and tested we found that the suction level varied widely with rpm and the regulator would not provide the stability it should. A friend recommended visiting a local maintenance shop that specialized in our aircraft because they would likely have salvaged regulators...knowing how they work and their main failure point -- the Neoprene flapper valve becoming

> brittle and disintegrating -- we opted to acquire new...never gave us a moments problem.
>
> The list goes on...but these three deliver the point. Shortchanging our own equipment serves to save a few bucks short-term, but at the higher risks of a bigger failure later, and those are seldom as cost-effective -- and may be the permanent end to our flying.
>
> Sign me an (anonymous) enlightened aviator... Thanks for what you do, Tom.

Thank you, anonymous (actually, the reader is a well-known aviation journalist and educator who remains modest in venues such as *FLYING LESSONS*). I strive to be above average in everything I do <g>. Seriously, yours is a superb philosophy for the airplane owner who wishes to maintain his/her aircraft for the long term. A minimum standard of maintenance isn't going to keep an airplane operating into its third or fifth or seventh decade. Blindly flying to component failure is indeed false economy…and with some components, it borders on recklessness.

Number 3 of the Top 10 Causes of fatal general aviation accidents, according to the U.S. Federal Aviation Administration, is **stalls at low altitude**. As we begin our discussion (and hopefully, some ideas on how to change instructional and operational techniques to reduce the accident rate), take a look at these selected case histories from the NTSB record. Pick one (or more), identify it by case number, and send your thoughts about:

1. What might have been some of the factors contributing to the mishap?
2. What techniques might be used to mitigate those factors?
3. Looking at all the case histories as a whole, what trends exist that appear to contribute to the occurrence of this type of accident?

See www.mastery-flight-training.com/top_10_number_3_case_histor.pdf

Send your thoughts to mastery.flight.training@cox.net.

Real-Life See and Avoid

This month's issue of NASAS's Aviation Safety Reporting System (ASRS) *Callback* relates some real-world experiences with near collisions…and perhaps some ways to avoid getting yourself in a similar situation. See *Callback #380* and avoid a midair.

See http://asrs.arc.nasa.gov/publications/callback/cb_380.html

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Summer Summary

AVweb's Mary Grady blogs about the U.S. fatal general aviation accident rate for the summer of 2011:

> Between Memorial Day and Labor Day this year, 158 pilots and passengers died in 94 general aviation accidents. That rate has been pretty much the same over the last few years…we can do better. The key part is how pilots calculate risk. If you're someone who is constantly calculating risk, you will by nature ensure that your proficiency is up and the aircraft is safe.
>
> "Improving GA safety mostly means doing the things that we do as GA pilots, but doing them better, more safely, more thoughtfully, and with a better understanding of the situation and the risks," says [Dr. Earl] Weener [of the National Transportation Safety Board]. I would add that paying attention to exactly how we analyze and calculate our risks is key.

Read the full blog on AVweb. Don't skip the insightful remarks and data in the Comments section.

See www.avweb.com/blogs/insider/SummerSafetyNumbersCantWeDoBetter_205407-1.html.

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

Flying has risks. Choose wisely.

Thomas P. Turner, M.S. Aviation Safety, MCFI
2010 National FAA Safety Team Representative of the Year
2008 FAA Central Region CFI of the Year