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# SAFETY FIRST

A column dedicated to GA safety education

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## RISK AND REWARD

It has been said that if piloting an aircraft were 100% safe, many people would have no desire to become pilots. Certainly, there are other good reasons for wanting to fly. Transportation, sightseeing, and involvement with electronic and mechanical devices are a few. However, the challenge of successfully managing risk and the adventure in doing so are attractive to many people who become pilots. Successful pilots are typically intelligent, have problem-solving skills, are self-confident, are goal-oriented, and are aggressive in pursuing and achieving their goals. People who become pilots are not only willing to accept risk in pursuing their goals but, to some extent, actually seek risk. For many, being successful in overcoming risk increases the appeal of piloting.

Therein lies the problem. There is a fine line between constructive aggressiveness and letting that aggressiveness get in the way of managing the risks. Since we pilots are aggressively goal-oriented, when we are on final for landing, we have a strong mindset to land, not to go around, and are therefore tempted to try to land even if our approach is not appropriate.

This month a T210 pilot-acquaintance of mine was high and fast with a tailwind on his approach to runway 8 at Boulder. Nevertheless, his goal was to land, which he did. He subsequently went off the side of the far end of the runway after laying skid marks on the pavement for a considerable distance. No one was hurt, but the airplane was totally destroyed after flipping over and sliding on its back down a slope into a ravine. Before I bought my own T210, I rented that particular airplane and flew

it for over 100 hours so I'm familiar with how its STOL kit leads you to think you can land short, even with a tailwind. Obviously, the owner-pilot learned that there is a limit to that capability. I'm sure all of us Flying Physicians have heard of similar accidents, wherein a pilot landed when they should have gone around, or landed long and fast and then initiated a go-around too late, in some cases with disastrous consequences.

When I am faced with unpredictable or strong winds (very common at Boulder), I usually tell my passengers that the first time I likely will just do a fly-by over the runway to get a feel for the conditions, and then we'll land one of the next times around. Of course, if my approach is good and the winds aren't too goosey when I'm ready to flare, I go ahead and land the first time. Nevertheless, if I do go around instead of landing, they are not wondering what is wrong since I told them ahead of time that I would likely go around. This is not only good for passengers' nerves, but it helps me to establish my own mindset of expecting to go around in case all is not just right for landing.

Our strong goal-oriented mindset can also make it difficult to deviate to an alternate destination on a cross-country trip. The closer we get to our intended destination, the more difficult it becomes to consider deviating because of weather changes or because of a lower fuel level if we have encountered unexpected headwinds.

Consider this scenario: we are going to a meeting in another city with a destination airport that is very low IFR and surface temperature is near freezing, so there is a potential for tailplane

icing. We execute a missed approach on our first ILS because we don't see the runway at minimums. Even though we have adequate fuel for flight to an alternate that has better weather, we are tempted to think that maybe the scud will lift just enough so that we will see the runway on a subsequent ILS approach. We try to believe that the potential for icing isn't really that bad. However, we usually can't see ice on our horizontal stabilizer very well. Since ice forms on the thinnest surfaces first, we may have a fair amount of ice on our horizontal stabilizer (with potential for the tailplane to stall upwards) even though we do not see much ice on the wings. A tailplane stall on the subsequent approach is a distinct possibility with the result that the nose could pitch down when we are too low to recover. The point is that when our goal-oriented mindset overpowers prudent risk management, we may no longer leave ourselves an appropriately generous safety margin, which could result in a single complication out of several possible ones leading to disaster.

Let's be honest with ourselves. Flying involves risk. One source stated that on a per mile basis, the fatal accident rate for general aviation flying is seven times worse than that of automobiles. At one AOPA seminar, the lecturer asked how many people had lost a friend or acquaintance in an auto accident. A small number of hands went up. Then he asked how many had lost a friend or acquaintance in an aviation accident, and many more hands went up. I personally have lost more than a half-dozen friends and acquaintances in airplane accidents, but only one in an auto accident. Of airplanes that I had rented before I purchased my own, three have since been wrecked in fatal accidents and one in a non-fatal crash (the T210 I described earlier).

The only way to be 100% safe is not to fly. However, as the saying goes, "Ships in a harbor are safe, but that is not what ships are for." Sitting out our lives in a figurative safe harbor is not what life is about. It would be a waste of our lives if all we did was to spend our time and energy seeing how safe we can be.

The only purpose of being reasonably safe is so that we (and our passengers) have the opportunity to keep on living and enjoying life (and flying!). Besides that, there is a great deal of satisfaction in successfully dealing with risk in a positive, competent manner.

Once, when returning to Boulder from Oshkosh, there was a convective sigmet to the north and a convective sigmet to the south of my path across Nebraska. At my prior fuel stop, I conferred with a better than average briefer about a strategy. He said that the upper level winds were such that the huge CBs would not throw hail in the direction of my path. Additionally, the CBs were not closing towards my route and not expected to in the next few hours. I had XM Nexrad weather onboard. While flying, I used flight following and asked the controller what she was showing for cells just before I entered the gap between sigmets since I know my onboard Nexrad is somewhat delayed. I knew that I could always turn around and go back to good weather if conditions worsened or if the gap was starting to disappear. I will never forget the views of huge CBs both north and south of my route that were dumping rain and hail. However, I didn't get one drop of rain and flew through uneventfully. I derived great pleasure from using all sources of information and my training and experience to manage the risks safely on that flight. Empowerment!

So how are we to manage those risks that entice us to overcome them? Although it is easy to say that we just need to use common sense and use good judgment, it can help to have a checklist for risk management. Although all of us should put together our own, several mnemonics have been developed to get us started.

#### **Before taking off: PAVE Pilot, Aircraft, enVironment, External pressures**

Pilot: Am I in good shape physically and emotionally, and are my skills up to date for the specific level of challenge in this flight?

Aircraft: Is the aircraft up to this specific task with all the proper certifi-

cations?

enVironment: Have I briefed myself fully on the airports, terrain, weather, and lighting conditions that I plan to encounter or might encounter if I deviate?

External pressures: Have I accepted that I may need to deviate from my intended route and destination, in spite of the pressures from others or from myself. Am I prepared to cancel the flight or turn back to my departure airport if that is the prudent thing to do?

#### **After becoming airborne: CARE Consequences, Alternatives, Reality, External pressures**

Consequences: While flying, consider that the changes that are occurring may require you to alter your original plans. Your fuel will be less and less than when you started, so your range of alternatives shrinks. You will be progressively more fatigued. Lighting conditions may change. Think through the possible chain of consequences; for example: Your groundspeed is slower due to unexpected headwinds. Unexpected winds could mean that the weather at your destination has deteriorated and may be down to minimums by the time you arrive. If it goes below minimums, you could miss your approach but you won't have as much fuel reserve because of the headwinds you encountered. What then? Consider deviating early?

Alternatives: Always have more than one alternative. Your best alternative may be to return to your departure point early in the flight.

Reality: Accept reality if your plan is not working out as you thought. "We'll probably be okay" were the next to the last words heard on the cockpit voice recorder of an accident I investigated. "Probably okay" should not be part of your vocabulary while flying.

External pressures: Recognize that you are a goal-oriented person with a strong desire to complete your plan to fly to your destination. Then choose a course of action that will achieve an even more admirable goal:

*To live to fly another day!*