



FLYING LESSONS for June 28, 2018

by **Thomas P. Turner**, Mastery Flight Training, Inc.
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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:

Yet another tragedy this week, from a [local news account](#):

Two people died Sunday near Detroit [Michigan's] Coleman A. Young International Airport when a Cessna 210 crashed and exploded. The third person on board...appeared to have escaped the wreckage with help from witnesses. As the plane descended, it hit a tree and flipped over, catching fire...the people who helped free the [passenger] used baseball bats to break glass in order to reach him inside the burning wreckage.

The pilot had reported having a problem with the plane's landing gear and was low on fuel short[ly] before the accident, according to a statement from the Federal Aviation Administration.

Both the FAA and National Transportation Safety Board will be investigating the crash. The NTSB is expected to release a preliminary report within 10 days.

See <https://abcnews.go.com/US/small-plane-crash-kills-detroit-witnesses-rescue-pilot/story?id=56134257>

Reports are that the two who died were parents of the 17-year-old boy who was "critically" injured...and that the pilot had purchased the Pressurized 210 just a week earlier. Before that he reportedly "hadn't flown in the last decade."

[A] lifelong friend...told [reporters] that [the pilot] and his family lived outside of Houston and flew from Arkansas Sunday night for his daughter's volleyball tournament in Detroit this week. He said that [the pilot] owned two restaurants in Texas and only recently bought the plane but not flown recently. He recalled a conversation he had with another friend. "I said...I don't think he's flown. I said he used to fly a lot back in the 80's and 90's and he said you know...I felt really uncomfortable 'cuz he said I don't think he's flown in a long time. He said I don't think [the pilot] needs to be flying that airplane until he learns it," [the friend] said.

See <http://www.kathrynsreport.com/2018/06/cessna-p210-pressurized-centurion.html>

The final flight was flown VFR at 11,500 feet and was on radar three hours and 14 minutes...which depending on how the pilot managed the engine and how long he circled the airport addressing the landing gear malfunction after arrive at destination, may indeed have put it in a state where fuel starvation or fuel exhaustion may have become possible.

See <https://flightaware.com/live/flight/N3896P/history/20180624/2043Z/tracklog>

We don't yet know what precipitated the airplane's loss of altitude and ultimate collision with the ground. Hopefully we'll learn more as the NTSB begins its investigation. We do have this very preliminary information from investigators:

According to [an] air safety investigator with the National Transportation Safety Board of Chicago, the pilot was in communication practically the entire flight. "The pilot reported a landing gear anomaly or a

malfunction of the landing gear," [the investigator] said. "The pilot made it clear it was a fuel related issue with the aircraft...."

In the context of recent *LESSONS*, this horrible event is yet another reminder of why we should not plan our flights to the extremes of the airplane's fueled range. It is likely that the pilot—if reports are correct, with little recent experience and new to the airplane—was under stress from a landing gear malfunction that was greatly exacerbated by the knowledge that his fuel was running out. We don't know what happened at Detroit. But as it says at the top of each week's report, *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.

Over the past several weeks other events have prompted two discussions about fuel reserves and the need to arrive when plenty of fuel in the tanks. This week's sad event adds a third. The three scenarios are:

- **The temptation to try to "stretch" a flight** to arrive nonstop, especially if a fuel stop would be required very close to destination and/or if there is a financial incentive to arrive with as little fuel remaining as possible, in the form of lower fuel prices at home base. A recent example is the vintage PT-26 that ran out of fuel across the street from its based airport after overflying numerous other airports, in [the June 7 report](#);
- **A closed runway** when you arrive, caused by a disabled airplane, obstacles or animals on the runway, hazardous weather or other last minute, unforeseen circumstances. I wrote in [the June 16 report](#) about a go-around, diversion decision and an hour-long hold when a Piper Meridian blew a tire on the runway as I was on short final approach; and now
- **A system malfunction or abnormality** that has you spending time unexpectedly circling while you attempt to deal with the problem...with the added stress of knowing that time is running out as the fuel gauges creep toward empty...as illustrated by this week's example.

See:

<http://www.mastery-flight-training.com/20180607-flying-lessons-2.pdf>

<http://www.mastery-flight-training.com/20180616-flying-lessons.pdf>

There are other ways to run afoul of fuel reserves in airplanes, including fuel starvation (mismanaging fuel tank selection), failing to actively monitor fuel level and requirements enroute, failure to use fuel totalizers properly, fuel leaks, and failing to account for where return fuel goes in some fuel-injected engines. Let's not create new examples of these in the coming weeks, OK?

It's gratifying that there seems to be a resurgence in pilots returning to the cockpit after long periods away from flying. Certainly one of the biggest success stories in recent years is the AOPA Air Safety Institute's "[Rusty Pilot](#)" seminar, which is filling aircraft hangars and airshow tents around the country. Friends and colleagues in the industry confirm that there has been a noticeable increase in used aircraft purchases in recent months.

See <https://www.aopa.org/training-and-safety/lapsed-pilots/rusty-pilots/rusty-pilot-seminars>

I applaud efforts to get pilots back in the air. I'm very happy that airplanes are changing hands, that the next generation of aircraft owners appears to be emerging. Pilots getting back into the cockpit—and the instructors who help them—need to know, however, that most likely it will take much more time, ground and flight instruction, and effort than simply a couple of hours in a classroom and a quick Flight Review...regardless of how much experience they had before they quit flying, and especially in a complex, high performance or technologically advanced aircraft.

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See https://www.pilotworkshop.com/how-much-risk?utm_source=flying-lessons&utm_medium=banner&utm_term=&utm_content=&utm_campaign=risk&ad-tracking=fl-risk

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Debrief: Readers write about recent *FLYING LESSONS*:

More readers write about their personal minimums:

*Personal minima...*No night flight, hard IFR day or night, no flying above a cloud layer in a single-engine airplane. All that was utterly routine in the twins I flew, so *I am not worried about the pilot, it's the people my airplane might hit if it should lose its only engine.* – Arthur Bridge

Thank you, Art. I'm sure some readers will answer back, "the engine doesn't know it's nighttime, or in instrument conditions, or over an overcast"—or over water, or mountains, or large urban areas, or anything similar. That's an incomplete view of the situation, however. As you appear to agree, Art, it's not that the engine is any more likely to fail in one of these environments than it is over flat Kansas on a sunny afternoon. It's that the *consequences* of an engine failure *if it should occur* are much more dire under reduced-options conditions. How an individual pilot manages this risk is a very personal decision. Like you, I consider the possible consequences to persons on the ground as well.

Good posts about fuel minimums, and some good points. Surprising how many would continue to land with less than their minimums based on their fuel totalizer.

I could argue that if the airport is in sight and landing is assured one could continue with the fuel totalizer showing they would touch down with their minimums or slightly less. However, it would need to be an airport with two runways (usable is one were closed) or a nice taxiway. The chances of someone closing it prior to arrival is very rare, but we must be prepared to deal with it.

There's nothing wrong with maximizing the capabilities of the plane and planning for long-range travel... even to land with minimum fuel. But there's a strong argument to *be prudent if conditions change* along the way necessitating a stop. And with our GA planes, there's often many alternate airports and options along the way.

Also, [I] could argue that folks *establish a "minimum fuel" state, and declare it when fuel shows close to their mins.* And that could be declared several miles out, with no need to divert UNLESS it's clear that the mins will be compromised. ATC takes that into consideration and the goal is then to "minimize" any delays, but you have them on your side. However, *it's still the pilot's responsibility* to be sure they have their minimum fuel.

And, *there's a point when must declare a fuel emergency...* a point where fuel is critical and clearly below the minimum. One must decide what that is. For "me", in my Baron, *my minimums are 1 hour at low power cruise* to have wheels on the ground, and if close it's min fuel. I've declared min fuel numerous times, never an issue, and occasionally it doesn't work. Controllers are very good about working with a min fuel situation. Surprisingly, I declared mins once on takeoff. Strange, but the loading complying with landing weights and alternate reserves required this. This was not the Baron.

Occasionally the min fuel and alternate fuel is more than enough to return to the point of departure, or further. This happens with widespread low ceilings where there just is not a good alternate close by. One recent flight required to top off with Signature prices to meet my comfort level for the flight. This was a little over an hour flight, but weather was

at minimums for departure and below for the destination, so it was prudent to have at least 4 hours of fuel on board. On the other hand, I've enjoyed many long-range flights, often with power adjustments to make the destination with mins and has worked well.

As for emergency fuel, *my [emergency] point is anytime that the landing will have less than 45 minutes, VFR or going to an IFR alternate*. Never had to use that, and never landed with less than the 45 minutes. While some will say that's too conservative, I could argue that **things tend to go from bad to worse** at times, and really don't need that when low on fuel. - Larry Olson

Excellent logic, Larry. I personally differ only on one point: I would not consider the presence of absence of a taxiway to be the equivalent of a second runway at my destination as far as that might impact my fuel decisions. In other words, a taxiway is not the "normal operations" equivalent of a second runway. It is indeed an emergency option—I didn't bring it up when reporting on my experience with the closed runway when the preceding airplane's tire blew, but for a fleeting moment it *did* occur to me. Just as quickly I dismissed the idea, with so very many nearby airports available to me as options. With that one exception, my logic is similar to yours. Thanks!

Thanks for your weekly column, I find it valuable and good food for thought. This week's [June 16] was timely for me as I plan and fly from California to Rockford [Illinois] for the [Bonanzas to Oshkosh flight](#) and then from Oshkosh back to California. I'm considering using the tip tanks, which I rarely use, to fly back to California with only one fuel stop, I may be alone and can fly long legs. [I] would not consider this without a functioning autopilot.

My personal minimum fuel is 45 minutes (VFR, more depending on weather for IFR), no exceptions. Got to have time to go to an alternate and manually lower the gear if necessary (Beech Debonair), which I have practiced in flight during [Beechcraft Pilot Proficiency Program training](#). Once on a formation flight practice at Rockford I declared [bingo fuel](#) after a one-hour flight had gone an hour and 45 minutes and I was getting down to 45 minutes of fuel remaining. The leader of the flight chewed me out during the debriefing, said he never wanted to hear bingo fuel from a wingman, poor planning. I defended myself and said that was after an hour and 45 minutes on a flight that was briefed for one hour. Didn't regret declaring bingo fuel at all and was certainly not embarrassed about it! – Stan Stewart

I agree with your declaration of minimum fuel on this formation flight, Stan. I also strongly disagree with the formation leader for "chewing you out" for declaring a very real and very serious safety concern, regardless of the circumstances. You had planned for the flight as briefed.

One of my personal reservations about amateur, recreational formation flight is the feeling (and peer pressure) that a pilot should defer safety-of-flight decisions to a formation lead. Quite simply, unlike the military **there is no provision in the Federal Air Regulations for delegating your Pilot-in-Command responsibility to someone outside of your aircraft**. Another is a tendency you mention here and I've personally observed in admittedly the only two times I've been a passenger on a formation flight, to deviate substantially from the preflight briefing. That certainly would not happen in a non-combat military environment, not at least without serious career consequences for the formation lead. **If you find yourself facing a safety-of-flight decision while participation in a mass or formation flight, it's your responsibility to exit the formation** using the briefed exit procedure and complete your flight on your own. Anyone who takes you to task for that has no business flying in close proximity to other aircraft. My many friends who participate in formation flight will no doubt privately "chew me out" as well, but the reality is that **no one but you are responsible for the safe outcome of your flight**.

OK, I've got that out of my system. To your larger point, 45 minutes on a 2000-mile flight at times over some very un hospitable terrain is not a lot to work with. To use your example, for instance, manually extending the landing gear in a Beech Debonair takes 15 or 20 minutes or more, from the time you notice the need, climb to a safe altitude away from the airport, suffer through the actual extension process (Beech pilots know what I mean) and then return to the airport to land. Even a little change in the wind will substantially impact time en route over those distances. Note that on a Chicago-area to California flight the point where you might need to divert from a suddenly-closed airport or an unexpected weather condition may well be a location in the mountains where there are few nearby alternate airports, and you may have to fly a very circuitous route through mountain passes to reach that alternate.

Monitored very closely it can work, *if you're willing to divert very early if it even begins to seem like things aren't going to work as planned. Enjoy your flight, and I'll see you at Oshkosh.*

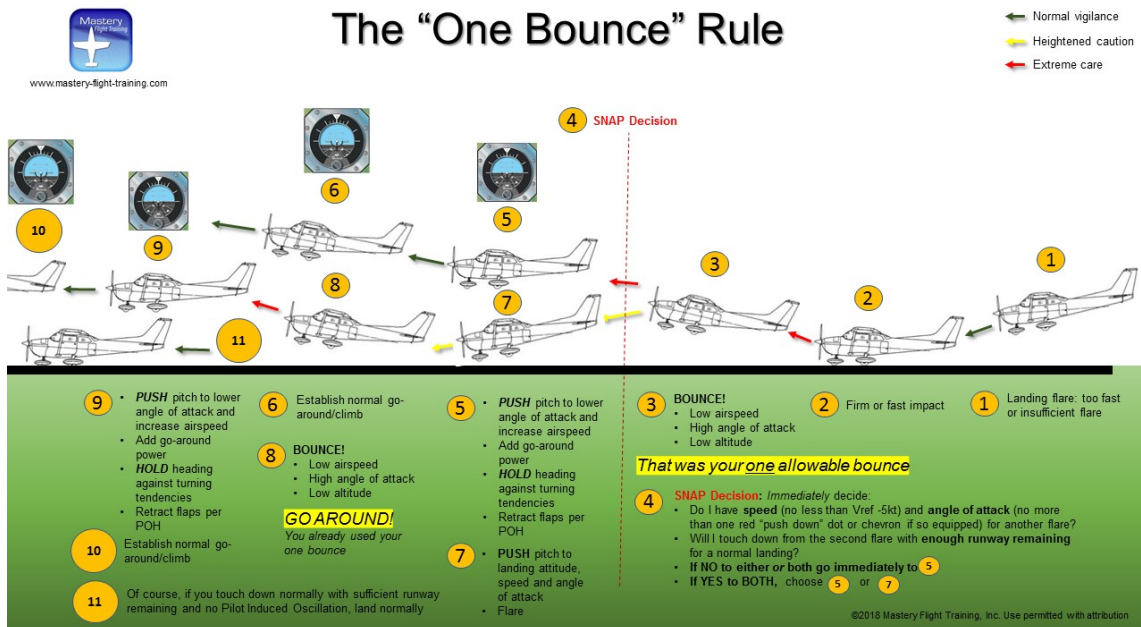
See:

- www.b2osh.org
- <https://www.bonanza.org/training/pilot-training/>
- <http://guidance.aero/bingo-fuel-never-say/>

Stan also wrote:

I just read this week's *FLYING LESSONS* and looked at the [weekly Beechcraft accident reports](#). Regarding the Sierra's nose wheel collapse on landing, I recalled seeing a Musketeer/Sundowner (can't remember which) nose gear collapse on a bailed landing where the pilot bounced the landing, touched down again, bounced again, and on the third (nose low) touchdown broke the nose gear. **Large magnitude pilot induced oscillation.** Although that series Beechcraft is particularly nose heavy (I owned a Musketeer in the 1970s) with a higher percentage of the aircraft's weight on the nose gear than most other light GA airplanes, *the issue of bailed landings is relevant to all pilots.* Food for thought: a column on bailed landings, **pilots need to go around after a significant bounce instead of attempting to salvage the landing.** In the case above, I asked the pilot why he did not go around after the first bounce, he replied it was a friend's airplane and he was unsuccessfully trying to find the throttle to go around, apparently he was landing without a hand on the throttle!

Thanks again, Stan. Check out [Pilot-Induced Oscillation and the One-Bounce Rule](#) in the February 28, 2018 *FLYING LESSONS Weekly*.



See:

- <http://www.mastery-flight-training.com/beece-weekly-accident-updat-2.html>
- <http://mastery-flight-training.com/20180208-flying-lessons.pdf>
- www.mastery-flight-training.com/one-bounce-rule.pdf

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