



FLYING LESSONS for May 30, 2019

by **Thomas P. Turner**, Mastery Flight Training, Inc.
National Flight Instructor Hall of Fame inductee

FLYING LESSONS uses recent 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 airplane have little direct bearing on the possible causes of aircraft accidents—but knowing how your airplane's systems respond can make the difference as a scenario unfolds. So apply these *FLYING LESSONS* to the specific 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:

We received a lot of reader mail on [last week's LESSON](#), **Chances and Consequences**. Let's go straight to the Debrief.

See <http://www.mastery-flight-training.com/20190523-flying-lessons.pdf>

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Debrief: Readers write about recent *FLYING LESSONS*:

First, an update on the Beech Bonanza lost over Lake Michigan that inspired last week's *LESSONS*. [The Detroit Free Press reports](#) that the airplane was located about 4.5 miles offshore in about 515 feet of water. The Bonanza "was still intact when it was found," and "the door of the aircraft was open, indicating that [the pilot and passenger] may have gotten out of the plane before it sank.... [where] the passengers risked getting hypothermia." Although *FLYING LESSONS* does not seek to ascertain the cause of specific mishaps, I include this update because our discussion is about the enhanced risks of overflying large bodies of water, and the possibility of surviving an engine failure only to be exposed to the natural elements. Tragically, that may be exactly what happened to the occupants of that airplane.

See <https://www.freep.com/story/news/local/michigan/2019/05/23/missing-plane-frankfort-michigan-emanuel-manos/1205277001/>

Now to reader mail: Reader John Townsley kicks off this week's Debrief:

The report of the...Bonanza you discussed in this latest FLYING LESSONS is precisely why I seldom fly at night in single engine aircraft, avoid flying single engine IFR in IMC or over a solid undercast, and WON'T

EVER fly over water out of glide range of dry land. "Two is One, and One is NONE!" applies to all single engine aircraft. If a bunch of accident reports are true a corollary might be: "Two is certainly less than one." **Acceptable Risk is a subjective, very individual assessment.**

Indeed, John. I fly single-engine IFR, with lots of backups including an engine monitor I know how to use. But I don't fly in IMC at night (single or twin), because I'm just not comfortable doing so and because I know when fatal mishaps happen at night the engine(s) is/are usually running just fine at the moment of impact—something else is usually the cause. I'm not even saying that someone absolutely should not fly a single-engine airplane across a large body of water, just that if they plan to do so that they **plan for what might happen** and not simply expect or hope that nothing will go wrong. In my case I look at historical data and realize that getting out of a sinking airplane with survival gear is not terribly likely and in cold water will soon be catastrophic, so I choose to avoid the route altogether. For all pilots' complaints about regulation, the truth is that we have immense freedom to act and it's extremely rare when the FAA says "you can't do that." As you rightly say, John, that makes it a "**very individual assessment**" as to what we deem to be acceptable risk. It takes a lot of data and a lot of thought to make that assessment sometimes.

Reader and Piper specialist Terry Hocking comments:

I have always taught the principle our engine is no more likely to fail over water than land. However, heading to Oshkosh, my route takes me over Lake Superior. The risk associated with putting down and immersion in water temperatures that are the coldest of the Great Lakes would mean hypothermia in a very short time. As such, I divert south and then pick up a heading [over land] to the "big show." As always, great point regarding the Beech pilot and Lake Michigan. **Don't stop making us think!**

I checked and the average July water temperature of Lake Superior averages about 40°F/4°C. According to the [hypothermia survival table](#) featured in last week's *LESSONS* that will render you unconscious in 15 to 30 minutes and kill you in 30 to 90 minutes—barely time for the Coast Guard to find you even if they know where you are and that you're going into the water.

See http://www.seagrant.umn.edu/coastal_communities/hypothermia#time

Michigan-based charter pilot Ron Kunse writes:

Tom, regarding Lake Michigan, when we received our Part 135 Air Carrier Certificate in 1983 the POI [FAA Primary Operations Inspector] assigned to us stated he had been at the Grand Rapids FSDO [Flight Standards District Office] for four years and the score was the Lake 28 - Pilots 0. Those odds make flying a single engine aircraft across the lake a losing hand.

Well-known Cirrus instructor and frequent Debriefeer Alan Davis adds:

Great analysis with good information being available. We should all remember that we **must plan** overwater routes and altitudes so that we are **always** within power off gliding distance of shore with single-engine airplanes, and within at least single-engine distance in the event of a multi-engine aircraft. The latter is, of course, a function of load, etc. In fact, it is a good idea to plan the multi-engine aircraft to also be within *power off* gliding distance in the event that both engines are lost for a reason other than [a mechanical] engine failure - such as a fuel loss/fuel starvation situation [or fuel contamination; see AOPA's advisories this week about [dual engine flameouts in Citations jets—TT](#)]. This is the reason why airlines with two engine aircraft have to get their aircraft certified for longer flights over water (ETOPS): to insure that the aircraft is route-capable before allowing the route to be flown. No one makes us general aviation pilots do that - **we must do it ourselves, every time**. Hurry up and get there to save 18 minutes just isn't worth it!

See <https://www.aopa.org/news-and-media/all-news/2019/may/22/new-def-fuel-contamination-incidents-reported>

Reader, former U.S. Navy accident investigator (he knows water landings) and instructor Jeff Edwards continues:

As to the Bonanza crash in Lake Michigan, you point out a great analysis of risk management. **Many pilots believe that the unthinkable will never happen to them.** Those pilots will not survive. Several years ago I took a trip in a group of pilots flying their aircraft to the Caribbean. Remarkably, one couple flying in our group had no water survival equipment at all. No raft, no life vests, no PLB [personal locator beacon], etc. At times, my survival equipment will outweigh my regular luggage. **Plan for the worst, hope for the best.**

Reader Steven Weintraub adds:

I always try to avoid flying over long stretches of open water, whenever possible, in my P35 Bonanza. A couple of years ago I flew from Duluth, MN (KDLH) to Saginaw, MI (KMBS). Rather than going direct (397 nm), I flew over the Mackinac Straights (approximately 459 nm). About once a year I have occasion to fly from my home field in Pennsylvania west to Chicago. I always file to stay over land south of Lake Michigan. ATC always gives me an amended clearance to fly over the lake; I always reply that *I can't accept that* in a single. The controller always understands and accommodates me.

On another matter, I have to disagree with you. I don't consider no-flaps landings in a Bonanza to be an emergency procedure but rather a routine procedure. One situation where this often occurs is when ATC asks me to keep my speed up for following traffic. Gear speed for my aircraft is 140 knots and flaps speed is 105 knots. But another situation is crosswind landings. I find the extra approach speed and less drag from a flaps-up approach make for easier landings in that situation. (Of course, I have to slow up to land, but changing configuration by extending flaps at the last minute does not seem to me to be a wise move.) For me the question is not whether it's possible to make crosswind landings with flaps down, but rather what works better. Of course, you are correct that one has to stay on the controls even after the wheels are down on the ground, but that's true whether you land with flaps up or flaps down.

I don't recall saying that a no-flap landing is an emergency, Steve, just that I routinely use full flaps even in a crosswind. I teach and practice zero-flap landings primarily as something you have no choice but to do (in a Bonanza) in the event of total electrical failure. But flying is as much technique (how you do things) as it is procedure (specific ways you must do things), or as I often say, ***there is almost never one correct way to fly an airplane.*** You are just as correct to land flaps up in a strong wind as I am correct to land flaps down. Either way works, if the pilot is up to the task.

Going back to the discussion of overflying large bodies of water, reader Tony Stewart writes:

Several years ago I attended Oshkosh departing from CYXU (London Ontario). My route to Oshkosh took me around the bottom of Lake Michigan and on the return flight, over the top of the lake. My companion (pilot) had made successful lake crossings before, however, I wasn't comfortable in doing so.

I share your concern, Tony. Even at the height of summer, Oshkosh-time, the average Lake Michigan water temperature is about 70°F/21°C. Using [the table featured in last week's LESSONS](#), this provides a time of two to seven hours before unconsciousness. If you're in a raft or wearing a life preserver so you don't immediately drown once passing out, the average time until fatal hypothermia is two to 40 hours.

Are you equipped to float after evacuating the airplane? Do you have a life preserver and/or a raft where you can reach it from the pilot's seat and get it out of the airplane before the airplane sinks (which happens very rapidly in most cases, so I'm told)? Are you equipped with a signaling method to get searchers' attention in daylight, and an emergency strobe light to attract them at night?

Alaska and Canada back-country pilot and instructor Ken Wittekiend puts it very well: **Emergency items you can reach from the pilot's seat while you're still strapped in are survival equipment. Items anywhere else in the airplane are just camping gear.** Even if you have survival equipment, isn't it worth the extra time to go around the lake?

Lastly, reader and instructor Robert Katz, who is quoted frequently in television media about accidents involving pilots who fly without meeting certification, currency or medical requirements, takes me to task:

So let's total up the bill to this *latest* fiasco: A 52 year old, single-engine airplane, with an EXPIRED registration, being flown over VERY COLD open water, BEYOND gliding distance to shore, at DUSK, by a STUDENT pilot, with an EXPIRED medical certificate, and carrying a passenger. ***What is wrong with this picture?!?***

More to the point: **Why do you *not* include at least some of these details in your article?**

Is there a common denominator to what is *already* known here? Is there some useful and effective statement you could make to the pilot community to drive home the point that at least it *appears*, ADM in totality was sorely lacking on so many levels?

Why do the *next SCOFFLAWS* in the pilot community refuse to learn from the mistakes of others by continuing to repeat them? Because too many oracles enjoy singing and dancing around the campfire instead of effectively teaching from it.

For whatever good you think you are doing with your online *FLYING LESSONS* effort; You could be doing a whole lot MORE!!!

First, let's look at what we agree upon. The airplane was being **flown over deathly cold open water beyond gliding distance from shore** when its engine quit. That alone raises a lot of points that thoughtful pilots may learn from, cause them to consider whether complacency ("the engine doesn't know it's over water," etc.) has gradually enticed them into doing things that at least at one time may have seemed unthinkable, or maybe even make them think for the first time about the real-world impact of the heightened risk of such a flight.

Now let's look at facts not entirely in evidence. Yes, **the airplane was old**, but how old was the engine? How well was it maintained? Was the fuel system lacking? Was the cause of engine failure due to the pilot's management of the fuel system (an extremely common scenario) and completely unrelated to the maintenance status of the airplane? Would a new airplane been any less likely to experience the same failure? **With an expired registration**. I see that all the time, usually because the FAA has not kept up with workload and updated the registration database. We don't know whether this is true or not—especially with the recent, protracted government shutdown. **Flown by a student pilot**. That one is less likely to be a clerical error, but it still could be. **With an expired medical certificate**. I suspect a growing percentage of the pilot population will fit that description as it transitions to flying under BasicMed. By definition a BasicMed pilot *used to* have an FAA medical certificate but let it lapse. Although he/she must maintain records to be able to prove meeting BasicMed requirements if specifically tasked to do so, there is no requirement (or mechanism) to report this to the FAA. Hence forever afterward that pilot's records would indicate an expired medical certificate—that entry in the FAA database doesn't mean what it used to.

It's the NTSB's role to investigate this specific event. If it finds any or all of the above are true it will find out. If the pilot had survived he would have faced enforcement action, and likely criminal endangerment or negligence charges from the family of the passenger. Sadly this is all moot.

I absolutely get your point that we cannot condone such blatant disregard for the tenets of safety, if in fact they are true. I submit, however, that what I write here isn't for that kind of pilot—the one who makes a conscious decision to be **intentionally noncompliant** with regulations. Intentional noncompliant pilots are "**two to three times more likely to commit other, unintentional errors or to mismanage threats to flight safety**," according to a study by the Flight Safety Foundation. This illustrates your point, Robert: **a pilot who intentionally flaunts the rules of pilot certification and currency is most likely one who makes bad choices that negatively impact the safety of flight**.

See <https://flightsafety.org/asw-article/intentionally-noncompliant/>

Trouble is, the intentionally noncompliant pilot doesn't read *FLYING LESSONS* or things like it. They are the "unreachables," the ones who never see what I write or, if they do, won't listen anyway. The intentionally noncompliant flyer is a demographic that must be addressed by the FAA and to some extent by flight instructors during Flight Reviews if they detect patterns of behavior that are inconsistent with flying safety. Of course, if a student pilot is flying a Complex and High Performance airplane with a passenger, I bet that pilot isn't taking Flight Reviews either.

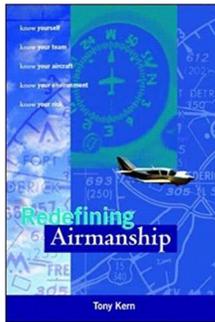
Like you, I'm very curious to see if the NTSB confirms any of these noncompliance issues when it releases its Probable Cause report. I suspect some or all will be debunked, chalked up to Federal inefficiencies in the registration databases (apologizes to my readers at high levels in the FAA) and the fact that medical certification requirements have outpaced the pilot registration process. But it's entirely possible that one or all of these things are true. Scary that it could be so easy to slip through the system, but we know it happens.

My goal is to touch the pilot has not yet developed good aeronautical decision-making (ADM) skills but who is actively trying, or the one who makes bad decisions because he/she doesn't know better but wants to improve. Most frequently I think I'm addressing pilots who know something is risky but have never sat down to think about all of the ramifications. I *can* reach these three types of pilots here, and perhaps change their behavior.

I do that by using accidents to illustrate specific points, such as (in this case) the fact that engines are not any more likely to fail over water, or at night, or over mountains, or in instrument conditions, but that the **consequences** of such a failure if it occurs are far more extreme. As my fine print says every week, *FLYING LESSONS* uses recent mishap reports to consider what **might have contributed to accidents, so you can make better decisions if you face similar circumstances**. I'm not explaining the circumstance of specific crashes. I'm using events that are currently in the aviation public consciousness to inspire thought about *future* flights.

It's **the things we agree on** that can cause a thoughtful and conscientious pilot to consider changing behavior. The things that are not yet in NTSB evidence, deplorable though they may be if confirmed, are in the realm of investigation and go beyond the reach of *FLYING LESSONS*.

Still, if I could reach the unreachable I would, because like you Robert I see this as a problem in need of a solution. I've been working with FAA, NTSB and industry in other venues on this very issue for many years. We haven't found the answer yet. Do you have a solution we've all missed?



Business aviation ADM guru (and *FLYING LESSONS* reader) Dr. Tony Kern argues in his classic *Redefining Airmanship* that we should stop trying to reach the unreachable—they won't listen to us anyway, if they even hear us at all. Dr. Kern suggests instead that we **focus on the “leaders,”** to use Tony's term, **who will become the “masters”** (a term I frequently use). I think I'm doing a good job of that in my own way, reminding pilots who are very conscientious and reachable that we are all learning all of the time, and that sometimes the real risk of an operation isn't obvious but requires contemplation and thought. No, that doesn't fix the intentionally noncompliant pilot.

See <https://www.amazon.com/Redefining-Airmanship-Tony-T-Kern/dp/0070342849>

As Terry Hocking put it near the top of this week's edition, **“Don't stop making us think.”** That's what I'm trying to do with *FLYING LESSONS*—to make everyone think, myself included. Readers, if you have constructive criticism about how I can make *FLYING LESSONS* even more effective, please let me know.

Thanks Robert, and thank you to all the readers I quoted this week and those for whom I did not have space, for your input and insights.

Questions? Comments? Suggestions? Let us know, at mastery.flight.training@cox.net

From all the comments that flow through your *FLYING LESSONS Weekly* issues it is very clear that you are making a difference in aviation safety and enjoyment. The list of those who can make that kind of impact is very short. – Gerald Gaige

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