FLYING LESSONS for April 30, 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.

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This week's lessons:

Clouds lower as you press on. Terrain is rising beneath you. You're getting sandwiched in between clouds, hills and trees. And you're on a mission—there's a compelling reason for you to arrive at destination on schedule. You may be a low-time recreational flyer or part of a professional flying crew…it can happen to you. You're "scud-running".

At four miles visibility and 120 knots ground speed you can only see two minutes into your future. You need to know obstructions, headings, routes, landmarks, and ETAs, and be able to collect that information without wasting time with your eyes in the cockpit.

It takes about 12 seconds for a pilot to see and avoid an object -- a tenth of a second for the eye to send a signal to the brain; one second to recognize that signal as an object; five seconds to decide if there's a collision potential; four seconds to decide on an evasive maneuver; four-tenths of a second to command the body to make control inputs, and up to two seconds for the airplane to respond.

At 90kts across the ground you'll go 0.3 miles from the time you see an object to the earliest moment you can expect to *begin* a change in flight path. At 120kts, you'll fly 0.4 miles, and at 150kts you'll cover half a mile.

At 90kts groundspeed, a 180-degree-standard-turn diameter is one mile. At 120kts, the escape path will be 1.3 miles offset from your entry, and at 150kts, the way out is 1.6 miles away from the way you took in. In low visibility you may not be able to see what you're turning into until you're committed to the turn.

Don't assume you'll see an obstacle right away. Towers and guy wires are especially difficult to see in marginal conditions. Your best strategy is to avoid scud-running and, if you find yourself caught between terrain and clouds, *slow down* to the lowest safe speed and *immediately turn back* toward clearer air.
For more read my article Categorical Outlook Flying, and see the Mastery Flight Training Categorical Outlook Flying Decision-Making Matrix on the Tools for Flying Safely page of www.thomaspturner.net.

See
www.ipilot.com/learn/article.aspx?ArticleID=707
www.thomaspturner.net/Tools%20for%20Safe%20Flying.htm

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

Coming MFT presentations

- **Beechcraft Pilot Proficiency Program Columbus, OH:** "What Really Happens in IMC", Friday, May 15 at 4 pm. Contact www.bppp.org to enroll.
- **Sporty's Pilot Shop Fly-In, Batavia, OH:** "The First 60 Seconds: Takeoff, Climb, Go-Around, Missed Approach and Emergencies." Saturday, May 16 at 1:30 pm. See www.sportys.com/flyin

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Here to help… Two new items from the Federal Aviation Administration:

1. FAA recommends additional training and evaluation on the use of deice boots. An Information for Operators (InFO) report published last week advises all pilots of deice boot-equipped airplanes to include system operation and limitations as part of all initial and recurrent training, and system knowledge and use be evaluated in practical tests and other check flights. Discussion of ice bridging and minimum ice penetration and ice-contaminated airspeeds are also recommended.

   The InFO cites the fatal accident of a Cessna Citation 560 during an approach in icing conditions. NTSB determined the probable cause was the flightcrew's failure to effectively monitor and maintain airspeed and comply with the procedures for activating the deicing boots on approach. This led to an aerodynamic stall from which they did not recover. This accident reinforces the need for flightcrews to be trained to properly follow all icing-related operating limitations and operating procedures. For full details read InFO 09005 dated the April 21, 2009.

See www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info/all_infos/media/2009/info09005.pdf

2. From a recent FAASTeam email "Blast":

   Lessons Learned from Someone Who Walked Away
   "I am quite confident that a test pilot can replicate those numbers [performance "book" numbers] in the factory airplane 50 percent of the time. I can also tell you that with my level of experience, in a 60-year-old airplane, there was a day I couldn't do it."

   Dave Swartz speaks from experience. Swartz is an aeronautical engineer with the FAA's Aircraft Certification Service, and a pilot. He's also a survivor of a takeoff accident. As Swartz explains in his article "More than Math: Understanding Performance Limits" in the May/June issue of *FAA Aviations News*, "it's really a mixed bag…One of my mistakes was taking the book numbers too seriously. They didn't take into account the tailwind I didn't know I had." To read the full article and see the results of Swartz's battle with performance limits, visit: www.faa.gov/news/aviation_news/.

I know a lot of "Feds" (many of whom read *FLYING LESSONS*) and to a person each is genuinely enthusiastic about helping keep general aviation flying safely. Thanks to you all!

See www.faasafety.gov

QUESTIONS OF THE WEEK

To get to know readers better, and therefore provide you a better *FLYING LESSONS* product, we're asking short Questions of the Week. Copy the questions below and paste them with your answers into an email to MFTsurvey@cox.net. I'll randomly select an email from those who reply and, once a month, send the selected reader a **Mastery Flight Training hat**. Your email address goes in the drawing once every week you respond in a month's. All responses will remain confidential, but I will publish a breakdown of the results.

Like PIREPs, this works best if *everyone* participates. So take a moment to answer this week's Questions…then come back to read the rest of *FLYING LESSONS.*

April Questions of the Week #4

- How much ground and flight instruction did you log toward your most recent Flight Review?
- What is one visual flying skill you feel you personally need to improve?

Send your response to MFTsurvey@cox.net. Thanks, and good luck!

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Question of the Week #3 Response: Responses to last week's questions about instrument currency and improving personal skills netted some interesting results. Without naming names, here are a few of the items readers felt they need to improve:

- I still tend to chase the needle too much on approach, especially on a localizer. On an ILS, I tend to hold either localizer *or* glideslope at some cost to the other. A faster scan and better anticipation of the effects of correction would help.
- The single skill pertaining to instrument flight that I most need to improve is my ability to understand evolving weather conditions. I can interpret current reports well enough, but can't read developing patterns with enough sophistication to have a good sense of whether a flight planned for two days from now is likely to be feasible.
- I need to improve my partial panel skills.
- Holding patterns: Given the instructions by ATC of the holding pattern to be flown, can I accurately visualize the racetrack? Entering it is no problem. Getting the right flight path is the tricky part. It would also help me if I knew exactly the sequence of information that ATC provides, because it would aid me in copying down the hold instructions.
- Location awareness.
- Better self briefing of approaches.
- Dealing with failure modes is always a concern. Like approaches to minimums, a failure is not like a simulated failure during training. In an actual approach to minimums there is no "take off the hood and there is the runway." Rather the Rabbit appears out of the gloom leading, one hopes, to the threshold and part of the runway. There is no way to simulate that and no way to really simulate what happens when some important piece of equipment goes belly up without the instructor saying "OK, you've lost the vacuum pump."
- Upset - severe unusual attitude recovery.
- Weather analysis and interpretation
- To know and remember all of the nuances of my "glass cockpit" system, advanced avionics, autopilot and engine monitor. I'm comfortable with what I need from them but really want to learn every detail.
- Re-routes off a SID have always thrown me for a loop. There you are busy getting out of the terminal area and you are cleared along an airway that is not on the departure procedure to an intersection that you have never heard of. Out come the charts and the search begins.

Do you have something needing improvement on *your* list? If you've not done so already, send it to mastery.flight.training@cox.net. We'll address these tasks and more in future Mastery Flight Training products. More importantly, find an expert instructor and work on that task *now*, before you find yourself in the clouds needing that skill.

Thanks to all who answered last week's Questions!

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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