

13 Tips to Keep You Flying Safely

If granted one wish, I would wave a magic wand and wish that pilots everywhere always made the right decisions so that aircraft accidents would become a thing of the past. While not possible, when you consider that approximately 80 percent of accidents are caused by poor decision making, it's clear that, as pilots, we each have the capability to make a dramatic impact on the accident rate.

Lest you think that the many seemingly poor choices you read about in accident reports are made by incompetent pilots, consider this. With few exceptions, when I hear people talk about a pilot who perished in an accident, I hear that he or she "was such a good pilot." If that's true—and I'm sure it often is—the logical conclusion is sobering. It is that, on rare occasions, otherwise good and competent pilots make bad decisions that lead to an accident. Hence, if you and I are good pilots, we too may be subject to an occasional bad decision that could lead to our demise. That's a chilling thought.

Knowing that any of us can occasionally make a bad decision, the question becomes what can we do about it? Of course, there are no ironclad answers, but I'd like to share a few ideas that I try to instill in my flying clients. As a reader of this magazine, you may already be a voracious reader of accident reports and safety information and have heard of many of these ideas.



Hopefully, you'll find one or more new ideas and incorporate them into your flying behavior.

1 Consider the Unique Risks Faced for Each Flight

I take time before each flight to think about the unique risks posed by the flight. Invariably, those risks vary depending upon conditions. For example, recently a student and I concluded that the greatest risk posed was from nearby rain that might reach the airport before we returned from a training flight. To mitigate that risk, we identified an alternate airport to which we could return and we monitored the precipitation during the flight using NEXRAD (Next Generation Radar) on our Garmin G1000™-equipped aircraft.

Earlier today, I flew with a student and the weather was perfect. In that case, we identified that the biggest risk was violating the Class B airspace or the noise abatement procedures at our destination, located next to the San Francisco International Airport. Thus, we carefully reviewed all airspace and noise abatement rules and selected a cruising altitude that minimized the chance of an incursion.

There is a wide range of potential risks that you might face on any flight. You should be creative about teasing them out and then mitigating them. A few possibilities are changing weather, flying at night in a poorly lit area, flying over mountainous terrain, fuel exhaustion, flying an aircraft with which you lack familiarity, flying with little recent experience, and flying when fatigued. There are dozens of other possibilities, but the important thing is that you clearly identify the greatest risks you face on each flight and that you take steps to mitigate those risks.

2 Purge “Probably” from Your Flying Vocabulary

Just as a drug sniffing dog alerts in the presence of an illegal substance, you should be alert anytime you think the word “probably,” or any other conditional statement, when flying. If you ever think that your course of action will “probably work out,” you need to choose a new option that you know will work out.

In the San Francisco Bay area, about half of all Visual Meteorological Conditions (VMC)-into-Instrument Meteorological Conditions (IMC) accidents occur in the Livermore Valley, probably because a marine layer of clouds frequently obscures its mountains that rise from sea level to around 4,000 feet. A common way to traverse this area is through the Altamont and Sunol mountain passes. I tell pilots that if they ever approach these passes and, based upon their visibility, think “they can probably make it through,” they need to make a 180-degree turn and land at an alternate airport. Likely, pilots who crashed in this area felt that they would “probably” make it through—otherwise they wouldn't have continued.

3 How Will It Read in the NTSB Report?

When in doubt about a possible course of action, I think about how any subsequent National Transportation Safety Board (NTSB) report might read. Recently, a student and I had already started the engine, but the automatic terminal information service (ATIS) reported a direct crosswind gusting to the aircraft's maximum-demonstrated crosswind capability. The student was ready to go, but I stopped him and we terminated the flight. To proceed would have been gambling that the gusts would not reach peak as we were taking off or landing. So I asked him, if we had an accident, how would we explain it to the Chief Pilot? The most honest answer would be, “That we were stupid.”

4 Get Local Knowledge

There's no substitute for local knowledge. Just because one has been a pilot for years and has thousands of hours of experience doesn't mean that he or she can always figure out the best options for flying in an unfamiliar area. I routinely call flight instructors in other areas anytime I have a question about flying in their area, because they are the local experts.

An example is the Cory Lidle crash into a building in New York City. Cory and his instructor were flying the Visual Flight Rules (VFR) corridor over the rivers adjacent to Manhattan. The flight instructor was from southern California and probably lacked local knowledge of the area. Every local

New York City area pilot I have talked with always flies over the Hudson River, and none fly over the East River where the crash occurred. It is local knowledge that the East River corridor is so narrow that it is difficult to make a 180-degree turn over the river, so local pilots almost never fly over it.

5 Identify Local Hot Spots

In some areas, accidents occur more frequently in localized areas. That's true in the Livermore Valley example mentioned above. Become familiar with accidents in your local area and determine if there are areas where accidents occur more frequently. Then, develop strategies for avoiding accidents when flying in those areas.

6 Become Experienced in Type

As a pilot gains experience and accumulates hundreds or thousands of flying hours, it's easy to assume that this brings with it a cloak of immunity from accidents. However, accidents are correlated more with the number of hours of experience a pilot has in a particular aircraft model and not with the total number of hours! Accidents tend to decrease after a pilot has at least 100 hours of experience in the aircraft he/she's flying. Thus, your goal should be to fly carefully, while perhaps getting some dual instruction, until you reach 100 hours of experience in a particular aircraft model. If you fly relatively few hours per year, maximize your safety by concentrating those hours in just one aircraft model.

7 Plan Accordingly for Night Flight

The odds of a daytime accident involving fatalities are about 15 percent, but they double to around 30 percent at night. If you fly at night, become a student of its unique risks. Most night accidents occur in the approach phase while descending for landing. Since it is often impossible to see surrounding terrain at night, it is imperative that you always know your position and maintain a safe altitude above the terrain.

A common trap is flying a long straight-in approach to a runway over dark terrain. Simulator studies show that when pilots look at a runway



at night, if there are few lights below them, they will fly a curved path that takes them below the approach path leading to a crash short of the runway. To avoid this, maintain a safe altitude to the airport and then fly a normal traffic pattern.

Likewise, on takeoff at night over dark terrain, pilots often unknowingly descend and crash, usually within a mile of the airport. When the human body is accelerated, we perceive a tilting back sensation (somatogravic illusion), which we perceive as a climb. This is not a problem in daylight, as we see the terrain below and fly to avoid it. However, at night over dark terrain, you must crosscheck the instruments to verify that you're climbing at V_y —the best rate of climb airspeed—and have a positive rate of climb. Otherwise, you may actually be descending, even though you feel like you are climbing.

8 Select and Use Conventional and Unconventional Personal Minimums

Get a copy of the FAA's Accident Prevention Brochure P-8740-56, called Personal Minimums Checklist at http://www.faa.gov/education_research/training/fits/guidance/media/personal%20minimums%20checklist.pdf or you can find a copy in the Aviation Learning Center Library at www.faasafety.gov/. Go through the four categories of Pilot, Aircraft, Environment, and External Pressures and decide upon the minimums that you'll use to guide your decision making for every flight. For example, while it is legal under Code of Federal Regulations part 91 to takeoff under instrument flight rules (IFR) with zero visibility, you might decide to always require a ceiling and visibility that allows you to return IFR to your departure airport, if you encounter a problem after takeoff.

Also, consider unconventional minimums that you will not find on the list. For example, since most night accidents occur when there is no moon or it is obscured by clouds, you might decide to not fly at night, unless there is at least a quarter moon visible. Or, since fatigue is an accident factor, you might decide never to fly after 11 p.m., or after you've had a combined workday and flying time of, for example, ten hours total. Be creative in selecting personal minimums that fit your knowledge of yourself and known accident factors. Then, never violate the minimums you have established, regardless of the internal or external pressures you may experience to complete a flight.

9 Step Up Your Game

Always look for new challenges and ratings to acquire throughout your flying career. If you have any interest in teaching, get your flight instructor (CFI) certificate. The best way to know a subject thoroughly is to teach it. Currently, there's a shortage of flight instructors. If you have a CFI certificate and are not using it, get back into teaching. If you aren't interested in teaching, then take friends flying who have the interest in and the means to acquire a pilot certificate. Find them a flight instructor and mentor them through the process. The pilot population is declining and all pilots need to get involved in reversing this trend.

10 Strive for the Perfect Flight

Try to make each flight a perfect flight with no mistakes. It is extremely difficult to achieve, but the effort will pay dividends as you develop a routine and stick to it for every flight.

11 Develop Emergency Responses from the Comfort of Home

Rod Machado has said that the best decisions are those that you make while you are on the ground. He tells of once flying with another CFI to retrieve a plane and pilot from Santa Barbara after that pilot chose to discontinue his flight because of deteriorating weather. Rod asked the pilot when he chose to terminate that flight, and the pilot responded,

"Five years ago." Take the time from the comfort of an easy chair to think through the many situations you may encounter in the future. Make rational decisions ahead of time about the actions you will take when you encounter these situations.

12 The Rule of Two

There are at least two versions of this rule. My personal version is that when I get to the second factor, which is not quite right, I scrub a potential flight or terminate an actual flight. Generally, accidents are caused by a series of bad decisions, so by stopping at the second factor that is not quite right, I am attempting to break a link in the chain and avoid having an accident.

At a safety seminar I was teaching, a pilot described a similar rule of two, which is that he never attempts a flight with two risk factors. For example, he will fly over the mountains, but not at night or when IFR. Or, if he flies IFR, he won't do it at night.

13 Two-Pilot Cockpit

There's a great disparity between the commercial and general aviation accident rates, which is partially explained by the airlines' use of two pilot crews. Over the years, I have noticed that when I fly with another pilot, I am less fatigued when I arrive. I attribute that to (a) the lower stress of sharing the workload with another pilot and (b) knowing that there's a second pilot to alert me to mistakes I make. When taking a long trip, or when needing to fly after a long day of business, consider taking a second pilot, perhaps a flight instructor, along with you for the trip.

Flying is lots of fun, but I concluded a long time ago that it is not worth dying for. Put these tips to work for you—and create new ones—so that you enjoy a long and safe flying career.

Based in Mountain View, California, Max Trescott is a general aviation advocate, publisher of aviation training materials, and the 2008 CFI of the Year. He can be reached at info@sjflight.com.

© 2008 Max Trescott
This article is copyrighted. Written permission must be obtained from the author to reprint this article.