



# FLYING LESSONS for October 3, 2019

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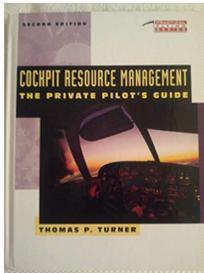
*FLYING LESSONS* uses recent mishap reports to consider what *might* have contributed to accidents, so you can make better decisions if you face similar circumstances. In almost all cases design characteristics of a specific airplane have little direct bearing on the possible causes of aircraft accidents—but 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:***

### **Let’s Go to the Video**



I’ve made translating airline-style flying techniques to single-pilot business, personal and recreational operations a big part of my career. From my first book, [Cockpit Resource Management: The Private Pilot’s Guide](#) (first edition 1995, but look for the expanded 1998 second edition, also out of print) through tomes on checklist use, instrument skills and aviation weather, and literally thousands of articles and blogs, I think I’ve had some success raising the bar for non-career pilots. Along the way I’ve had some wake-up-in-the-night epiphanies, including **PUSH and HOLD**, the [psychology of fuel exhaustion](#), [The Truth About Stalls](#), and others.

See:

<https://www.amazon.com/Cockpit-Resource-Management-Private-Pilots/dp/0070656061>

<http://mastery-flight-training.com/20160304-flying-lessons.pdf>

[http://www.aviationsafetymagazine.com/issues/31\\_4/features/9833-1.html](http://www.aviationsafetymagazine.com/issues/31_4/features/9833-1.html)

<https://tinyurl.com/truthaboutstalls>

**Emerging instructional thought leader** Dan Gryder, known primarily for DC-3 instruction and his often frank and opinionated Facebook posts, has taken this to the next level with his own epiphany in part based on contrasting interviews of airline versus general aviation pilots about surviving stalls. With the cooperation of the aviation YouTube channel [FlightChops](#) he recently released [a video](#) that, as of this writing, has already had over 250,000 views.



**Dan’s videographed thoughts** on “the highest susceptibility of losing another GA airplane” address four areas:

- **Loss of thrust on takeoff.**
- **A “messed-up” go-around.**
- **“Inadvertent IMC, after takeoff specifically”**
- **Maneuvering in the traffic pattern.**

**Dan's key concepts** include:

- “Defined minimum maneuvering speed,” or DMMS: 1.404 times the stall speed in the current configuration. Why the strange multiplier? Watch the video to find out.
- Fly the airplane first, then cockpit chores, then Air Traffic Control—a variation on *aviate, navigate, communicate*.
- The difference between “missed approach,” “go around” and “rejected landing.”
- Actually getting into the “**my engine will fail on *this* takeoff**” mentality.

**FLYING LESSONS readers** have seen this all before, whether the concept of **PUSH and HOLD**, go-around (trimmed) stalls, The Truth About Stalls, discussions pro and con about teaching a simulated zero-zero takeoff as a technique not for actually making such a takeoff, but being prepared to safely launch into a low overcast, and many, many other *LESSONS*, repeated again and again over several years. Whether this is imitation, influence, a [Newton/Leibniz](#) thing or [Hodgkin's Law of Parallel Planetary Development](#) is unimportant, because they're all necessary *LESSONS everyone needs to think and teach about*.

**I think** it's because a critical look at accident scenarios and the general aviation fatal accident rate makes it obvious to anyone who really thinks about it what needs to be done to change the way we train pilots. **Dan has hit a home run with this video**. His “views” total is phenomenal.

**If you** are a flight instructor, or even more importantly, **if you teach and manage flight instructors, show them this video**—both for the specific concepts it teaches, and as an outstanding example of how they can create uniquely challenging, informative and life-saving Flight Reviews that will positively change the way their students fly.

**As is wisely noted** in the video, “this is the *start* of a conversation you can have with you instructor.” Watch the video. What will *you* do with this information? What will *you* discuss with your instructor?

**If you've seen** Dan's video already please let me know what you think of it. If you've not yet seen it—and with those numbers, if you're a pilot and have not you're one of the few—[take a look](#) and then enter the discussion. I'm going to watch it again and perhaps add some specific comments of my own, hopefully in time for next week's *LESSONS*.

See:

<http://flightchops.com>

[https://www.youtube.com/watch?v=m\\_tKShlf\\_gU&app=desktop](https://www.youtube.com/watch?v=m_tKShlf_gU&app=desktop)

[https://en.wikipedia.org/wiki/Leibniz–Newton\\_calculus\\_controversy](https://en.wikipedia.org/wiki/Leibniz–Newton_calculus_controversy)

[https://memory-alpha.fandom.com/wiki/Hodgkin%27s\\_Law\\_of\\_Parallel\\_Planetary\\_Development](https://memory-alpha.fandom.com/wiki/Hodgkin%27s_Law_of_Parallel_Planetary_Development)

Questions? Ideas? Opinions? Send them to [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net)

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## Debrief: Readers write about recent *FLYING LESSONS*:

Frequent Debriefer and highly experienced test pilot Dale Bleakney writes about [last week's LESSONS](#) on glide speed and off-airport landings:

In regards to the engine failure glide vs. landing speed, I have something that may be of interest to your readers. On highly wing loaded airplanes, one of the things that can happen when you get close to the ground is an accelerated stall. A number of people might think that if they are wings level, it should not be a problem.

In the [Beech] Bonanza [for example], you can very easily get into an accelerated stall situation at [the published Landing Without Power speed of] 81 Knots. When you are gliding without power and slow the airplane to the landing speed, the descent rate will be much higher than what is normally seen on landing. With this “ground rush”, there is a natural tendency to pull back on the controls a little bit aggressively to arrest the descent. **If you pull 1.5Gs, you can stall the airplane in wings level flight.**

Remember that stall speeds go up with load factor. We demonstrate this by banking the airplane and holding altitude. If that same G loading occurs with wings level, the same effect will happen.

I demonstrate this to all CFI candidates that use a Bonanza for their training. The indicated stall speed with 1.5Gs on the airplane is about 80 knots. A [Cessna] 172/182 has lower wing loading and a different wing so it is not as critical as it is in a Baron or Bonanza. The Mooney 201 and later series airplanes, [Beech] Travel Air, [Cessna] 310, [Beech] Duke, etc., can have similar accelerated stall tendencies if the flare is too aggressive.

I hope this helps and thanks again for all that you do.

Excellent insight, Dale. Thanks for sharing it with us. The transition from Best Glide to Landing Without Power speed should be done smoothly and, if at all possible, before getting so close to the ground that “ground rush” causes a panicked pitch input. All the more reason, as I suggested last week, to prepare for this flare by regularly practicing power-off approaches like the Commercial Pilot-standards [Power Off 180° Approach](#), and simple short-field landings. I'll experiment with it myself and add your warning to my personal syllabus. Thanks for letting me learn from you.

See:

<http://www.mastery-flight-training.com/20190926-flying-lessons.pdf>

[https://www.faa.gov/regulations\\_policies/handbooks\\_manuals/aviation/airplane\\_handbook/media/10\\_afh\\_ch8.pdf](https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/airplane_handbook/media/10_afh_ch8.pdf)

Reader John Lippert notes:

Good review. I'm surprised the number of pilots that don't know about pulling the throttle full aft to increase glide speed. I've had some pilots worry this practice maneuver would damage the engine. Is there any truth to that?

Hi, John. I suspect you fly a Cirrus, because its single throttle/propeller “power lever” requires reducing the throttle to idle for low propeller RPM and the resulting reduction in drag for Best Glide. I'll defer to the Cirrus experts among our readers, but the Continental IO-550 engine installed on the Cirrus SR22 has dynamic crankshaft counterweights that can “detune” in an extended glide at idle throttle. Just as I do in Bonanzas, you may need to derive an approximation of glide performance when practicing in the Cirrus—not a perfect simulation, but close.

Reader Daryl Galloway takes us back to basics:

I learned to fly in 1963 and the normal landing sequence was to cut power abeam the numbers and adjust turning base and final depending on winds to arrive over the numbers at the published landing speed. Power was only used to recover from coming up short. Thus every landing was a power off landing and I've never had a reason to change.

That's how I was taught in Air Force T-41As (145-horsepower Cessna 172s) in the early 1980s. I remember the popping and backfiring of the six-banger engines at throttle reduction, then the tight, curving power-off glide to short final. It's not a bad way to land an airplane, but it's not compatible with many operations—extending downwind for traffic, base leg or straight-in pattern entries at the direction of a control tower, the visual portion of an instrument approach. That said,

your technique is the “regular practice” of the Power Off 180° Approach I suggest, and I laud you for doing so.

Reader Barbara Reed adds:

An interesting article. I've always taught to maintain best glide until sure of the midpoint of the runway, then first stage of flap and approach speed until sure of an aiming point one third in. From there all the flap. I teach the same curved path for power off approaches from overhead or downwind. If the type permits sideslip, then use it as required.

Glider pilots in the UK are taught a basically square circuit until near the end of the downwind leg, then to fly a short 45-degree leg to a short base leg and close in final approach. I've tried this on power off landings in powered aircraft and it works well there, but takes a bit of explaining to ATC. Not a problem if landing in a field.

You didn't mention field selection. Maybe a good choice for a whole new article?

Thank you for what is always a thought provoking and informative discussion

Thanks, Barbara. Several of the sources linked from [last week's report](#) contain similar guidance about aiming long on the touchdown surface to provide room for steepening the approach by adding drag devices (flaps, landing gear as appropriate) and slowing from Best Glide to Landing Without Power speed. Please check back to the [September 12, 2019](#) and [September 5, 2019 FLYING LESSONS Weekly](#) for comments and reader input about field selection for off-airport landings.

See:

<http://www.mastery-flight-training.com/20190926-flying-lessons.pdf>

<http://www.mastery-flight-training.com/20190912-flying-lessons.pdf>

<http://www.mastery-flight-training.com/20190905-flying-lessons.pdf>

Flight instructor/*FLYING LESSONS* reader John Stockell chimes in:

I found your discussion of gliding from altitude very informative. I know some pilots also correct the best glide speed for wind. I attended a seminar by Barry Schiff and he recommends adding (or subtracting for a tailwind) 1/3 of the wind speed.

I agree with you on using best glide speed to reach the landing location, [and] once over the field I would transition to minimum sink speed to spiral down.

I'll look for more information about this technique and report back, John. Thank you.

Reader Gerald Gage brings more from the Cirrus community:

As a participant in one of our CPPP [Cirrus Pilot Proficiency Program] events, you are aware of the differences in landing field selection and cabin/passenger preparation needed for Cirrus aircraft as compared to the part of the fleet not equipped with a comparable ballistic recovery system [i.e., parachute]. As Cirrus aircraft now represent a significant portion of the general aviation fleet I suspect you will get around to point out those differences, and the many lives saved over the 19 years of growing this unique fleet of aircraft.

Depending on the altitude at which the need for an off-airport landing occurs, Cirrus pilots follow the same initial procedures to first head in the direction of a suitable landing area (the characteristics of which are essentially the same as for non-BRS aircraft) while maximizing glide performance and attempting to restore power. If the emergency continues, more differences are introduced as the Cirrus pilot commits to an altitude to activate the Cirrus Airframe Parachute System (CAPS) and prepare the cabin and passengers for the landing. There are obvious differences in both those processes as well, all with the same objective of any distressed aircraft pilot: *maximizing the survivability of the inevitable landing*.

Indeed I will, Gerald. Next week I'll look at specialty operations for off-airport landings, including whether to extend retractable landing gear and what I've learned from Cirrus instructors about the use of the whole-airplane parachute.

Comments? Let us hear from you at [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net).

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“As always, I really enjoy all your articles. I can't imagine how much time it takes to do all of this. Albeit way too late, I am sending you a donation to help support the cause.” – Dale Bleakney

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**Pursue Mastery of Flight.**

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