

# FLYING LESSONS for May 5, 2011

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.

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FLYING LESSONS is somewhat abbreviated this week while I participate as a Subject Matter Expert panelist in this week's [Reforming Pilot Training](http://www.pilottrainingreform.org) symposium ([www.pilottrainingreform.org](http://www.pilottrainingreform.org)). More on that in the next report. But first...

## This week's lessons:

**We were on a long final approach** in great visual meteorological conditions (VMC) when, without warning, the airplane's tail yawed violently left, followed almost immediately by a sharp, left roll to about 45° bank. Just as quickly the plane yawed and rolled to the right, and then back to a more-or-less straight direction. My first thought: wake turbulence.

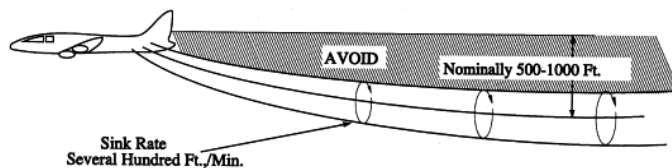
**And this wasn't a small general aviation airplane**, it was a Boeing 717 (that last iteration of the DC-9/MD-80 heritage). I was in the passenger cabin, directly over the wing, on the flight into Atlanta for the Reforming Pilot Training conference.

**After landing**, in the enviable position of *not* needing to run to a connecting flight, I hung back until most of the passengers had disembarked. Then I made my way forward, finding the crew as they were leaving the cockpit.

**"Wake turbulence?"** I asked the First Officer. "Oh, yeah," he exclaimed, and his captain smiled and nodded in agreement. "What were we behind?" I asked, expecting the answer to be a 767 or Airbus 330 or the infamous (from a wake turbulence standpoint, anyway) Boeing 757. "That's the thing," the captain said. "It was a 737!" ATC had vectored a 737-700 (not even one of the biggest "Seven-Threes") perpendicularly across and above our flight path; the Boeing's wake drifted down to significantly alter the flight path of our 717.

**We usually think of wake turbulence** as something that big airplanes do to much smaller airplanes. But the Aviation Safety Reporting System (ASRS) record is filled with instances when a Cessna Citation or even a King Air upsets a cabin-class twin. Every airplane generates at least a little wake turbulence; every airplane, regardless of size, is susceptible to flight path excursions when they encounter the wake of any other aircraft.

**A full section** of the *Aeronautical Information Manual* ([AIM](#)) is devoted to wake turbulence characteristics and avoidance techniques. Most wake turbulence information taught in general aviation relates to taking off and landing behind large turbine aircraft—most certainly a hazard.



**But we don't often hear** about other types of wake turbulence encounter—away from the airport (like in the case of my 717/737 interaction).

**Think of the air behind and below** an airplane as the wake behind a boat on a still lake. No make that picture three-dimensional, with the wake descending as described in the AIM. *This* is what you must work to avoid.

**Note also** that when you're in VMC you are responsible not only to see and avoid other airplanes, but you're solely responsible for avoiding their wake turbulence as well—even if you're on an instrument clearance. It's not an easy task...and AIM advice is sketchy: "Avoid flight below and behind a large aircraft's path. If a larger aircraft is observed above on the same track (meeting or overtaking) adjust your position laterally, preferably upwind."

See [www.faa.gov/air\\_traffic/publications/ATpubs/AIM/Chap7/aim0703.html](http://www.faa.gov/air_traffic/publications/ATpubs/AIM/Chap7/aim0703.html)

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



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

Reader Woodie Diamond writes:

Just two more comments for the on-going pre-flight inspection discussion:

1. My initial flight instructor, Terry Schmidt, instilled upon me a practice that I continue to this day: **"Preflight is a very personal time between you and the airplane, don't let anyone interfere with that."** The first couple of preflight inspections that I did, Terry held my hand and walked through each item with me. He would then walk away and watch as I repeated the process myself. When he was comfortable with my ability to perform them alone, he would always walk away a good distance from the airplane as I did the inspection. I asked him why he would do that, to which he said "...preflight time is a very personal time to only be shared between a pilot and his airplane. Never allow passengers to sit in the airplane, or wander around while you are doing it. Separate everything else, leaving only yourself and the airplane to spend some time together; get to know one another before the flight."
2. **"Flight manuals are written by lawyers; checklists are written by pilots."** *John Grosskopf*. Many years ago when I was stationed with the Army in Mannheim, Germany, I met John and began a close personal relationship that lasts to this day. One of the very first things that he had me do, was copy all of the checklists out of the airplane's flight manual onto sheets of paper, leaving a few spaces between each item. "These spaces will be for your own checklist items," he would say, "items which only the pilot can understand." As time went by, I found that those spaces got filled with items that were important to me, and not covered by the checklists in the flight manual. To this day, I continue the practice of creating my own checklists, integrated with the flight manual checklists. An example of a specific pre-flight checklist item, specific to my make/model that is otherwise not part of the published checklist is the [landing gear] uplock rollers. Before the first flight of the day, I kneel down and physically check the freedom/operation of the uplock rollers.

Thanks, Woodie. Excellent advice. Reader (and *FLYING LESSONS* supporter) Mike Busch of Savvy Aviator, Inc., addresses another recent *LESSON*:

**"Your choice of equipment alone** does not necessarily increase the level of safety."

Tom, my long-held theory is that choice of equipment almost NEVER affects level of safety. There seems to be an immutable law of human nature that causes each pilot to seek his own acceptable level of risk. When equipment capability increases (e.g., two engines, glass cockpits, downlinked weather), pilots always seem to exactly compensate by engaging in riskier behavior.

Accident statistics bear this out. Fancy new glass cockpit airplanes have almost identical accident and fatality rates as legacy steam-gauge airplanes. Twins have almost identical accident and fatality rates as high-performance singles. The CAPS ballistic recovery parachute on Cirrus aircraft has a near-perfect history of "saves" but yet the accident and fatality rate of the Cirrus is no better than other high-performance singles that don't have a chute.

We know that pilots of twins regularly take off with known mechanical deficiencies that they would not accept if they were flying a single. We know that pilots of aircraft equipped with deicing gear and downlinked weather tackle weather hazards that they wouldn't tackle in aircraft that lacked such equipment. I predict that the recent availability of enhanced-vision (IR) and synthetic-vision (HITS) technologies in GA cockpits will increase the incidence of scud-running and thereby exactly offset the potential safety benefits of these remarkable technical advances.

This sort of pilot behavior is not logical, but it seems to be an integral part of the human genome.

Thank you as well, Mike.

Readers, what's *your* opinion? Tell us at [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net).



Let's continue our review of the #7 killer in general aviation, attempted visual flight into Instrument Meteorological Conditions. Reader Lorne Sheren responded about "[the IFR pilot's trap](#)" that contributes to instrument-rated pilots flying IFR-capable airplanes into VFR into IMC mishaps:

Well said, as always. Being a current instrument rated pilot flying a capable airplane, I had always dismissed VFR flight into IMC as a "can't happen to me" event. Not true. In fact this can happen very easily during the final phase of flight: weather looks good, IFR has been cancelled (going into a non-towered field), and, "poof" a wisp of ground fog, innocuous when viewed from above but deadly when viewed from the side. Unless a go around is immediately initiated under these circumstances there is no terrain or obstacle clearance and you are perilously near the ground. A second can make a difference. And although we all give it lip service, at that point in time how many of us are really spring loaded to go missed?

Another, more subtle point- going IFR into an uncontrolled field what is VFR. How many of us cancel IFR while still in the air? Most of us right? It's easier and more considerate if there are departures waiting. But suppose something, anything, happens, before or during landing. You lost the benefit of having someone know you are missing. So I would urge us all not to cancel that valuable IFR until you are safely on the ground. It's not like we have to sprint out to the pay phone anymore [because we can call to cancel from the ground on our cell phones], and the difference to the fellow departing [becomes] mere minutes. In fact my wife gets really angry now when I cancel in the air.

See [www.mastery-flight-training.com/20110428flying\\_lessons.pdf](http://www.mastery-flight-training.com/20110428flying_lessons.pdf)

Frequent Debriefing David Heberling writes:

From the response given by [AOPA's] David Kenney, it appears that many instrument rated pilots fall into a false sense of security flying marginal VFR missions. I also find it very interesting that professional pilots on repositioning flights fall into this category as well. I have done many of such flights over my career. What I try to do is treat it the same way I would a FAR 121 flight. It is the structure of the IFR environment that imposes discipline on how the flight is conducted. As soon as pilots let their hair down thinking this FAR 91 flight is a chance to have **fun**, trouble is much more probable. For professional pilots the problem is that VFR is not their normal mode of flight. Given the short duration of the flight, the thinking is, "What could possibly go wrong?"

I also think that IR pilots who are in marginal VFR conditions, it is not that hard to get a pop-up IFR clearance. However, they need to know the frequency to use. They need to know where they are in relation to a fix. They also need to fly the airplane in VFR conditions until they get the clearance. This last is probably a moot point since most pilots will wait until they can't see anything before they call ATC. I wish these reports gave some indication of whether the aircraft had an operating autopilot installed. The reason for this is that a pilot needs to use all of the tools available to him/her when in a tight situation. Why not use the autopilot to take some of the load off of an already overloaded pilot? I realize some pilots look upon an autopilot with some disdain. Their superior airmanship will see them through the crisis. JFK Jr. found out the hard way that hand-flying and looking up a frequency are not easy to do when you have no horizon to look at. BTW, his airplane had a very capable autopilot.

The biggest problem with all of these flights is the lack of a plan for transitioning from VFR to IFR. There is

no definition of when to make that change. Are they following their progress on IFR charts even though they are technically VFR? I highly doubt it. It takes more than hope to successfully complete a flight.

Thanks, gentlemen. Next week we'll wrap up the discussion of Top 10 Fatals cause #7.

**Share safer skies. Forward *FLYING LESSONS* to a friend.**

***Flying has risks. Choose wisely.***

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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