

FLYING LESSONS for April 19, 2012

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.

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This week's lessons:

I had an interesting flight experience last week. I was traveling from Wichita, Kansas to Houston, Texas, to instruct the pilot of a beautiful 2001 Beechcraft A36 Bonanza. Unfortunately (for me), my schedule and the economics of air travel meant I was "going commercial," scheduled for a nonstop Regional Jet trip on a code-share affiliate of a major airline. The experience turned out to be a great illustration of decision-making in action, and reveals some *FLYING LESSONS* to pilots regardless of the size of the aircraft.

We were scheduled for a 4:15 pm launch, arriving at Houston's Bush International (KIAH) about a quarter past six. The inbound leg, from Houston, was a few minutes late, but not so much so the outbound should have been delayed. The gate area was abuzz, however, as word slowly spread that our outbound flight would arrive late into KIAH because we would be making an unscheduled fuel stop in Oklahoma City.

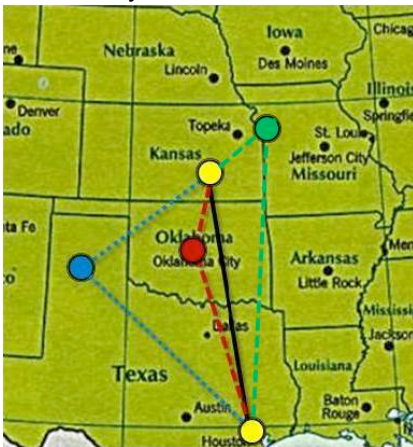


The airline's dispatchers had decided, probably because of ramp schedules at Houston before the Wichita-inbound flight, to dispatch the flight northward with insufficient fuel for the round trip. Quite routinely, the ERJ-145 would be fueled at Wichita between flights.

The strategy changed, however, when dispatchers learned that the jet fuel at Wichita was contaminated. Plan B called for a fuel stop in Oklahoma City (KOKC). That decision was actually made around 10 am that day, because some passengers were notified of the delay (and the interim stop) by text from the airline in the late morning. This was the assumption when the ERJ took off from Houston northward. But the assumption proved wrong.

A long line of severe thunderstorms was rapidly building in Oklahoma, sending wave after wave of extreme weather across the Oklahoma City area and even dropping a tornado in nearby Norman, Oklahoma. KOKC as a fuel stop was out.

I knew we were going to be seriously delayed when the outbound-leg crew, which had already boarded the ERJ, came back off the plane rolling their personal baggage, and the First Officer sat down near me eating a pizza. I heard some discussion among crew members about reaching the end of their duty day. I frankly expected the flight to be cancelled. But after a while, his appetite sated, the FO joined the rest of the crew, and they went back on board the jet. Soon we were boarding.



Once on the aircraft the flight attendant explained that the first option—actually, Plan C—was to fly northeast to Kansas City, Missouri for fuel, then southward to KIAH (the green route). The crew looked at other possibilities, and decided instead on Plan D: southwest to Amarillo, Texas for

a quick-turn fueling, and onward to Houston (the blue route).

We flew in Visual Meteorological Conditions (VMC) the entire trip, with huge, towering cumulonimbus clouds out the left window on each leg. It was eight p.m. when we touched down in Houston, only two hours late.

The most common reasons for commercial airline delays are weather, mechanical issues and crew rest rules. Regulations and air carrier Operating Specifications (Op Specs) permit very little latitude in dealing with mechanical issues—sometimes to extremes, which is why a flight may be canceled because a coffee maker is inoperative or a lavatory light bulb is out. Regulators and Air Safety Investigators (ASIs) are just now really honing in on the effect of fatigue on aircrew function and judgment, reflected in hearings and new rulemaking about crew duty days including time spent commuting via airliner from home to a crew domicile. Airlines are less conservative about weather flying, with many weather delays more a function of airport capacity than strict weather-related go/no-go decision making. En route, airliners usually have options for getting around the worst of the weather, so weather delays happen primarily when the weather hazard is in the airport terminal area.

The most common reasons for airline *accidents* are weather, pilot judgment issues and mechanical failures. When the bad weather is in the terminal area and crews attempt takeoff or landing anyway, the hazard may be too great. This may be closely related to pilot judgment, which (as we've said) may be tied to the pilots' fatigue state, although lack of basic airmanship has emerged as a hazard in some cases like [Air France 447](#) and [Colgan 3407](#), and has prompted U.S. Congressional action to substantially increase the minimum experience requirements for First Officers. Mechanical failures (for example, [Swissair 111](#) and, from obvious external factors, [US Airways 1549](#)), are rare in airline accidents, perhaps because airlines are so conservative about taking off with inoperative or faulty equipment.

In the case of my trip from Wichita to Houston, the crew (including dispatchers) was evaluating all three issues—mechanical (fuel contamination, and external “failure”), weather (thunderstorms) and pilot fatigue (duty limits). The crew decided well, showed flexibility, and completed a safe trip with, in the long run, limited delay.

See:

www.airfrance447.com/

http://en.wikipedia.org/wiki/Colgan_Air_Flight_3407

http://en.wikipedia.org/wiki/Swissair_Flight_111

http://en.wikipedia.org/wiki/US_Airways_Flight_1549

When you alone are the crew and the dispatcher, it makes sense to think about your flight in terms of the things that most often cause airline delays and accidents. If professional crews flying highly capable and equipped aircraft supported by dispatchers and ground crews have to be concerned about weather, maintenance and pilot fatigue, then certainly these things are at least as critical for you. Most general aviation pilots have another factor to consider, pilot capability—assuming the crew (you) is fully rested, the fourth factor is training, experience, flight currency and risk evaluation ability.

As Pilot-in-Command you must be “a crew of one,” evaluating the factors affecting the safe completion of flight that are demonstrated by professional pilots and support crews every day.

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



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Debrief: Readers write about recent *FLYING LESSONS*:

Reader Lorne Sheren writes about “creeping normalcy,” the progressive acceptance of more and more risk when what was once seen as dangerous is experienced enough the pilot wants or needs to go even further into hazard or risk:

Great issue, as usual. Sidney Dekker, in his book *Drift into Failure*, talks about the failure modes of complex systems (of which aviation certainly is included). He notes that **the exception to the rule, as it is successfully accomplished, becomes the new normal, and the system extends its envelope...until it finally fails**. The trick is in recognizing that we are operating beyond reasonable limits and even if it works that time, don't let it become the new normal. This applies to a lot more than flying.

See www.amazon.com/Drift-into-Failure-Sidney-Dekker/dp/1409422224

Thank you, Lorne. Reader Efrain Gonzalez opines about last week's tragic crash of a well-known Warbird pilot while apparently attempting aerobatics below 500 feet AGL immediately after takeoff. Efrain writes:

[A] very unfortunate and preventable accident. In my flying experience of 23 years, I have heard of and have been witness to people saying two of aviation's most terrifying words: **“Watch this!”** They are usually followed by something stupid, unsafe, or illegal being done. In my case, we were lucky that the situation didn't turn into a disaster; however, the potential was there. I suggest that if you ever hear those words from a pilot, you should simply say, **“I'd rather not.”** You may save a few lives by doing so.

Thanks, Efrain. The trouble is that most passengers don't know enough about airplanes to do anything but trust the pilot implicitly. Keeping them safe from ourselves is our responsibility. Reader Don Smith continues the conversation:

FLYING LESSONS Weekly Tom: The comments on Howard Pardue's accident are interesting. Let me add one more observation. Howard was a superb pilot, and not old enough, at only 77, to be written off as unable to cut the mustard any more. It is virtually inconceivable that made a mistake in flying technique; he'd done the maneuver hundreds of times. Also the plane (F8F) is small with all the power in the world, so he didn't run out of power.

What, then, might have happened? One possibility is a broken seat belt or mistake in fastening the 5-point receptacle that is common in aerobatic planes. That clasp is made of steel, so the severe fire would not have melted it as it would aluminum ones. If the NTSB decides to do a careful analysis of the wreckage remains they might find some clues about what happened to cause him to lose control. If they write it off as too severely burned to bother with, we'll never know, and indeed we may never know anyway. If it was a broken seat belt, the fire would have obliterated all the evidence.

To which I replied:

Absolutely, Don. It could have been any number of mechanical causes.

The theme of *FLYING LESSONS* is to use a recent mishap as the jumping-off point to discuss broad topics of risk management. Howard Perdue's crash got a lot of press [last] week, and it reminded me personally of the hazards of risky behavior including the progressive acceptance of extreme risk as "normal," inviting pilots to go just a little further next time.

Don responds:

I absolutely agree with your premise; that rolls or other aerobatics on takeoff, even in a vastly over-powered plane like an F8F, are not now and will never be on my bucket list, lest it be the last item to be accomplished. There is no margin for flying mistakes (again, probably not a factor in this case,) mechanical malfunctions, unanticipated wind currents, or other events that cannot be anticipated or even influenced by the pilot. If he'd been at altitude, surely he could have recovered control with nothing more than one small thrill. Your philosophy is exactly the same as mine; don't do it when the escape route is too narrow or even absent, because events beyond your anticipation or knowledge can happen.

I doubt that whatever happened was his fault, but he's still dead and another wonderful airplane is demolished beyond repair.

And that is the tragedy. Thank you, Don.

Reader Scott Rossow comments on recent *LESSONS* about engine failures in multiengine airplanes, especially when close to the ground:

Tom, thanks for all that you do for flight safety. I really have appreciated you for a long time.

Long time ago when I was younger and new to multi engine flying I read a short article I think maybe by [retired airline pilot and author] Dan Manningham. Question: "Where are you going to go when you lose one or both on this take off?"

Initially I thought about that after every run up before asking for take off clearance. Of course I got smarter as I flew and lived longer, and I started asking the question earlier and earlier in each flight planning. It is an important question and in my experience has helped me often and saved me, others, and some metal more than once. **Plan your flights. Fly your plans.**

Thanks again for the years of good effort and good work. Stay safe.

Thanks very much, Scott. You stay safe too.

Frequent Debriefing David Heberling writes about last week's *LESSONS* on unsafe acts, and the hazard of depending not on your skills or judgment, but simply on *luck* to determine the severity of the outcome. David writes:

Luck. I know I have been lucky at different times during my aviation career. That is obvious, because, otherwise how would I still be here? I believe that **there is a certain personality type that cannot resist pushing their luck**. I am not one of them. The events I am thinking of scared me too much to want to repeat them.

There are more [events] than I want to recount in an email, but here are two of them. I was sent from Rochester, NY in one plane to Skaneateles, NY to pick up another airplane. The weather was beautiful in KROC, but by the time I got to Seneca Lake, clouds had rolled in and the ceiling was fairly low. I landed in OG7 (Seneca Falls) to see how the weather would develop. After an hour or so, I took off again and went VFR on top [sic]. I was hoping to find a hole to descend through that would get me to Skaneateles Lake. I would then fly up the lake to the airport, 6B9. Reality was far different than I had anticipated. I found the hole, but when I got below the ceiling, it was dark and murky. Since I had a large feature like the lake, I could orient myself properly. I finally found what I thought to be the airport, but I saw a car crossing the runway. That was rather confusing. Once the car was gone, I landed uneventfully. I was a solo student, only 16 at the time, and had had enough for one day. I stayed overnight at an FBO employee's house. The next day was gorgeous and I flew back to KROC.

The other occasion for luck to bless me was when I took some friends from High School flying (I was 17 now and had my [Private Pilot certificate]). With three of us in the Cherokee 140, we were heavier than I had ever flown in one. Did I even think about a weight and balance calculation? Or how about a performance calculation? Not at all, that is why I needed lots of luck that day. I took my friends down to [a] grass field south of the NY State Thruway. It was a favorite of us lineboys. This airport had a large hill on the north departure with a road and telephone wires on top. On the other side of the road was a large gravel pit. When we landed there, we landed to the north. I do not remember what the wind was doing that day, so I cannot say with certainty why I decided to take off to the north, other than that is the way we landed. Taking off to the south, you flew over open fields and no obstacles. Despite that, I took off to the north. This was the month of June and it was hot outside. Our take off roll took us past the point that I normally lifted off at. I was starting to sweat now. As we neared the end, I saw the hill looming ahead of us. I was really sweating now. There was no room to stop. I did the only thing I could. I popped on two notches of flaps and the airplane floated off of the ground. We flew in ground effect up the hill, and over the power lines. I dove into the gravel pit to pick up speed and bleed off the flaps. We climbed out normally after that. My friends never realized that all of that was not in my original plan.

Yes, luck plays a part in so many parts of our lives. **Some people learn from their close encounters, others come back to them time and time again.** This is more of a psychological problem than strictly an aviation problem. I think that is why getting the accident statistics to a much lower level is such a hard problem.

Thanks very much, David. I cannot conceive of an instructor who would direct and (presumably) endorse a student pilot to fly a solo cross-country flight under the conditions in your first experience, the airplane delivery and pick-up flight with lower conditions near and at the destination. At the very least the CFI, who (unless this was very long ago) was instrument rated, would have flown the trip up with you after checking the weather, and then (if conditions were good enough) sent you homeward toward improving conditions alone if needed.

Your second example points to deficiencies both in the instructional “system” and the evaluation process (Knowledge and Practical Tests) used to certify pilots—if instructors, test writers and examiners had done a better job, it would never have occurred to you to try the uphill, heavy, hot-day takeoff without calculating performance, and determining an on-the-ground takeoff abort point beyond which you would chop the throttle and brake to a stop on the remaining runway. Any deficiencies in instruction would be uncovered by the written test, the oral exam or the checkride, and the pilot trained to proficiency on the deficient items before a retest.

Someone did *something* right, because you knew in that particular type of airplane it helps briefly to “pop” the flaps down at liftoff, and you apparently had learned enough about ground effect to take advantage of the limited ability to fly close to the ground. Good on you for pulling those tricks out of the bag when they were desperately needed.

Unfortunately this pattern of (the lack of) risk management training seems to be self-perpetuating, in part because many instructor pilots are inexperienced in terms of flight, in judgment, or in teaching ability...or all three—you don’t have to be high-time to manage risk or teach flying, just as having a lot of flying time makes you a good risk manager or teacher of flight. It seems our entire industry sometimes depends on luck.

AMCC 2.0

The [Aviators Model Code of Conduct](#) (AMCC) is now available in [version 2.0](#), a major update of the original. “Drawing on decades of research and experience,” the Model Code “presents a vision of excellence for aviators,” and suggests specific behaviors designed to enhance safety, manage risk and reduce the general aviation accident rate. Organizations and individuals are encouraged to adopt the principles of the Code and adapt them to their own operations. The companion [Flight Instructors Model Code of Conduct](#) (FIMCC) presents similar guidance and opportunity for flight training organizations and individual aviation educators.

[Additional Mode Codes](#) are available for Aviation Maintenance Technicians, Glider Aviators, Light Sport Aviators, Seaplane Pilots and Student Pilots.

AMCC 2.0 provides personal and organizational safety management guidance in these areas:

- I. General responsibility of aviators
- II. Passengers and people on the surface
- III. Training and proficiency
- IV. Security
- V. Environmental issues
- VI. Use of technology
- VII. Advancement and promotion of aviation

Developed by the [AMCC Permanent Editorial Board](#) (full disclosure—I’m a member), the AMCC and FIMCC have received extensive industry peer review, and have been adopted by numerous aviation groups and training providers. Each Code document is available in several languages.

See:

www.securav.com/
www.secureav.com/AMCC-v2.pdf
www.secureav.com/FIMCC-v1.0.pdf
www.secureav.com/PEB.pdf

A safety issue

The April issue of EAA [Sport Aviation](#) was especially oriented toward safety information. Editor J. Mac McClellan personally gave us a couple of excellent observations. In his article “Loss of Control,” Mac writes:

“When we are out there by ourselves, only self-discipline can save the day.”

And in “What to Do About Weather Forecasts” he advises:

"How do you go places in airplanes? You depart when the weather is good enough, and then continue only as long as it remains good enough."

Great advice!

See www.eaa.org/magazines/

Freedom. Choices. Responsibility.

[Cirrus Design](#) issued a much-hyped media release today that told us what most expected to hear—that design and certification of the Cirrus Vision SF50 single-engine, V-tailed jet has resumed under financing from Cirrus’ Chinese investor/owners. Most notable to me is this gem of a statement hidden within the text of the Cirrus website, aimed at the new pilot who may be a future SF50 owner:

“...you aren’t merely taking up a hobby; you are choosing a whole new lifestyle, one full of freedoms, choices and responsibilities unlike anything else.”

This is a phenomenally positive statement, in my opinion. Especially from a company that has taken tremendous strides forward from its early days, when a company founder told me at Oshkosh he didn’t want to create any training materials for the (then pre-certification) Cirrus SR20 because “if you tell people it’s more challenging to fly than a Cessna 182 no one will buy it.”

Early accident experience caused a truly remarkable change in attitude by the company, which now boasts one of the premier pilot training organizations and safety cultures in owner-flown aircraft. Despite a misguided marketing push several Oshkoshes back (suggesting a disregard for weather considerations in flight planning, [as I wrote about](#) in 2007), that pilots in the company told me was not company policy and which was quickly withdrawn, Cirrus really does stress the safety message **for pilots who are willing to listen, and modify their behavior** when they learn something new to them.

I applaud this subtle message in the story of the SF50, which with luck will be a winner for Cirrus and, therefore, all of us in general aviation. I like the concept so much—**Freedom. Choices. Responsibilities**,—that I’m changing the tag line beneath my signature to reflect this priority, and challenge all pilots and instructors to make this the mantra of what it means to participate in personal aviation. Thank you for summing it up so well, Cirrus!

See:

www.cirrusdesign.com

www.avweb.com/news/leadingedge/leading_edge_11_flight_without_delays_196525-1.html

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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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