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SAFETYWIRE



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AINsight: LOC-I Is Leading Killer in Business Aviation - Accounts for 83% of fatalities in the executive/corporate segment

(**Source:** Stuart "Kipp" Lau, AIN, Oct 23, 2026)



Simulation allows pilots to experience upset training scenarios close to the ground.

An independent analysis of NTSB accident records has cast new light on the most pressing issue affecting business aviation safety: loss of control inflight (LOC-I). The results of the study identified LOC-I as a leading killer in every operational segment broadly, while unintended flight into instrument meteorological conditions (IMC) was the most common cause of fatalities in Part 135 rotorcraft operations.

Data shows that runway safety remains a persistent problem. However, the extent of this is harder to quantify because this data spans multiple NTSB accident classifications.

Published this month, the study—"U.S. NTSB Accident Data 2016-2025-Fixed-Wing and Rotary-Wing Defining Events, 1st Edition"— examined the latest annual NTSB datasets, covering 2016 to 2025. It focused on airplanes and rotorcraft used in general aviation business, executive/corporate, and Part 135 on-demand operations. In total, 644 accident records were included in the study.

Three notable industry safety experts—Dr. Janeen Kochan, Stuart "Kipp" Lau [**Ed. note:** Lau is the author of this **AINsight** blog], and Paul "BJ" Ransbury—coauthored the independent study. All are affiliated with Upset Prevention & Recovery Training Association (UPRTA) International: Kochan is v-p of UPRT Science, Lau is executive v-p and industry liaison, and Ransbury is a co-founder and past president. The coauthors' primary mission was to validate the data and to provide context.

“We analyzed 10 years of NTSB-supplied accident records, from 2016 through 2025, examining airplanes and helicopters separately across general aviation business, executive/corporate, and Part 135 on-demand operations,” according to Ransbury. “Rather than produce a single accident ranking, we ranked the defining events three ways—by lives lost, fatal accidents, and total accidents—to show frequency and human consequence side by side.”

He added, “The result is a traceable picture of where those outcomes concentrated, using a documented method designed for annual updates and ready adaptation to other aviation datasets from official sources.”

Once the coauthors defined the scope of the project, the data was analyzed using AI-powered research tools resourced by Mesa, Arizona-based Aviation Performance Solutions (APS). The project began with several goals, including to “let the data speak” and develop repeatable, scalable analysis methods for use in other aviation segments. The plan is to revisit each study annually.

Accident Precursors

In framing the study, the authors provide a strong caveat: “Accident records capture only the most consequential end of a wider range of safety events.” Using the Heinrich triangle concept, the report reminds the reader that only serious accidents and injuries reach the top, while there are many underlying precursor events and incidents—thus the magnitude of each issue identified may be underreported.

According to Kochan, a former NASA, FAA, and U.S. Air Force human factors consultant, “This study is unique in that it consolidates data to offer direct, valid, and reliable information regarding the risks of specific hazards in clearly defined aviation operations. It offers a data visualization protocol that is replicable over time.

“In view of safety risk management, this will provide much-needed tracking data for many segments of our aviation system. It is a tool to help mitigate known risks and improve safety, unlike other processes in the past.”

The study itself covers more than 50 pages of analysis with supporting charts and tables. Key findings include:

• LOC-I accidents top the list in fatalities in every airplane segment: 59% of GA business aviation fatalities, 83% of executive/corporate fatalities, and 24% of Part 135 charter fatalities.

• The most common type of accident is not always the deadliest. For example, in Part 135 airplanes, abnormal runway contact is the most common type of accident (14%), but accounts for just 2% of the fatalities. Conversely, LOC-I accounts for 12% of accidents and 24% of fatalities in this segment.

• In Part 135 helicopter operations, unintended flight into IMC leads on fatalities—it accounts for 8% of the accidents, but 24% of the fatal accidents and 40% of the fatalities.

• The business helicopters follow the airplane pattern based on small totals (35 accidents over the 10-year period). In this category, LOC-I leads all three measures, with 14% of the accidents, 33% of fatal accidents, and 27% of fatalities.

NTSB accident classifications follow CAST/ICAO Common Taxonomy Team (CICTT) guidance and assign each accident a single defining event. This constrained the study's analysis of broad accident categories such as runway safety. ICAO defines a runway excursion as an overrun or veer-off, consistent with CICTT guidance.

This limitation became apparent during validation. Runway excursions appeared in the airplane study's top-three rankings only once in the executive/corporate segment, where they ranked second. They accounted for 16% of accidents, 50% of fatal accidents (tied with LOC-I), and 17% of fatalities in that segment.

These runway safety events remain a concern, but the dataset often classifies them under other NTSB categories, such as runway overshoot/undershoot, loss of control on the ground, or abnormal runway contact.

The study aimed to highlight business aviation's deadliest accidents, all of which are preventable. Its findings should guide industry and operators in directing resources where they matter most, with the goal of eliminating fatalities. The coauthor's next plan is to apply the same methods to a broader set of general aviation files, including personal, instructional, and other operations.



ABOUT THE AUTHOR

Stuart "Kipp" Lau

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Pilot, safety expert, consultant, and aviation journalist Stuart "Kipp" Lau writes about flight safety and airmanship for AIN.

Don’t Overlook These Common Maintenance Gaps in SMS Audits

(**Source:** NBAA Business Aviation Insider, Nov/Dec 2026)



Repair stations handle maintenance quality well, but often struggle to effectively integrate safety management – particularly risk registers, hazard procedures and documentation.

Risk registers often cover traditional hazards but omit counterfeit parts, supplier competence, current technical data and supply-chain disruptions affecting maintenance continuity.

“Are these quality issues? Yes, but they may also have a significant adverse impact on safety as well.”

GERALD KOSBAB *President, AeroDirections LLC*

“Maintenance process hazards can lead to significant airworthiness deficiencies and legal liabilities,” said AeroDirections LLC President Gerald Kosbab. “Are these quality issues? Yes, but they may also have a significant adverse impact on safety as well.”

Audit coverage areas can often include best practices and regulatory requirements. An NBAA Safety Committee team discussion with an experienced auditor offered guidance on how to help operators identify gaps across a few common areas that typically involve maintenance.

The gaps below come up repeatedly on the floor. Each one is both a regulatory and best-practice issue.

Gap in Segregation of Serviceable and Unserviceable Parts

Tooling, cores and spare parts – or unairworthy parts – can quickly accumulate in a workspace. Occasionally, there's a gap between removing an unairworthy part or core and tagging it with proper documentation.

- **Controls:** Designate a physical area (table, bins, cage) for segregating and proper tagging of aircraft parts. Train everyone who touches parts, not only inspectors.

Parts awaiting disposal require secure segregation to prevent inadvertent reuse; while larger operators have systems, small shops may lack capacity entirely.

Gap in Overlooking OSHA Regulations

Operators are aware of FAA regulations. However, some may mistakenly overlook mandates set by the Occupational Safety and Health Administration (OSHA). Common errors include protection against falls and proper signage for automated external defibrillators, first-aid kits and eye-wash stations.

- **Controls:** Research OSHA regulations online on the OSHA website. Subscribe to OSHA "QuickTakes" emails to stay up to date on changes. Operators should invite their company's environmental, health and safety (EHS) representative to audit the hangar annually. OSHA training is available from providers. Non-penalizing volunteer OSHA audits identify gaps, demonstrate proactive compliance and reduce injuries.

Gap in Weight-and-Balance Inconsistencies

Reduce risk posed by aircraft weight and balance (W&B) paperwork not matching data in your flight planning software or in the flight management system (FMS).

- **Controls:** Monthly audits of the aircraft's W&B data locations and a defined system with all stakeholders involved. Establish weight-and-balance controls: pilots verify FMS data against approved records before flights, while audits reconcile aircraft documents, ForeFlight and FMS.

Of course, this list is by no means comprehensive, but it provides a good place to start.

Review NBAA's safety management system resources at nbaa.org/sms.

Flight Path to a Just Culture

(**Source:** FAA Safety Briefing Magazine, Fall 2026)



As a wide-eyed, eager, and oh-so-naïve helicopter student pilot, Leah Murphy, FAA Safety Team Representative, walked into her flight school one afternoon, prepared for a ground lesson, when she noticed an unusual energy among the instructors. The chief pilot's door was shut, but muffled shouting leaked through the walls. Gaggles of instructors and students whispered to each other, glancing nervously toward the office. As she set her backpack down, she wandered over to a small group and asked what was going on.

A flight instructor, Joe (not his real name), had an engine overspeed.

With no more than twenty hours in her logbook, she didn't fully understand what that meant. But she understood enough from the room's tension that it wasn't good, and that whoever "Joe" was, his day was not going too well. The instructors' hushed tones and the chief pilot's raised voice made one thing abundantly clear: mistakes were punished, not learned from. That moment was her earliest exposure to negative safety culture, and it shaped her understanding of how deeply culture influences safety outcomes in helicopter operations.

Today, industry has evolved far beyond those closed-door reprimands and whispered post-incident rumors. One of the most significant drivers of this shift has been the implementation of a structured safety management system (SMS), not only as a best practice, but now as a regulatory requirement. In 2023, the FAA expanded the 14 CFR part 5 SMS requirements to tour operators flying under section 91.147 and charters operating under part 135.

SMS implementation marks a deliberate move toward a proactive, data-driven approach to helicopter safety. It formalizes processes to ensure hazards are identified early and addressed systematically rather than reactively. At its core, SMS comprises four key components: Safety Policy, Safety Risk Management, Safety Assurance, and Safety Promotion. Together, they create an environment where you do not wait for an accident or incident to reveal weaknesses in training, procedures, or communication.



Safety Policy establishes organizational expectations, leadership accountability, and a just culture — something that was starkly absent in the "Joe" scenario. The required SMS implementation means leaders can no longer rely on fear-based management or inconsistent responses to errors. They must define clear policies that support reporting, transparency, and constructive learning.

Safety Risk Management provides operators with a structured process to identify hazards and assess associated risks before they escalate into an event. Under the FAA's requirements, SRM is no longer optional or informal; it must be continuous, documented, and integrated into every operational decision.

Safety Assurance verifies that risk controls are working through trend analysis, audits, data collection, and feedback loops. For helicopter operators, this can include monitoring approach profiles, reviewing recorded flight data (if equipped), analyzing maintenance discrepancies, or tracking procedural compliance.

Safety Promotion reinforces the cultural transformation. Training, communication, and shared lessons learned help normalize reporting and reduce the stigma associated with errors. In a required SMS environment, operators must ensure that every employee understands the SMS and their role within it. This would have completely changed the culture I witnessed as a student pilot; instead of a closed-door scolding, there would have been an open discussion, a teaching moment, and a safety bulletin or debrief for the greater learning of the school.

The FAA is building systems that actively hunt for hazards, verify the effectiveness of their controls, and, most importantly, foster an environment where reporting an error, such as Joe's preventable engine overspeed incident, is seen as a contribution to collective safety, not a career-ending mistake. Ultimately, the successful implementation of SMS is what makes helicopter operations not only compliant but fundamentally safer.

Learn More

FAA's SMS webpage

NBAA's SMS Guide for Small Operators

IHST's SMS Toolkit.



SAFETY MANAGER'S CORNER

Safety Management Systems (SMS) Training

PRISM is taking our Safety Management Systems (SMS) Course on the road!

Designed for aviation professionals at all levels, this interactive course provides a comprehensive overview of the four components and twelve elements of the ICAO SMS Framework, with a focus on the practical processes and activities associated with each element. Participants will gain valuable insights and tools that can be immediately applied within their organizations.

Registration includes:

- Exclusive PRISM swag
- Breakfast each morning
- Lunch both days
- Afternoon refreshments
- Course materials and practical exercises to take back to your organization
- Opportunities to establish and strengthen professional relationships with fellow industry operators
- Certificate of completion
- 4 NBAA CAM credits

When and Where?

Our next course is going to be **November 19th through the 20th in Boise, ID**.

Please reach out to Brandon Heath (brandon.heath@argus.aero) for more information and/or to register for the course.



Quote of the Month

It is not enough to be busy; so are the ants. The question is: What are we busy about?



BY: Henry David Thoreau

Knowledge-based focus; what a powerful approach to action. We've all heard critical complaints about one thing or another; criticism is easy. Becoming informed and coupling that information with intellectual energy creates and incredibly powerful positive atmosphere. There is no stopping the individual asking the right questions and relentlessly seeking improvement. Who benefits? Both self and organization, and in countless ways. Sure, complaining is a mental defense mechanism that helps us cope with frustration, so it does have its role. What's better, vocalizing complaints and creating negativity, or internalizing complaints and searching for viable solutions? Think of the Golden Rule, and the answer is obvious. Rare is the individual who claims they aren't busy, but what are they busy about? The choice between positive and negative couldn't be more important.

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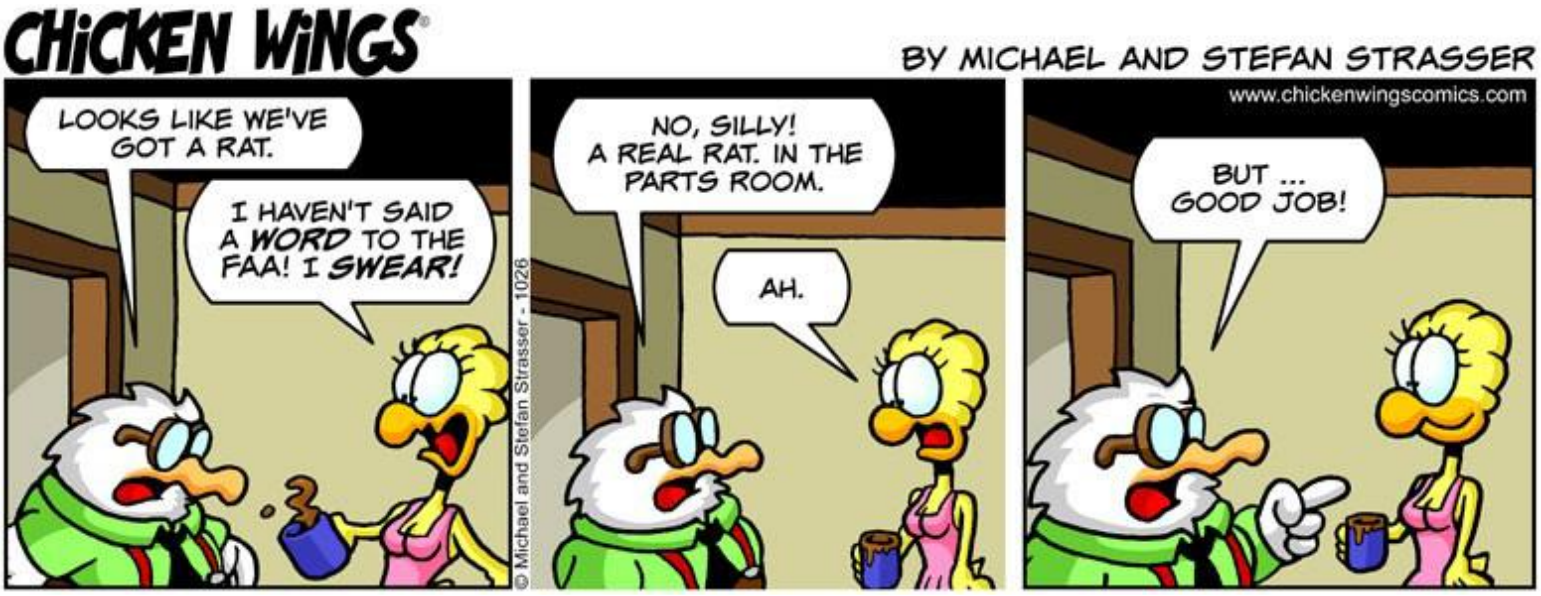

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UPCOMING COURSES

Nov 16-18, 2026—PROS Course
IOSA Conformance Auditor Training (ICAT)
Virtual

Nov 19-20, 2026 -PRISM
SMS Training Course
Boise, ID

Nov 19-20, 2026—PROS Course
Risk-Based IOSA Training
Virtual

Dec 15-17, 2026—PROS Course
Airline Safety Management System (ASMS)
Virtual

Jan 25-27, 2027—PROS Course
IOSA Conformance Auditor Training (ICAT)
Virtual

Jan 28-29, 2027—PROS Course
Risk-Based IOSA Training
Virtual

Go to Upcoming Training Classes to register.

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