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FLYING LESSONS for January 29, 2009

suggested by this week's 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.

Feel free to forward this message for the purpose of pilot education. *FLYING LESSONS* is also available in PDF through a link in the left column at www.thomaspturner.net.

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FLYING LESSONS is featured on the FAA's safety website!

See www.faa.gov/gslac/ALC/lib_categoryview.aspx?categoryId=21.

This week's lessons:

U.S. Federal air regulations give noncommercial pilots great latitude in most operations, with the choice of what's prudent or safe—and not just *legal*—left to the judgment of the pilot. There is a valid assumption that the pilot-in-command will fly procedures to standards...and the standards assure a measure of operational safety.

Perhaps most notable within this latitude is a Part 91 pilot's authority to fly instrument approach procedures when there is no surface weather observation, or even if an official observation reports conditions to be below minimums for the approach. We can "take a look" and, if the runway environment is not visible at the Missed Approach Point (MAP), we can safely climb away with assurance there are no obstacles in the murk.

We must be cautious, however, when exercising that authority. Pilots' natural "can do" attitude, as well as the popular notion that the master pilot is one who can succeed where others fail, can trap the unwary. Take this recent example:

A Cessna Citation was being operated under Part 91. Seven people, including two pilots, were on board the aircraft. The pilot had made three unsuccessful attempts to land in fog before declaring an emergency while on the fourth approach. An NTSB spokesman said the left engine shut down during the third approach and the right engine shut down during the fourth approach. Fuel exhaustion is cited as the cause of the crash. Fortunately no one was injured.

Repeat attempts to fly the same approach when conditions clearly will not permit arrival are at best a waste of fuel. Whether it's the "macho" pilot attitude ("I can make it") or pilot resignation ("I have no choice but to try to land"), repeated attempts at the same approach may use so much fuel that by the time the pilot decides to divert there is not enough fuel remaining to reach an alternate.

I teach that multiple tries at the same approach should be attempted only under these circumstances:

1. Weather conditions are reliably reported as variable or improving, so that there is a realistic anticipation that the runway environment may be visible at the MAP next time around when it was not before; or
2. You can identify a specific operational error you made on the first approach (for instance, missing the approach before reaching minimums, or being high on glideslope at the MAP) that you can honestly say you can correct on a second attempt.

If neither of these conditions exist, flying a second approach is merely a waste of fuel you may need to make it safely to an alternate. Further, history shows multiple approach attempts lead to pilot deviations, possibly from the stress of knowing fuel is growing short, pressure from passengers to get them to the planned destination, or a misguided feeling that if you go “just a little lower” or “a little bit farther” than the procedure prescribes that you’ll be able to find the runway. Third, fourth or fifth attempts at an approach only exacerbate these stresses, eroding your options and making an accident more and more the likely outcome.

The rules give us great latitude and procedures provide an acceptable level of safety no matter how many times we try, so long as fuel holds out. Human nature, however, reminds us to be extraordinarily careful when attempting the same approach more than once, because the temptation is to make it to the runway...or possibly die trying.

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

Debrief: Readers write about previous *FLYING LESSONS*:

Kevin Loseke is a CFII in the Kansas City, Missouri area. Kevin writes:

I enjoy your weekly Flying Lessons. I am a CFII in the Kansas City area. I was reading all the accident reports for January. I was stunned by the people killed by either **busting minimums** or **VFR pilots flying in IMC conditions**. But beyond that, look at all the nose gear failures and planes simply **running off the runway**. It's a sobering reminder that pilots need to seek more training (or something). Now that I think about it, I had over 3000 hrs before I went for the instructor rating. It was not until then that I found an instructor that actually taught me to land. Thanks!

Thank you, Kevin.

Regarding the Baron pilot who lost control at Corona, CA, impacting two parked airplanes before hitting a hangar, on-the-scene reader Bob Butt writes:

The day of the accident, I was working on a K35 [Bonanza]. It was on jacks, the hangar door was open. It would not have been open if the winds were at all as gusty as reported. The customer watched the aircraft depart the runway. Both flight schools were operating 150/152 aircraft with light winds basically straight down the runway at the time of the accident. The aircraft sounded normal. I rarely watch or look unless something catches my ear. He pitched up then went almost vertical to the right catching the right wingtip which then righted the aircraft and it landed on the derelict 182. It did seem odd he was that far down the runway before lift off. I thought he lost it while trying to raise the gear. Looked for the switch and pulled the yoke along with his head movement. We will never know. Both props were

identical in appearance [after the crash].

Interesting observation, Bob. Pilots need to be familiar enough with their panel they can locate and manipulate controls without diverting too much attention from outside or the instruments as appropriate. My initial flight training was in the U.S. Air Force's Flight Screening Program. One requirement was that we pass a "blindfold cockpit check" prior to being allowed to solo—with a blindfold covering our eyes, we needed to be able to reach out and touch any switch, control or instrument in the airplane the instructor identified. Strive for this level of familiarity with your panel. More importantly, don't be in too much of a hurry to change configurations right after takeoff—even in a twin when extended gear means airspeed will rapidly decay in the event of an engine failure. Establish one flight condition (e.g., initial climb) before attempting to change configuration (retracting gear or flaps).

Concerning last week's discussion of managing fatigue's effects on pilot decision-making, reader Lew Gage takes us back to his years as a captain with Pan American World Airways:

During the 26 years I was serving as cockpit crew at Pan American World Airways (gone but not forgotten) I found it quite easy to do 16 or so hours of "duty" providing the duty time started in the morning after a normal night's sleep. It was those 2100 to 0100, 12-hour cockpit duty limit flight departures with "two pilots and one additional crew member" (the flight engineer) that would have one taking a little nap in flight of 30 to 50 minutes duration while the others watched the store. We would do this nap time in the cockpit seat and it would usually refresh one so normal alertness was regained.

The bad part was arriving at the destination and trying to get daylight sleep in a noisy hotel for the next midnight local time departure. I will say that after doing those long haul flights for some 26 years that there never was a time I saw when everybody in the cockpit was asleep, as some stories have been told and have actually happened on many airlines. We would, at times, require the flight attendant to check on us every 30 minutes or so. There was nothing like a freshly perfumed, beautiful Pan Am stewardess to get you to the fully awake mode.

Unfortunately we don't have these options in single-pilot airplanes. Reader Dr. Lorne Sheren writes:

I have always found it ironic that 121 ops have strict duty limits but that Part 91 operators have none. Logically, given pilot training and qualification, you would think it should be the other way around.

And psychologist, flight instructor, motivational speaker (and *FLYING LESSONS* reader) Dr. Janet Lapp adds "I saw your [Dr. Samuel] Strauss reference to fatigue, excellent," and permits this quote from her website (www.bonanzapilots.com):

Have you ever heard: "I don't need much sleep and fatigue doesn't affect my performance?" Well, one study showed that 15% of airline pilots fly when impaired beyond the legal limits of sobriety by fatigue alone. Studies show that the performance of a human awake for more than 14 hours is more impaired than those legally drunk at .08%.

Accident pilots reporting "not paying attention" reported less than six hours of sleep per night. Pilots saw what they should have done, but just didn't do it because of fatigue. In one study, 22 under-slept pilots fell asleep (microsleep) between the FAF and the end of the runway. Over 70% pilots admit having nod off during a flight. Do not fly tired. Even though the FAR's do not mention fatigue, if you fly tired, you are impaired. And because you are impaired, you are unsafe for flight, thus are breaking the law (61.53).

In 2007 I attended Bombardier Aircraft's Safety Standdown, a three-day series of human factors presentations and workshops. One speaker on the subject of fatigue asked the group of well over 300 pilots, most professionals flying turbine corporate aircraft, whether they had ever caught themselves actually sleeping in the cockpit. Responses were anonymous through a computerized vote, tabulated on the screens at the front of the room. Over 60% of these highly trained and very professional pilots reported succumbing to fatigue while aloft at least once!

Noted Dallas-area instructor and airline pilot Kent Lewis wraps up this week's discussion of fatigue:

Many air carrier pilot working agreements have even more conservative flight time, duty time and rest requirements than even the FARs. So duty day has to be scheduled to be less than contractual day. The pilot associations have negotiated this enhanced level of safety in lieu of other pay and benefits. There is a matrix used, duty time and flight time during "normal working hours" is longer, and max flight time/duty time during circadian lows, ex "redehyes" is the lowest. Also in Air Carrier world the Captain has to sign the Dispatch Release certifying that everyone is physically ready to go in addition to having required paperwork. Most GA folks never go through that drill, an operational pause to ask "Am I ready?"

In the military we had a 14 hour duty day, shortened to 12 for night flying and then 8 for flying wth NVIS. Even in combat we stuck to that as best we could, it would take Commander's approval for operational necessity to go past those limits. Operational necessity meant that the mission was more important than the crew and aircraft. Think about that. I know of no civilian mission that meets that criteria. Our GA folks need to have this mindset when getting ready to launch, and get a reality check from a friend, CFI or Flight Service. That is why having written personal minimums and maximums is good, it helps you to internalize you limits and "set the bug" for where alerts start to go off. I have a "3 Strike Rule". For example, if flight is delayed and weather/winds are at limits, then I am looking for that next fastball. If it shows up, I am out of there and headed to the house or hotel. At a minimum you anticipate and identify threats to the operation and deal with them (eliminate, transfer, accept with mitigations). A hotel room or grabbing a CFI to go with you are 2 examples of mitigations.

Last thought is that after 16 hours human performance has been PROVEN to be similar to that of a legally drunk person. So saying "I'm a little tired" at the end of that long day is just the same as saying "I'm a little drunk". Nuff said.

Fly Smart
Kent Lewis
www.signalcharlie.net

Thank you Kent, and everyone, for your input!

For piston Beech pilots

The January 29, 2009 Weekly Accident Update is now posted at www.thomaspturner.net, including these reports:

- A Beech Sport pilot lost control on landing....

For more information, commentary and analysis see the Beech Weekly Accident Update link at www.thomaspturner.net/WAU_2009.htm.

Fly safe, and have fun!

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2008 FAA Central Region Flight Instructor of the Year

I welcome your comments and suggestions. Contact mastery.flight.training@cox.net.

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Holder of an ATP certificate with instructor, CFII and MEI ratings and a Masters Degree in Aviation Safety, and **2008 FAA Central Region CFI of the Year**, Master CFI Thomas P. Turner has been Lead Instructor for FlightSafety International's Bonanza pilot training program at the Beechcraft factory; production test pilot for engine modifications; aviation insurance underwriter; corporate pilot and safety expert; Captain in the United States Air Force; and contract course developer for Embry-Riddle Aeronautical University. He is now the Manager of Technical Services for the American Bonanza Society. With over 3600 hours logged, including more than 2200 as an instructor, Tom writes, lectures and instructs extensively from his home at THE AIR CAPITAL--Wichita, Kansas.

