

FLYING LESSONS for February 25, 2010

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:

Run a fuel tank dry, then immediately switch to a tank containing fuel, and the engine should continue running. This is a time-tested technique for getting the absolute greatest range from an airplane.

But should we be pushing so close to the limit? Should causing the engine to momentarily quit—to intentionally cause engine failure—a good idea? If the engine would relight immediately 100% of the time, it might be. But the record shows that's not always the case.

Yet another off-airport landing appears to be fuel starvation, when a tank ran dry and, although fuel was available on the airplane, switching to the fueled tank wasn't successful. A study of one airplane make shows running a tank dry is a common contributor to off-airport landings.

See www.thomaspturner.net/Fuel.htm

Many pilots, however, swear by maximum-range flight by running all but the last fuel tank completely dry. For those who employ this risk-management strategy, be aware that the possibility does exist that air in the fuel lines or other factors may prevent the engine from restarting after your intentional engine failure. Just because you've successfully used the dry-tank routine for years does not mean it can't happen.

I always get reader input after another dry-tanks off-airport landing, and as always I invite your response at mastery.flight.training@cox.net.

Landing short, landing long...each is a symptom of airspeed and glidepath control gone bad. In many airplanes every additional five knots on final increases the distance to flare and land by 10% or more. Even a little below final approach speed, on the other hand, and rate of descent will increase, angling you short of the runway.

Your final approach check should include:

- In configuration (flaps, landing gear)
- On speed
- On glidepath (electronic or visual, if available; to a touchdown point in the first third of the runway if not)
- On centerline (aligned with the runway and compensating for any crosswind)

If you're within 200 feet of the ground and any of the three is not as it should be, smoothly execute a go-around and set up to try again. Don't try to "salvage" the landing.

A rash of on-ramp collisions in recent weeks serves as a reminder to keep your head out of the cockpit while taxiing. It may be significant that most of the collisions involved Technologically Advanced Aircraft (TAAs).

Today's high-end avionics, from hand-held GPS to full PFD/MFD panels, require significant preflight programming. Do it only before you begin to taxi, or after you've come to a complete stop in the run-up area. Knob-ology on the roll should be cause for "busting" a pilot checkride, and more importantly, should carry the same stigma as texting while driving.

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

Debrief: Readers write about recent FLYING LESSONS

Reader and avionics specialist John Collins writes:

You wrote in *FLYING LESSONS*: "An instrument approach glidepath is designed to take the airplane to a touchdown zone 1000 feet or one-third of the total runway length from the landing threshold, whichever is less. Visual approach guidance is usually also set to take the arriving aircraft to this touchdown zone." I don't think that your comment is accurate, although it doesn't affect the gist of your discussion and advice that follows.

The glidepath of an ILS or LPV is a straight line in space and is fixed by the TCH (Threshold Crossing Height) and the glideslope angle. The default GS angle is 3 degrees. Most GA airports have a TCH of 40 feet and the Air Carrier airports have a TCH of 50 ft or higher to provide greater margin for the landing gear of the heavies. This puts the touchdown point for the GS for the typical GA airport at 763 feet from the threshold, regardless of runway length. For the typical Air Carrier airport with a TCH of 50 ft, the touchdown point is at 954 feet from the threshold, also regardless of runway length. It is true that runways with precision markings have the touchdown zone painted on the runway at the 1000 ft point and this is also independent of the runway length. Often you will see the following note on the profile view of the approach chart: "VGSI and descent angles not coincident" or "VGSI and ILS glidepath not coincident". From the TERPS: "Publish a note indicating *VGSI* not coincident with the procedures designed descent angle (*VDA* or *GPA*, as appropriate) when the *VGSI* angle differs by more than 0.2 degrees or when the *VGSI TCH* is more than 3 ft from the designed *TCH*."

Thanks, John.

Addressing recent *FLYING LESSONS* about takeoff and landing on contaminated runways, reader Kent Lewis reminds us of the [Runway Excursion Risk Management Tool](#), from the Flight Safety Foundation. Thanks Kent.

See:

www.mastery-flight-training.com/runway_excursion_risk_aware.pdf

www.flightsafety.org

A reader who prefers anonymity responds to recent *FLYING LESSONS* discussion of transition training into airplanes with a big difference between training and maximum operating weights:

I enjoyed the insights from our friend Dave Dewhirst about flying heavy; it triggered what seemed might be a decent topic for you in another issue down the road: transitioning to *lighter* simpler aircraft, as many of our aging pilot population are doing by moving from their Bonanzas and Debonairs and Comanches and Centurions -- to Light Sport Aircraft.

Back at the start of my career, in the wild-and-wholly days of the fledgling Ultralight segment, there was a great hue and cry about "unlicensed" pilots and their higher risk. The NTSB, oh, about 1982 or 1983,

undertook a year-long study of Ultralight accidents to decide whether there were any public-safety issues that needed to be addressed in light of the then-new FAR 103...what the NTSB found was sobering. Ultralight-only pilots entering aviation for the first time through their Ultralight training had a better safety record in Ultralights than certificated pilots moving into Ultralights from certificated aircraft...and that history has made me insistent that my friends flying heavier GA iron heed the transition-training mantra and get aircraft specific training as required for S-LSA and E-LSA and as they should for the so-called Legacy LSAs like the Ercoupe/Aircoupe, T-Craft, Aeronca, etc...

No attribution needed nor desired...just seemed a worthy issue for your consideration. Again, excellent work. Thanks for the service you provide.

While frequent *FLYING LESSONS* debriefer Tony Johnstone adds:

Spending the first 25 years of my flying career in the frozen wastes of NW Ontario, Manitoba, and Northern Minnesota, I've had numerous opportunities/necessities to operate off ice-covered surfaces. Flying off a clear hard ice surface simply requires a little more care, as your reader discovered- give yourself some extra room, don't do anything sudden, and don't expect the brakes to work! It gets more interesting as the surface gets irregular or slushy, slush can contaminate the gear and even freeze up a wheel, avoid it if at all possible if you are on wheels (it's no fun on skis, either). One tip- if you are stuck somewhere, if the ice gets exposed to the sun and starts to melt, waiting until the temperature gets back below freezing may leave you with a beautiful smooth surface to get out on (the "Zamboni Effect!")

And the reader who anonymously started the icy-runway takeoff discussion concludes this chapter with this:

Throwing the topic out there to collect a wide range of views and experiences might be a great place to start. Then draw it all down to a nice package of SOPs – that would be your burden!

In print

AOPA Air Safety Foundation has released its [2009 Nall Report](#), which analyzes and classifies NTSB-reported incidents and accidents from 2008 data. Avweb reports the review found

...an increase in accidents involving amateur-built aircraft. The statistics from 2008 showed more fatal accidents and fatalities than any year in the past decade, the report says. 'The 27 percent lethality rate in these accidents was 10 full percentage points higher than that for accidents in type-certificated airplanes,' according to the report. The foundation is working with EAA to address safety issues, said ASF President Bruce Landsberg. "Builders, pilots, and designers should have reasonable freedom to experiment, while members of the public are entitled to their expectation of safety," he said.

The number of non-commercial fixed-wing general aviation accidents decreased 5.3% from 2007 to 2008 (from 1,324 to 1,254), but this reflected a decrease in flight activity as well as a slight reduction in the accident rate. The 236 fatal accidents and 433 individual deaths were the lowest on record, but the fatal accident rate remained close to its historic average. The number of accidents caused by fuel mismanagement continues to decrease, down 54% from 1999. The commercial fixed-wing GA accident rate jumped to its highest level in five years but was still almost one-third lower than the non-commercial rate....

For full details read AOPA ASF's [2009 Nall Report](#).

See www.aopa.org/asf/publications/09nall.pdf

FAA has published a [Fact Sheet on Flight in Icing Conditions](#), a synopsis of information and rulemaking over the years that have improved safe flight in and near airframe icing, and clarifies

ice-related terms and reporting criteria to ensure more accurate forecasts, official observations and Pilot Reports.

See www.faa.gov/news/fact_sheets/news_story.cfm?newsId=10398

And here's the list of [March 2010 articles](#) by Thomas P. Turner

See www.mastery-flight-training.com/this_months_articles.html

Question of the Week

This week's Question of the Week is:

Do you think you'll be transitioning "down" to a Light Sport aircraft this year?

Send your answer to *FLYING LESSONS* Question of the Week at mftsurvey@cox.net...then return to read more *FLYING LESSONS*.

Last week's question was the icy-contaminated runway takeoff question covered in the Debrief above.

Fly safe, and have fun!

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2008 FAA Central Region CFI of the Year
2010 FAA Central Region FAASafety Representative of the Year



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