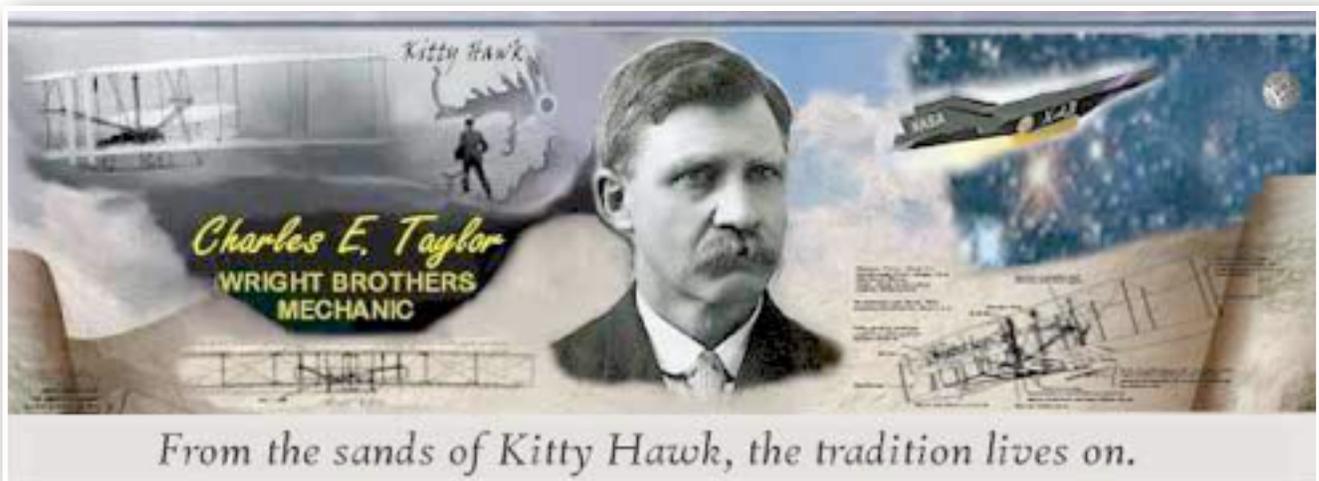


# Aviation Human Factors Industry News

Volume XIV. Issue 02, January 21, 2018



Hello all,

To subscribe send an email to: [rhughes@humanfactorsedu.com](mailto:rhughes@humanfactorsedu.com)

In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

★We must protect aviation safety culture, say pilots on crash anniversary

★Earth's magnetic shift to cost Wichita airport

★AA Drone Registry Tops 1 Million

★THE REAL REASON TO CALL CREW IF YOUR PHONE FALLS BETWEEN PLANE SEATS

★UPS highlights its nightly operations during extreme cold weather

★IBAC To Sponsor Fatigue Webinar

★Back to Basics

★AIN's The Human Factor, Episode 09: Flying Under the Influence, Part 2

## We must protect aviation safety culture, say pilots on crash anniversary

Speedbird 38, a Boeing 777-236ER, was on a scheduled flight from Beijing Capital International Airport when it crash landed just short of the runway at its destination, Heathrow Airport, London, on 17 January 2008. There were no fatalities.



10 years after British pilots averted a major catastrophe when their aircraft lost all engine power on its approach to, pilots are [highlighting the importance](#) of thorough crash investigation.

The British Airline Pilots' Association (BALPA) says that had the Air Accidents Investigation Branch not been given the time and support to carry out a painstaking investigation, we would never have known the cause of the crash or [learnt the lessons](#) that have made flights safer in its wake.

On 17th January 2008 the pilots of the British Airways flight 38, known as Speedbird 38, lost power from both engines in the final stages of the approach to London Heathrow Airport. The engines refused to respond to thrust lever inputs and at this point the commercial airliner effectively became a [160-tonne glider](#). In what was described as a feat of spectacular flying, the crew eased the ailing aircraft over the Heathrow boundary and crash landed just short of the runway. The aircraft was damaged beyond repair, but miraculously there were no fatalities and only one person with serious injuries.

At the time there was much speculation about the cause and [who was to blame](#). The media were full of questions and the public wanted answers. 'Experts' came forward pointing to everything from the plane running out of fuel to interference from electronic jammers used by the Prime Minister Gordon Brown's passing motorcade. But essentially none of this speculation was from the people who would eventually get to the bottom of what had happened: the Air Accidents Investigation Branch (AAIB).

BALPA flight safety specialist **Steve Landells** said: “The pilots of Speedbird 38 did a great job in preventing major loss of life. But it was vital that investigators got to the bottom of what caused the crash so that measures could be put in place to prevent something similar happening again, possibly with a much more tragic outcome.

“At the time there was **huge pressure to speculate** on the cause of the crash and apportion blame. But none of the speculation picked up the real cause.

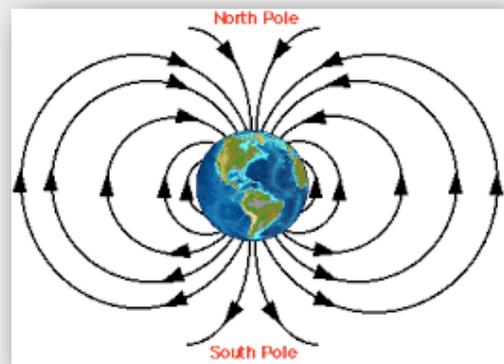
“It took two years of painstaking investigation, in which the AAIB rigorously tested theory after theory, to find the real cause: **ice crystals in the fuel system**. If investigators had been rushed, we wouldn’t have discovered the truth and would not have been able to put in place measures that are still safeguarding flights to this day.

“10 years on from the crash of Speedbird 38, BALPA continues to work to support the **open safety culture** it has taken decades to create. Our priority is making every single flight safe for passengers and crew. BALPA continues to resist pressure from the media, politicians and families to jump to conclusions in the wake of accidents.

“BALPA’s focus is on protecting the trusted international agreements between specialist accident investigators and pilots that ensure the important work of the AAIB in preventing future accidents is **not short circuited**.”

## **Earth's magnetic shift to cost Wichita airport**

The Wichita Eisenhower National Airport will have to renumber its runways due to the **slow but constant shift** in the Earth's magnetic poles that's altered pilots' compass headings. Airport officials told members of the Wichita Airport Advisory Board this week that the compass headings of the airport's three runways have **shifted six degrees** because of magnetic variation.



The change has prompted the airport to plan to renumber its two primary and one crosswind runways for the first time in its nearly 64-year history, the *Wichita Eagle* reported.

Every five years, the Federal Aviation Administration tests [magnetic variation](#) and assigns the values that'll be used in designating runways. A magnetic variation shift greater than 3 degrees prompts the administration to make changes to published airport approaches, and to advise airports to make changes on their property.

Several airports across the country have had to renumber their runways in recent years, including in Oakland, Las Vegas and Tampa.

Wichita airport officials said the changes will likely cost the airport hundreds of thousands of dollars.

"Most of the physical costs would be airfield directional signage," said Brad Christopher, assistant director of airports for the airport authority. "Almost all of those would have to be replaced."

Christopher said the airport expects to pay for the costs with a grant from the administration. The runways will likely be physically renumbered in 2019.

## **AA Drone Registry Tops 1 Million**

*The 1,000,000 total registration figure includes 878,000 hobbyists, who receive one identification number for all of the drones they own, and 122,000 commercial, public, and other drones, which are individually registered.*



The Federal Aviation Administration's drone registry has topped 1 million, Transportation Secretary Elaine Chao announced last week at the Consumer Electronics Show in Las Vegas. She said the 1,000,000 total registration figure includes 878,000 hobbyists, who receive one identification number for [all of the drones they own](#), and 122,000 commercial, public, and other drones, which are individually registered.

"The tremendous growth in drone registration reflects the fact that they are more than tools for commerce and trade, but can save lives, detect hazardous situations, and assist with disaster recovery," Chao said. "The challenge is [to remove unnecessary hurdles](#) to enable the safe testing and integration of this technology into our country's airspace."

Registration helps to educate drone operators who are new to aviation by having them [agree to FAA's operating rules](#), and it increases airspace security by identifying drones with their owner, according to FAA, which reported it has used the registration database to push important safety messages to drone users.

Registration was originally required under FAA's small drone registration rule effective Dec. 21, 2015. Under this rule, aircraft weighing more than 0.55 pounds and less than 55 pounds, including payloads such as cameras, must be registered. Though it was overturned by a court decision in 2017, [the rule was recently reinstated](#) in the National Defense Authorization Act passed last December.

Registration costs \$5 and is valid for three years.

<https://www.faa.gov/uas/>

## THE REAL REASON TO CALL CREW IF YOUR PHONE FALLS BETWEEN PLANE SEATS

FOR THE MOST PART, IT'S A SAFE ASSUMPTION MOST OF US HAVE THE SAME TRAIN OF THOUGHT WHEN CABIN CREW INSTRUCT YOU NOT TO PICK UP YOUR PHONE WHEN IT SLIPS IN BETWEEN SEATS ON A PLANE.



And it's in case your arm or hand gets stuck down there, right? Hoo boy, actually – turns out, [that's wrong](#). You see, a recent article from *Pedestrian.TV* explored why airlines like Qantas and Virgin Australia [have started adding lines like](#) 'If your phone drops between seats, don't try to retrieve it, but call cabin crew immediately'.

And turns out, it's because...wait for it... **it might combust or blow up on your pretty little hand.**

Yikes.

According to *PTV*, this has legit happened on planes, where people have accidentally dropped their phone in between seats, and then [just moved their seat](#) around so they can reach down and grab it. Except on some occasions, they've wound up [mistakenly crushing](#) their phone while adjusting the seat, resulting in the phone "spontaneously combusting".

Basically, the lithium battery in the phone gets crushed, which causes it to become hot – smoldering even – and eventually catches on fire.

The pop culture publication spoke to an expert on the topic, Civil Aviation Safety Authority's Corporate Communications Manager, Peter Gibson, who confirmed that this is the reason for the safety message.

He told *PTV*, "Yep, that's right. All about stopping phones being crushed accidentally and catching on fire."

Gibson also added, “It’s happened a few times around the world. It’s happened in Australia, and the person who’s done it has immediately called cabin crew.

“IN ONE CASE, THEY PICKED UP THE PHONE WITH TONGS AND DUMPED IT IN A SINK FULL OF WATER. IN ANOTHER CASE, THEY GOT OUT THE FIRE EXTINGUISHER AND GAVE IT A BLAST.”

And what do you know, even the Australian Government has gotten involved in the serious safety issue, creating [this little video](#) to explain it better.

[https://www.youtube.com/watch?time\\_continue=104&v=8FJ1k6IMx5Y](https://www.youtube.com/watch?time_continue=104&v=8FJ1k6IMx5Y)

## **UPS highlights its nightly operations during extreme cold weather**

UPS employees at its Louisville Worldport hub in Kentucky gave [the Weather Channel](#) an inside look at its nightly operations, with overnight temperatures dropping to 8 degrees Fahrenheit and a wind chill just above zero.



<https://weather.com/news/weather/video/working-overnight-outside-in-subfreezing-temps>

## **IBAC To Sponsor Fatigue Webinar**

On February 14, the International Business Aviation Council, (IBAC) as part of its SafetyNet series of live Internet programs, will sponsor a [free webinar](#) on the topic of fatigue in corporate aviation.



The hour-and-a-half presentation will be led by Daniel Mollicone, Ph.D., CEO, and co-founder of Philadelphia-based sleep science researcher Pulsar Informatics, and will explore how fatigue can affect every aspect of flight operations, including flight and cabin crew as well as the [maintenance technicians and ramp personnel](#) who ensure that the aircraft is ready for flight. Unmanaged fatigue can endanger the safety of operations, damaging a company's reputation, according to the company.

Among the expected learning points in the webinar are learning about human fatigue principles, identifying fatigue risks across the entire operation, possible [mitigation procedures](#) aimed at addressing problem areas, and reviewing actual examples of operational fatigue to help attendees reflect on their own safety cultures.

<http://ea.ecn5.com/Clicks/cnJZT1hqMFYwYTJTb3l0dnhLdTBtOG1iRVBFRIR3bUVsYmk2U3ZZdW9rR09COVY2eXNKRDFmTUJFUjdqSVNtRVA4YzhkSWQvb0lydFRDOFJlaUxINVE9PQ%3d%3d>

## Back to Basics

The January/February 2018 issue of FAA Safety Briefing takes a forward-thinking journey "back to the basics" of flying fundamentals. Articles in this edition provide important tips, techniques, and resources that can help you better [aviate, navigate, communicate, and mitigate](#) in today's

complex operating environment. Learn more about the "basics" by reading Susan Parson's feature article, "Simple? — Defining and Refining Basic Skills in a Complex Environment."



Download your copy or read online at: [1.usa.gov/FAA\\_ASB](http://1.usa.gov/FAA_ASB). You can view a mobile-friendly version of this article at <https://adobe.ly/2BLeLiA>.

## AIN's The Human Factor, Episode 09: Flying Under the Influence, Part 2

The second installment of AIN's *The Human Factor, Flying Under the Influence*, continues the discussion about pilots who suffer from drug and alcohol addiction. Dr. Quay C. Snyder, the president, CEO, and cofounder of Aviation Medicine Advisory Service, explains the recovery process for pilots. Meanwhile pilot Corey Slone, who now serves as the national chairman of the Human Intervention Motivation Study (HIMS) Program, [shares his own story of addiction](#) and how he became a part of the rehabilitation program.



According to the HIMS website, the program focuses on identifying and treating commercial pilots with addiction so that they can eventually return to work. Managers, pilots, healthcare professionals, and the FAA all [work together](#) to ensure the safety of pilots as well as passengers flying with these pilots.

[Listen to the podcast](#)

<http://ea.ecn5.com/Clicks/eWs1S091YkRxS1Z5dWF0SzJCbmVJbXBUv3I0TURwYnNZU2diQVFsMEo0OXNIUkVHaGxLNVc0VjZoYlp2cFEwbUJOU2tiMm1qdXRpdEF5dzh1MVVPYUE9PQ%3d%3d>

## [Aviation safety boosted by improvements in aircraft, radar, other systems](#)

IT'S official: 2017 was the safest year for commercial air travel since passenger flights began.

Separate studies by a team of Dutch aviation consultants and the U.S.-based Aviation Safety Network reported last week that there were no passenger jet crashes in the world last year in a record [37 million flights](#). In addition, the National Transportation Safety Board reports there has been no loss of life on a major airliner in the United States since 2009, and the last commuter airline crash that resulted in fatalities was in 2013.

This is clearly no small achievement. It has taken decades of work on many fronts to improve airline safety.

Specifically, airplanes are built with [fire suppression and evacuation procedures](#) in mind. [Redundant safety systems](#) help make sure there are no avionics failures, >



and materials used in construction have evolved as engineers sought to create the safest aircraft possible.

"Cabin safety has improved by leaps and bounds since the 1970s and '80s," said Adrian Young, a senior consultant during an interview with the Washington Post.

Other advances have improved flight control systems, satellite technology and meteorologic data. Doppler radar is able to spot wind shears, weather systems, hail and a variety of other conditions that pilots might wish to avoid. Other systems let pilots know whether icing is a danger at certain altitudes.

Moreover, pilot protocols have changed and deserve part of the credit for improved safety records.

Locally, SkyWest Airlines started serving Quincy Regional Airport with 50-passenger Bombardier CRJ-200s on Dec. 1. The two-engine jets have excellent safety records, and SkyWest has a pilot-copilot team on each flight.

In addition, flights between Quincy and O'Hare International Airport also are overseen by flight controllers using some of the industry's newest and best technology.

Experts caution there is no room for complacency in the operation of our nation's complex air transit system. Ongoing challenges include risks posed by human fatigue and the fire danger posed by batteries used in consumer electronics. Human error, by the pilot or by passengers, is the hardest issue to address.

Still, passenger flights operated by major carriers are far and away the safest means of mass transportation. So when aviation officials assure travelers that the gravest modern danger to commercial air travel is the drive to the airport, they have the statistics to back it up.

## Unstable Approach Led to 2016 MU-2B Accident In Quebec

The decision to continue an unstable approach **despite several indications** of problems played a central role in the March 2016 accident involving a Mitsubishi MU-2B at Îles-de-la-Madeleine in Quebec, Canada's Transportation Safety Board (TSB) found.

All seven occupants, including the two pilots, were killed. According to the TSB, the problems started in cruise when the pilot modified his approach plan to begin the **descent later, partially to save fuel**. This led to higher-than-recommended approach speeds and altitudes for the published approach. Weather conditions at the airport included a broken cloud layer at 200 feet agl—lower than the published minimum descent altitude. **The pilots never discussed this.**



Soon after crossing a fix that called for a turn to intercept the runway centerline, the aircraft—flying 1,500 feet above the 3,000-foot recommended altitude and nearly 100 knots faster than the 140-knot approach speed—soon began **"a meandering flight path,"** TSB wrote in its final report. "The pilot's workload had increased significantly," and **neither the approach nor before-landing checklists were done.**

At about 1.5 nm from the airfield and flying at near stall speed to lose altitude, the pilot added full power. This led to an upset and rapid descent. "There was insufficient altitude to recover the aircraft," TSB wrote. The aircraft struck the ground 1.4 nm west of the airfield.

"At no time during the approach did the pilot discuss discontinuing the approach as an option available to reduce the workload," the TSB wrote. Its probe was aided by an onboard flight recorder, which was not required equipment.

[Unstable approaches](#) are one of three aviation-specific items on the TSB's Watchlist of key safety issues. Runway overruns and runway collision risks are the other two.

## **AIN's Human Factors**

The next installments of **AIN's Human Factor: Tales from the Flight Deck**, will cover [runway excursions during inclement weather](#). The FAA and a host of industry players are about to debut the TALPA Initiative, which radically changes the reporting of contaminated runway conditions.

If you have experienced an excursion from a contaminated runway, [we would like to interview you](#) about the experience, tying it in to coverage of TALPA.

We will provide whatever level of anonymity is needed to tell this story, and we don't have to mention your company or your name. It's the experience we're after.

The podcast itself does not delve into legalities or side issues in any way. Rather, it's about the pilot's experience—what happened, how did it happen, what caused it, and what can be done to prevent similar instances in the future. The podcast does not assess blame. Again, it's about the pilot's experience.



For more information, please contact **AIN** podcaster [Pete Combs](#) at (253) 777-3387.

## FAA Outlines Limits of Voluntary Drug/Alcohol Disclosure

The FAA program that permits employers to voluntarily report violations of the drug and alcohol testing regulations as a means to avoid agency penalty enforcement action **does not come without limitations.**

According to new Advisory Circular 120-117, the FAA does not accept a voluntary disclosure if the violation is discovered “during, or in anticipation of, an FAA investigation/inspection or in association with an accident or incident.



”An employer’s submission must also meet the **following conditions** to be covered under this program: the FAA is notified before it learns of violation by other means; the violation is inadvertent; the violation does not reflect a lack of qualification; and immediate action and development of a comprehensive fix satisfactory to the FAA is taken.

If the FAA becomes aware that the disclosure did not meet the requirements for acceptance under the program, the acceptance will be withdrawn. “In such a circumstance, the FAA may use the evidence gathered under the program to proceed with enforcement action,” the agency said in the AC.

The circular also describes how information under the program is to be submitted and what to expect from the FAA in response. Finally, it notes that records the FAA accepts in accordance with this AC “are protected from release to the public.”

[mailto:https://www.faa.gov/documentLibrary/media/Advisory\\_Circular/AC\\_120-117.pdf](mailto:https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_120-117.pdf)

## Door of Scoot aircraft damaged during maintenance at Changi Airport

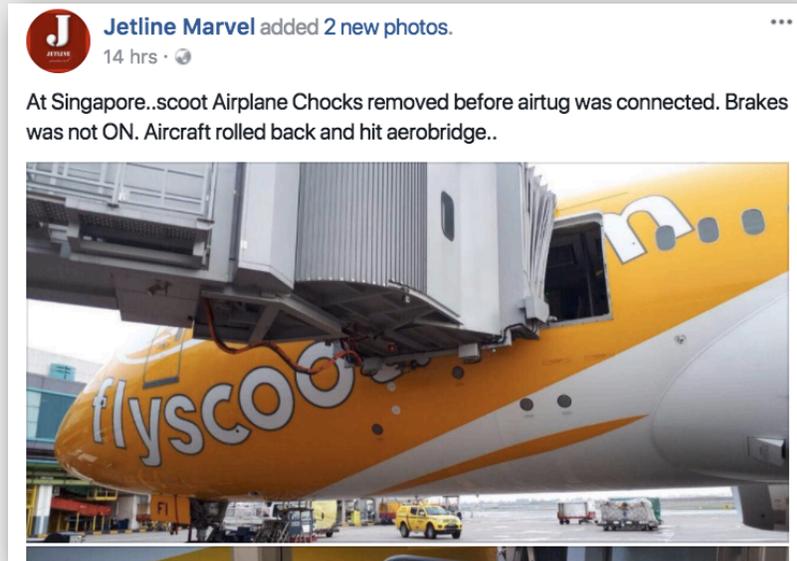
A door on a Scoot 787 aircraft "sustained some damage" as it prepared for routine maintenance work at Singapore Changi Airport, said a spokesman for the budget airline on Monday (8 January).

"No passengers were involved and no injuries were sustained while an investigation has been convened. Consequently, we do not expect major disruption to our operating network," the Scoot spokesman added.

The damaged door is currently under repair, he added, without specifying the date of the incident. According to aviation website Flightglobal, the incident occurred on Sunday. Photos posted on Facebook page Jetline Marvel in the early hours of Monday showed damage to a door on a Scoot aircraft. The post wrote that the "airplane (wheel) chocks were removed before the airtug was connected". As a result, the aircraft rolled back and hit an aerobridge, it added.

Wheel chocks are wedges placed against a vehicle to prevent accidental movement, while a tug is typically used to pull an aircraft.

A unit of the Singapore Airlines Group, Scoot currently has a fleet of 16 Boeing 787 Dreamliners and 24 Airbus 320s.



## EASA Cautions On Deicing Fluids

Airports, operators urged to communicate on products being used.

The European Aviation Safety Agency (EASA) is reminding operators to be mindful of how certain de-icing fluids present [hazards to aircraft](#), and urges airport operators to disseminate information about the fluids it is using.



[Among the primary concerns:](#) exposure of carbon brakes to alkali-organic salt in certain types of de- and anti-icing fluid. Brakes are exposed both during normal ground operations and as chunks of snow mixed with fluid freeze on landing gear and inside the wheel well, and then melt, "The presence of the [alkali-organic salt](#) creates a catalytic condition lowering the temperature oxidation of the carbon, resulting in structural deterioration of the carbon disc material and reducing the service life and long-term efficiency of the brakes," EASA notes in a recent Safety Information Bulletin (SIB). "This leads to a concern that may have safety consequences."

EASA asks airport operators to report the types of fluids used on runways and taxiways. EASA's bulletin lists specific codes for generic fluids and solid materials, and asks airports to include the codes in special winter-operations notices—dubbed Snowtams—or the Aeronautical Information Publication.

Aircraft operators should have information on the de/anti-icing substances used at the aerodromes they operate to and from, in order to assess the exposure of their aircraft to these substances and [adjust their maintenance program](#)," EASA says.

In the past, EASA has warned of the ramifications of aircraft being exposed to different fluids through de-icing processes at multiple airports during a day. In some cases, the effectiveness of some fluids is lowered when applied to an aircraft that has been de-iced using a salt-based product.

<http://www.mro-network.com/maintenance-repair-overhaul/easa-cautions-organic-salt-deicing-fluid>

## **Useful Guidance**

New FAA advisory material focuses on MRO-related software.

As data becomes more prevalent in aircraft operations and maintenance, industry is moving quickly to put in place processes and procedures to collect, analyze, and take action on what is being learned. Much of this learning involves software that is on, or connected to, aircraft—which means it's regulated by FAA.

The agency took a notable step towards keeping up with the rapidly-evolving data-focused initiatives in the MRO space, issuing guidance for setting up management systems for maintenance-related software.

"Modern aircraft systems rely on software to perform functions previously handled manually or by analog systems," [FAA explains in Advisory Circular \(AC\) 43-216](#), Software Management During Aircraft Maintenance. "Software integrity, security, > conformity, and aircraft configuration control should be the goals of any software management program. Management tools should encompass the entire life cycle of aircraft software to include long-term storage or disposal of the aircraft or components."



The AC's primary goal is to bring together [general guidance for managing software](#)—everything from loading it to version-control and how to record changes—used during maintenance activities. "In almost all cases, software in installed aircraft systems is considered an [aircraft part](#), and as such is subject to the same recordkeeping processes and controls as standard aircraft parts," the AC notes.

The guidance complements existing FAA publications on some key software systems, including flight operations databases and electronic flight bags, but does not supplant it.

In short, it's a needed piece in the evolving puzzle of ensuring the regulatory environment [is keeping pace](#) with aviation's digital change.

## **Man crashes plane after prosthetic leg got stuck in brake**

A man who prosecutors said crashed a small plane in southeastern Virginia when his prosthetic leg got caught in the aircraft's brake pleaded guilty [to flying without a license](#).

Robert R. Gray Jr. entered the plea in federal court in Norfolk, the U.S. Attorney's Office for the Eastern District of Virginia said in a news release.

Gray, 55, has been around aviation for 40 years, buying and selling planes, and once had a student pilot certificate that has expired, court documents show.

Gray has a prosthetic leg and [medical conditions that disqualified](#) him from holding a pilot's license, prosecutors said.

On July 22, Gray crashed his 1972 Piper Aircraft at Umphlett Airstrip in Suffolk, according to court documents. As the plane landed, prosecutors said, it went off the runway, spun halfway around and hit several small trees.



When first responders arrived at the crash, Gray, who was not hurt, at [first denied flying](#) the plane and said the pilot was missing, court documents showed. When law enforcers started to search for the allegedly missing pilot, Gray admitted that he was the only person on the aircraft, prosecutors said.

A few days after the crash, Gray told a safety inspector with the Federal Aviation Administration that the crash was his fault, according to court documents. Gray said lack of feeling on his right side because of the prosthetic leg caused the leg to become stuck on the aircraft's brake, causing it to spin out on landing, prosecutors said.

Gray, who has mobility issues that require he use a walker or motorized scooter, told the FAA inspector that he [should not have been flying a plane because he can barely drive a car](#), according to court documents.

Gray faces up to three years in prison at sentencing on March 23. Gray's lawyer did not immediately return a voicemail seeking comment.

## **Space Heaters Account for 43 Percent of U.S. Home Heating Fires, NFPA Reports**

*NFPA reports that heating equipment is the second-leading cause of U.S. home fires and the third-leading cause of home fire deaths. More than half (53 percent) of all home heating fire deaths resulted from fires that began when heating equipment was too close to things that can burn, such as upholstered furniture, clothing, mattresses, or bedding.*



The National Fire Protection Association's latest U.S. Home Fires Involving Heating Equipment report was released Tuesday, in time for important reminders about winter fire safety. [NFPA reports](#) that heating equipment is the second-leading cause of U.S. home fires and the third-leading cause of home fire deaths.

More than half (53 percent) of all home heating fire deaths resulted from fires that began when heating equipment was too close to things that can burn, such as upholstered furniture, clothing, mattresses, or bedding.

[December, January, and February](#) are the leading months for home heating fires, and the colder weather means more use of portable space heaters. According to the report, portable and stationary space heaters accounted for more than two of every five (43 percent) U.S. home heating fires and five out of six (85 percent) home heating fire deaths between 2011 and 2015.

“Space heaters can be effective tools for providing added warmth at home, but it’s critical that people [follow basic precautions](#) to ensure that they’re used safely,” said Lorraine Carli, vice president of NFPA’s Outreach and Advocacy division.

[The following are important home heating safety tips](#) to help reduce the risk of home fires during winter:

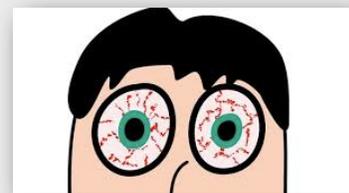
- Space heaters should be placed at least three feet away from anything that can burn.
- There should be a three-foot zone kid-and-pet-free zone around open fires and space heaters.
- Space heaters must be turned off when people leave the room or go to sleep.
- Plug only one heat-producing appliance into an electrical outlet at a time.
- Never use your oven to heat your home.
- Install and maintain carbon monoxide alarms to avoid the risk of CO poisoning. If you smell gas in your gas heater, do not light the appliance. Leave the home immediately and call your local fire department or gas company.
- Install wood burning stoves following manufacturer’s instructions or have a professional do the installation. All fuel-burning equipment should be vented to the outside to avoid carbon monoxide (CO) poisoning.
- Have a qualified professional install stationary space heating equipment, water heaters or central heating equipment according to the local codes and manufacturer’s instructions.

- Have heating equipment and chimneys cleaned and inspected every year by a qualified professional.
- Always use the right kind of fuel, specified by the manufacturer, for fuel burning space heaters.
- Make sure the fireplace has a sturdy screen to stop sparks from flying into the room. Ashes should be cool before putting them in a metal container. Keep the container a safe distance away from your home.

<https://www.nfpa.org/News-and-Research/News-and-media/Press-Room/News-releases/2018/Space-heaters-account-for-43-percent-of-US-home-heating-fires-and-85-percent-of-associated-deaths>

## **Study Suggests Risk Management Approach to Combat EMS Fatigue**

New guidelines aim to mitigate the effects of fatigue by addressing the impact of shift work and scheduling, reports *Medical Xpress*.



“The problem of fatigued EMS personnel is widespread and not isolated to one type of EMS operation or category of EMS clinician.

Administrators of EMS organizations **are not sufficiently equipped to address fatigue in the workplace**, in part because of the **absence of guidelines** for fatigue risk management in the EMS setting,” said Daniel Patterson, Ph.D., lead author and assistant professor of emergency medicine at the Pitt School of Medicine. After review and analysis of more than 38,000 journal articles, conference presentations and other publications, Patterson and his colleagues gathered information on fatigue and shift work to develop the **evidence-based guidelines** for fatigue risk management and test the impact of the findings to create a biomathematical model for use by the EMS community to aid in shift-scheduling decisions.