

# **FLYING LESSONS** for August 26, 2010

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.

**If you wish to receive the free, expanded *FLYING LESSONS* report each week, email "subscribe" to [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net).**

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## ***This week's lessons:***

**Normally aspirated multiengine airplanes** frequently reach aerodynamic stall before loss of directional control capability in a V<sub>mc</sub> demo. The engines develop less power when at a safe V<sub>mc</sub> demo altitude. Therefore there is less asymmetric thrust and wing stall speed is reached first.

**This is why** multiengine instructors know to block rudder movement with a foot, simulating reaching the rudder stop early so the airplane will indeed begin to lose directional control when the pilot receiving instruction (PRI) has "full" rudder input.

**A single-engine stall**, however entered, is virtually unrecoverable in many light twins. Consequently multiengine instructors must exercise extreme care to remain well away from the single-engine stall regime...and to rapidly intervene if the PRI gets too close to the edge of the envelope.

**Some airplane brakes are very effective**, and effectiveness means lots of friction, which in turn means heat. Be especially careful to restrict hard braking to only when it's needed. Otherwise, control taxi speed primarily with power, using brakes as little as possible.

**If you must abort a takeoff** or make a short-field landing, minimize braking as you taxi in—the brakes will be very hot. In extreme cases (such as after a blown tire), you may have to wait for the wheels and brakes to cool before you taxi to the ramp.

**Coming up short** of the runway is usually the result of letting the speed deteriorate on final approach. This in turn results in a high angle of attack and excessive drag; the net result is a steep descent (possibly at a stabilized speed) in an attitude that will lead to even greater sink rate if the nose is pitched further up.

**If you can't see your landing spot** through the windscreen (some tailwheel airplanes in a three-point attitude exempted), you probably need to *lower* the nose and add power to remain at a safe flying speed at an angle that takes you to the runway.

**If you can't put the nose down** and still avoid obstacles, call off the approach. Power, pitch and configure for a go-around and a chance to set up and try it again.

Comments? Questions? Tell us what you think at [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net).

I'm saving up to make *FLYING LESSONS* even better. Want to help? Donate through a secure Paypal button or by mailing a check to the address at [www.mastery-flight-training.com](http://www.mastery-flight-training.com). **Thank you!**

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

Reader George Wilhelmsen observes:

In reading the accident reports, it appears that there is a potential common cause. Two recent accidents shared the same "recent registration". Could it be that inadequate pre-purchase inspections are the culprit?

George is referring to Mastery Flight Training's [Beech Weekly Accident Update](#), which tracks trends in piston Beechcraft mishaps. One criterion tracked is whether the mishap airplane was registered to its current owner for less than one year at the time of the event. Although there are obvious exceptions, it is reasonable to assume that the pilot of a "recent registration" airplane has little experience in type, which may be a factor in the mishap.

Historically nearly 20% of all Beech mishaps occur in the first year of registered ownership. Although I've not tracked this statistic in other makes and models, the Beech record proves very similar to other types in many areas. So it's reasonable to say that this is similar too. In the last two years or so, in the down economy, the "recent registration" figure dropped to around 10%--reflecting, I believe, the lack of airplane sales. Now that things appear to be looking up (or at least no longer spiraling down), airplane sales are beginning to rise, and the "recent registration" percentage is rising again as well.

George correctly points out there may be a mechanical component to "recent registration" accidents. Airplane ownership often follows a predictable pattern: a pilot buys the aircraft and flies it quite a bit in the first year or so of ownership. The bills start to add up, however, and perhaps a little of the novelty wears off, or business and family commitments demand more of the pilot's time. The pilot flies less in the second year, and maybe a little less the year after that...and the airplane starts to suffer from neglect, both operationally (frequency of flight) and mechanically (time and money spent on preventive maintenance, instead waiting until things *have* to be fixed instead of preventing the need for repairs in the first place). All it takes is to wander the ramp of a local airport, or stick your head in the T-hangars, to see a large number of tires-flat, tired-looking airplanes to confirm this theory. Pilots get attached to their airplanes, however, so it takes a long time to finally let go. Then the owner puts the minimum into the airplane needed to make it sellable, leaving the hidden issues for the next owner. I'm not insinuating intentional misconduct or deceit by airplane sellers (there are a few bad apples out there, however); I'm merely relating the downward spiral of airplane maintenance that frequently occurs when a pilot chooses more airplane than he/she can truly use or afford.

That's why we (should) do detailed prepurchase inspections with a mechanic expert in the type—to catch the things only an expert would see, so the next owner can make an educated buying decision and budget realistically for the inevitable repairs and upgrades that go with "new" airplane ownership.

A reader provides this follow-up to a recent Question of the Week:

*Do you believe flying is inherently dangerous, requiring constant study and practice to be an acceptable risk?*

I read somewhere that statistically, private flying carries about the same fatality risk per mile as does motorcycle riding, about 4 times that of driving a car. Since we travel on average about two to three as fast as a car or motorcycle, it must be 2 to 3 times more risky per hour than the motorcycle (and up to 12 times that of a car). But like a motorcycle, whose risks can be mitigated by training, safety precautions (such as a helmet), and assuming that everyone else is out to get you, pilots can also control their risk, by training, proper aircraft maintenance, and knowing their limits. More pilots will die in a car, than in an airplane.

Reader Donald Lawton points out the Advisor Circular on propeller maintenance referenced in last week's report has been revised. The current guidance is [AC 20-37E](#). Thanks, Donald!

See [http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgAdvisoryCircular.nsf/list/AC%2020-37E/\\$FILE/AC%2020-37e.pdf](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/list/AC%2020-37E/$FILE/AC%2020-37e.pdf)

## NASA looks at pilot judgment

*Callback* issue #368 highlights pilot decision-making and judgment...the most common contributing factor to aircraft mishaps, minor or severe. Here's your *FLYING LESSONS* homework for the week—review [Callback #368](#) to gain insights on judgment from pilots who've been to the edge.

See [http://asrs.arc.nasa.gov/docs/cb/cb\\_368.pdf](http://asrs.arc.nasa.gov/docs/cb/cb_368.pdf).

## Question of the Week

Thanks to all who have provided insightful answers to our four-part question that addresses the instructional approach of *FLYING LESSONS*. It's always healthy to challenge your assumptions, so let's see what readers had to say about Question #3, which is...

### **Does *FLYING LESSONS* go too far in presenting lessons to be learned from the mishap record?**

Here's what you said:

- Flying, like learning never, ceases. Before every flight, in fact the night before, go over the departure procedure, your destination landing plates with safe altitudes and the route weather you may encounter at that time of the year. Notams have to be looked in. For the airline pilot, this is provided by the dispatcher. This repeats every time you go up.
- You cannot "go too far" in presenting lessons to be learned from the mishap record! I print each week's lesson and save it for review.
- Stay this course; it's a service to the community.
- No
- No
- No. Pilots are the intended audience. You're not scaring us.
- No (how's that for succinct?!)
- IMHO, no.
- Reports of those accidents that merely appeal to "morbid sensationalism" without benefiting pilot and plane, leave the same beneficial impression that car drivers have in need to slow down to gape at an accident on the road.
- No. Constant review of others' accidents is a primary tool to avoid having one yourself. Not only can we all learn great things that way, but also it keeps our emotion of over-confidence in check. An element of paranoia is productive!
- No.
- I do not believe so.
- I feel that I personally benefit from the discussions presented in *FLYING LESSONS*. While there are some basic mishaps to which I don't believe I will fall victim. My basic process and procedures help me guard against those. It is the uncommon ones that I gain from. The ones I don't see every day that stimulate my thought process and have me thinking. What would I do differently?
- NO! *FLYING LESSONS* is a valuable asset that can be trusted to do the analysis and present results in an easy to understand and remember format.

Thanks for your insights! Next week we'll address the final, and probably most critical question of the four-part series challenging the *FLYING LESSONS* approach:

### **Can we accomplish the same thing (avoiding repeats of common accident causes) differently, and if so, how?**

There's still time to voice your opinion at [mftsurvey@cox.net](mailto:mftsurvey@cox.net).

***Fly safe, and have fun!***

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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