

FLYING LESSONS for September 2, 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.

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This week's lessons:

When was the last time you really stalled your airplane? If you've done the minimum it may have been a *real* long time. And you need the practice!

The FAA Practical Test Standards evaluates stalls using these recovery criteria (emphasis added):

SPORT PILOT

"Recognizes and recovers promptly **after** the stall occurs...."

RECREATIONAL PILOT

"Recognizes and recovers promptly **after** the stall occurs...."

PRIVATE PILOT

"Recognizes and recovers promptly **after** the stall occurs...."

COMMERCIAL PILOT

"Recognizes and recovers promptly **as** the stall occurs...."

AIRLINE TRANSPORT PILOT

"Announces the **first indication of an impending stall** (such as buffeting, stick shaker, decay of control effectiveness, and any other cues related to the specific airplane design characteristics) **and initiates recovery**...."

You many not have flown a full stall since your last certificate checkride. The most highly certificated among us—ATPs who must have at least 1500 hours to take the checkride—may not have flown a full aerodynamic stall since earning the Commercial certificate at as low as the 250 hour point (195 hours in Part 141 programs).

A Flight Review does not have to include a stall, or even an approach to a stall. Many pilots don't practice stalls and recoveries; many instructors don't like to do stalls because it makes an unpracticed pilot-receiving-instruction (PRI) uncomfortable, or because the CFI him/herself is uncomfortable with stalls, especially with heavier airplanes not traditionally used for training.

The result is that many of us are not at all proficient with stall recognition and recovery, especially if we usually fly larger or heavier airplanes, or twins. And the record, unfortunately, shows it.

A stall on its own isn't terribly common. Stalls often result, however, when the pilot is distracted, or under stress, or trying to eke out just a little more performance than the airplane is capable of delivering under current conditions.

And if that pilot—you—isn't/aren't practiced on stall recognition and recovery, he/she/you might not equate that "sinking feeling" to an aerodynamic stall as the bottom drops out from under the airplane.

Periodically over the coming weeks *FLYING LESSONS* will be taking a closer look at stalls—training, identification, avoidance, and recovery—with old *and* new ways to keep both wings flying. We'll be asking for your input as experts in the field on how you fly high performance, optimal angle-of-attack maneuvers safely. We'll revisit some classic texts and other not-so-well-known tomes on angle-of-attack flying, and look at the true stall record to see what goes wrong in order to learn how to make it right.

Comments? Questions? Tell us what you think at mastery.flight.training@cox.net.

Like what you see, but want better presentation? Help underwrite *FLYING LESSONS* through a secure Paypal button or by mailing a check to the address at www.mastery-flight-training.com. **Thank you!**

Debrief: Readers write about recent *FLYING LESSONS*

A reader responded to a way-back-then Question of the week:

Do you participate in the FAA Safety Team (FAASTeam) WINGS program? Why or why not?

Yes, because as the saying goes, You don't know what you don't know. Maturity is knowing what you don't know and I want to know what I don't know so I don't get into trouble.

New reader John Hodgson writes:

My friend Jim Herd sent me your last piece and I just signed up for *FLYING LESSONS*. He instructed me to pass on my thoughts on multi flying and specifically the practices I got on a simulator course for a [Cessna] C414 Chancellor.

There are, I think, 3 different regimes to consider for engine out situations. The classic "identify, verify, fix or feather" routine I believe can kill you on take off more easily than it can save you. I fly a Cessna T303 out of Minden, NV which is 4718 MSL. What chance fully loaded on an afternoon in August of loosing one on take off and continuing? Nil. The book Single Engine ceiling under those conditions is -300 feet AGL. The plane is 25 years old, the left engine is 2/3 time and I am not a test pilot so I won't even do that "well".

Loss of an engine in cruise is not a big deal if you keep your head and can gain control of the new situation. Then grab the POH and run through the emergency procedures calmly and methodically then determine a prudent course of action. Ditto in descent.

On approach it is even less of an issue as you will be progressively reducing power. Delay adding drag and note that a go around is not an option.

On take off of course this is an urgent situation and life-threatening. The procedure I was shown I find sensible and I have discussed with several heavy jet captains and got their agreement.

Assume all the normal preparation and checks have been thoroughly performed and execute a normal departure with right hand on the throttles. If an engine fails or gives cause for concern with the gear down then go down. When the gear is in transit move the right hand not back to the throttles but extend the first 2 fingers and put them on the prop controls. If the plane swings aggressively to one side you have a problem but at least one major contributor to drag is either in the wheel wells or on the way there. Rudder to hold the centre line and push for blue line. No time I think for most of us single pilot amateurs to conduct the classic procedure. Move quickly but not too fast. Idle foot idle engine is a quick and necessary check of your suspicions. MP and RPM do not help enough and can lead to the wrong conclusion so glance at EGT and fuel flow. If this confirms your thinking then for some reason or another it is highly likely you have lost an engine. Pull the prop lever on the side you swing to and "feather and fly". That takes care of the next major drag contributor. Hold course and speed, climb, and get stable. Retract flaps if extended. 500 feet and reach for the emergency section of the POH and work through it.

Always watch blue line and be ready to make the softest CFIT you can if unavoidable. If you get to red line pull the power and pray. No worse than being in a single. Finally do single-engine work in a simulator other than practising with zero thrust on one side for cruise, approach and landing.

Thanks, John. Much of it is the same way I teach, and fly. Key points you've reviewed:

1. Compute takeoff performance. You may find you have no climb capability in some regimes with an engine failure. You have to know this beforehand so you don't try to do something the airplane is not physically capable of doing.
2. Think about what you'll do in emergency situations while safely on the ground. You need to have made these decisions before you're under pressure to act immediately, and correctly.
3. If you lose an engine on takeoff (single or twin), maintain directional control and *push* the nose for blue line or to maintain flying speed, as appropriate.
4. If you need to land off airport "make the softest CFIT [Controlled Flight Into Terrain] you can." As we've said repeatedly in *FLYING LESSONS*, touch down wings level, under control, at the lowest safe airspeed and vertical speed.

Note: I had several excellent but long Debrief items this past week. Due to the length of this week's report I'll include them in the next issues of *FLYING LESSONS*. Thanks, readers for your submissions, and your patience.

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*. For roughly the last month we've been looking at the *FLYING LESSONS* approach to see if you, readers, feel it meets your needs and focuses on things we need to discuss. The four-part series of questions culminates this week with your responses to the final and perhaps most probing question:

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

Here's what you said:

- Train above the level you operate at. For a private pilot add tail wheel, aerobatics and glider qualifications and of course an IFR rating. Pay attention to 4 items:
 - maintain the aircraft diligently
 - be thoroughly competent not just current
 - never ever run out of fuel
 - always do a 180 if you are not comfortable with the weather
- Accidents have to be drummed in much more times through the media since the first line of defence is an educated people. A lot of general aviation accidents take place because of too little preparation for the flight, too little knowledge generally of what is out there, a lot of complacency regarding weather. Pilot encounters with unplanned IMC when not instrument rated and panicking as a result while trying to break out. A sort of instrument training should be a must on initial license issue at the [Private Pilot] stage.
- I would venture to say that pilots in general are more interested in safety than operating their engine or fixing it. The concept is valid but the initial marketing of it would be very important. Once it caught on I think it would be self generating. The FAA does the same type of thing.
- I am sure there is always a better way, however we as pilots need as a catalyst and to prod us to do more on our own. Your work always teaches me or reminds me of something forgotten or that needs further review/investigation.
- Yes. It's an empirical question, but I have some limited evidence that we can make a difference. Our [flying] culture has advanced over the years, and I believe efforts like yours can help it advance further. Quality flight instruction and honest confrontation of the issues can make a positive difference.

- Well, the FAA has taken on runway incursions as an art form. Are they decreasing as a result of the money and effort? Probably. Idiot lights (as in automobiles) that go on when fuel is low would be most inexpensive and curative. Ask this question of 1500 pilots by e-mail and see what you get [note: *FLYING LESSONS* goes to far more pilots than that every week. These responses are what we got—tt].
- Sure, classes, pod casts, CDs, etc.
- Don't see how.
- Don't have a good answer to that one, my gut feeling is that anyone reading this column is likely to be paying attention to safety in flight and maintaining their proficiency. If you think about the leading causes of GA accidents (running out of fuel, losing control, and VFR into IMC), every one is ultimately preventable by good decision-making and maintenance of basic flying skills. But please continue to "preach to the choir", keep it coming!
- Are we avoiding repeats? Sure seems like the same old, same old. You' ve been highlighting LGRM [landing gear-related mishaps] for years, has the rate declined significantly faster than the rate for other accidents, which you haven't highlighted? How do we know that what we are doing is working? Yes, the aviation accident rate has declined over the years but it's declined in automobiles as well, even though car magazines can go years without mentioning someone dying in a car. Somehow they've managed to improve their safety record, just as we have, without constantly reinforcing the impression of danger. The flight training industry spends a lot of time re-examining what people were doing when things go wrong but none re-examining what we're doing as things go wrong in our industry. There's a whole package of suggestions and attitudes that GA has inherited from the airlines and military without examining whether they are appropriate to a non-professional environment or if they hurt more than they help. If beginning golf students dropped out at the rate flight students do, and golf courses were closing all over the country, I would hope that golf instructors might reconsider teaching things that work on the PGA tour but turn off students who have no such aspirations.
- Almost anything done by humans using technical gadgets involves risk. Those FL issues which help to improve the skills and acumen of pilots and which help to prepare the airplane prior to takeoff are useful, as they reduce the probability of emergencies in flight. (Hardly anyone has the time to think of all those accident reports during the split second-decisions in an emergency).
- Yes. But the added techniques should be supplemental, not a replacement. "No repeat accidents" should be a mantra and a tool of measurement for any and all aviation organizations and associated professionals! In my experience, there is far too much of a sense of an "open loop" on this. There is a tendency to conclude that safety performance is actually someone else's problem to solve – often the FAA and/or NTSB. Hang gliding is a Part 103 operation with almost no FAA or NTSB involvement. As a direct result there is a heartfelt direct personal responsibility for safety that is felt by all participants as well as the national organization. Accidents get serious and speedy action to prevent a repeat.

There is an old adage in business – "what gets measured gets managed." So if we want to make repeat accidents extinct then we need to start measuring them and tracking them and throw a hissy fit when a stupid repeat accident occurs! This culture is nowhere in sight! I think most aviation safety "experts", and all associated professionals such as instructors, either formally or informally measure their success by their actions – not by their results. Articles written or lectures given, instead of repeat accident rate reduction. In my world of big business, and especially as an executive, I was never paid for the work I did. I was paid for the results I achieved. Of course, this kind of scenario causes a serious focus on results over "work done". I think a move in this direction in aviation would be healthy.

So, for example, why don't we gather statistics on accidents and incidents for the students of each flight instructor? Why don't we measure and report the performance and effectively of every "safety officer" of every club (local and national) based on reduction in repeat accidents? And add personal compensation incentives where appropriate. Sure, this would add stress to these noble jobs, but not as much stress as is felt by a pilot as he augers in, or the stress felt by the loved ones s/he leaves behind. I'm not saying pilot errors are the direct responsibility of the instructor, but we must start owning the problem somewhere. How about requiring a dead pilot's instructor to write a report on his assessment of the accident, and what might be done to avoid a repeat accident?

And here's another simple yet profound scenario. There is another open loop between NTSB accident reports and the necessary action to prevent repeat accidents. This is partly because the NTSB is limited to reporting provable facts only – no speculation because litigation would run wild. It is basically left to a very loose linkage using the aviation Press to speculate and analyze what happened and what ought to be done differently. Tom Turner does a great service with this, but reading these reports is entirely voluntary for all of us pilots, and the suggested action is even more loosely connected to real action by the entire aviation

community. So there is a systemic problem here that indicates none of us are really serious about safety and forbidding repeat accidents.

We don't need more regulations that would further burden our battered industry! Basically, I think the culture within our entire industry of General Aviation is far too cavalier with safety, and it is far too eager to conclude the poor results are someone else's responsibility. Is this viewpoint harsh? Yes. Would it lead to lives saved? Yes.

- I can think of none at the present time.
- As with most things in life, I suspect the effort individual pilots put into training and study would fall into a bell curve. There are some who obsess with it and do it constantly, and some who do none at all, and most who fall somewhere in the middle. My suspicion, with no supporting data, is that many of the mishaps are committed by those on the lower end of the scale, those who train and study less than average. Conversely, those who take the time to read a newsletter like *FLYING LESSONS*, are probably on the higher end of the curve and probably not committing most of the mishaps. Have you done any research to determine the correlation between those who read your letter with those who have incidents? It would be an interesting exercise. With that said, you may be "preaching to the choir", but I hope you keep preaching, because I enjoy the sermons. Thanks for putting the time and effort into *FLYING LESSONS*.
- No. I have often wondered why I avidly read the accident reports in aviation periodicals especially since, as you indicated, there is rarely anything new. One thing it does for me is to constantly recalibrate my attitudes as I filter my actions through similar situations where others have had bad or tragic outcomes. As a direct result of this process:
 - I am far more cautious about allowing passengers or myself to be near moving propellers,
 - I am more diligent about fuel management,
 - I have personality traits that could make me prone to doing high speed low passes and other show-off stunts. The fact that I have yet to do such a thing is a direct result of reading about tragic outcomes from such actions.
 - I am more aware when operating in high density altitude situations
 - I am more wary of inadvertent flight into IMC and am working toward an instrument rating.

All-in-all, very worthwhile outcomes. The trouble is that many people who should be reading and learning from others' mistakes have personalities that don't allow them to. There was an accident on the Oregon coast a couple of years ago- plane took off, crashed shortly afterwards in a neighborhood, sleeping children burnt to death, surviving kid and mom permanently disfigured. The father/husband and I work for the same company so I have had some personal insight into the possible unintended consequences of the fact that I am a pilot. I believe that we have the right to do stupid things that harm ourselves. But I also believe that we have a duty to conduct ourselves such that our actions don't harm others. As pilots we have a duty to take every action possible to avoid falling on top of people engaged in their activities as we engage in ours.

Great information and some challenging insights, readers. There are a lot of potential action items in there for an industrious aviation educator.

Remember, you may always voice your opinion at mfisurvey@cox.net.

Fly safe, and have fun!

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2010 National FAA Safety Team Representative of the Year
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