

# **FLYING LESSONS** for March 25, 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](mailto:mastery.flight.training@cox.net).**

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## ***This week's lessons:***

**In an airplane with a complex, multi-tank fuel system**, it's vital you have an intricate knowledge of how the fuel system works to establish a fuel-switching plan before takeoff, and then to stick with the plan in flight.

**Regardless of the fuel system configuration**, in cruise you must track actual ground speed and fuel flows against preflight expectations, and be ready to divert early if for any reason the calculated fuel remaining at destination begins to eat into what the regulations say is minimum and any extra you deem as safe on arrival.

**An airplane hits hard because** the pilot flares too high, or lets the airspeed get too low before touchdown. In calm winds the preferred technique is to stall just a few inches above the runway, so the airplane settles down with nary a bump.

**Just a few inches too high** and the airplane drops in, hitting hard and, frequently, pitching down onto the nosegear--leading to acute damage that causes a nosegear collapse, or fatigue that leads to failure long after the causal event. A nose landing can also cause loss of directional control; in airplane designs with low propeller clearance, a prop strike often results.

**Even if everything seems fine** after a hard-on-the-nosegear landing, take a very close look at the landing gear system before the next flight. If you're not an expert on how the landing gear system should look and feel, or if you're not meticulous about looking in the bends and shadows for hard-to-see stress, deformation and cracks, get someone with that experience to check it for you.

**An airplane bounces because** the pilot tries to land too fast, or fails to flare before the airplane strikes the runway, or as a rebound from a hard landing. Bounces often lead to getting slow before the next touchdown, creating a secondary hard landing. Because they are symptomatic of too great an approach speed bounces are also precursors to runway overruns.

**Check your configuration, attitude, power setting and airspeed** as you cross the landing threshold. If any is other than expected, correct immediately; if the remaining runway is short then go around and set up for another try.

**If the airplane bounces** and you find any of the following: the nose above the horizon, the airspeed below the speed you normally see in the flare, or you are not going to touch down again with sufficient runway remaining, then execute an immediate go-around by adjusting pitch as you add power and then configure for climb.

**If you remain** within attitude and airspeed parameters but bounce a second time, go around immediately—more than one bounce is cause to abandon the landing attempt and set up for a more successful approach.

**No one expects** to land hard enough to break the airplane, or lose directional control on landing, or float off the end of the runway until it happens to them. Learn from the experiences of others to initiate a go-around early, while there's still time.

**If the airplane touches ground** in a gear-up landing, your best bet for survivability is to chop the power and control the airplane through the rest of the crash. Although there are rare reports of a pilot making a successful landing after chipping the runway with a propeller, there is far too much hazard of a much worse outcome from such an attempt. It would take tremendous discipline, but once an airplane makes ground contact with the gear up, the flight is over.

Comments? Questions? Tell us what you think at [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net).

## **Debrief:** Readers write about recent *FLYING LESSONS*

David Mashburn writes about last week's discussion of mixture control prior to landing, asking:

Tom, on approach, I put the gear down at the FAF or the intercept and push the mixture to full rich at the same time. I'm wondering if pushing to "full" rich could cause a problem instead of just somewhere rich of peak? With the prop at 2500 RPM, I have never had a hesitation on the power pitch positive rate, flaps and gear up part. I would think at high altitude airports it could cause a problem.

I replied:

I said "well ROP" for the very reason I always get comment about high elevation airports when I say "full rich" for landing. Otherwise, the engine may be a percentage point or two away from absolute maximum power, but very close, with the mixture at full rich. In practice that's what I do anywhere this side of a landing at Denver. Thanks, Dave.

Reader Lorne Sheren added:

[CFI and fellow *FLYING LESSONS* reader] Paul Gretschel taught me (in addition to a lot of other great and practical stuff) to have the mixture forward and the props up (2500 typically) very early into an approach (usually at the final approach fix). His logic, which works, is that if the props and mixture are ready for the go around at FAF the pilot work load is reduced during the critical period of the approach. Just another reason to avail one's self for type-specific intensive training.

I agree with the technique (which is also what I teach), and the emphasis on flying with an instructor who is expert on your type of airplane, from light sport to light jet. Thanks, Lorne.

## **WINGS Survey**

Reader Paul Burgher founded the [Advocates for Aviation Safety Foundation](#) to support and promote the FAA WINGS program. AFASF wants your opinion on recent changes to the [FAA's safety website](#). Please take a moment to register your opinion through his quick, six-question [survey](#).

See:

[www.afasf.org](http://www.afasf.org)

[www.faasafety.gov](http://www.faasafety.gov)

[www.surveymonkey.com/s/BJZ7NH6](http://www.surveymonkey.com/s/BJZ7NH6)

## Two Safety Advisories

The FAA issued two Special Airworthiness Information Bulletins (SAIBs) this week: one warning about the [hazards of carbon monoxide](#), including suggestions for exhaust system inspections and preflight checks of CO warning systems; the other an advisory about [propeller overspeeds](#). SAIBs are advisories addressing safety concerns that do not warrant issuance of an Airworthiness Directive. They're two short items that are worth your time.

See

[www.mastery-flight-training.com/saib\\_ce\\_10\\_19\\_r1carbon\\_mono.pdf](http://www.mastery-flight-training.com/saib_ce_10_19_r1carbon_mono.pdf)

[www.mastery-flight-training.com/saib\\_ce\\_10\\_21.pdf](http://www.mastery-flight-training.com/saib_ce_10_21.pdf)

## What's This Really Saying?

A couple of years ago I wrote an article chastising a major aircraft manufacturer for the slogan it chose for its display at Oshkosh:

*Life without delays or cancellations*

This week I noticed a different, equally major manufacturer promoting a similar high-performance aircraft with this ad slogan on the back of *Flying Magazine*:

*I can't afford to wait it out.*

Both campaigns are/were aimed at businesspeople who normally travel by commercial air carrier, enticing them to purchase and fly a product by (strongly) suggesting they can dispatch in all kinds of weather. Admittedly many airline delays result from schedule back-ups from weather at locations far removed from the delayed departure that would not affect a more local flight. But this leads up to this **FLYING LESSONS Question of the Week**:

**What impact do these sorts of ad campaigns on pilot attitudes and flying safety? Are these types of promotions linked to the recently reported higher fatal and weather-related accident rates in the glass cockpit designs? Are we overselling the weather flexibility of personal aviation?**

Send your answer to *FLYING LESSONS* Question of the Week ([mftsurvey@cox.net](mailto:mftsurvey@cox.net))...then return to read more *FLYING LESSONS*.

Last week's question was: **Have you ever attended a program that challenged you to make better flying decisions? What program? How effective was it? Did it actually change the way you fly?** Here are your responses:

I have not attended a program that specifically challenged me to make better flying decisions. I have studied the AOPA's on-line course "Do The Right Thing: Decision Making for Pilots" and have reviewed this course two or three times. The course seems to refresh ideas/procedures each time I review; therefore I feel it is effective and has influenced the way I fly.

[I attended] BPPP [the Beechcraft Pilot Proficiency Program]. Great training by very knowledgeable instructors; very few instructors are familiar with [these] aircraft.

I've attended the BPPP clinics for many years and have found it very effective. It taught me many techniques and did change a number of flight procedures as my first checkout in a Bonanza (and first retractable gear airplane) consisted of numerous touch and goes at night with another private pilot although I had about 500 hours total time and nearly 100 hours of actual instrument time in fixed gear aircraft.

When I was a new private pilot, I attended an FAA Safety Seminar given by Rod Machado. He suggested a switch in perspective when evaluating the risk-benefit balance of a particular flight. Don't ask yourself "What have I got to lose?" because the answer's always the same (the trust and respect of your passengers, your life, or even worse, your airplane). Instead, ask "What have I got to gain?" If you go ahead with a dicey flight and everything goes well, what will you actually get out of it? Is it worth the risk? This really did change the way I weigh my go/no-go decisions when the answer isn't obvious.

Two readers commented on our previously unanswered question about self-evaluation for fatigue:

I've never scrubbed a flight because I thought I was too tired—even though there might have been times I should have. (So far there have been no adverse consequences, though.)

If I find myself forgetting things and in general fumbling around, I know it's not my day to fly and I do something else. "Some days you just can't wallpaper" as a friend once said.

### ***Fly safe, and have fun!***

Thomas P. Turner, M.S. Aviation Safety, MCFI  
2010 National FAA Safety Team Representative of the Year  
2008 FAA Central Region CFI of the Year



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