Thomas P. Turner's
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FLYING LESSONS for February 12, 2026

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 most 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 in your success as the 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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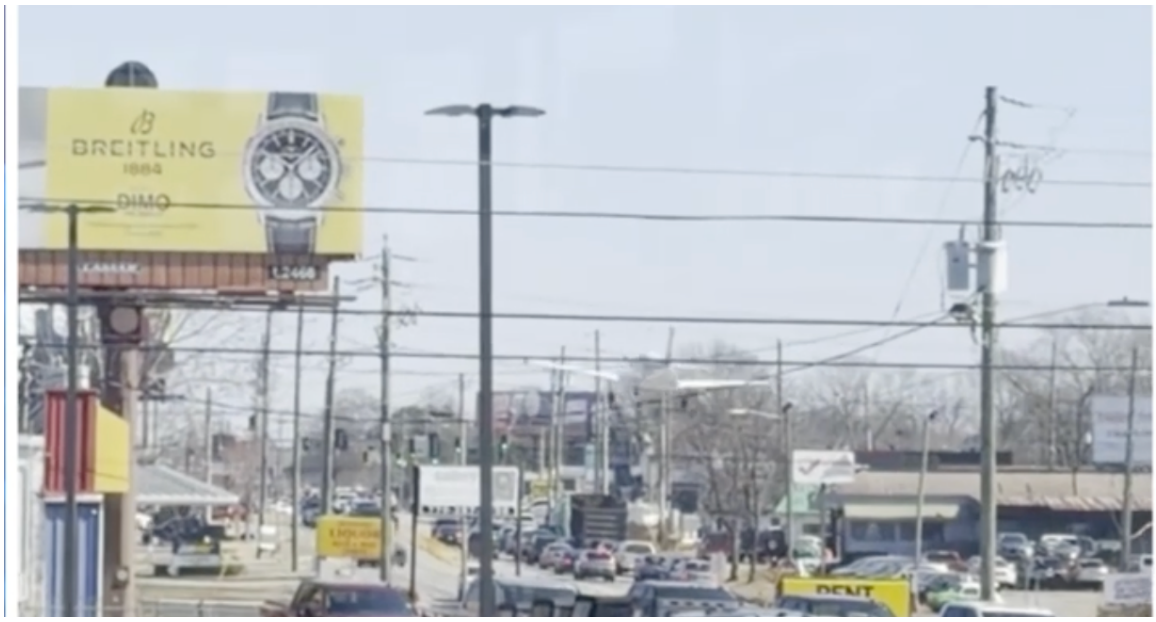
This week's LESSONS

No doubt you've seen this video, which has been played widely this week. The pilot of a G36 Bonanza, responding to engine failure, threaded his way between power lines and other urban obstructions before impacting on a busy street. The airplane collided with three automobiles and injured two persons on the ground. The pilot and his passenger emerged unhurt.



See https://www.wrdw.com/2026/02/09/i-love-them-so-much-ga-pilot-feared-message-would-be-his-last/

This was a masterful feat. Except for hurting otherwise uninvolved people on the ground—the sky literally fell on them as they sat—for the airplane's occupants there could hardly have been a better outcome.

From every flight, even those where nothing unusual occurs, there are *LESSONS* to be learned. My mantra in an off-airport landing is to touch down **wings level, under control** at the **slowest safe speed**. The pilot of this Bonanza attained the first to goals without question. The third—slowest safe speed—may be up for debate, but again I'm not going to criticize the pilot or nitpick the result. But as I'm sure the pilot is doing (and will likely be doing for a long time), we can use his experience to consider if there is anything we might do even better if we find ourselves in a similar situation.

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The airplane landed flaps up. From my own experience in this type of aircraft, flap extension reduces stall speed by about 10-12 knots. Using flaps and flying the appropriate speed would have reduced impact forces substantially. It might be that landing flaps up was a conscious decision required to get the airplane down between the wires and poles. For our larger education, however, if landing off airport without power, you should use full flaps unless some specific circumstance requires you don't.

When at Best Glide speed most airplanes are in a fairly nose-low attitude while still at a high angle of attack. The attitude is similar to that in an Airman Certificate Standards (ACS) Short Field landing, crossing the last obstacle or over the runway threshold at a steep angle of descent, often at near 1000 feet per minute descent.

Few light airplanes publish it, but there is a **second glide speed**, that for least rate of descent. Best Glide is generally designed to net the greatest forward distance for altitude lost…to get you from where you are to where you want to land with the engine out. The second glide speed, sometimes called Least Rate of Descent or Landing Without Power speed in those few *Pilot's Operating Handbooks* that mention this at all.

Least Rate of Descent speed won't get you the same distance across the ground, but it reduces your rate of descent and therefore minimizes impact forces when you touch down. It's somewhat analogous to Best Rate vs. Best Angle climbs…Best Glide is to Best Rate and Least Rate is to Best Angle.

The G36 POH in fact does publish both speeds, Best Glide being 110 knots and 83 knots…a significant difference. There's another factor to this slower speed. Without propeller blast even at idle power, there's less air flow over the elevator after an engine failure. Least Rate of Descent adds a little extra airspeed to provide enough elevator authority to flare and reduce impact forces even more. **That's why** Least Rate of Descent or Landing Without Power speed is about five knots faster than the usual over-the-threshold short landing speed. This works in all airplanes, although the differences may be less in some.

In many airplanes the Best Glide speed really seems to be close to a Least Rate of Descent speed, just a few knots above normal (short field) landing speed. For my Bonanza friends, that—and the closeness of the original-manual Glide speed and the later GAMA-format POH Landing Without Power speed for the same model, supports this thesis. In that case some experimentation might reveal a different, faster speed for maximum distance in a glide for those airplanes with slow published Best Glide speeds. **That would make an interesting exercise around which to build a Flight Review** with an instructor very experienced in the airplane you fly.

It's hard to tell in the video, but it appears the elevator was nearly fully up at touchdown and the airplane on the verge of a stall…the slowest safe speed. It may have been a hair *too* slow, because the vertical speed wasn't arrested very much. A type-specific aside: nose-heavy airplanes often reach full elevator deflection before aerodynamic stall, and the airplane "mushes" down at the high angle of attack and high rate of descent without experiencing a nose drop. From a control standpoint **a mush is a bad as a stall**. The late-model Bonanza and especially the G36 tend to be very nose-heavy airplanes with only the front seats occupied. The video suggests a mushing stall into the ground, salvaged by the type's extremely robust landing gear.

Another *LESSON*, then, is the difference between Best Glide and Least Rate of Descent/Landing Without Power speed in the airplane you fly, and to know and fly the proper pitch attitude to attain each speed when it is appropriate.

I'm always introspective when operating our airplanes injures (or worse) passengers—who at least on some level accepted the risk—or especially persons on the ground who just happened to be in your flight path when an impact occurs. I really do feel for the injured and legitimately traumatized persons on the ground in this event. The ethics of flying over cities and the practicality (or lack thereof) of flying there is a philosophical argument for another day.

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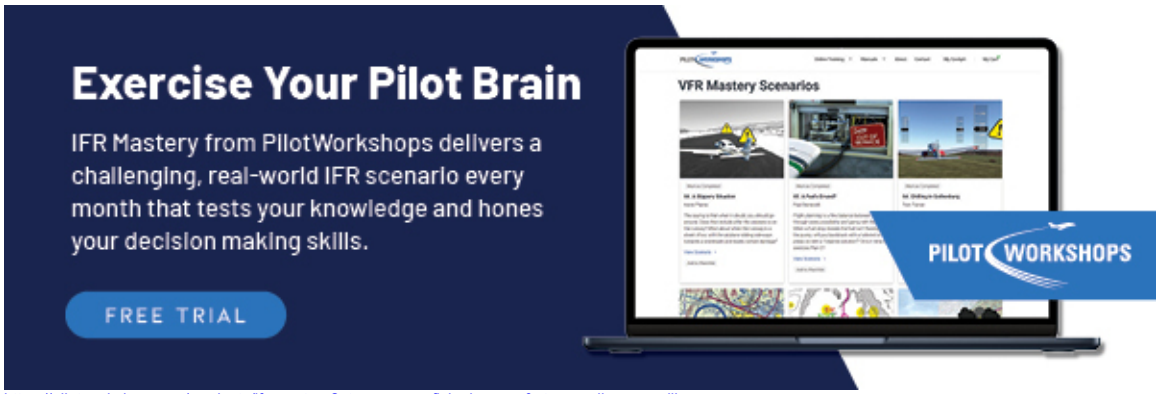
Overall the pilot of this G36 did an amazing job of getting to the ground without snagging a wire or pole that would have careened the airplane out of control and almost certainly killed its occupants (which, from the recorded ATC audio, was very much the pilot's expectation).

Even in success there are *LESSONS* to learn that might make the next outcome even better. I hope I'm able to speak with the pilot of this Bonanza some day to congratulate him and find out what *LESSONS* he draws from this experience.

A *FLYING LESSONS* reader emailed me asking me to compare and contrast this event with a recent Cirrus engine failure accident. Unless some major crash draws more attention before then, I'll address this comparison next week.

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



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Debrief

Readers write about recent *LESSONS*:

Reader and aerobatics instructor Anthony Johnstone writes about last week's *LESSONS* surrounding rudder use:

> Tom,
>
> Regarding your comments about needing left rudder in the T-41 coming downhill, this illustrates one of my (and, I suspect, many other instructors') pet peeves about the FAA's "left turning tendencies."
>
> The *Airplane Flying Handbook* states that P-factor is a left-turning tendency because you need right rudder in a climb. Indeed, you do (unless you are flying a Tiger Moth, Zlin, or Yak!). When I ask my CFI spin students about P-factor I get a rather entertaining variety of responses. The downgoing blade is traveling faster is the commonest one.
>
> Of course, the blade travels at the same speed all around the arc. What changes is the angle of attack depending on the flight path. The relative wind the blade "sees" is always 90 degrees ahead of the lift vector. If the aircraft is in level flight, the blades fly at the same angle of attack all around the arc.But pitch up for a climb, the descending blade AoA increases and the ascending one decreases. So, indeed, the aircraft yaws left needing right rudder to compensate.
>
> Put the aircraft into a dive, now the situation is reversed. The descending blade is flying at a lower AoA and the ascending one has the lift/thrust advantage and **you need *left* rudder** (as you saw in the Mescalero)!
>
> So labeling P-factor blindly as a left-turning tendency really does the aspiring pilot a disservice in understanding what is actually going on. **It can indeed be a "turning tendency" but whether it goes right, left, or neither depends on whether the airplane is going down, up, or level.**

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> The Curtiss P-40 was known for its diving ability which made it competitive with the Zero which could outturn it handily in a dogfight. It was also known for the massive amount of left rudder needed in a dive, such that is was said you distinguish a P-40 pilot by their incredibly well-developed left leg muscles!
>
> Gyroscopic precession is also labeled a left-turning tendency (also somewhat inaccurate) but that is a different discussion for another day.
>
> Keep the great newsletters coming!

Way back when I was first instructing and still owned a Cessna 120 I'd take my Cessna 152 students and a yardstick over to my (not-insured-for-dual-instruction) tailwheel airplane in the tiedowns. With the '120 in its nose-high stance on the ground I'd lay the yardstick flat against the back of one propeller blade and then the other to demonstrate the different angle of each blade at a high angle of attack. Then I'd go back to the tail and lift it up (some, this wasn't a light Taylorcraft!) and ask the student who would tell me the difference in the angle was less as the nose came down to simulate a lower angle of attack. If I'd have been able I might have (carefully) lifted the tail until the nose was pointed down to show the change that occurred in a descent. You can do this same demonstration in a light nosewheel airplane if you push down on the tail to raise the nose up, observing any recommendations against pushing down on the elevator (me being able to impart far less downward force on the tail that the airplane itself in flight). Thanks for your insights, Tony.

Instructor/reader Robert Lough adds:

> One useful training exercise on adverse yaw is to get a student to **rock the wings from say 15 degrees of bank either way, and observe the ovoid shape the wing tip traces due to uncorrected adverse yaw effect.** Then get the student to **practice this with rudder input and observe how the wing tip moves up and down in a straight line**.
>
> For the aerobatic student, especially in a non-competition airplane with positive camber wing, a slow roll exposes them to making a pronounced adverse yaw correction in the opposite sense while rolling through inverted. This **asymmetry between upright and inverted** can involve some footwork.
>
> Modern competition airplanes with symmetrical wings and 360 degree/second roll rates, have somewhat reduced the teaching opportunity of managing adverse yaw in a slow roll.

In my T-41A training—admittedly, less than 13 hours total, and when I was done I had around 20 hours total time—we did something called the Coordination Exercise. In level flight with the airplane's spinner pointed at a prominent landmark, roll the wing rapidly from (as I recall) 45 degrees bank in one direction to 45 degrees bank in the other and back again, using aggressive rudder inputs to keep the nose pointed at the landmark. It was a challenge, not to mention queasiness-inducing in the hot Texas sky.

Former TWA senior pilot and instructor Wally Moran, also well known as a sailplane pilot, instructor and (I believe) examiner, adds:

> Thank you, Tom, for an excellent review of rudder control. I often mention that I represent the "Misunderstood and abused rudders of the world." As a long-time glider instructor, I see lots of abuse and neglect of proper rudder use in the power world.
>
> My recommendation is to **take a few glider lessons** and you will quickly learn more about adverse yaw. Because the wings are longer and the vertical stabilizer is smaller, adverse yaw is much more recognizable in a glider.
>
> It also happens the same way in power planes, but it is not as noticeable to most pilots. But it's still happening, and the best pilots recognize it and compensate.

Many of life's aeronautical *LESSONS* are better learned in an aircraft without an engine. I've got around eight or 10 hours of sailplane time, all of it very old…maybe it's time for me to get some more. Thank you also, Wally.

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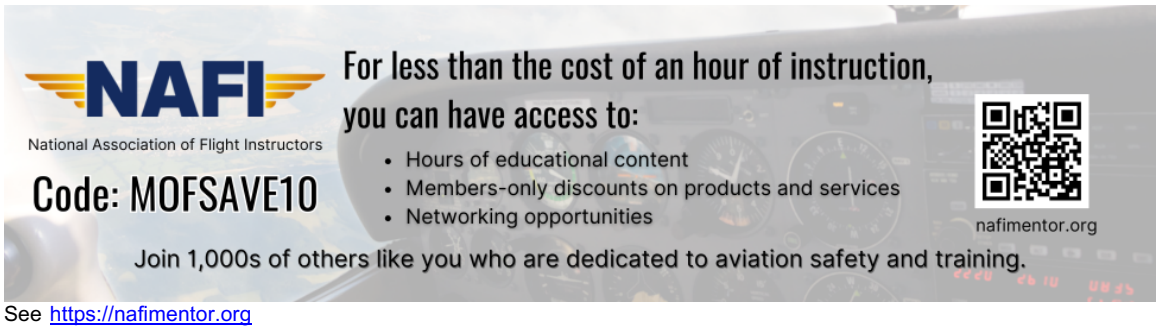

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