



NTSB

SAFETY ALERT

National Transportation Safety Board



Is Your Aircraft Talking to You? Listen!



Pay attention to signs of potential mechanical problems

The problem

- Some pilots do not pay adequate attention to indications of aircraft mechanical problems, which can lead to in-flight emergencies and accidents.
- Powerplant system or component failure is the third-most common defining event for fatal accidents in the personal flying sector of general aviation (GA). Nonpowerplant system or component failure also ranks high on the list.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 summaries² illustrate some common—and preventable—accident scenarios related to inadequate attention to mechanical problems:

- A private pilot was killed after he lost control of his RV-6 experimental airplane while maneuvering for an emergency landing following a loss of engine power in flight. Before the accident flight, which was initially planned to be a maintenance diagnostic flight in the vicinity of the departure airport, the pilot had a high-pressure oil line repaired by a local weld shop. Although a mechanic who watched the airplane depart on the accident flight saw white smoke trailing from the airplane and twice told the pilot via radio to return to the airport, the pilot chose to fly the airplane to another airport. While the pilot was en route to the destination, the airplane's engine lost

¹ Each year, the NTSB investigates about 1,500 GA accidents in which about 475 people are killed. See the NTSB data for [GA fatalities for calendar years 2007 – 2011](#). The defining events information is derived from the NTSB's [Review of U.S. Civil Aviation Accidents, 2007-2009](#). Both data sources are available from the NTSB's [Aviation Statistics](#) web page at www.nts.gov/data/aviation_stats_2012.html.

² The accident reports for each accident referenced in this safety alert are accessible by NTSB accident number from the NTSB's [Accident Database & Synopses](#) web page at www.nts.gov/aviationquery/index.aspx. (The accident numbers are [WPR09LA153](#), [ERA09FA093](#), and [SEA07FA061](#), respectively.) Each accident's public docket is accessible from the NTSB's [Docket Management System](#) web page at www.nts.gov/investigations/dms.html.

power because it was starved of oil due to leakage from the inadequately repaired oil line.

- A commercial pilot was killed when his Beech 36 airplane struck a tree and then the ground during an emergency landing following a loss of engine power in night instrument meteorological conditions. The pilot, who bought the airplane months before the accident, previously reported low oil pressure problems to a mechanic. That mechanic told the pilot that it was important to have the problem checked because it may indicate that something was not right with the recent engine overhaul. Hours before the accident flight, the pilot told the fixed base operator (FBO) that fueled the airplane that he was having “problems” with it and to put it in the hangar. FBO personnel complied, but, about 30 minutes later, the pilot requested that the airplane be pulled back onto the ramp. FBO personnel next saw the pilot try to start the airplane without success before he walked back into the FBO facility and then walked back out to the airplane. At some point, the pilot telephoned a maintenance facility but found that no one was available until the next morning. Rather than wait to have the airplane checked, the pilot again attempted to start it, was successful, and departed on the accident flight. The investigation determined that the airplane lost engine power after the crankshaft fractured due to improper maintenance performed during the recent overhaul.
- A private pilot was killed when his Cessna T210R airplane collided with the ground and obstacles during an emergency landing following a loss of engine power during takeoff. The pilot had experienced engine power loss events in the airplane at least twice in the 18 months that preceded the accident. During one such event, the pilot had passengers on board when the engine lost power during the takeoff roll. The pilot had rejected that takeoff and taxied the airplane back for another takeoff (with the passengers still on board), which was successful. According to a mechanic, the pilot had attributed the previous power loss events to a cold engine or a too-rich mixture. The accident investigation found that debris in the fuel manifold valve interrupted the fuel flow.

What can pilots do?

- Resist the temptation to let external pressures, such as the desire to save time or money, influence you to fly an aircraft that shows signs of a potential problem. Safety should take precedence over all other considerations.
- Listen to what your aircraft is telling you, and remember that shortcuts on the ground can cost you dearly in flight. It is better to address a problem on the ground rather than risk having to deal with an emergency in the air.
- Remember the purpose of a maintenance diagnostic flight and stick to the plan. Be prepared for problems, and do not bring passengers.
- Understand that maintenance troubleshooting sometimes takes time. Ensure that the aircraft performs correctly after maintenance. If any indication of a potential problem persists, additional maintenance or a second opinion may be in order.

- Remember that, should an in-flight emergency occur, your ability to swiftly and successfully execute your aircraft's emergency procedures can mean the difference between life and death. Seek flight and ground training to ensure that you are prepared. During an actual emergency is not the time to find out that you are rusty on procedures.

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](http://www.faasafety.gov) website at www.faasafety.gov. (Course access requires login through an existing or creation of a free FAASTeam account.)

- [Engine and Propeller](#)
- [Aging Aircraft](#)
- [Pneumatic Systems](#)

Other resources:

- The AOPA [Air Safety Institute](http://www.aopa.org/asf/) offers several interactive courses, presentations, publications, and other safety resources that can be accessed from its website at www.aopa.org/asf/. (Course access requires creation of a free account).
- "[Airplane Flying Handbook](#)" (FAA-H-8083-3A) contains information about dealing with in-flight non-normal and emergency situations in [chapter 16](#). The handbook can be accessed from the FAA's website at www.faa.gov.
- "[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](http://www.nts.gov/safety/safety_alerts.html) web page at www.nts.gov/safety/safety_alerts.html.