

FLYING LESSONS for June 10, 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:

The summer flying season is upon us in the northern hemisphere, and more of us are brushing off the rust and catching up on our flight instruction. Remember that whether you are receiving or giving flight instruction, your primary responsibility is the safe outcome of the flight. Don't sacrifice that attitude of responsibility in the expedience of learning or teaching a specific maneuver or technique.

Airplanes are also beginning to change hands again as the economy appears to improve (or at least we're coming to grips with the "new normal".) History tells us that the first 100 hours in a particular airplane type are among the riskiest.

Consequently we're in a period of increased risk as new pilots are receiving checkouts in type that, by their very nature, put the pilot in unusual (for them) situations in unfamiliar equipment. And, instructors are not always intimately familiar with the nuances of the specific model of airplane in which they're teaching.

As you receive or give flight instruction, then, consider the twin hazards of the dual instruction process: "instructor-induced stupidity," where the Pilot Receiving Instruction (PRI) can fall into the trap of assuming, sometimes incorrectly, that the CFI will protect him/her and the airplane from all harm, and "CFI complacency", especially after the instructor has taught the same lesson plan day after day after day, or when the PRI is well-known to the instructor and/or has a lot of experience in the airplane type, resulting in fatigue and mind-wandering, or lulling the instructor to believe he/she does not need to actively monitor the experienced or well-known pilot.

Consider the [inherent hazards](#) of dual flight instruction.

See www.avweb.com/news/leadingedge/leading_edge_instructional_hazards_195386-1.html

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

Debrief: Readers write about recent *FLYING LESSONS*

Reader Rich Hare used discussion of an alternator failure that led to incomplete landing gear extension and a gear-collapse landing to provide this *FLYING LESSON*:

Each series of airplane has its idiosyncrasies [that] need to be known if you are to really be "Pilot in Command". I could list several dozen ways that a Bonanza is different from a Mooney or a Cessna in its operation, what to watch for and what to do if something goes wrong. There is no substitute for in-depth training in make and model.

So true...I've turned down numerous opportunities to provide instruction in Piper Malibu/ Mirages, Cessna 210s, TBM 700s, Cirrus airplanes and others, because I know there are others with far better knowledge of the types I can refer pilots to for a much more complete educational experience. Meanwhile, I've had a number of referrals for Bonanza and Baron training because I happen to be expert in several variants of the types. Flight instructors, like professionals in other disciplines, should feel comfortable giving and receiving referrals. More so, pilots seeking instruction should be expected to determine the qualifications of a prospective instructor, and be encouraged to look for the CFI that will provide the highest quality of instruction in the operation, the airplane type, or with the brand of avionics installed.

Recent *FLYING LESSONS* concerned engine-out emergencies, prompting reader Mike Dolan to write:

This week's engine roughness article brought back memories of the only emergency I ever had in my Comanche in the 36 years I owned it. I had attended so many propeller maintenance seminars that I was sure when my engine ran rough it was two inches of a propeller blade separating in flight. It wasn't, but that didn't matter for the quasi-forced landing episode. It turned out to be an exhaust valve-head separating and being chewed up and spit out. How could my trusty Lycoming do this to me? I went through the emergency checklist in two seconds to no avail. Mags, carb heat, primer locked... It's a propeller blade problem, get over it.

See how our faulty minds work?

Fortunately, I was merely 8 NM from a large airport and at 10,500'. The forced landing was a non event. I declared an emergency, landed and taxied to the ramp. Never had to explain to the tower or even the FAA about the experience. Declaring an emergency when there really is one shouldn't be so fearful to the average pilot.

The next day the corrupt cylinder got replaced and I went on my way, never to have this happen again. Of course, [a Comanche technical expert] told me that if I had performed Lycoming Service Bulletin 388C on that very subject, the errant valve would have been discovered long before the part failure.

Keep up the good work, Tom. The next *FLYING LESSONS* Weekly could reiterate the whole process of making the actual forced landing.

Thanks very much, Mike. First, you're right—sometimes we pilots get so attuned to trying to diagnose an in-flight problem that we don't identify and best use the capabilities left to us. Perhaps we need to amend the old adage to state *aviate, navigate, troubleshoot and communicate*—putting diagnosis of an in-flight failure in its proper place.

Second, I was frankly surprised to find that standard FAA pilot training texts (the [Aeronautical Information Manual](#) and the [Pilot's Handbook of Aeronautical Knowledge](#)) do not address the topic of emergency landing field selection.

In the absence of advisory guidance, I jotted down a list of qualities I'd try to consider in those heady moments after an engine quit. My list:

- Surface
- Wind
- Length
- Slope
- Presence of ditches, paths or other irregularities crossing the landing surface
- Approaches
- Wires, on the approaches or over the interior of the field
- Fences
- Animals present
- Nearby sources of rescue

That last one isn't a deal-breaker for a field selection, but it's also something that should be considered if you have more than one possible choice. For instance, some people know I served four years as a U.S. Air Force Minuteman ICBM combat crewmember (I know at least one other

industry-prominent *FLYING LESSONS* reader who shares this unusual background). When flight instructing over the “missile fields” of central Missouri I always advised my students that, if they put down off-airport and needed some help, they could always chuck a rock over the fence of one of those remote missile launch facilities. Trust me, if something broke the motion-sensor field, pretty soon a truck full of well-armed, radio-equipped rescuers would be there to help! (Of course the Missouri missiles are gone now, but this still works in the Dakotas and in Wyoming).

It took a little Google-sleuthing to find a really good reference on evaluating and choosing an off-airport landing zone. Leave it to the sailplane pilots to know what to look for. Kai Gersten's sailplane text [Off-Airport Landings](#) is an absolutely superb 24-page text not just for sailplane pilots, but for any of us who might have to pick out a field in a worst-case scenario. Sections include these gems about checking for wires around and over a landing zone:

There are likely to be wires:

- Between two poles.
- Between a pole and a group of trees, or a single tree. It is not uncommon to find a telephone pole hidden by one, or a cluster of trees.
- Between a road and a house.
- Above any road.
- Going to any kind of a building.

A narrow field with trees on one side and wires along a road on the other side, or a field with trees along both sides may have wires crossing anywhere along its length. Avoid such fields if at all possible. The advice of landing well into the field is not applicable in these situations. *The safest assumption is to pretend there are wires around the entire perimeter of every field.*

...and these observations about visual illusions related to unimproved fields, which would be even more important to remember under the stress of an unexpected arrival:

1. A narrow field will appear to be longer than it is.
2. A wide field will appear to be shorter than it is.
3. A long field will appear to be narrower than it is.
4. A short field will appear to be wider than it is.
5. If you have been [at] low [altitude] for a while, all fields will appear to be bigger than they are.

Gersten's short book is definitely worth a read to better prepare you for an off-airport landing. Consider it your *FLYING LESSONS* homework of the week.

See:

www.faa.gov/air_traffic/publications/ATpubs/AIM/
www.faa.gov/library/manuals/aviation/pilot_handbook/
www.flsc.org/Xcountry/Kai_Off_Arpt_Ldg.pdf

More on engine failures

This frankly frightening [video](#) prompts us to recall the need for airspeed control during an engine-out landing (turn the sound off to avoid the announcer's hype). In fact, the Bellanca Viking's descent profile looks strikingly like [this video](#) of the so-called “falling leaf” maneuver—which is a stalled maneuver that consists of repeated entries into incipient spins. Remember that in a glide, airspeed is everything—as I've said before, arrive wings level, under control, at the lowest possible *safe* speed.

Luckily it appears the Bellanca's occupants survived their watery crash. But it brings to mind a famous quote by aerobatics legend Bob Hoover: “If you're faced with a forced landing, fly the thing as far into the crash as possible.”

See:

www.youtube.com/watch?v=5JsSbGdIDzE&feature=related
www.youtube.com/watch?v=ZOPsQn2Mksq
www.answers.com/topic/falling-leaf-aviation

It's that time of year again!

Once again we're nearing that time of the year when a significant number of us will gather on a single airfield in the Wisconsin sunshine (we hope). I'm talking about the annual Experimental Aircraft Association convention and fly-in at Oshkosh (*FLYING LESSONS* readers at the very highest levels will permit me, I assume, to use the trademarked name AirVenture to describe their event). Flying to Oshkosh creates great personal rewards, but it also entails notable risks as so many disparate airplanes converge on a single GPS waypoint, often at the same time. With that in mind *FLYING LESSONS* re-runs its seven-part series on Arriving at AirVenture, beginning this week with Parts 1 and 2:

Part 1: [Know the NOTAM](#) (note: the correct link for this year's EAA NOTAM is [here](#).)

Part 2: [Have a Back-up; Fill 'er Up](#)

See:

www.aero-news.net/news/featurestories.cfm?ContentBlockID=E1FEE301-00FA-4BC9-9B2A-A114EDAA14D6&Dynamic=1

www.airventure.org/flying/2010_NOTAM.pdf

www.aero-news.net/news/featurestories.cfm?ContentBlockID=11B5B140-1161-457B-BE89-3AA633B059B8&Dynamic=1

Arrive safely; I hope to see you there!

Fly safe, and have fun!

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



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