



FLYING LESSONS for March 14, 2013

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.

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:

Reader Kevin Loseke wrote this week with a seemingly random observation that is actually quite salient:

I've been a reader of your weekly update for many years. I admire your diligence in producing this. Like many who I imagine read this I was an avid flyer and honed my skills on my own dime. I always wanted the latest and greatest technology.

After 4000+ hours of flying I started working professionally in Western Alaska last May. We fly 4-8 hours and 10-20 legs a day in conditions that no one in the lower 48 would ever expect to fly in. I fly a C207 with a basic 6 pack, no backup instrumentation and a early GPS with a Capstone moving map (which is very slow).

With that experience, **one thing is obvious to me: The cause of most all accidents is a "Simple lack of aeronautical experience and proficiency"**. The new technology just gets in the way of that.

End of story. Not sure how you overcome it.

I think the industry is coming full-circle in its philosophy toward pilot training. The U.S. Federal Aviation Administration event recently issued [Safety Alert for Operators \(SAFO\) 13002](#), calling for air carrier pilots to spend more time hand-flying the airplane. "Pilots' stick and rudder skills are fading," warns the SAFO. Air carrier accidents and incidents indicate an increase in "manual handling errors" among airline crews. "Maintaining an improving the knowledge and skills for manual flight operation is necessary for safe flight," according to the Safety Alert.

See www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo/all_safos/media/2013/SAFO13002.pdf

If professional, two-pilot air carrier crews are becoming so dependent on automation that their skills are noticeably degrading, what about the general aviation pilot who logs 50 to 200 hours a year following the early 2000s-based philosophy of almost full-time autopilot use? How "current" is that pilot in stick-and-rudder skills that may be needed to compensate for system outages or even save the lives of those aboard the airplane?

The first slide below depicts a Cirrus aircraft, but I in no means intend to "pick on" the Cirrus, or suggest other Technologically Advanced Aircraft (TAA) are any different in the context of this discussion. The Cirrus is, however, something of the "poster child" for TAA, and the training philosophies that have risen to prominence since the 1990s have been driven by the tremendous success of the Cirrus line.

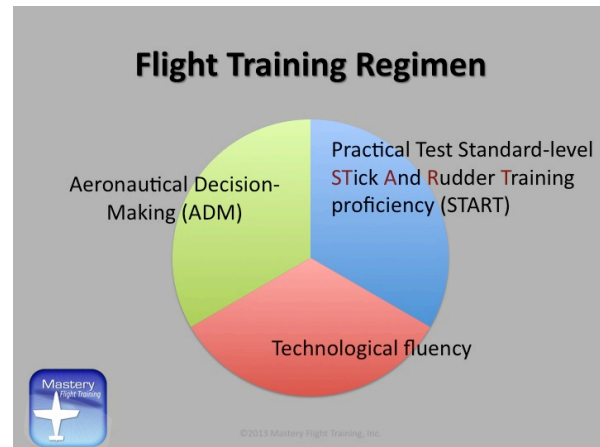
When TAAs began to appear on general aviation ramps, pilot training and evaluation was still primarily based on the Practical Test Standards—what I call "PTS Training." At the time the PTS consisted almost exclusively of STick-And-Rudder based Training Standards, or what I call STARTS. The complexity and capability of TAAs (including the Cirrus) directly contributed to the introduction of the FAA/Industry Training Standards (FITS) philosophy. Although it has changed over time, for the better in my opinion, I sat in on some very early FAA briefings on FITS, and my impression was that the FITS philosophy, that of near-100% autopilot use, was designed in no small way to permit a relatively inexperienced pilot to compensate for lack of flying skills and experience in such a complex machine by making the airplane do most of the flying itself. The



FITS program had a positive impact on crash rates, but it also (in my opinion) fostered an environment where pilots lost much of their STARTS hand-flying skills, evident in a number of prominent crashes following in-flight failures of various parts of the technologically advanced avionics and auto-flight system. A colleague of mine recently introduced the term “optionally piloted vehicle” to describe a TAA flown almost exclusively by autopilot. I believe this is an outcome of the early FITS initiative.

When over time the move from STARTS to FITS didn't seem to stop pilots from making bad decisions that contribute to serious crashes, the industry embarked on a new philosophy centering on Aeronautical Decision-Making (ADM). ADM is designed to help pilots manage risk and avoid making bad decisions that may contribute to crashes. ADM can be a component of both FITS and STARTS-style flying. The depressing part of ADM study, training and evaluation is that (as *FLYING LESSONS* readers can attest), pilots seem to be repeating the same bad decisions over and over and over across the fleet. And ADM alone can't save the day every time. Hence (as the FAA's SAFO suggests) we're coming full-circle to an emphasis on stick-and-rudder flying skills.

The difference this time is that perhaps we (as an industry) have accepted that it's not a one-or-the-other thing. We need to remain highly proficient in STARTS flying while at the same time appropriately using FITS-philosophy flight while employing the strategies of ADM. Training isn't one slice of the pizza, it's the whole pie.



As we receive certificate and ratings training, transition into new-to-us airplanes, receive recurrent instruction, and (for the instructors among us) teach all those levels of aviating to others, we need to insist we spend roughly equal amounts of time on:

- Traditional stalls-and-steep-turns, STARTS training to (at the very least) Practical Test Standards levels of proficiency,
- Aeronautical Decision-Making for normal, abnormal and emergency operation, and
- What I call “Technological fluency” with all systems on board the aircraft, including avionics and autopilots.

Will this take more time and cost more money than a now-“traditional” checkout or Flight Review that focuses heavily on only one sector of the pilot training wheel? Probably yes. But then again, an SR22 is not an Aeronca Champ, the airplane that was in many ways the model for the development of the old STARTS-style Practical Test Standards.

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

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Debrief: Readers write about recent *FLYING LESSONS*:

Last week's *LESSONS* on creating realistic expectations among your passengers before taking them along on a flight seems to have struck a chord with a number of readers. Airline pilot and frequent Debriefeer David Heberling writes:

This makes me think of the passenger briefings that Flight Attendants give to the passengers before every flight on FAR 121 air carriers. You would think that by now everyone in the United States knows how to fasten and unbuckle their seatbelts. You would also think that they would know what oxygen masks were and where they are located. Also, those sitting in the emergency exit row get their very own briefing on the duties and abilities required of those sitting these seats. Frequent travelers hear these briefings all of the time and could probably give a reasonable facsimile if asked. However, **we can never assume that passengers know any of this. That is why we have to do it on every flight.**

This is the way we should treat anyone who flies with us in GA airplanes. You can never assume that they know anything. Now, if your spouse and other family members fly with you on a regular basis you may think that briefing them is not required after the first few times. No, that is not the right attitude towards safety. You can never assume anything. **Non-pilots need constant reminding that flying in an airplane is nothing like driving in a car.**

Your passengers are such trusting souls. They assume you know what you are doing. The least you can do is **show them that their safety (and yours) is your biggest concern** by explaining to them the salient facts about this flight. Yes, you should brief them on seatbelt and shoulder harness operation. I know that in my airplane, the seatbelt inserts into a rotary affair that also allows the shoulder harness to insert into the top.

Turning the clasp allows all belts and harnesses to unclasp, while pushing a tab behind the harness insertion point releases just the harnesses. None of this is intuitive and has no corollary in the automotive experience.

If you carry oxygen bottles and masks, they will not be where airline flyers expect. Your flivver may have only one engine. What will you do if it quits? Your passengers have no idea that an airplane can glide unpowered. Flying over water? What about those life vests and rafts? Where is your fire extinguisher and how is it used? Do you carry a PLB? Your passengers should know about this too.

This is not an exhaustive list, just a few things I thought of off the top of my head. **What your capabilities are, the capabilities of the aircraft, and where the important things in the airplane are** is a pretty good place to start.

Excellent advice, David. Thank you. Reader Tom Allen is more succinct:

Really good article. The unsuspecting flying public is supposed to be able to trust that the pilot can properly access and is not taking unnecessary risk.

Indeed, Tom. How frequently have you heard a spouse, or co-worker or a business associate on the television news saying "He was a very good and safe pilot" after a crash with obvious risk-management issues? The general public has no basis to judge the quality of a pilot. It's up to us to uphold a standard so high that passengers are safe without ever knowing just how much work it takes.

What do *you* think? Let us know, at Mastery.flight.training@cox.net

Please keep it coming! I forward *FLYING LESSONS* to all my students... private and instrument. -- Bill Horan

It costs a great deal to host *FLYING LESSONS Weekly*. Reader donations help cover the expense of keeping *FLYING LESSONS* online. **Be a *FLYING LESSONS* supporter through the secure PayPal donations button at www.mastery-flight-training.com.**

Thank you, generous supporters

NTSB Safety Alerts

The U.S. National Transportation Safety Board (NTSB) held public hearings this week on a series of new aviation safety alerts aimed at reducing specific types of general aviation accidents. I was able to watch the first portion of the hearings live; [the full hearings are posted](#) for a limited time.

See www.capitolconnection.net/capcon/ntsb/ntsb.htm

The purpose of the hearings was for NTSB members to view five proposed new Safety Alerts and to question the reports' authors, who are NTSB staffers. Five new Safety Alerts are being produced, in written, PowerPoint and eventually video formats for wide distribution. The topic areas are:

- Reduced-visual-reference accidents, including controlled flight into terrain and uncontrolled descent into the ground due to spatial disorientation.
- Aerodynamic stalls at low altitude in daylight visual weather conditions.
- Pilot inattention to indications of mechanical problems.
- Risk management for aviation maintenance technicians.
- Risk management for pilots.

If the list sounds (depressingly) familiar, it's because it's the same things NTSB, FAA and others (including *FLYING LESSONS*) has been sounding again and again for years. The mantra of flight instructor effectiveness and "reaching the unreachable" pilot (whom during the hearing Board member and *FLYING LESSONS* reader Dr. Earl Weener noted often goes to great lengths to *remain* unreachable) resounded through the presentations and questioning.

Mastery Flight Training applauds the NTSB members and staff for taking this to the next level with this new outreach program. I hope NTSB is able to positively affect a far wider audience. We'll be looking at the NTSB presentations for these topic areas in future issues of *FLYING LESSONS*.

Avionics Gone Wild

OK, I liked the title. Author [Larry Anglisano's article](#) in a recent issue of AVWeb echos the common *LESSON* (including this week's report) that today's avionics require a high degree of pilot familiarity. "Whether it's a calamity of wrong button pushes or a subtle input failure to a glass panel, understanding the interface is key to safety," he writes in the article reprinted from *Aviation Safety Magazine*. Anglisano is a fan of autopilots and glass cockpits, he writes, but he points out there are numerous "gotchas" for which pilots need to be prepared. A common theme? Yes, but this article includes some specific techniques that may not have occurred to you (or me). [Take a read](#).

See www.avweb.com/news/avionics/avionics_glass_panel_safety_208291-1.html



FLYING LESSONS Weekly will not be published next week. For the fourth time since 2002, Mastery Flight Training, Inc. will present the classroom program for the [Australian Bonanza Society's](#) annual Beechcraft Pilot Proficiency Program (BPPP) event in Cowra, NSW on March 23rd. I'm told this year's event sets an all-time record for flying and ground school registrations, and will include members of non-Beech flying "breeds" (type clubs) and Australian insurance and aviation industry representatives. Australia is the second biggest readership of *FLYING LESSONS*, after the United States. I hope to see many of my Australian friends and readers there. Contact the [Australian Bonanza Society](#) for more information.

See www.abs.org.au/

While Down Under I'll be meeting with senior representatives of Australia's aeronautical search and rescue organization in Canberra, the capital. I look forward to learning their take on aviation risk management in Australia's beautiful but frequently inhospitable environment. I'm certain I'll have something interesting to write about upon my return. *FLYING LESSONS* will be back with the March 28 report.

Share safer skies. [Forward *FLYING LESSONS* to a friend.](#)

Personal Aviation: Freedom. Choices. Responsibility.

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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