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Prevent Loss of Control in Flight in General Aviation



What is the issue?

While airline accidents have become relatively rare in the United States, pilots and passengers involved in general aviation (GA) operations still die at alarming rates every year due to loss of aircraft control by the pilot.

Between 2008 and 2014, about 47 percent of fatal fixed-wing GA accidents in the United States involved pilots losing control of their aircraft in flight, resulting in 1,210 fatalities.

GA pilot proficiency requirements are much less rigorous than those of airline pilots. GA pilots are much more likely to have longer intervals between training sessions and longer intervals between flights.

They typically only need to complete a flight review, consisting of one hour of ground training and one hour of flight training, every 24 months. They almost exclusively maintain and improve skills on their own, and their conduct of safe flight depends more on individual abilities and judgment, potentially leaving them unprepared for situations that can lead to loss of control.

Statistically, approach to landing, maneuvering, and initial climb are the deadliest phases of flight for loss-of-control accidents. For example, on August 9, 2013, in East Haven, Connecticut, while attempting a tight circling approach in and out of clouds during gusty wind conditions, a Rockwell International 690B entered an inadvertent aerodynamic stall/spin and crashed into a house, killing the pilot, his passenger, and two children in the house.

What can be done?

In October 2015, the NTSB held a forum on "Humans and Hardware: Preventing General Aviation Inflight Loss of Control." The forum addressed some of the common causes of loss-of-control events, such as pilot inattention due to workload, distractions or complacency, and a lack of understanding how a stall actually relates to exceeding a wing's critical angle of attack (AOA), as opposed to the more common idea that it's just related to airspeed. Also noteworthy is that when airplanes are close to the ground, such as in a landing pattern, there is limited time and altitude available to recover from a stall, thus making these stalls particularly deadly.

The 2015 forum provided potential hardware solutions, such as the use of AOA indicators, and human solutions, such as increased pilot training to ensure a full understanding of stall phenomena. This training should also include understanding AOA concepts and how elements such as weight, center of gravity, turbulence, maneuvering loads, and other factors can affect an airplane's stall characteristics.

Pilots should:

- Be prepared to recognize stall characteristics and warning signs, and be able to apply appropriate recovery techniques before stall onset.
- Be honest with themselves about their knowledge level of stalls, and their ability to recognize and handle them.
- Use effective aeronautical decision-making techniques and flight risk assessment tools during both preflight planning and inflight operations.
- Manage distractions so that they do not interfere with situational awareness.
- Understand, properly train, and maintain currency in the equipment and airplanes they operate.
- Take advantage of available commercial trainer, type club, and transition training opportunities.
- Realize stall characteristics can vary with aircraft loading and are usually worse at aft CG (center of gravity).

Airplane owners should consider installing an AOA indicator, which, coupled with pilot understanding and training on how best to use it, can enhance situational awareness during critical or high-workload phases of flight.

The Federal Aviation Administration, aviation advocacy groups, type clubs, and manufacturers, including kit manufacturers, are creating and maintaining educational initiatives that include general principles, best practices, and operational specifics as they relate to loss of control. These resources can be helpful in learning effectiveness countermeasures.

All stakeholders should recognize the importance of their roles in the reduction of loss-of-control accidents. However, individual pilots play the most critical role; they have both the ultimate responsibility and the ultimate opportunity to reduce these needless accidents through ongoing education, flight currency, self-assessment, use of available technologies, and vigilant situational awareness in the cockpit.

Related Accidents

- February 22, 2014; [LaGrange, GA](#); [ERA14FA128](#); 3 dead
- December 12, 2013; [Collbran, CO](#); [CEN14FA084](#); 3 dead
- August 9, 2013; [East Haven, CT](#); [ERA13FA358](#); 4 dead
- February 14, 2013; [St. Lucie, FL](#); [ERA13FA201](#); 1 dead

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