FLYING LESSONS for August 3, 2017

FLYING LESSONS uses recent 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 airplane have little direct bearing on the possible causes of aircraft accidents—but knowing how your airplane's systems respond can make the difference as a scenario unfolds. So apply these *FLYING LESSONS* to the specific 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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This week's LESSONS:

Plane Nearly Ran Out of Fuel After Pilots Forget to Raise Landing Gear

From an article by Hugh Morris, London Telegraph

Two pilots have been suspended from duty after their aircraft, carrying 99 passengers, nearly ran out of fuel because they forgot to retract the landing gear after take-off. Air India Flight AI676 was en route to Mumbai from Kolkata on July 22 but was forced to divert to Nagpur when the crew became alarmed by the speed at which the aircraft was losing fuel thanks to the additional drag created by the extended wheels.

An unidentified source told the Times of India that the "brand new Airbus A320", one of the most fuel efficient aircraft in existence, had struggled to climb after take-off, prompting the pilots to settle on an altitude of 24,000 feet as opposed to a usual cruising height of 35,000 feet. The source, who made a point of saying that both pilots were women, said it flew like this at 230 knots - as opposed to around 500 knots - for about an hour-and-a-half, while the extended landing gear dragged heavily on the aircraft.

"When preparing to land, they decided to lower the landing gear. At this point they realised that the wheels had been out all the while from Kolkata," said the source. A playback of the flight from FlightRadar24.com shows it failing to reach an altitude higher than 24,000 feet but put the aircraft's speed at just over 300 knots.

A spokesperson for Air India told the Times of India the pilots have been "de-rostered" and the airline is investigating.

See http://www.telegraph.co.uk/travel/news/air-india-forgotten-landing-gear-low-fuel/

Pilots follow routines and Standard Operating Procedures (SOPs) for several reasons. First, we tend to do things the way first learned…making our initial experience (good or bad) the de facto standard. Second, SOPs are usually built around the easiest or most efficient way to do things. It's the way we reduce our workload.

Using SOPs helps ensure that we perform the tasks we need to accomplish, in the order we're supposed to accomplish them. Lastly, SOPs serve as a quality control check on our operation—especially if that SOPs included crosschecking against a printed (or electronic) checklist to catch ourselves when we are fatigued or operating under distraction or a high workload.

In multiengine airplanes with retractable landing gear, the routine is usually "positive rate, gear up"—as soon as the airplane is established in climb, the pilot (crew) raises the landing gear to streamline the airplane for climb, and to be able to maximize performance in the event of an engine failure.

In all aircraft the SOP is (or should be) to establish the airplane in climb and on course, then refer to the Climb checklist. Most of the time you probably will not need to do *anything* as a result of processing through the checklist. You're just *confirming* you hadn't forgotten anything. However, the printed checklist steps will remind you if you *had* missed a step…such as retracting the landing gear.

Use the same technique in other phases of flight as well. Level off, get the airplane established in cruise, then doublecheck your actions with the Cruise checklist. Beginning descent, pull out the Descent checklist to ensure you've not forgotten anything. Entering an approach? Back up your action with a quick reference to the steps of an Approach/In Range checklist. Practice so you can use a very abbreviated Before Landing checklist on final approach.

In all phases of flight, the applicable checklist serves as quality control to your memorized actions. In a single-pilot airplane, this is *almost* the only quality control you get.

The *other* quality control is to compare your actual to expected performance. Is the airplane climbing like it should? Are the engine temperatures and pressures normal? Is the fuel burn as expected, and the rate of fuel use consistent with your time aloft and the power setting you use? Are you getting to waypoints and checkpoints on time?

Discrepancies between what is planned and what actually occurs is the other form of single-pilot (and crew) quality control. ***Actually planning*** your flight, to include takeoff and climb performance, anticipated fuel burn and groundspeed, and your times and fuel remaining at various points along the way, and then ***actively comparing*** your actual performance to those expectations, will allow you to quickly detect any discrepancies that tell you something is different. It may be your only clue that you need to run those checklists again to be sure you've not missed anything, and perhaps need to change the way you're doing things or even divert and land.

Crosschecks, checklists and SOPs are what keep us from letting one missed action or one discrepancy from turning into a looming tragedy. A simple checklist confirmation and crosscheck would have saved the Air India crew from nearly running out of fuel. Work crosschecks, checklists and SOPs into your routine…the only quality control protecting you and your passengers in the air.

> Robert Sumwalt…chairman of the National Transportation Safety Board, said aviation safety's biggest threat comes from complacency. "We've had an excellent run of good, safe flights over the last number of years [but] the people leading the airlines … weren't around back in those dark days," he said. "I worry about complacency in the industry overall." – Air Transport World

Comments? Questions? Let us learn from you, at mastery.flight.training@cox.net

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Debrief: Readers write about recent *FLYING LESSONS:*

An anonymous reader writes about Better Briefings:

> I really appreciate your newsletter. As a pilot who doesn't fly enough, it provides great food for thought and allows me to benefit from the collective experiences of many others. This popped up in my Facebook feed tonight and I though you might appreciate it: https://www.aerosociety.com/news/briefing-better/

Reader Charles Loyd, the retired Cessna Aircraft corporate pilot and salesman who gave me my first experience using an Angle of Attack indicator in his beautiful updated Cessna 182, echoes my call to **Stop Talking About Safety** and instead emphasize mastery and command of your aircraft. Charles writes:

> **Stop Talking About Safety – What have *you* done to change your flying habits?**
>
> Some of the biggest things I did to change my flying procedures happened after going to work for a major fractional aircraft operation. With a specific set of standard operating procedures and Operations manual. I started applying these principles to flying my Cessna 182. A few changes were:
>
> - Altitude callouts at 1,000 feet to assigned altitudes to myself.
> - Educating my wife to make correction call outs when I'm off altitude.
> - Having my wife make callouts on approaches including when she had the field in sight.
> - Setting 12 hours as the maximum duty day versus 14 hours for part 135 operations. The clock starts running when you get to the office or airport whichever comes first! Single pilot operations in GA are harder on the pilot than working as a two person crew with all the backup in a flight operation.
>
> So, my challenge to all of us, that I ask you Tom to pass along, is go beyond *reading* about safe operating procedures and actually *implement them* in your personal flying activities.

I'd amend what Charles wrote in one way: since the duty day is a function of personal fatigue and not just job duration, I teach that the duty day is "from alarm clock to engine shutdown." Does this make it harder to get in a flight at the end of a workweek, or to make it home from a series of meetings or on the last day of a remote vacation? Yes, it does. But ***personal minimums are worthless if you dismiss them when they're inconvenient***. That's part of your challenge to actually implement change in the way you fly. Thank you, Charles.

Comments? Questions? Let us learn from you, at mastery.flight.training@cox.net.

Best info that I receive about flight safety! - Brian P Conway

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Thanks to everyone who stopped me at Oshkosh to tell me how much you appreciate *FLYING LESSONS Weekly*, and to those who attended my presentation in the National Association of Flight Instructors (NAFI) Professional Development Center and in the FAA Learning Center. Your kind words and your participation in these events help make the time, effort and expense of writing and delivering *FLYING LESSONS* worth it. The FAA program will eventually be posted on the FAA's website, and I'll post the link when it's available. Thanks again!

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

Pursue *Mastery of Flight.*

Thomas P. Turner, M.S. Aviation Safety
Flight Instructor Hall of Fame 2015 Inductee
2010 National FAA Safety Team Representative of the Year
2008 FAA Central Region CFI of the Year
Three-time Master CFI

