



FLYING LESSONS for October 18, 2018

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.**

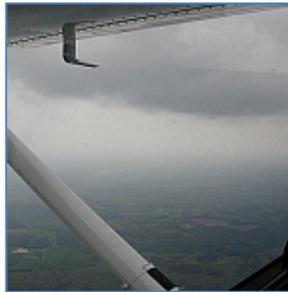
FLYING LESSONS is an independent product of MASTERY FLIGHT TRAINING, INC. www.mastery-flight-training.com

Pursue ***Mastery of Flight***

This week’s LESSONS:

We’ll launch right into the readers’ Debrief this week.

Questions? Ideas? Opinions? Send them to mastery.flight.training@cox.net



How Much Flight Risk Should You Accept?

[Watch this video](#) for a thought-provoking answer to this important question.



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

Readers, please help cover the costs of providing *FLYING LESSONS* through the secure **PayPal donations button at www.mastery-flight-training.com. Or send a check to **Mastery Flight Training, Inc.** 247 Tiffany Street, Rose Hill, Kansas USA 67133. Thank you, [generous supporters](#).**

“...your envelope of safety may have some sharp edges.”

- Well-known Cirrus instructor Rick Beach

Rick shares his personal experience that brought that thought home in his recent article “[That Sounds Expensive: It Happened to Me, Could it Happen to You?](#)”

It *can* happen to anyone...we must all be on our guard at all times. Even when it’s personally painful you’re thinking of making the rest of us safer, Rick. Thank you very much for letting us learn from your experience.

See https://www.cirruspilots.org/copa/safety_programs/b/pull_early_pull_ofen/archive/2018/10/14/that-sounds-expensive-it-happened-to-me-could-it-happen-to-you.aspx

Debrief: Readers write about recent *FLYING LESSONS*:

Reader, air crash investigator and Lancair Owners and Builders Organization ([LOBO](#)) president Jeff Edwards writes about [last week's LESSON](#), **Willful Noncompliance**:

Great article--perhaps one of your best. Procedural Intentional Non Compliance (PINC) is a well-researched phenomena affecting the pilot population. I know in our [Lancair] community over 50% of the accidents have PINC behavior. NBAA researched this phenomenon using [FOQA data](#) following the [Bedford, Mass Gulfstream crash](#) [in which NTSB found the jet's control locks were engaged during attempted takeoff, killing seven] and found that, "The data shows that out of 143,756 flights conducted during the 2013 to 2015 time period, flight crews conducted a partial flight-control check before takeoff (caution event) during 22,458 flights (15.62 percent). There was no flight-control check before takeoff (warning event) conducted on 2,923 flights (2.03 percent). For the three-year period covering 2013, 2014 and 2015, the overall noncompliance rate for manufacturer-required routine flight-control checks before takeoff was 17.66 percent, reflecting 25,381 events...

In the month prior to the final accident report issuance, there was a noticeable drop in caution events followed by a gradual increase again to 17.66 percent noncompliance rate – the average for the 2013 to 2015 period – by Dec. 2015. *The noncompliance rate for warning events reached its low of 0.91 percent approximately five months after the accident occurred and returned to the average warning noncompliance rate of 2.03 percent by the end of Dec. 2015, three months after the final accident report was issued.*" Interesting to [read the full report](#) and note that compliance improved after the preliminary and final reports were issued but six months later the compliance rates were at the same level as before the accident.

Some PINC behavior can be particularly egregious and cause or contribute to fatal accidents. Recently, [a Cessna 150 piloted by a 56-year-old ATP airline captain with his 16-year-old son crashed](#) near Festus, Missouri. The pilot and his son set out the accident afternoon attempting to fly to Festus, near St. Louis. They crashed at 2230 CDT. **The wreckage was found with less than three gallons fuel onboard. The electrical system was inoperative.** The pilot texted his girlfriend to turn on the runway lights because his handheld radio was out of battery power.

In another case, [a Cessna 335 crashed in Lantana, Florida](#) on September 9, 2018, killing the pilot and his wife. The owner/pilot had his pilot certificate revoked in 1997, but continued to fly anyway.

The general aviation culture needs improvement.

Keep up the great work!

See:

<https://www.lancairowners.com>
https://en.wikipedia.org/wiki/Flight_operations_quality_assurance
<https://www.ntsb.gov/investigations/AccidentReports/Pages/AAR1503.aspx>
<https://www.nbaa.org/ops/safety/flight-control-checks/nbaa-report-business-aviation-compliance-with-manufacturer-required-flight-control-checks-before-takeoff.pdf>
<http://www.kathrynsreport.com/2018/09/cessna-150h-n7152s-fatal-accident.html>
<https://aviation-safety.net/wikibase/wiki.php?id=215234>

Thanks, Jeff. Your two most interesting points (besides validating my work) are:

1. The pattern of **temporarily changed behavior** after the facts of an accident reach the blogs, internet chat board and traditional aviation press, but with **behaviors returning to pre-event patterns** by the time the NTSB final report comes out (or shortly after).
2. The apparently **pervasive nature of willful noncompliance** at all levels in the pilot population.

Point 1 is human nature. Point 2 probably is also. We pilots are a can-do lot (a "macho" attitude), throw in modern society's distrust of regulation (anti-authority behavior), a feeling that the rules are for persons with lesser ability and therefore do not apply to me (invulnerability), and the feeling that things must be done quickly (impulsive behavior) and after all, we've got places to go and people to see regardless of the obstacles (resignation), and you'll see how all five of the so-called "[hazardous pilot attitudes](#)" are in play on every flight.

Most discussion of pilot attitudes talk about how we need to avoid using them to make decisions. I think more in terms of **balancing these attitudes**, because with them we may be bad decision-makers, but without them we would probably not be pilots at all. By this I mean:

1. **Machismo.** Would you take off as sole manipulator of the controls of an airplane if you *didn't* think you could do it?
2. **Anti-authority.** Most of society tells us we are crazy to fly "little airplanes." If you followed authority blindly you'd never learn to fly.
3. **Invulnerability.** Similar to machismo, you need to have some level of confidence in aviation's often unforgiving conditions.
4. **Impulsiveness.** Sometimes we have to act quickly in flight—in emergencies, or in a simple crosswind landing. We can't always be methodical and deliberative.
5. **Resignation.** Sometimes you have to submit to authority, whether it be air traffic control, regulations, or airplane limitations. You don't want to do things because of external pressures, unless you *have* to do things because of external influences in an emergency.

Rather than try to stoically avoid the Five Hazardous Attitudes, we should recognize that they are all part of who we are as pilots...and will affect the way we think. Our task is to **ensure that none of these attitudes becomes dominant over our decision-making**. For example, and to circle back to this week's discussion, when your anti-authority and invulnerability prompt you to think you can violate the rules and good operating practices and get away with it, that you can be **willfully noncompliant**, balance that with resignation that the rules *do* apply to you.

Steve Brown, Chief Operations Officer of the National Business Aviation Association (NBAA), said at this week's NBAA [Single-Pilot Safety Stand-Down](#):

All of us can lead from anywhere, regardless of our formal position. We all have influence within our own spheres. We need to look at ourselves and think about what we can do within our own organizations to improve safety.

Be an example. **Be willfully and intentionally compliant** with the rules and good operating practices, and model that behavior for others.

See:

<https://www.aopa.org/news-and-media/all-news/1999/september/flight-training-magazine/hazardous-attitudes>

<https://www.nbaa.org/events/single-pilot-safety-standdown/2018/>

Harkening back a few weeks to our discussion of checklists and mnemonics, reader Chris Ceplecha writes:

I'd love to see you address the old "GUMPS" check that is the standard in general aviation. My wandering thoughts are as follows: **Approaching the field, especially in the pattern, is *not* the time to be switching [fuel] tanks.** About two decades ago I established a habit pattern of selecting the tank that I wanted to land on at altitude, just prior to descent. As a normal pattern I want to switch to that tank at a time when I can deal with a power interruption in a non-critical time environment.

Last night I was re-accomplishing some of the American Bonanza Society's BPPP ground school and I noticed that ABS/BPPP recommends the same, i.e., switch tanks at altitude prior to descent. On the ground you select the tank that you are going to take off on in the chocks, where you have the full taxi and run up to prove that fuel will travel to the engine uninterrupted.

The "G" in GUMPS, as I recall, stand for Gas, i.e. selecting the most-full tank. **If you follow that mnemonic checklist and switch tanks in the pattern, you set yourself up for fuel starvation at a critical time.** Personally I never use GUMPS. I lead with the gear to go down, lowering the gear at glideslope intercept or on downwind, and verify it is down on downwind, on base, on final and approaching the numbers. I recite to myself, "gear down, flaps XX". I honestly try to check it four times. I have caught myself on the second check vs. the first more than once.

I was taught in the USAF that there is NO EXCUSE for an inadvertent gear up landing. NONE. In fact, if we did it we could look forward to a board meeting and stripping us of our wings. If you could not get the gear down, that was a different story, but forgetting was inexcusable. In fact we were required to call over the radio "gear down." The gear check is seared into my memory. I had to eject out of an F-5 back in 1986 due to a gear malfunction, and ended up with a broken back as a result. So, I am quite sensitive to the gear lowering issue.

I bring all this up because I simply believe that the GUMPS check is one of many poor examples of standards that exist in general aviation. Tanks should be switched on descent, and the gear down and locked checked multiple times on an approach or during a VFR pattern. Since you have the attention of many, many instructors and pilots, and if you agree with my sentiment, perhaps this is a subject for discussion.

The pervasive GUMPS check prompts pilots of retractable gear airplanes to check these things:

Gas. *Verify* that the fuel selector is ON, in those rare airplanes with ON/OFF tank selection or a BOTH tanks setting, or that it is set on the fullest main tank.

Undercarriage. Extend the landing gear and confirm the gear is down.

Mixture. Advance the mixture control to Full Rich or as required for field elevation, so it is pre-set to develop power in the event of a go-around.

Propeller. Similarly, advance the propeller(s) to high RPM. This gives the airplane single-lever power control (the throttle) in the event you have to execute a balked landing.

Switches. Reset any switches needed before landing, most notably, turn off a yaw damper if installed, so it does not fight against your rudder inputs during landing and rollout.

I do not personally teach nor do I use the GUMPS check either, for precisely the reason you state: if you do GUMPS in the airport traffic pattern and find the fuel selector is not where you want it, what do you do then? Switch tanks, even if it is bad operating practice? Leave the selector where it is, effectively making the “G” check in GUMPS irrelevant? What is the purpose of the G in GUMPS at all?

Since you mention it, I did a short video called “[Using GUMPS](#)” that is on the American Bonanza Society website but that is viewable to the public. Most of that video reinforces the need to make the final fuel tank selection at Top-of-Descent (prior to leaving final cruising altitude), and *not* in the pattern where most pilots do a GUMPS check. Like you, I instead make my fuel tank selection there, extend the landing gear when descending below traffic pattern altitude, when intercepting a glidepath inbound on an approach, or in a traditional nonprecision approach, at the Final Approach Fix. I then use the point on final approach when I select full flaps as a reminder to do these things, a mnemonics I say aloud as I perform the steps:

- Full Flaps
- Full Prop
- Full Mixture
- Three green (landing gear indicators)

If the gear is not down at that point I don’t put it down, I go around and re-enter the pattern or approach to try again.

See https://www.youtube.com/watch?time_continue=12&v=HTs-YHK4Sa4

The real purpose most pilots use GUMPS is to confirm landing gear extension. Because the mnemonic is so pervasive among retractable gear pilots, in classroom presentations I make a point of this purpose and somewhat facetiously state that, if I was to use a GUMPS checklist, this is what it would be:

My **G**ear is down.

My **U**ndercarriage is down.

My landing gear is down.

Put the gear down!

S#&%, if the gear is not down, *go around!*

Many readers may be staunch advocates of the well-known GUMPS checklist. That’s okay, as long as you do not change the **Gas** (fuel selector) position close to the ground. Thanks, Chris.

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

Over-the-Counter Impairment

Impairment from medication, particularly over the counter (OTC) medication, has been cited in a number of accidents in general aviation. In a 2011 study from the FAA's Civil Aeromedical Institute (CAMI) Toxicology Lab, drugs and medications were found in 570 pilots (42%) from 1,353 total fatal-accident pilots tested. 90% of the pilots with positive drug results were flying under CFR Part 91.

Learn more about over-the-counter medications and their potential impact on your abilities as Pilot-in-Command in "[Pilots and Medication](#)," a pamphlet from the General Aviation Joint Steering Committee ([GAJSC](#)).

See:

https://www.faa.gov/news/safety_briefing/2018/media/SE_Topic_18-10.pdf
<http://www.gajsc.org>

Check Your Fuel Selectors

Worn components can lead to fuel starvation and sudden loss of engine power

The U.S. National Transportation Safety Board (NTSB) has issued two Safety Alerts warning of the hazards of mechanical failures of fuel selector: [SA-075](#) advises pilots regularly "Ensure Your Fuel Selector Works," and lists specific actions pilots can take to check their operation. It includes [a short accompanying video](#) that you might view individually or watch with local pilots or your flying club and then discuss it in your next safety meeting. [SA-076](#) warns mechanics to "Be Wary of Worn Fuel Selectors" and lists items to check during routine inspections. It also includes a [short video](#) complementing the Safety Alert.

See:

https://www.nts.gov/safety/safety-alerts/Documents/SA_075.pdf
<https://www.youtube.com/watch?v=ulYVU7Z0Lzk&feature=youtu.be>
https://www.nts.gov/safety/safety-alerts/Documents/SA_076.pdf
<https://www.youtube.com/watch?v=OxaWinzMtdA&feature=youtu.be>

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



Pursue Mastery of Flight.

Thomas P. Turner, M.S. Aviation Safety
Flight Instructor Hall of Fame 2015 Inductee
2010 National FAA Safety Team Representative of the Year
2008 FAA Central Region CFI of the Year
Three-time Master CFI

FLYING LESSONS is ©2018 Mastery Flight Training, Inc. For more information see www.mastery-flight-training.com, or contact mastery_flight_training@cox.net.