



FLYING LESSONS for December 28, 2017

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:

Unified Flying Theory

I made my traditional Christmas Eve flight with my father-in-law, a nonpilot but lifelong hot-rodder and motor sports enthusiast. OK, we did it on December 23rd this year. And it was only the second year in a row I took him for a ride. So "tradition" may be a stretch—but I hope it will become one.

Happy father-in-law Jerry Mellenbruch



The skies were clear and cool, although hazier than I expected (maybe 20 miles flight visibility, less than normal in winter over central Kansas), and the winds were calm to the point there was no obvious preferred runway (a real rarity in Kansas). We did a short tour at about 1500 feet Above Ground Level (AGL) around a large reservoir about 20 miles east of the home field, then a circle around my house about a dozen miles south, and back in for landing. My wife's father had a blast, as always, and I had a fun time too, beating corrosion by warming up the oil (the engine's) and staving off rust (mine).

On final I called out airspeeds, alignment and glidepath to myself as I always do, pulling the power to idle, easing back on the elevator, and pressing just a little extra rudder at just the right time. The wheels just rolled onto the pavement (right on [the second stripe](#)) so smoothly it was hard to tell when flying ended and taxiing began. It is like easing into a pool when the water temperature is exactly the same as the air temperature—it's hard to tell you've transitioned at all.

See <http://www.mastery-flight-training.com/secondstripechallenge.pdf>

It's not bragging if you honestly say, "that doesn't happen often," and mean it. **Everything just came together.** My landing reflected a lifetime of practice, of mistakes from which I learned, and the confluence of my currency, my fatigue state, the airplane, the weather, and a little luck. I'm finding getting close to this near-perfection is more common than it used to be. I hope you find yourself making this kind of landing now and then also.

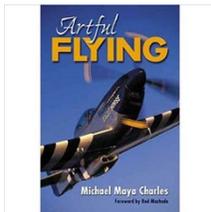
But it is never guaranteed. As soon as I let my currency slide, or I get tired, if the winds get whirly or I fly a different airplane (even the same make and model), and most importantly **if I stop thinking I have to work hard every time** to achieve it, this level of performance becomes elusive and unattainable.

So anyway, when I told Jerry "that doesn't happen often" as we were rolling out, he replied, "Well, you've got to read the wind and the machine." I don't know if I've ever put it quite this way,

but his words prompted me to respond: “**In the last hundred feet flying stops being science, and becomes an art.**”

The nature of my writing and research is such that I probably come across as a very mechanical, methodical pilot. I’m very technical. That’s true, but it’s only *part* of the truth. For I truly love flying airplanes *well*, and helping others fly *their* airplanes well too. Although you can fly an airplane acceptably and safely “by the numbers”, to fly it *well* you have to adapt to the variables, to detect, measure, respond to and measure your responses. You must **use “the numbers” as a predictable starting point**—they get you maybe 85% of the way there—then modify your inputs to get from that solid-B report card to A-level, 90% or 95% or 98% flying. If it all comes together, maybe, just maybe, you’ll occasionally attain that elusive 100%, A++ grade.

Prolific aviation columnist and *FLYING LESSONS* reader Michael Maya Charles is known for his “Artful Flying” philosophy. Several years ago I was delighted to receive some informal midnight time in an MD-11 simulator with Michael in the instructor station (and Savvy Aviator/ *FLYING LESSONS* reader Mike Busch in the left seat). Michael says on [his blog site](#) that his contacts with pilots of all types of aircraft and experience levels have caused him to:



[begin] to connect the dots between what great pilots do and the similar process a great basketball player like Michael Jordan might engage in, which is the very same process a beloved cellist like Yo Yo Ma or Pablo Cassals might employ to become the amazing musician that brings tears of joy to our eyes when they play.

In his outstanding book [Artful Flying](#) Michael writes:

Art is the pursuit of the possible, and requires that you be fully vested, fully engaged in what you do.

Perhaps pointing a finger at me (just kidding, sim buddy!), Michael asks a question:

The aviation world is flush with technicians, artists are few. Artist or technician: which do you want to be?

See:

www.artfulpublishing.com

<https://www.amazon.com/Artful-Flying-Michael-Maya-Charles/dp/0976827409>

The answer, in my view, is “both.” In my opinion (and knowing Michael personally and having read his book, one I believe he shares as well), there are pilots who are technicians, and pilots who are artists, but to fly an airplane very well you must pursue mastery of *both*. You can’t attain A-level flying as a technician alone, any more than you can do so flying solely as an art.

Just as you might be able to get 85% of the way to perfection flying as an artist, to make it to A-level flying you need technical knowledge, expertise and discipline as well.

I expect that several of you are ready to scroll down to the UNSUBSCRIBE link by now. Strongly technical people don’t usually like the fuzzy logic of art, and artistic folk don’t typically like the rigidity of technical design and science. Both types feel their approach to flying is the best—and guess what: **both are right**.

Before you pull the handle(s) on *FLYING LESSONS*, however, here are some examples of what I mean, from actual events on which I’ve previously commented upon in these reports:

- The pilot who did an artful job of gliding his airplane toward a long, open field after engine failure in cruise flight (unfortunately dying when he hit a hard-to-see power line on short final), but would not have had to glide at all if he had studied his airplane enough to know to turn on an emergency fuel pump as part of the published Engine Failure in Flight checklist.
- Any number of pilots who lost directional control on the runway (not mastering the art of crosswind control) when the winds were well below the maximum demonstrated crosswind component of the airplane flown.

- The highly technical pilot of a piston twin who spent long minutes head down in the cockpit trying to get his mixture leaned to a highly precise target temperature, while blasting blindly through busy Class C airspace.
- Dozens of pilots who starved their engines for fuel, recovered by gliding toward an airport or open field, but then stalled the airplane at the last moment before what should have been a successful touchdown.

The list could go on for many pages, but you get the idea. Each of these pilots could probably have flown an entire lifetime as a technician or an artist. But unfortunately for each, a day came when he/she needed to perform with elements of both.

Michael Maya Charles is right. There is a pervading artistry that makes great people great across all disciplines, including flying.

Scientists seek a [Unified Field Theory](https://en.wikipedia.org/wiki/Unified_field_theory), a phrase coined by Albert Einstein, that expresses all the variables of energy, mass, atomic force, electromagnetic force and gravity in a single and (hopefully) simple, “elegant” *field* or mathematical equation. Sometimes this elusive explanation for the entire functioning of the universe is called [The Theory of Everything](https://en.wikipedia.org/wiki/Theory_of_everything), a framework of physics that may or may not be described by a single mathematical formula.

See:

https://en.wikipedia.org/wiki/Unified_field_theory

https://en.wikipedia.org/wiki/Theory_of_everything

OK, I’m a nerd. I tend toward the technical; that last paragraph proves it. But I’m also an artist, or at least I’m trying to be. I’m looking for a Unified *Flying* Theory, an aeronautical Theory of Everything, in the way I fly. I know I won’t ever get there, and if I get close it won’t be for long...because the variables are always changing. But I’m working on it, all of the time.

As you look forward to the New Year, think about this Unified Flying Theory. Ask yourself if you are primarily technical in the way you fly, doing things by the book; or if you are mainly an artist, flying by feel. Resolve in 2018 to explore the “other side” to become an A-level pilot in normal operations *and* in unusual-for-you operations, and any abnormal or emergency situation you’re unlucky enough to face.

If you’re an Artist-Pilot, devote time in 2018 to:

- reviewing your airplane’s operating handbooks or manuals;
- incorporating use of simple checklists in all phases of flight;
- memorizing and practicing the critical steps of emergency procedures;
- developing a deep understanding of the aircraft’s systems, their operations, and how you operate them;
- practicing the maneuvers required on the Practical Test for the pilot certificate and ratings you hold, ensuring you can still fly them at least as well as you did on the day you passed each checkride;
- taking dual instruction on the maneuvers and standards of the next level of pilot certificate or rating above that you already hold (Commercial if you’re a Private, Sport or Recreational Pilot; ATP if you are an instrument rated pilot, etc.) to learn new maneuvers and adhere to a higher level of precision than you’ve been held to this point; and
- flying with an instructor who specializes in your aircraft type, to learn tips and tricks for flying it predictably “by the numbers”.

If you’re a Technician-Pilot, design a plan for the coming year that includes:

- adding a new flying experience, such as a tailwheel endorsement, sailplane flight, seaplane training, complex or multiengine training, or mountain flying—even if you don’t

plan to pursue a checkride or plan to fly that type of aircraft or operation again—because in immersing yourself in a learning mode you will invariably find something new that you can apply to the type of flying you *do* do;

- taking spin training or introductory aerobatic flight, in an appropriate aircraft with a qualified instructor;
- making a long VFR cross-country flight, if you routinely fly IFR;
- using your technical bent to develop a deep understanding of the aircraft's systems, their operations, and how you operate them;
- developing cockpit flows to use in conjunction with checklists;
- practicing the maneuvers required on the Practical Test for the pilot certificate and ratings you hold, ensuring you can still fly them at least as well as you did on the day you passed each checkride;
- taking dual instruction on the maneuvers and standards of the next level of pilot certificate or rating above that you already hold (Commercial if you're a Private, Sport or Recreational Pilot; ATP if you are an instrument rated pilot, etc.) to learn new maneuvers and adhere to a higher level of precision than you've been held to this point; and
- flying with an instructor you've never flown with before, who specializes in your airplane type but who will teach you skills and techniques your usual instructor may have missed.

Me, I clearly tend toward the technical side of the scale. I'm going to have to spend a lot of time next year learning new avionics being installed in an airplane I fly at work. But in addition to that I owe it to myself to focus on some *Artful Flying* as well. Good thing I have a student who owns a Piper J-3C Cub and invited to get me checked out in it.

The goal is to become an A-level pilot by expanding beyond where you are *now* to where you *can be*, acknowledging and using the Unified Flying Theory or aeronautical Theory of Everything. Combining artistry and technical expertise *is* **mastery of flight**.

Happy New Year, everyone!

Comments? Questions? Let us learn from you, at mastery.flight.training@cox.net



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Thanks, Tom. Your impact on my personal flying techniques and knowledge is indispensable, and much appreciated. A rare educator is one in whom their learners not only have complete confidence, but also fun while learning. You set the bar. – Andrew Urban

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Thank you, [generous supporters](#).

I'll resume the normal format, along with the backlog of reader Debrief mail, next week.

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