# NTSB SAFETY ALERT
## National Transportation Safety Board

★ **Pilots: Manage Risks to Ensure Safety** ★

## *Good decision-making and risk management practices can help prevent accidents*

### The problem

- Although few pilots knowingly accept severe risks, accidents can also result when several risks of marginal severity are not identified or are ineffectively managed by the pilot and compound into a dangerous situation. Accidents also result when the pilot does not accurately perceive situations that involve high levels of risk.

- Ineffective risk management or poor aeronautical decision-making can be associated with almost any type of fatal accident across all general aviation (GA) sectors.[1]

### Related accidents

Sadly, the circumstances of each new accident are often remarkably similar to those of previous accidents. This suggests that some pilots are not taking advantage of the lessons learned from such tragedies that could help them avoid making the same mistakes. The following accident summaries[2] provide examples of some common—and preventable—accident scenarios related to ineffective risk management:

- A private pilot (who did not hold an instrument rating) and his three passengers were killed after the pilot experienced spatial disorientation and lost control of a Cirrus SR20 airplane in instrument meteorological conditions (IMC). The pilot had attempted a descent toward an airport that was reporting IMC, but he could not find it and told the air traffic controller that he was flying "in and out of the clouds." After the controller learned that the pilot was not qualified for flight in IMC, another controller advised the pilot of several nearby airports that were reporting visual weather conditions. The pilot initially indicated that he would divert to one of those airports but

---

[1] Each year, the NTSB investigates about 1,500 GA accidents in which about 475 people are killed. See the NTSB data for Review of US Civil Aviation Accidents, Calendar Year 2011, which can be accessed from the NTSB's Aviation Statistics web page at http://www.ntsb.gov/investigations/data/Pages/aviation_stats.aspx.

[2] The accident reports for each accident referenced in this safety alert are accessible by NTSB accident number from the NTSB's Aviation Accident Database & Synopses web page at http://www.ntsb.gov/_layouts/ntsb.aviation/index.aspx. (The accident numbers are CEN12FA083, CEN10FA071, and WPR11FA032, respectively.) Each accident's public docket is accessible from the NTSB's Docket Management System web page at http://www.ntsb.gov/investigations/SitePages/dms.aspx.

then changed his mind. Shortly after the pilot's last communication with controllers, the airplane entered a right turn that tightened abruptly before the airplane descended to the ground in a steep, nose-down attitude.

- A pilot in a Cessna 310R airplane was killed when his airplane collided with terrain during his second attempted approach to a familiar airport in night IMC with fog. The pilot's personal medical records noted a long history of severe migraine headaches, and his toxicology results were positive for several potentially impairing medications. The pilot had not reported any medications or severe headaches to the Federal Aviation Administration (FAA) on his medical certificate application. The investigation found that the pilot was likely impaired due to a migraine headache, medication use, or both and that this impairment played a role in his decision to descend below a safe altitude.

- A pilot and his three sons were killed when he lost control of his Mooney M20J airplane, which collided with mountainous terrain in a rapid descent. Before the flight, the pilot had obtained weather briefings that included advisories for mountain obscuration, turbulence, and icing. The pilot had previously canceled his plans to fly the trip (the purpose of which was to return home from vacation) due to adverse weather conditions, and he had made alternate arrangements for himself and his sons to travel home on a commercial airline. However, when the airline flight was canceled (for non-weather reasons), the pilot decided to depart on the accident flight. The pilot's decision to depart into known adverse weather was a cause of the accident. The investigation identified several safety issues, including evidence that the pilot's self-imposed time pressure adversely affected several safety aspects.

## What can pilots do?

- Develop good decision-making practices that will allow you to identify personal attitudes that are hazardous to safe flying, apply behavior modification techniques, recognize and cope with stress, and effectively use all resources. Understand the safety hazards associated with human fatigue and strive to eliminate fatigue contributors in your life.

- Understand that effective risk management takes practice. It is a decision-making process by which you can systematically identify hazards, assess the degree of risk, and determine the best course of action.

- Be honest with yourself and your passengers about your skill level and proficiency. Refuse to allow external pressures, such as the desire to save time or money or the fear of disappointing passengers, to influence you to attempt or continue a flight in conditions in which you are not comfortable.

- Be honest with yourself and the FAA about your medical condition. If you have a medical condition or are taking any medication, do not fly until your fitness for flight has been thoroughly evaluated.

- Plan ahead with flight diversion or cancellation alternatives, and brief your passengers about the alternatives before the flight.

## *Interested in more information?*

Education and training are essential to improving GA safety. The Federal Aviation Administration (FAA) Safety Team (FAASTeam) provides access to online training courses, seminars, and webinars as part of the FAA's "WINGS—Pilot Proficiency Program," which includes targeted flight training designed to help pilots develop the knowledge and skills needed to achieve flight proficiency and to assess and mitigate the risks associated with the most common causes of accidents. The courses listed below and others (many of which were developed by the Aircraft Owners and Pilots Association [AOPA] Air Safety Institute, a division of AOPA Foundation), as well as seminar and webinar information, can be accessed from the FAASTeam website at www.faasafety.gov. (Course access requires login through an existing or creation of a free FAASTeam account.)

- Aeronautical Decision-Making for VFR Pilots
- Do The Right Thing: Decision-Making for Pilots
- The Art of Aeronautical Decision-Making
- Top 10 Causes of General Aviation Accidents
- Fatigue Countermeasure Training

Other resources:

- The AOPA Air Safety Institute offers several interactive courses, presentations, publications, and other safety resources that can be accessed from its website at http://www.aopa.org/Pilot-Resources/Air-Safety-Institute. (Course access requires creation of a free account.) Examples include an accident case study, "In Too Deep," that features the Cirrus SR20 accident summarized in this safety alert, and a video, "Critical Information: The Passenger Safety Briefing," which provides information about passenger safety briefings. A printable safety briefing card is included.

- *Pilot's Handbook of Aeronautical Knowledge* (FAA-H-8083-25A) discusses aeronautical decision-making and risk management in chapter 17. It provides basic tools (including the "IMSAFE" health evaluation, the "DECIDE" process for aeronautical decision-making, and other tools) to help pilots assess risk and manage it in a positive manner. The *Risk Management Handbook* (FAA-H-8083-2) provides a more in-depth discussion of risk management principles. Both handbooks can be accessed from the FAA's website at www.faa.gov.

- A Personal Minimums Checklist (based on the "PAVE" model) that you can print and tailor to your skill level can be accessed from the FAA's Guidance and Documents website at www.faa.gov/training_testing/training/fits/guidance/*.*

This NTSB safety alert and others can be accessed from the NTSB's Safety Alerts web page at http://www.ntsb.gov/safety/safety-alerts/Pages/default.aspx.

SA-023 March 2013, revised December 2015