



**National
Transportation
Safety Board**

Enhancing Safety through Standdown: Strengthening the Safety Culture of Aviation

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Board Member

Opening Remarks
Bombardier Safety Standdown
October 6, 2014

Focus . . .

distraction \longleftrightarrow fixation

Safety



Safety Culture Emerges from Safety Traits



Nuclear Regulatory Commission (NRC): Traits of a Positive Safety Culture

Questioning Attitude

Work Processes

Problem Identification and Resolution

Continuous Learning

Environment for Raising Concerns

Respectful Work Environment

Effective Safety Communication

Personal Accountability

Leadership Safety Values and Actions



Safety Culture Matters

- Safety 'traits' are associated with enhanced safety outcomes
- Changes at the individual, operational, and organizational level



NRC Safety Culture Definition

the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment



Enhance Safety . . .

Strengthen Safety Traits!
through knowledge + action





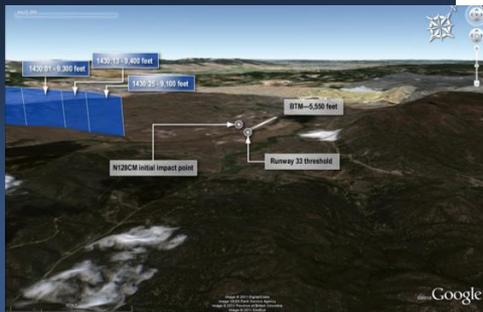
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Accident Reports

Crash Following Loss of Engine Power Due to Fuel Exhaustion
 Air Methods Corporation
 Eurocopter AS350 B2, N352LN
 Near Mosby, Missouri
 August 26, 2011



Loss of Control While Maneuvering
 Pilatus PC-12/45, N128CM
 Butte, Montana
 March 22, 2009



Pilot/Race 177, *The Galloping Ghost*
 North American P-51D, N79111
 Reno, Nevada
 September 16, 2011

Accident Report
 NTSB/AAR-11/05
 PB2011-910405



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Accident Report

NTSB/AAR-13/02
 PB2013-104866



Figure 10. Inboard piece of left elevator trim tab separated.

Photograph courtesy of Julia Kirchenbauer.

Omega Aerial Refueling Services flight
 Aircraft Accident Brief



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Safety Recommendations



National Transportation Safety Board
Washington, DC 20594

Safety Recommendation

Date: February 28, 2013

In reply refer to: A-13-01 to -03

The Honorable Michael P. Huerta
Administrator
Federal Aviation Administration
Washington, DC 20591



National Transportation Safety Board
Washington, DC 20594

Safety Recommendation

Date: May 15, 2013

In reply refer to: A-13-21

46 US states, 4 territories and DC
(See attached distribution list)



National Transportation Safety Board
Washington, DC 20594

Safety Recommendation

Date: May 15, 2013

In reply refer to: A-13-20

The Honorable Sally Jewell
Secretary
Department of the Interior
1849 C Street, NW
Washington, DC 20240-0001

The Honorable Chuck Hagel
Secretary
Department of Defense
The Pentagon
Washington, DC 20301-1155

The Honorable Tom Vilsack
Secretary
Department of Agriculture
1400 Independence Avenue, SW
Washington, DC 20250-0002



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Safety Alerts



NTSB SAFETY ALERT

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★ All Secure, All Clear ★

Be vigilant regarding accountability and security of items

The problem



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★ Pilots: Understand Impairment Risk ★

Over-the-Counter and Prescription Drugs Can Cause Impairment

The problem

- Toxicology tests of pilots involved in fatal aviation accidents increasingly show evidence that a wide variety of over-the-counter (OTC) and prescription drugs have been used, including drugs that are potentially impairing.
- Pilots may be using OTC or prescription drugs without realizing that they can cause impairment.
- Pilot impairment reduces the safety of flight and increases accident risk.
- Pilot impairment due to the effects of drugs is preventable.

Related accidents

- On May 5, 2012, a Cessna 177B impacted terrain after experiencing an aerodynamic stall about 300 feet above the ground during a go-around. The investigation found no preaccident anomalies with the aircraft. Postaccident toxicology testing of the fatally injured pilot showed that the pilot had taken diphenhydramine, an OTC sedating antihistamine commonly marketed under the names Benadryl and Unisom. The drug's effects and pilot impairment were contributing factors in the accident. [\[ERA12FA319\]](#)
- On March 30, 2011, a Cessna 310R impacted terrain while conducting a nonprecision approach to a mountain top airport that was obscured by clouds and fog. The investigation found no preaccident anomalies with the aircraft. Toxicological testing of the fatally injured pilot found significant amounts of doxylamine, a sedating antihistamine, in combination with other drugs that suggested use of an OTC cold medicine such as a Nyquil or an Aldex product. The drug's effects and pilot impairment were contributing factors in the accident. [\[ERA11FA218\]](#)
- On July 7, 2010, a Eurocopter AS-360-B2 helicopter flying during the day in good visibility impacted trees and terrain. The investigation found no preaccident anomalies with the aircraft. Toxicological testing of the fatally injured pilot showed



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★ Distracting Devices? Turn Them Off! ★

Avoid Nonoperational Use of Portable Electronic Devices (PEDs) Before and During Flight

The problem

Nonoperational use of PEDs by pilots (including cell phones, smart phones, tablets, and laptop computers) can divert attention from activities necessary for safe operations, both in the air and on the ground.

Nonoperational use of PEDs has been documented during

- Preflight planning and preparation,
- cruise, and
- maneuvering flight.

PED-related distraction has played a role, or at least been present, in accidents involving improper fuel management, loss of positional awareness, loss of automation mode awareness, collision with obstacles, and loss of control.

Related accidents

On August 26, 2011, a Eurocopter AS350 B2 helicopter, N352LN, impacted terrain following an engine failure near the airport in Mosby, Missouri. The helicopter experienced fuel exhaustion because the pilot departed without ensuring that the helicopter was adequately fueled. The investigation determined that the pilot engaged in frequent personal texting, both before and during the accident flight. The pilot and a flight nurse, flight paramedic, and patient were killed. (GEN11FA599)

¹ The report for this accident, which includes concurring and dissenting statements, is accessible at www.ntsb.gov/doclib/reports/2013/AAR1302.pdf. The reports for the other accidents referenced in this safety alert are accessible by NTSB case number at www.ntsb.gov/aviationquery/index.aspx. Each accident's public docket is accessible at www.ntsb.gov/investigations/dms.html.



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★ 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 accident

Sadly, the circum-
previous accident
learned from suc-
following acciden-
accident scenario



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★ Check Your Restraints ★

Carefully follow restraint system maintenance and replacement guidance to prevent death and injuries

The problem

- General aviation aircraft restraints degrade due to age, UV exposure, and repeated use.
- Although restraints are required to be inspected annually, degradation of their capability can be difficult for aircraft owners and maintenance personnel to detect.
- Some aircraft are only equipped with lap belts and do not have shoulder harnesses, which can prevent occupants from impacting the airplane interior during a crash.

Related accidents

The NTSB has investigated several accidents in which restraint systems did not perform to their design standards because they had degraded or in which shoulder harnesses were not installed on the aircraft. Occupants often sustain serious or fatal injuries during accidents when a restraint fails or is not used, and numerous studies by the NTSB and others have shown improved survivability and decreased injuries when shoulder harnesses are installed and used in aircraft. The following accident summaries illustrate some common—and preventable—accident scenarios related to these issues:

- A commercial pilot died when his Taylorcraft F-19 airplane impacted terrain after takeoff and his shoulder harness failed. The passenger's restraint system remained intact, and she sustained serious injuries. Examination of the pilot's shoulder harness revealed features consistent with a previous overload tensile failure, which reduced the capability of the shoulder harness to provide adequate occupant protection. (NTSB accident number [\[ANC05FA070\]](#))
- A commercial pilot of an aerial application flight sustained serious injuries following a wire strike in a Piper PA-36-285 airplane. Examination of the pilot's restraints showed signs of wear and degradation, and the lap belt failed inboard of the adjustment buckle. [\[CEN09LA023\]](#)
- A private pilot and his passenger died during a ditching following a loss of engine power in a Beech A36 airplane. The airplane was not equipped with shoulder harnesses. The cause of death for both occupants was attributed to drowning with complications due to blunt force trauma. The installation and use of shoulder harnesses would have significantly increased the occupants' chances of survival by reducing the severity of the

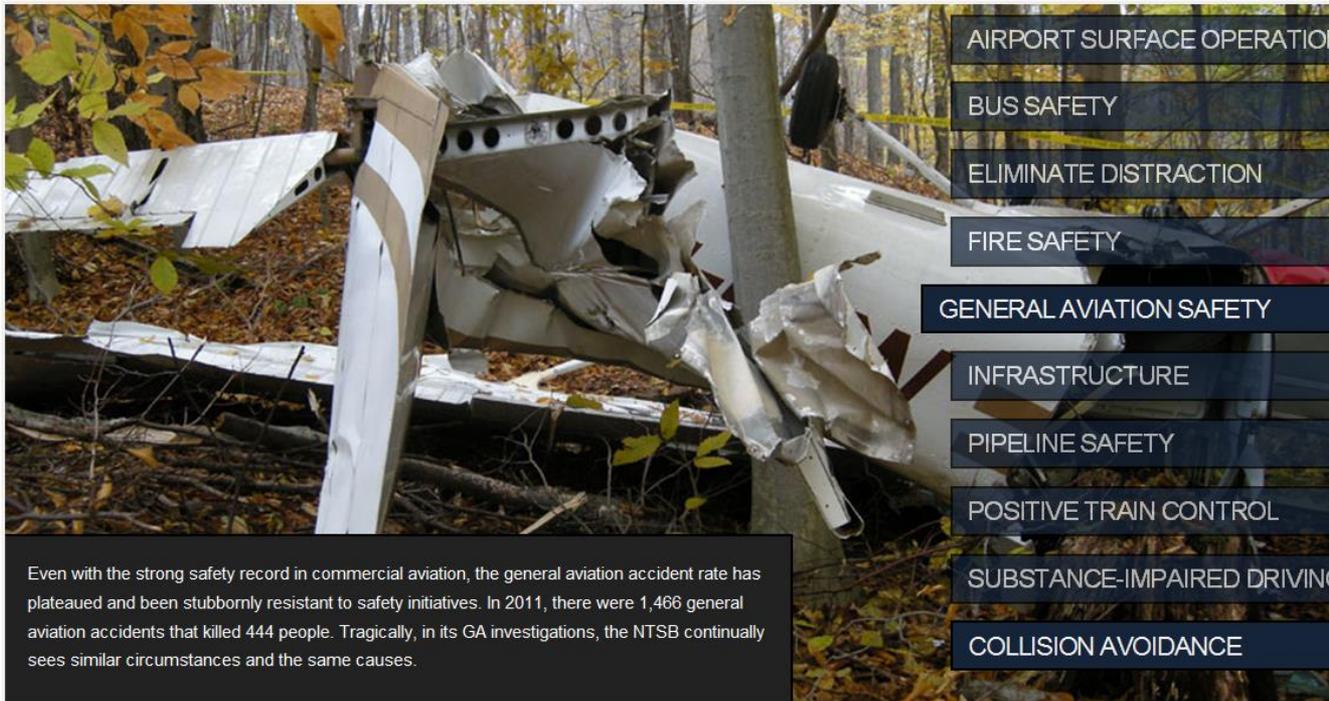


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Most Wanted List

MOST WANTED LIST

The Most Wanted List represents the NTSB's advocacy priorities. It is designed to increase awareness of, and support for, the most critical changes needed to reduce transportation accidents and save lives.



Even with the strong safety record in commercial aviation, the general aviation accident rate has plateaued and been stubbornly resistant to safety initiatives. In 2011, there were 1,466 general aviation accidents that killed 444 people. Tragically, in its GA investigations, the NTSB continually sees similar circumstances and the same causes.

AIRPORT SURFACE OPERATION

BUS SAFETY

ELIMINATE DISTRACTION

FIRE SAFETY

GENERAL AVIATION SAFETY

INFRASTRUCTURE

PIPELINE SAFETY

POSITIVE TRAIN CONTROL

SUBSTANCE-IMPAIRED DRIVING

COLLISION AVOIDANCE



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Forums and Symposia



September 10-11, 2013



SAFETY CULTURE:
ENHANCING TRANSPORTATION
SAFETY



National Transportation Safety Board Forum

www.nts.gov

NTSB Training Center



NTSB



Strengthening Safety Traits

Learn, Apply, Share

Knowledge Ace

Inform, Inspire, Educate, Motivate

Proactive Accountability

Free exchange of ideas and information

Lifelong Learning

Discipline of True Professionals

Companies & Communities

Tools to Fight Human Error



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