

FLYING LESSONS for November 4, 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. You are pilot in command, and are ultimately responsible for the decisions you make.

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:

There is no point during landing, even after the wheels touch the ground, when you should be incapable of making a go-around (balked landing) if needed. The only exceptions might be a short, one-way airstrip in rugged terrain that requires you commit to a landing when close to the ground, and when landing a multiengine airplane with one engine shut down after you have selected full flaps.

In these exceptional cases you must consciously choose a minimum altitude from which a go-around is safe, committing the airplane to land only when going below that altitude. In the case of the engine-out twin it will take finesse to hold altitude until accelerating to blue line speed for the climb-out.

In all other events—an aircraft, obstacle, animal or person on the runway, an unstable approach, and unresolved landing gear discrepancy, or any other reason—your decision should be met with a smooth application of power, an appropriate pitch change, verification that the climb has begun and then a methodical airframe clean-up into climb configuration. With the extremely few exceptions in unusual circumstances, go-around is always an option.

Notices to Aviators (NOTAMs) are sometimes difficult to decipher, and come flooding with seeming irrelevance to your proposed route of flight when you request an online preflight briefing. But knowing your NOTAMs is vital to a safe flight and a successful landing.

Take a few minutes to truly check each NOTAM that comes with your briefing. Review them individually; don't ignore them in wholesale batches because somewhere in the warnings about 200-ft tall unlighted towers two miles from the airport and flights to the Sudan may be something that will directly affect your decision about route of flight, facilities en route, and/or the runway or airport you select for landing.

Change your plans en route? In U.S. airspace call Flight Service or Flight Watch (122.0) for NOTAMs for your new route and/or new destination. NOTAMs are also available via XM Radio data uplink in XM-equipped airplanes.

On arrival use your time in the pattern to evaluate the suitability of the landing surface. That's one of the reasons the traffic pattern or circuit was created. If an "X" identifies a closed runway, or if you see men and equipment working on or near the runway or on taxiways that will prevent you from going from the runway to the ramp, go somewhere else. You're not going to land there today.

If you've arrived at an airport but when you're ready to depart there's no usable runway or taxi path from the ramp to a runway, accept that you're stuck. Sometimes that happens

(usually it's because of weather), but as my first instructor told me "unless someone's shooting at you" there is never a situation when you "have" to take off.

All flights away from the home airport must include contingency plans for a delayed or canceled return. Any other mindset is just setting yourself up for any number of bad go/no-go decisions.

On-board weather information makes it far easier to make informed in-flight weather decisions. Each type of onboard weather has its limitations, however. Spheric devices (lightning detectors) are great for detecting general areas of lightning discharge, but the specific position of plots does not necessarily define the limits of the storm they present, and they are essentially useless for detecting the turbulence that is the true hazard of thunderstorms. Weather uplinks may be old by the time they display in your cockpit, and NEXRAD radar displays may only depict the bases of the storm, not the composite reflectivity of a vertical cross-section of a storm, depending on the service you use.

Consequently spherics and radar uplinks are strategic planning devices, i.e., used to detect and avoid areas of adverse weather, but they are not precise enough to make tactical decisions about maneuvering *through* an area of storms.

On-board weather radar is usually considered adequate for penetrating areas of thunderstorms, but gleaning the benefits of onboard radar requires a great deal of training to master. Airline pilots train for days to use radar properly; it's not intuitive.

Air Traffic Control may or may not have the equipment and the time to help you avoid thunderstorm activity. It's a matter of where you are, and when you are there. AOPA's Air Safety Institute (ASI) has a good (and free) online course on the limitations of [Thunderstorms and ATC](#).

See <http://flash.aopa.org/asf/wxwise%5Fthunder/thunderstorms.cfm?>

Regardless of the equipment you use, you must still adhere to these best practices for thunderstorm avoidance.

- Don't land or take off in the face of an approaching thunderstorm. A sudden wind shift or low level turbulence could cause loss of control.
- Don't attempt to fly under a thunderstorm even if you can see through to the other side. Turbulence under the storm could be disastrous.
- Don't try to penetrate areas of thunderstorms covering 6/10 of an area or more either visually or by airborne radar.
- Don't fly without airborne radar into a cloud mass containing embedded thunderstorms.
- Do avoid by at least 20 miles any thunderstorm identified as severe or giving an intense radar echo. This is especially true under the anvil of a large cumulonimbus.
- Do avoid all other thunderstorms by at least 10 miles.
- Do clear the top of a known or suspected severe thunderstorm by at least 1,000 feet altitude for each 10 knots of wind speed at the cloud top. This would exceed the altitude capability of most aircraft.
- Do remember that vivid and frequent lightning indicates a severe thunderstorm.
- Do regard as severe any thunderstorm with tops 35,000 feet or higher whether the top is visually sighted or determined by radar.

The purpose of on-board weather information is to give you the ability to meet the requirements of the "do's and don'ts" of thunderstorm avoidance. On-board weather does *not* give the airplane any magical ability to safely violate these time-honored best practices.

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

Debrief: Readers write about recent *FLYING LESSONS*

Concerning a recent *FLYING LESSON* about flight with inoperative equipment and the presence of generic single-engine Minimum Equipment Lists, a knowledgeable source who wished not to be identified by name writes:

[FAA] Inspector Robert Thorson's comment will surely confuse people. I think [he] is possibly mis-reading 91.213 and may need some further clarification. His statement is correct only for 'large' non-turbine airplanes for which a MMEL has been developed. You can still comply with d2 if you flying a small non-turbine airplane regardless of MMEL status. That's the purpose of the reg, for relief!

The difference with MMEL is in 'Large' aircraft, hence difference between d 1 i and ii. If you are flying a small (under 12,500 lb) airplane you can placard iaw (d) no matter what status of MMEL is, having one or not. That's the purpose of the reg. If large airplane has a MMEL, then you can't use d. [You] must create your own MEL.

Doesn't matter for a 'small' under 12,500 lb airplane. You can defer under 91.213 whether there is a Master MEL or not. If in a large airplane, and FAA has a MMEL, then have to develop your MEL. If there is no MMEL, you can't develop a MEL so you can also defer under 91.213.

There is a generic Single engine MMEL. But [it is] irrelevant for 'small' non-turbine, unless I'm missing his point. Great newsletter Tom, keep up the good work!

Thank you, reader. Interpreting regulations is an art at least as demanding as learning to fly.

The Latest from the Feds

The [November/December 2010 issue](#) of *FAA Safety Briefing* focuses on a subject fundamental to pilot safety: how to handle abnormal and emergency situations. The issue stresses the delicate art of planning for the unplanned, and outlines several tools and resources pilots can draw upon to handle emergencies. It's worth a look, even if you're not flying an N-registered airplane.

See www.faa.gov/news/safety_briefing/2010/media/NovDec2010.pdf

Attitude Flying

For the past few weeks *FLYING LESSONS* has been discussing pilot expectations for the utility of their airplanes, expectations that are sometimes unrealistic, and not at all apparent to newer pilots coming into the fold. Much is made of the "five hazardous pilot attitudes" as they affect risk evaluation. These attitudes are:

- The anti-authority pilot
- The impulsive pilot
- The invulnerable pilot
- The macho pilot
- The resigned pilot

Each of these "hazardous" attitudes is also a *necessary* trait for a successful pilot, in measured amounts. It's when we let one or more of these "natural" pilot attitudes to dominate our thinking that we find ourselves in trouble, making safety-of-flight decisions through subjective eyes. Last time we focused on the [anti-authority pilot](#), who feels that the rules simply don't apply to him (or her). This week let's set look at another of my articles from 2006, the second in a series of articles called "[Bad Attitude: The Impulsive Pilot](#)" for more on the good, and the bad, of this piloting trait.

See:

www.aero-news.net/news/featurestories.cfm?ContentBlockID=77CC38DE-5D20-4F28-A455-C21D53FCBDF&Dynamic=1
www.aero-news.net/news/featurestories.cfm?ContentBlockID=F1E272C4-2B29-4BBD-8155-F6C4FFD6BB63&Dynamic=1

Stop the Drop

The Aircraft Owners and Pilots Association is hosting a significant industry discussion at AOPA Summit next week, on ways to encourage people who are interested enough to actually begin flying lessons to continue all the way through completion of their first pilot certificate (and beyond). According to AOPA, the vast majority of pilot “starts” do not complete their training...they are aviation drop-outs. A large collection of aviation industry luminaries will engage in a general session and break-out brainstorming discussions to try to find ways to stop the rate of flying drop-outs.

I received a personal invitation from a number of individuals involved in the discussion to come to Summit and participate. Regretfully, my professional responsibilities prevent that, but I do plan to submit some ideas in writing to the discussion participants. Before I do, however, I'd like to learn from *FLYING LESSONS* readers who undoubtedly have good ideas of your own to share. Be specific: instead of simple statements like “reduce the cost of earning a pilot certificate,” tell us *how* you would make it less expensive to learn to fly. If you think the trouble rests with the amount of regulation involved in personal aviation, suggest specific changes you'd like to see to minimize the regulatory hassle.

I'll post my ideas in an upcoming issue of *FLYING LESSONS*, but to avoid affecting your inspiration before I do I'll ask all *FLYING LESSONS* readers to answer this week's...

Question of the Week

What can be done to reduce the number of student pilots who drop out before completing their first pilot certificate?

All responses will be kept confidential. Let us learn from you at mftsurvey@cox.net.

Last week *FLYING LESSONS* asked what instructors could do to help pilots make better weather-related decisions. On reader answered:

The issue of weather as it relates to decision-making about a particular flight has been my nemesis for most of the 11 years I have been flying. I flew a C172 as a VFR pilot for 6 years before I finally got my instrument rating and [a Beechcraft] Bonanza. On countless occasions I wrestled with the decision of whether to go or stay on the ground because of weather. I would pour over the METARS, TAFs and maps, get a briefing, talk to other pilots, and more often than not I made the decision to stay on the ground.

I thought that if I had an instrument rating that the decision making process would be easier! IT WAS NOT! Now, with an instrument rating, the decision process becomes even *more* complicated. Was I mentally and physically prepared for the approach, the en route weather, any deviations required by ATC? How about the equipment on the airplane? Was it going to be as bad as the weather briefer said or was he being too cautious? I lacked the judgment to make these go/no-go, decisions because I did not have the experience to take the information I was gathering and have the confidence that I was not doing something stupid. Ego? Bravado? Stupidity? Chicken? All questions begging answers.

The whole point of this is experience and knowledge, and how a pilot gains the necessary experience to interpret the information that he receives about a proposed flight. How do we test or develop our skills without getting into serious trouble? Most training for instruments is done VFR with an instructor and a sight limiting device, and that is a good start. However, I think more training in IMC should be required before signing off someone to experience the thrill of an approach to minimums alone. Single pilot, single engine IFR has to be the most dangerous and challenging mission any pilot faces in his flying career.

So how do we connect the dots, so to speak, and make reasonable and safe decisions about flying in weather? How do we gain experience and confidence without taking an unnecessary risk? Many pilots I have spoken to regarding this subject say that you should go stick your nose into a situation and if it is too bad turn around and go home. Personally, I am risk averse so I do not do that. The answer *has* to be training in IMC. Is that a smart thing? I do not have any good answers!

I had to make such a decision myself this week. I was scheduled to fly an A36 Bonanza from Wichita to northern Michigan on Wednesday morning, with a return flight beginning about 2 pm on Thursday afternoon. Weather for the trip up was generally along a cold front, in the warm sector with a whopping tailwind. But the forecast was for rain turning to snow beginning Wednesday night, with snow continuing through Friday. Sometimes snow is dry enough to permit safe flight even in a non-ice airplane. But an autumn trip with the freezing level near the surface, with a cold wind blowing off the warm Lake Michigan is a recipe for heavy icing in the clouds. My trip was necessary for business with the schedule set by the people at the destination, and I didn't want to have to wait it out several days until the icy clouds cleared, so I made the unpopular call ("wimped out," many would say) and booked airline tickets. As an added bonus, a co-worker traveling with me is just beginning to learn to fly, so this was a good demonstration of weather decision-making in real-world conditions. As I polish this week's *FLYING LESSONS* report I'm looking out of a hotel room in Traverse City, MI at a dark parking lot soaking in a very cold, moderate rain...validation that I made the right call.

Personally, once a pilot has a good foundation in basic attitude flight and flying at least simple instrument approaches, I try to include as much "actual" time as conditions and our schedule will permit. Sure, at times we *have* to have VMC in order to practice specific tasks in preparation for the Practical Test (and more importantly, the Real Test that comes afterward). With that caveat, and with allowances for icing, turbulence and other hazards, I think training in IMC should be a part of every instrument pilot's curriculum. Thanks, reader, for adding to the discussion.

Readers, what do you think? Let us know at mftsurvey@cox.net.

Fly safe, and have fun!

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2010 National FAA Safety Team Representative of the Year
2008 FAA Central Region CFI of the Year



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