

FLYING LESSONS for August 27, 2009

suggested by this week's aircraft mishap reports

FLYING LESSONS uses the past week's mishap reports as the jumping-off point 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 expanded weekly *FLYING LESSONS* report emailed directly to you, email "subscribe" to mastery.flight.training@cox.net

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This week's lessons:

It takes a timely decision to safely fly a go-around or missed approach. Many balked/missed accidents happen because the pilot waited too late to "power up, pitch up, clean up and fess up", i.e., apply climb power, establish the initial climb attitude and reverse direction from descent to climb, retract flaps and (as appropriate) landing gear per manufacturer's guidance or good operating practice, and then communicate your actions by radio, stating your intentions so other pilots and air traffic controllers can anticipate your next move.

Commit yourself to the climb once you begin your ascent away from the runway. It's always dangerous and often fatal when the pilot snatches a glimpse of the runway in the first stages of a missed approach or second-guesses the need for a go-around, and chops the throttles, shoves the nose down and attempts to salvage the landing. If you go around or miss, carry through with your decision. If conditions change enough to try it again, do so with a full pattern or a complete approach so you'll once again be in position to land, on speed and in the landing configuration.

A go-around at night is more likely, because you'll be *less* likely to detect an obstacle on the runway until you're flaring or have even touched down. Pilot fatigue, too, is usually more of a factor at night, even for experienced night flyers. Reduced visibility brings additional human factors, too, such as...

The "false climb" illusion. Our minds process most attitude information visually—millions of years of development has made a brilliant eye/mind connection. Take vision away (or severely restrict it with darkness or IMC) and our mind looks for other cues. Enter the inner ear. Sensing organs in our inner ear translate linear acceleration into attitude information for our brain to process. Acceleration is sensed as pitching upward by our earth-trained brain, consequently, without a visual crosscheck the beginning of takeoff, a go-around or a missed approach makes us think the airplane is pitching upward...prompting the unwary pilot to push the controls forward in an attempt to "correct." Symptoms: the airplane impacts the ground in a flat attitude at high speed, often close enough in to come to rest on the runway but also commonly resulting in impact with trees, wires or buildings far past the point the airplane should have been above the obstacle's height. There's a great description of the false climb illusion in [this copyrighted article](#) from Down Under.

See <http://aeromedical.org/Articles/dnt.html>

This phenomenon suggests there might be a corresponding "false descent" illusion if the airplane is permitted to decelerate in conditions of limited visibility. Pitch up excessively on takeoff, go-around or missed approach at night or in IMC, and the deceleration might trick your mind into thinking the airplane is pitching downward. Your reaction? Pull back *farther* on the

controls, slowing the airplane *more* and giving you the impression you need to pull back *even more*. The negative feedback of the false descent could quickly lead you into a departure stall.

The cure for false climb or descent is to incorporate your instruments into your takeoff, go-around or missed approach, aiming for a precise attitude that results in initial-climb performance. Be especially wary of the possibility of false sensation and vertigo during takeoff, go-around or missed approach at night or in IMC, or any other condition that provides indistinct visibility, such as snowy conditions or climbing directly into hazy sunlight.

Further, fly your low-IFR approaches trimmed for the missed approach climb speed, so if you need to miss applying power, establishing pitch and cleaning up the airframe will put the airplane at its climb attitude *without a change in airspeed* that can cause these illusions.

Questions? Comments? Email me at mastery.flight.training@cox.net

DEBRIEF: Readers write about *FLYING LESSONS*

Concerning last week's *FLYING LESSON* "See and Avoid: The Lost Techniques," reader Karl Thomas wrote:

Tom : I'm an old '70's taught pilot that got back in to flying in 2007 after buying a '77 Cardinal FG [fixed gear]. I found myself doing those same 'ol things as well. I agree they're good habits to have & do !! I'm almost through instrument training and find myself wanting to lower the nose/turn & look out on climbout even with the 'ol foggles on – from habit ! Think I'll ask the DPE [Designated Pilot Examiner] if he wants me to lower the nose/turn briefly to check for traffic [on my checkride]. Maybe I'll pick up a brownie point? Enjoy the weekly newsletter!!

Best of luck to Karl on his IFR practical test!

Another member writes:

Tom, another excellent article! I am pursuing my CFI and read your articles religiously.

--reader Andy Reardon

Do you have a question or comment? Email me at mastery.flight.training@cox.net.

Many changes to U.S. Pilot regs

FAA periodically reviews its regulations, opening up a comment period for proposed changes. The process is complete for this cycle's review of 14 CFR 61, 91 and 141, affecting pilot certification, general rules for noncommercial flight operations, and certificated pilot schools respectively. Most of the changes are administrative, clarifying training requirements for civilian use of night vision goggles, clarifying the definition of a "cross-country" flight, revising the specific wording of regulations to preserve the original intent, etc.

Read the entire [Federal Register notice](#), including a long table listing the changes. Let us know your take on the changes by email to mastery.flight.training@cox.net.

See <http://edocket.access.gpo.gov/2009/pdf/E9-19353.pdf>

Approaches in heavy rain

Dr. Patrick R. Veillette cites research into the airfoil effects of flying in heavy rain in this [Aviation Week Business Aviation Bulletin article](#). Reading it may change what you've learned about escaping microbursts.

See www.aviationweek.com/aw/generic/story.jsp?id=news/bca_0809_p1.xml&headline=The%20Hazard%20of%20Heavy%20Rain&channel=bca

QUESTION OF THE WEEK

August Question of the Week #4

Recently, when asked by fellow instructors and flight educators to contemplate guidance for instructor pilots that can positive affect the rate of aircraft accidents, the following thought occurred to me:

“At the conclusion of a Flight Review, the CFI and pilot should develop a tailored strategy for the individual pilot, so that the pilot is even better at the beginning of the next flight review than he/she was at the end of the one before.”

This week's questions:

What's your response to my statement? What do you think should be the goal of your nations' required Flight Reviews (or equivalent)?

Win your choice of a Mastery Flight Training hat or the instructional DVD [*Those Who Won't: Avoiding Gear Up and Gear Collapse Mishaps*](#). Answer this Question of the Week to be included in the random drawing for August. Copy and paste the questions with your response to MFTsurvey@cox.net...then come back to read the rest of *FLYING LESSONS*.

See <https://secure5.webfirst.com/ABS/Store/#ThoseWhoWont>

Last week's question concerned decision making under the pressure of trying to arrive on the same day as a scheduled appointment or visit. I received only one answer, albeit a lengthy, very well thought out and presented discussion of pre- and en route planning for a flight near thunderstorms. The author's overall *FLYING LESSONS* for success: recognize the pressures you're under; get as much help as possible from controllers and in-cockpit weather; and the time-honored aviator's advice: always leave yourself a way out.

Thanks, reader!

Questions? Comments? Send your insights to mastery.flight.training@cox.net

Fly safe, and have fun!

Thomas P. Turner, M.S. Aviation Safety, MCFI
2008 FAA Central Region CFI of the Year



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