

## **FLYING LESSONS** for October 15, 2009

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:***

**Aerial sightseeing** is one of the prime joys of personal aviation—but it requires you pay special attention to see-and-avoid traffic separation. Points of interest can become busy traffic areas. If an attractive or unusual sight on the ground attracts your attention, it may attract other pilots as well. More than one person on board your airplane? Assign one set of educated eyes to traffic avoidance while the other(s) see the sights. Ask your passengers to take turns helping with traffic avoidance. Tell everyone to let you know immediately if they see another airplane...but don't forget that as pilot-in-command you're there to fly, not to sightsee. Don't linger too long immediately over the sight—take a turn or two and then move on for the next airplane.

**The three most important things** to accomplish in an off-airport landing are to touch down:

1. Under control, with
2. Wings level, and at the
3. Lowest possible safe speed.

Everything else is secondary to survival.

**With these three things assured**, as time permits prepare yourself, your passengers and the cabin to minimize the hazards:

- **Secure items in the cabin.** Most of this needs to be done *before* takeoff, *every* time you fly. John and Martha King of [King Schools](#) relate their personal experience of an off-airport landing in their Cessna 210. On impact a heavy toolbox stored in the very aft baggage area flew forward with enough force to smash through the Plexiglass® windshield, flying within inches of their heads. Even fairly small things like flashlights and screwdrivers can become deadly missiles in a crash—prepare yourself for an off-airport landing by securing items in the cabin before you take off.
- **Fasten seat belts and should harnesses.** Fasten, and tighten, seat belts and shoulder harnesses before impact. In many cases, like an engine failure on takeoff, you won't have time once the emergency begins—so include this check in your Before Takeoff and Before Landing checklists and passenger briefings.
  - *FLYING LESSONS* has reported numerous occasions when severe head trauma and even death have occurred in what appear to be otherwise fairly benign accidents. In these cases either shoulder harnesses were not installed in the mishap aircraft, or they were available but were not worn by the injured party.

Often others on board escape injury when they are in rear seats or aft-facing seats, or in the front but wearing a shoulder harness.

- [FAR 91.107](#) requires that shoulder harnesses, if installed, must be worn for all ground movement, takeoff and landing not only by the pilot, but by all persons aboard the aircraft. Similar regulations likely apply in non-U.S. jurisdictions as well.
- There is no regulation requiring owners retrofit their aircraft if they are not equipped with shoulder harnesses. As George Santayana said, “Those who do not learn from history are doomed to repeat it.” We have a *lot* of serious head-trauma history when shoulder harnesses were not installed and properly worn.
- **Prepare your escape route.** Consistent with airplane design and manufacturer’s recommendations, unlatch doors and/or windows before an off-airport landing so compression forces in deceleration do not jam them shut. If your airplane has only one exit, or has a canopy and door that open in the same direction (up, or to one side), you should have a crash axe or similar tool tightly secured where you can reach it from the pilot’s seat. If the airplane ends up on its side or its back you may have to smash through a window to get out. Check the availability and security of this tool in each preflight inspection.
- **Configure the airplane.** Set up the airplane for touchdown at the slowest safe speed. If power permits extend flaps fully; put retractable landing gear down unless you’ll be landing in water or extremely wet terrain—at best you’ll land on the wheels, at worst they’ll shear off, absorbing much of the shock. Practice power-off landing-configuration stalls, and power-off approaches to landing, to have a feel for the control needed to touch down on target at the minimum speed without stalling. Impact force increases by the *square* of impact velocity—even a little extra speed with increase significantly the G-force experienced in an off-airport landing.
- **Turn off the fuel.** After exhausting any engine restart attempts, as appropriate, turn off the fuel selector(s) before touchdown. If the engine(s) is/are still running (or engine-drive fuel pump is still spinning behind a windmilling propeller) this will purge the entire engine compartment of fuel before impact, lessening the chance of a fire.
- **Turn off electricity.** Turn off the battery master switch after you’ve made your last radio call and have the airplane in landing configuration. This is another precaution to limit the chance of a post-crash fire.

See [www.kingschools.com](http://www.kingschools.com)

Questions? Comments? Email me at [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net)

## A page worth reading

Despite continual industry warnings to pilots on the adverse affects of even small amounts of ice, slush or frost contamination can have on the aerodynamic performance and control of aircraft, accidents and fatalities continue to be attributed to this cause. FAA has now published an [InFO \(Information for Operators\) letter](#) reminding pilots and instructors yet again to be aware of the dangers of any level of ice contamination. It’s only one page, and it’s your *FLYING LESSONS* homework for the week.

See [www.faa.gov/other\\_visit/aviation\\_industry/airline\\_operators/airline\\_safety/info/all\\_infos/media/2009/info09016.pdf](http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info/all_infos/media/2009/info09016.pdf).

# Focus on flight instruction

NASA's Aviation Safety Reporting System (ASRS) focuses on flight instruction in [Callback issue 357](#). Topics covered in this report include:

- Letting the student go too far
- Instructor loss of focus
- Over-reliance the instructor

*FLYING LESSONS* readers have already read many similar comments about flight instructor duties and responsibilities—that

- the CFI's primary role is safety, with quality of instruction extremely important but subordinate;
- both the pilot under instruction (PUI) and flight instructor are susceptible to complacency, and must actively work to remain engaged (see "[Instructional Hazards](#)" on *AVweb*);
- teaching modern avionics and piloting techniques is sometimes counterproductive to an outside visual scan, and may be adversely affecting basic stick-and-rudder skills; and that
- the rate of serious accidents is low in the highly controlled world of flight instruction, but the number of distraction and other minor mishaps is much greater than the relative number of instructional flight hours would suggest, in part because by its nature instruction places the pilot in unusual and distracting situations.

See:

[http://asrs.arc.nasa.gov/publications/callback/cb\\_357.html](http://asrs.arc.nasa.gov/publications/callback/cb_357.html)

[www.avweb.com/news/leadingedge/leading\\_edge\\_instructional\\_hazards\\_195386-1.html](http://www.avweb.com/news/leadingedge/leading_edge_instructional_hazards_195386-1.html)

Do you have a question or comment? Email me at [mastery.flight.training@cox.net](mailto: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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