# Aviation Human Factors Industry News

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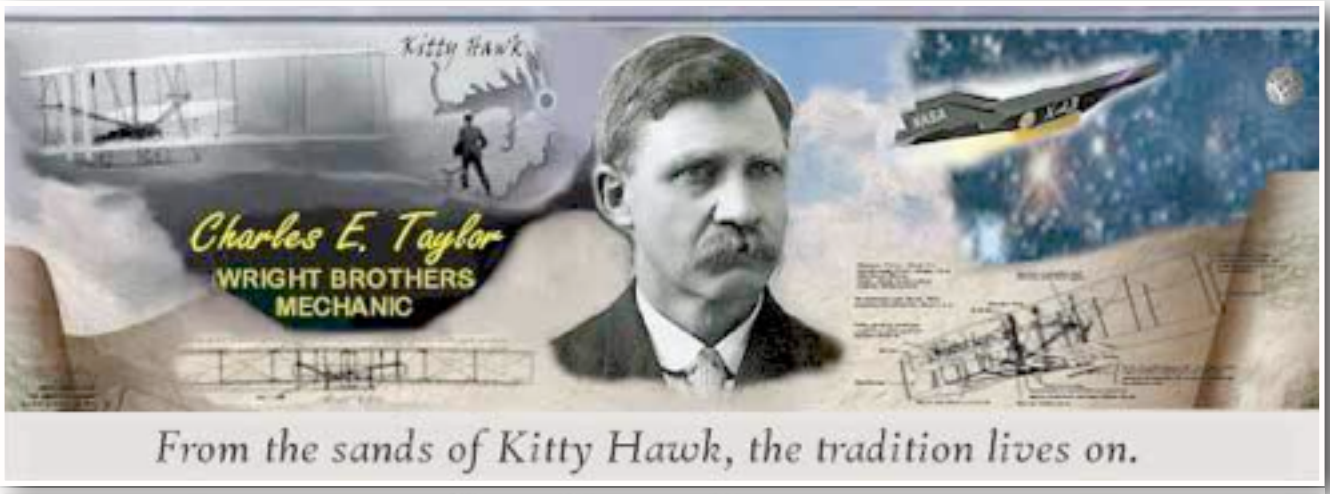


**Hello all,**

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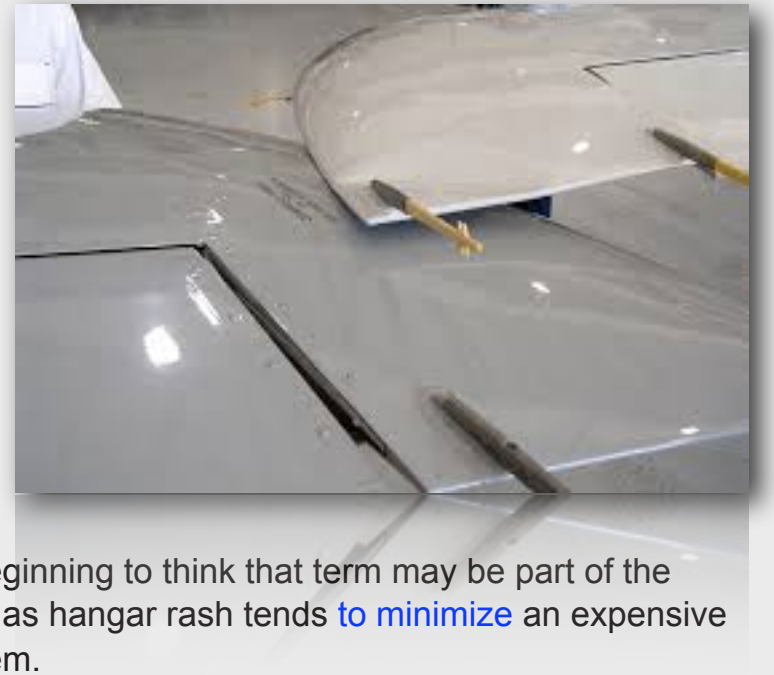
**In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:**

# 'Hangar Rash' Can Mask a Serious Problem

by John Goglia



We've probably all used the term "hangar rash" at one time or another to describe so-called "minor incidents" of damage. Usually the term refers to damage from moving aircraft in the hangar, but it can also refer to other incidents on the ground that cause minor damage. I have used that term myself without giving it a second thought. Until now. But as I look at several ground incidents that have happened lately with some fixed based operators, I'm beginning to think that term may be part of the problem. Referring to these events as hangar rash tends to minimize an expensive and potentially safety-critical problem.

One of the incidents that got me thinking about these words looked like fairly minor damage on the outside of one particular corporate jet. But it had significant consequences because of the location of the damage through the pressure vessel. The repair required approved engineering data and an FAA 337 major repair form, which becomes part of the aircraft's permanent maintenance records. It can have a significant impact on the resale value of the aircraft. So even though the damage looked "minor" and the aircraft could be made airworthy readily and relatively inexpensively, the location of the damage through the pressure vessel and subsequent patch could significantly lower the value of the airplane to potential buyers. A minor incident with not-so-minor consequences can hardly be considered an innocuous sounding "rash."

In the past, I have raised concerns that seemingly minor damage to composite surfaces can mask more significant issues. This is a particular concern when mechanics who have not received the specialized training necessary to evaluate composite damage are involved in assessing surface damage.

Once the exclusive province of airliners, composites are now used throughout aviation, from airliners to corporate jets to single-engine general aviation aircraft. However, the specialized training of mechanics to evaluate damage—particularly the significance of seemingly minor surface damage—has not kept pace. This is a particular issue for corporate and other general aviation aircraft owners and operators. So many mechanics working these aircraft have little to no training on composites. What looks like a slight scrape on the surface of a composite can hide significant structural damage underneath. My concern is that calling damage on a composite surface "hangar rash" could result in a significant structural problem being overlooked.

## UNDERLYING SAFETY LAPSES

My other concern with the use of the term "hangar rash" is that it can mask the significance of the events that led to the damage. Oftentimes, people mistakenly equate the severity of damage with the carelessness or recklessness of the conduct that led to it. In other words, if an incident results in minor damage, the erroneous conclusion is that the events that caused it were minor, and little or no effort is put into examining what happened and why. But that can be a very dangerous conclusion. Every accident investigator has seen fatal accidents that were triggered by minor lapses; and minor incidents that were caused by incredibly reckless actions. The most obvious example is a drunk pilot. Not every drunk pilot will crash, although flying under the influence of drugs or alcohol is among the most reckless acts one can imagine by a pilot. In other words, the severity of the outcome is not necessarily a good basis for judging the degree of negligence that was involved in an incident or accident.

In my opinion, every incident of ground damage should be investigated to determine the root cause, so that in the future, more serious outcomes can be prevented. And programs that can protect employees from FAA enforcement action and company discipline for careless conduct should be put in place. Such programs encourage ramp personnel, who frequently don't report incidents for fear of losing their jobs, to report ground damage.

When "hangar rash" happens, it's usually the result of some breakdown in proper procedures, often—in my experience—rushing to get a job done.

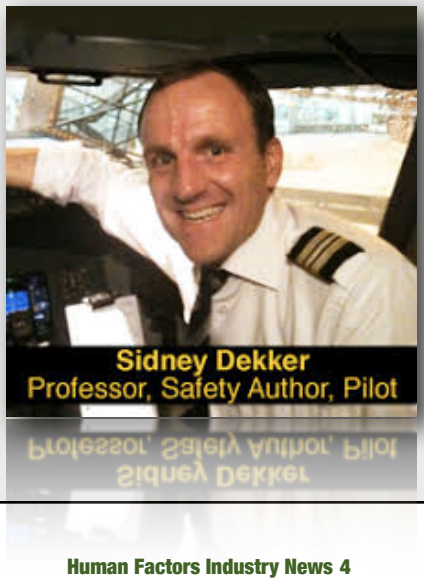
This is especially true of the number one reason—in my experience—for hangar rash: an aircraft towed without wing walkers. There are many reasons why airport personnel may decide to move an aircraft without wing walkers. Maybe they misjudge the distance they have to navigate the aircraft; or they are pressured to move the aircraft and no personnel are immediately available.

Ground damage is certainly a major economic problem for aviation users generally, whether airliners, corporate operators, or weekend fliers. According to the Flight Safety Foundation, using data developed by the International Air Transport Association (IATA) a number of years ago, "ramp accidents cost major airlines worldwide at least US$10 billion a year…These accidents affect airport operations, result in personnel injuries, and damage aircraft, facilities and ground-support equipment." A more recent interpretation of IATA data has put the worldwide cost to airliners at $12 billion. And this data covers only major airlines. The costs to smaller airliners and general aviation isn't even included.

It's probably time to do away with the term "hangar rash" and treat all ground damage incidents as indicators of safety problems whose root causes need to be determined and addressed.

## Success Is Enemy of Aviation Safety

As the new year rolled in, several headlines pointed to 2017 as the safest year in U.S. commercial aviation history. All told, according to one report, on January 1, 399 days had passed without a single fatal commercial passenger jet accident. Another report, this one focusing on U.S.-registered business jets, noted a 62.5 percent reduction in fatalities in 2017. Great news, right?



As an aviation safety professional, I celebrated these accomplishments for about a millisecond. Perhaps I'm jaded or have become a bit of a "safety contrarian," but these reports add fuel to the argument that "we're already safe"—an excuse that some use for no action. The reality is that we will never be 100 percent safe.

Day in and out, there is continued evidence that many threats, hazards, and other latent conditions remain prevalent in our system.

Three years ago, Dr. Sydney Dekker was the keynote speaker at the CHC Safety and Quality Summit in Vancouver; his theme was "Success: The Enemy of Safety." Always brilliant in both content and delivery, Dekker made several statements that changed the way I look at safety and reporting on safety.

According to Dekker, "By turning safety into a goal to achieve statistically, companies worry more about looking good than actually reducing illness and injuries." He continued, "Positive cultures are the ones that allow the boss to hear the bad news."

Dekker surmised that often the organizations needing the most help are those that appear to be "successful" and don't have any apparent safety issues. Staying focused on improving safety requires an organization "to keep the discussion of risk alive, circulate fresh viewpoints, and have the capacity to say no."

Goal setting, counterintuitively, is often a rearward-looking exercise. Unless you are keenly focused on the entire picture, you might overlook a risk. As an example, in the recent past, for good reason, industry had an obsession with approach stability.

After years of a concerted industry campaign, most airline operators can now boast an impressive unstable approach rate below 5 percent. But what about that 5 percent; do those flights continue or go around? Studies by the Flight Safety Foundation and others suggest that 95 percent of those unstable flights continue to land. Are we really safe?

Today, in just about every segment of aviation, some more than others, we continue to trash airframes and only through improved crashworthiness standards—and sometimes a little luck—don't kill more people.

Case-in-point, earlier this month—412 days since the last fatal commercial passenger jet accident—there was a serious nighttime runway excursion in Turkey. In this event, a Pegasus Airlines 737-800 carrying 162 passengers departed the left side of the runway and was left dangling off a cliff pointed at the sea below. Sure, there were zero fatalities, but what remained was a substantially damaged aircraft and an untapped horrific outcome.

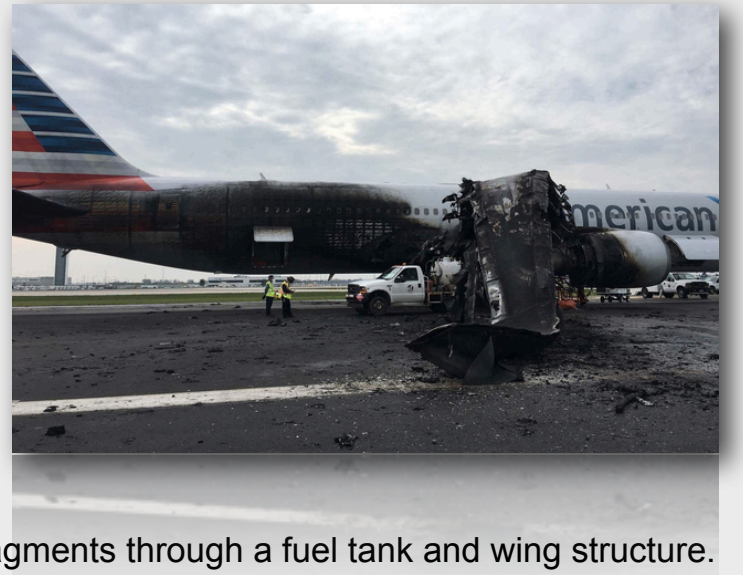
Overall, credit has to be given to an industry that has collectively made aviation extremely safe. However, there are no “silver bullets” and none of this happened overnight. Improvements in aviation safety have involved all stakeholders. Thousands of dedicated professionals have worked for decades to build better defenses to decrease the vulnerabilities associated with air travel. Borrowing from James Reason’s “lining up the holes” accident causation model, today’s Swiss cheese is much more resilient with thicker slices and smaller holes, but yet there are still holes.

Looking forward to the rest of this year, there is one looming question: will this trend of zero fatal accidents continue? Unfortunately, science and statistics can be unforgiving. Aviation is inherently dangerous—there’s a fine line between routine and catastrophic.

Statistically, there is the phenomenon called “regression to mean,” where if one variable is an extreme measurement—for example, a year with very few fatalities—the next measurement will return closer to the average. Focusing a lot of energy on past successes does not provide any guarantee of future results. There’s still much work to be done.

https://www.ainonline.com/aviation-news/air-transport/2018-01-15/all-safe-following-pegasus-runway-excursion

# Undetectable subsurface defect led to uncontained engine failure on American Airlines Boeing 767




The NTSB determined that an internal defect in a Boeing 767 engine caused an uncontained engine failure resulting in a fire and the emergency evacuation of all aboard.

American Airlines flight 383, a Boeing 767 bound for Miami, was on its takeoff roll at Chicago O'Hare International Airport Oct. 28, 2016, when a turbine disk in the right engine failed, sending metal fragments through a fuel tank and wing structure. The flight crew rejected the takeoff just as the jetliner approached takeoff speed and stopped the airplane on the runway. All 161 passengers and 9 crewmembers evacuated as emergency responders battled the fuel-fed fire. The airplane was damaged beyond repair. One passenger was seriously injured.

The failed turbine disk was recovered in four pieces, one of which weighed 57 pounds and was found more than a half mile from the airplane. Through extensive examination of the disk fragments at the NTSB lab in Washington investigators determined there was a subsurface defect in the disk at the time of manufacture. Because of the nature of the defect and the limits of inspection methods, the NTSB concluded the defect was likely undetectable when the disk was produced in 1997.

Investigators further determined the defect had been propagating microscopic cracks in the disk for as many as 5,700 flight cycles - one takeoff and one landing - prior to the accident. Although the disk had been inspected in January 2011, the NTSB said the internal cracks were also most likely undetectable at that time because the current required inspection methods are unable to identify all subsurface defects.

The NTSB determined the pilots made the appropriate decision to abort the takeoff and shut down the damaged engine. Because the pilots were working with a checklist that didn't differentiate between an engine fire in the air from one on the ground, the undamaged engine was not immediately shut down. The passenger who was seriously injured sustained those injuries as a result of evacuating the airplane, as directed by a flight attendant, and encountering jet blast from the engine that was still running.

The interphone issue raised by the investigation is particularly troubling. Image: NTSB

The NTSB discovered numerous problems with the evacuation, including a lack of communication between the flight deck and cabin crew, deviation by a flight attendant from emergency evacuation procedures, and the crew's lack of coordination following the evacuation.

The NTSB also noted the flight attendants, who had difficulty using the aircraft interphones to communicate with the cockpit and passengers, were inadequately trained by American Airlines on the different interphone systems installed in its planes.

Video of the evacuation as well as accounts by flight attendants revealed many passengers disregarded pre-flight safety instructions to leave personal belongings behind and instead exited the burning airplane with carry-on luggage.

## Luggage-grabbing flyers ignoring airline safety pleas

Flames of burning jet fuel licked the side of American Airlines Flight 383 after it screeched to a halt on a Chicago runway. As panicked passengers raced to the exits, one woman approached flight attendant Laurie Mandich lugging a large bag.

The 32-year airline veteran followed her training and told the passenger to drop it. The woman refused. When Mandich tried to take the bag away, the woman resisted.

The passenger “really made me mad,” Mandich later told U.S. investigators reviewing the Oct. 28, 2016 fire that destroyed a wide-body jet and injured more than 20 people. “She was taking up valuable time.

”Veteran aviation accident investigators were again left shaking their heads. Since 2015, the National Transportation Safety Board has investigated three other emergency airliner evacuations with issues that slowed passenger exits, including people taking their bags.

At a meeting Tuesday on the Chicago fire and its chaotic evacuation, the NTSB concluded that U.S. regulators’ actions to “mitigate this potential safety hazard have not been effective.” Nearly two decades after an NTSB study identified passengers carrying bags as the biggest impediment during emergency evacuations, the safety board called on the Federal Aviation Administration to identify better ways to prevent the problem.

The problem has vexed regulators because it involves human behavior, which is notoriously hard to fix. Among the solutions that have been suggested: beefed-up preflight instructions, additional training for the flight crew and overhead bins that can be automatically locked in an emergency.

Several airlines and labor unions representing flight crews also are calling for actions to stem the practice. American believes the issue “warrants additional industry attention, given the risks that non-compliant passengers pose to themselves and others by slowing the evacuation and, potentially, puncturing and deflating critical escape slides,” the company said in a submission to the NTSB.

Some airlines, including carriers from outside the U.S., already have begun discussing the problem, Delta Air Lines said.

“It’s really hard to understand,” said Nora Marshal, an investigator with the NTSB for 28 years who retired as chief of its Human Performance and Survival Factors Division.

Most, if not all, of the emergency evacuations that NTSB examined during Marshal’s tenure involved at least some passengers who tried to grab their belongings, she said.

“I would think that if there was visible fire, people would be less likely to take their stuff,” she said. “But apparently that is not the case.”

The problem crosses international borders. Scores of people aboard an Emirates jet that crashed onto a runway in Dubai on Aug. 3, 2016, can be seen in a video grabbing bags from the overhead bins even as a flight attendant yelled “leave everything.”

A 2015 safety notice issued by the U.K. Civil Aviation Authority said “significant numbers” of passengers had been taking luggage with them during emergencies. It called on airlines to consider making more stern warnings before each flight and beefing up training for flight attendants.

A safety study the NTSB compiled in 2000 found that 36 flight attendants interviewed after evacuations reported that passengers carrying bags were the biggest impediment. Almost half of passengers involved in evacuations who had carry-on bags, 208 out of 419 interviewed, admitted to trying to take items with them, the study said.

The FAA, which governs airline operations and sets aviation policy, has tried for years to educate passengers on the importance of leaving their bags behind, the agency said in an emailed statement. The message has been included in holiday travel advisories, press releases and a website with travel tips, the agency said.

It is evaluating the NTSB’s finding and recommendations, it said in a statement.

“It’s a huge problem,” said Sara Nelson, president of the Association of Flight Attendants-CWA union. In pre-flight briefings, some airlines require attendants to remind passengers not to retrieve bags in an emergency, yet it’s still ignored, Nelson said.

“We’ve seen it in every single emergency evacuation I can think of in the last 10 years,” she said.

The union, the largest representing flight attendants in the world, is calling for an industrywide effort with airlines, the labor force, airports and the FAA to seek solutions, she said. The AFA supports more consistent enforcement of size and weight of carry-on bags, limiting the number of bags allowed on board and increased passenger education, she said.

“There is clearly a need to evaluate and measure the effects of passengers who panic or otherwise try to take carry-on baggage while getting off an aircraft that is threatening their lives,” said Dennis Tajer, a spokesman for the Allied Pilots Association union at American.

The APA also supports additional actions, Tajer said. The fact that the problem has occurred so often before is evidence that the current system to educate passengers isn’t working, he said. “It’s a human event of survival, and non-compliance is not an option,” he said. “It means the difference between life and death and we take it just that seriously.”

“A lot of people ignore the safety briefing,” said Peter Goelz, the NTSB’s former managing director who is now an adviser to the Association of Professional Flight Attendants, the union representing 26,000 American Airlines workers. “Flight attendants would be supportive of a stronger briefing and more emphasis on the entirety of it.”

Rather than relying on the uncertainty of trying to change human behavior, airlines and regulators should look at a technical solution, Richard Healing, a former NTSB member who now leads Air Safety Engineering, said.

“The FAA should consider a requirement that during an emergency evacuation, overhead bins be locked as the first step in the process, instantly locked so people >

can’t jump up and get their stuff,” Healing said. He acknowledged the industry would likely oppose the costs of such technology.

It’s clear that the results of slowed evacuations can be deadly. After a British Airtours jet caught fire on the ground in Manchester in 1985, 55 people died because they > couldn’t exit the plane before being overcome by toxic smoke. Eleven people died within feet of an exit on a burning USAir plane in Los Angeles in 1991.

American Flight 383 – the subject of a recent hearing – had almost reached takeoff speed when an engine exploded, severing fuel lines and piercing the wing tank on the Boeing 767-300. The resulting evacuation was flawed and highly chaotic, the NTSB concluded on Tuesday.

All seven flight attendants told investigators they saw passengers toting everything from purses to large suitcases.

“There needs to be something done with the bags,” flight attendant Christina Katz told investigators. “One passenger came running up the right aisle with a bag over his head. A flight attendant from the back was trying to get it away from him. The man kept yelling, ‘I’m taking it with me.’ ”

## 10 Most Common Causes Of Fatal Aviation Accidents

The FAA is continuously trying to improve safety, and as part of that, they've released their top 10 causes of fatal GA accidents, with a specific accident for each type.

## 10) Thunderstorms Or Windshear

Weather is obviously one of the most hazardous parts of flying. This photo below is a Cessna 210 that flew into a level 6 thunderstorm. The pilot at the controls was Scott Crossfield, an accomplished Naval test pilot, and the first pilot to fly twice the speed of sound. Before he departed, he received a weather briefing, however he didn't get weather updates during his flight. The airplane broke apart in-flight, with wreckage found at three different locations.

## 9) Midair Collisions

Most midairs happen near airports, and in this accident, a Cessna 172 entered the traffic pattern and collided with a helicopter. Unfortunately, the 172 didn't make radio calls prior to entering the pattern, and the helicopter was unaware of them. The helicopter was able to land safely, but the 172 entered a spin, impacting the ground.

## 8) Systems Failure

This Cessna 335's attitude indicator failed in poor weather. The pilot became spatially disoriented and crashed.

## 7) Fuel Exhaustion Or Contamination

This Cessna 172 ran out of fuel in flight. The aircraft had just completed an STC (supplemental type certificate) to increase the engine's horsepower. However, new fuel burn rates weren't placed in the flight manual, and the pilot didn't plan for the increased fuel burn rate.

## 6) Flight In IMC

This King Air 200 was on a localizer approach, but the pilots were using a GPS to navigate to the IAF. The pilots inadvertently swapped the initial approach fix with the missed approach point on the GPS, using manually entered fixes. With no glideslope, and incorrect DME data, the plane flew approximately **5 miles past the missed approach point at the MDA altitude.** As the pilots executed a missed approach, they impacted the top of a mountain.

## 5) Unknown/Undetermined

Sometimes the NTSB and FAA don't have enough information to determine the cause of an accident. In this crash, the NTSB and FAA believe the aircraft flew into a severe downdraft in mountainous terrain, based on radar data.

**4) Low Altitude Operations**
This P-3 air tanker was on a fire bombing run. The flight had an FAA examiner on board performing a checkride. As the P-3 descended over a hill, the left wingtip hit the ground, and the aircraft impacted terrain.

**3) Powerplant Failure**
In this crash, the aircraft had a right engine cylinder failure. The pilot feathered the prop, but didn't have enough single-engine performance to maintain altitude. The pilot elected to ditch the aircraft in the water. Fortunately the pilot and all the passengers survived.

**2) Controlled Flight Into Terrain**
This King Air 200 was on a medivac flight. The pilot was cleared for a visual approach into Bozeman, MT at night. Unfortunately the pilot identified the wrong airport, overflew Bozeman, and impacted terrain.

**1) Loss Of Control In Flight**
In this accident, the pilot lost their right engine immediately after takeoff. The pilot lost directional control, rolled inverted, and impacted the runway.

## Ejection Seat Manufacturer Pleads Guilty

Red Arrows pilot Sean Cunningham, 35, died on Nov. 8, 2011, following the ejection from his aircraft, which was on the ground. Martin Baker Aircraft Ltd manufactured the ejection seat.

Six years after Sean Cunningham, a pilot with the Royal Air Force's aerobatic team, the Red Arrows, died when his ejection seat engaged and his parachute did not deploy, the manufacturer of the ejection seat, >

Martin-Baker Aircraft Company, has pleaded guilty to a charge under Section 3 (1) of the Health and Safety at Work Etc Act 1974, the Health and Safety Executive announced Jan. 22.Cunningham, 35, died on Nov. 8, 2011, following the ejection from his aircraft, which was on the ground. Martin Baker Aircraft Ltd manufactured the ejection seat. An inquest was held in 2014. HSE investigated and prosecuted the case against the manufacturer.

No sentencing date has been set, but a hearing has been scheduled for Feb. 12-14, according to the agency. An HSE spokesperson said, "HSE acknowledges the defendant's guilty plea but will not make a further comment until after sentencing."

The company posted a statement saying a maintenance failure was the cause. Its statement says in its entirety: "Firstly and most importantly we express our deepest condolences to the family and friends of Flight Lieutenant Sean Cunningham.

"Today, Martin-Baker Aircraft Company entered a guilty plea to a single breach of Section 3 (1) of the Health and Safety at Work Act 1974. This plea was entered following detailed and lengthy discussions with the Health and Safety Executive which have considerably narrowed the issues from when its investigation first started. It should be noted that this was an isolated failure relating to the tightening of a nut during maintenance procedures conducted by RAF Aerobatic Team (RAFAT) mechanics.

"Martin-Baker Aircraft Company has designed and manufactured ejection seats for 73 years and in that time these ejection seats have been flown by 92 air forces, with over 17,000 seats currently in use. Our ejection seats have saved the lives of 1050 British Royal Air Force and Navy aircrew, with a further 6509 aircrew lives saved around the world.

"Martin-Baker's priority has and will always be the safety of the aircrew who sit on the Company's seats. We appreciate that the Health and Safety Executive, during this process, has acknowledged this dedication and track record of saving lives.

"A further and more detailed press statement will be released at the conclusion of these proceedings."

https://www.raf.mod.uk/reds/

http://www.bbc.com/news/uk-england-lincolnshire-25684968

**http://martin-baker.com/2018/01/22/press-statement-monday-22nd-january-2018/**

## Mexican cargo plane suffers gear collapse at airport

A damaged cargo aircraft sits on the tarmac on Thursday, January 18, 2018, evening at the international airport in Brownsville, Texas. According to a statement from the FAA the aircraft was at the airport for maintenance when the landing gear collapsed. Two persons were on board, but the aircraft was not scheduled for flight.

Brownsville/South Padre Island Airport Director Bryant Walker said the gear collapsed on a Mexican cargo plane Thursday while mechanics were testing an engine on a ramp.

At the time of what the Federal Aviation Administration is classifying as an incident, two people were on the aircraft and neither sustained injuries, FAA Spokesman Lynn Lunsford said Thursday night.

Lunsford said the plane was never intended to fly Thursday and it was just undergoing maintenance.

A large crack could be seen separating the cockpit from the plane's body and the propellers were destroyed.

Walker said there were no fuel spills greater than one gallon and no fire, though the Brownsville Fire Department did respond.

The plane is a Convair CV-580F operated by Air Tribe, an International Mexican Air Carrier that is based in Guadalajara and Queretaro, Mexico, according to data from the Aviation Safety Network.

The plane's first flight was in 1953, according to the Aviation Safety Network.

## AOPA Offers Safety Seminars On Midairs


Pilots may think that talking to ATC or using ADS-B protects them from midair collisions, but mistakes still can happen, and they can be fatal. AOPA's Air Safety Institute is taking on the midair threat in a big way, offering in-person seminars at 48 sites across the U.S. this year. "What we hope pilots take away from this seminar is that even if you are doing everything right, you can find yourself in a situation where you are closer in proximity to other airplanes than you realize," said Richard McSpadden, executive director of the AOPA Air Safety Institute.

The new seminar identifies high-risk scenarios and locations, then lays out strategies for avoiding them.

Among the topics covered are human eye limitations that impact the “see and avoid” philosophy, proven techniques for improving your visual scan, maximizing your visibility to other aircraft, the limits of cockpit technology and “danger zones” you may not be aware of. The seminars are funded in part by a donation from Joyce Gardella, whose husband, Paul, a flight instructor, died in a midair crash near Washington, D.C. The first Collision Course event was held last week, in Fairfax, Virginia, and drew a crowd of 225. A full listing of the seminar locations and more information can be found at the ASF website.

https://www.aopa.org/forms/event-calendar/SAFETY_SEMINAR

## 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/SWF2S24rMWJFaFUyWjREUldCazFxVkk0WDdLYnpvT1dwelUvbVhFZzBzWW9wREJwMVZHVzVsU0pGZ1NEZmZmRFRFZDRISlMreDVpeWRQdTI1Mi9rckE9PQ%3d%3d

## Wx24 Pilot App Adds Cloud-Cover Feature

The Wx24 Pilot app has released an updated version adding several features, including cloud-cover information from the National Digital Forecast Database (NDFD), the product's developer announced. “With the new cloud-cover feature, a VFR pilot can now determine not only if it’s legal to fly, but whether it’s safe,” said Paxton Calvanese, the app’s developer. “The airports along a given flight path may be reporting VFR conditions, but might in fact be solid overcast at 4,500 feet.

"While not developed specifically for aviation, NDFD data provides pilots with an important tool to access cloud information and a more complete picture of weather conditions, Calvanese said. It also augments weather information for smaller airports not covered in by Terminal Area Forecasts. Cloud conditions in the app are depicted using eight shades of color, ranging from blue for clear skies to dark gray for significant cloud cover.

Another new feature in version 4.0 is an icon in the lower navigation panel of the app that toggles between flight categories (VFR, MVFR, and IFR) and NDFD cloud cover. The subscription-based app is available for iOS devices in both U.S. and international versions, with and without flight-planning capabilities.

## FedEx Lands at No. 9 on Fortune's List of World's Most Admired Companies

FedEx Lands at No. 9 on Fortune's List of World's Most Admired Companies

The Memphis-based delivery giant moved up two spots from its No. 11 ranking on the previous list of the world's top 50 companies.

"FedEx is honored to have been recognized again among the world's most admired companies," said Frederick Smith, chairman and CEO, FedEx Corp. "This honor reflects the outstanding dedication and performance of our more than 400,000 FedEx team members worldwide."

It makes the 18th consecutive year that FedEx been in the top 20, including 14 years in the top 10.

Atlanta-based rival UPS weighed in at No. 33, up two spots from the previous list.

UPS ranks No. 1 and FedEx No. 2 on the Transport Topics Top 100 list of the largest North American for-hire carriers.

Companies are compared on various measures of financial performance and corporate reputation.

Apple and Amazon remained at Nos. 1 and 2. Rounding out the top 10 in ascending order were Alphabet, Berkshire Hathaway, Starbucks, Walt Disney, Microsoft, Southwest Airlines and JPMorgan Chase.

**http://www.ttnews.com/top100/for-hire/2017**

## Secrets of Getting Good Sleep on a Plane

Here's how the well-travelled manage to get some shuteye on the plane, according to *BBC*.

Brian Kelly is the type of traveller almost unheard of among frequent flyers – a rare breed who actually enjoys sleeping at 30,000 feet.

Kelly, also known as The Points Guy, is an influential New York-based blogger who quit Wall Street to write about airline points programs. He clocks up about 300,000 miles in the air every year – many of those on the long-haul flights most travelers dread.

"I get great sleep on planes. I like traveling first class to Asia and Australia because I can get a full sleep-cycle in, I will sleep for eight or nine hours," says Kelly. While he does sometimes travel in economy for domestic US flights, he flies internationally in first or business class.

Get the full story at www.bbc.com