



Aviation Human Factors Industry News

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Human Error or Mechanical Failure?

Flight on way to Denver makes emergency landing –
Airbus A319

Frontier Airlines plane makes an emergency landing

ATLANTA – The FAA says a Frontier airlines plane made an emergency landing Sunday after a piece fell off the engine.



The spokesperson for the FAA's southern regional office, Kathleen Bergen, says Flight 851 took off from Hartfield Jackson International Airport in Atlanta at 6:25 a.m. Sunday.

A piece of the lower engine cowling, the metal piece that covers the engine, fell off the plane right after it took off.

The plane landed safely back at Hartfield at 6:42 a.m. **The piece was recovered on the runway.**

129 passengers were on the plane. Frontier made arrangements for the passengers to get on other flights going to Denver.

[Navy IDs pilot killed in Blue Angels crash](#)

Investigators looked through wreckage Sunday to determine what caused a Navy Blue Angel jet to crash during a maneuver, while the military identified the fallen pilot as a 32-year-old who was performing in one of his first air shows with the team.

Lt. Cmdr. Kevin J. Davis of Pittsfield, Mass. was in his second year with the Blue Angels, the team known for its high-speed, aerobatic demonstrations, Lt. Cmdr. Garrett Kasper said.



At Marine Corps Air Station Beaufort, the site of Saturday's crash, a somber crowd watched Sunday as six jets flew overhead in formation. Smoke streamed behind one of the jets as it peeled away from the others to complete the "missing man formation," the traditional salute for a lost military aviator.

"The spirit of the pilot is in the arms of a loving God," said Rob Reider, a minister who was the announcer for the air show.

The crash happened as the team was performing its final maneuver Saturday afternoon during the air show. The team's six pilots were joining from behind the crowd of thousands to form a triangle shape known as a delta, but Davis' jet did not join the formation.

Moments later, his jet crashed just outside Marine Corps Air Station Beaufort, hitting homes in a neighborhood about 35 miles northwest of Hilton Head Island, S.C. Debris — some of it on fire — rained on homes. Eight people on the ground were injured, and some homes were damaged.

The squadron's six, F/A-18 Hornets routinely streak low over crowds of thousands at supersonic speeds, coming within feet, sometimes inches, of each other. The pilots, among the Navy's most elite, are so thoroughly trained and their routines so practiced that deadly crashes are rare; the last one happened in 1999.

The Navy said it could be at three weeks before it announces what may have caused the crash. The squadron returned to its home base of Pensacola Naval Air Station late Sunday.

Ernie Christensen, a retired rear admiral and former Vietnam fighter pilot who flew with the Blue Angels and later commanded the Navy's Top Gun fighter school in California, said he did not want to speculate about what could have caused Saturday's crash.

But he said **the intense flying leaves no room for human or mechanical error.**

"When you are working at high speeds, close to the ground and in close proximity to other aircraft, the environment is extremely unforgiving. That is the reason they practice so many thousands of times," said Christensen.

Human Factors Researchers Help To Avoid Runway Incursions And Errors

Major airports around the country **will be safer** after they implement a new Federal Aviation Administration standard to help prevent runway incursions, which the FAA defines as "any occurrence on an airport runway . . . that creates a collision hazard . . ."

The new safety standard draws on findings from the **Enhanced Surface Markings Project**, a successful collaboration among **human factors/ergonomics (HF/E)** consultants, the FAA, and aviation industry representatives. In a summary of these findings, published in the Spring 2005 Ergonomics in Design, the authors note that pilots and ground and tower control personnel will benefit from low-cost but **highly effective alterations in the way that lines are painted on runways and taxiways.** "The irony," they say in the article, "is that one of the most complex phases of flight has nothing to do with flying; it is taxiing to and from the gate."



Incidents such as the late August 2006 Comair jet crash at Kentucky's Blue Grass Airport are among a few recent tragic examples of the need for greater runway safety at airports of all sizes. The use of HF/E findings such as those from the Enhanced Surface Markings Project address one risk element in runway safety.

Over a two-year testing and evaluation period, the HF/E researchers **recommended three changes to the way runways and taxiways are marked: a modified centerline extending 150 feet from the runway holding position with a pattern of dashes on either side to give a "preview" to the pilots that a runway is approaching; surface-painted holding position signs to be placed at all runway intersections and on both sides of the centerline; and a modified runway hold line with white dashes, instead of yellow, to indicate the runway side and not the taxiway side. The first two recommendations were incorporated into the FAA standard.**

The HF/E researchers aimed to make the **runway and taxiway markings conspicuous and usable.** They had to preserve the essential elements of current markings to keep additional training and extra confusion to a minimum.

A total of 224 pilots who participated in the evaluations, which ended in 2004, said they would feel more confident with the combination of new visual cues in approaching runways. **The new designs will also provide assistance to drivers of runway vehicles such as baggage and fuel trucks and maintenance carts, given that 20% of runway incursions between 1999 and 2002 involved vehicles.**

As a result of the Enhanced Surface Markings Project, the FAA adopted changes in its safety standards, which **will make new surface-painted markings mandatory for 72 major U.S. airports by June 30, 2008.**

Ergonomics in Design is a peer-reviewed scientific quarterly that serves the needs of practicing **human factors engineers and ergonomists** concerned with the usability of products, systems, and environments. Articles focus on the ways in which **human factors/ergonomics principles are implemented** in the design, development, prototyping, test and evaluation, training, and manufacturing processes of a product, tool, system, or environment.

The Human Factors and Ergonomics Society is a multidisciplinary professional association of more than 4,500 persons in the United States and throughout the world. Its members include psychologists and other scientists, designers, and engineers, all of whom have a common interest in designing systems and equipment **to be safe and effective for the people who operate and maintain them.**

Elevator Partially Detaches on Takeoff

Aeorspatiale/Aeritalia ATR-42.

While preparing to depart from Bergen (Norway) Airport the afternoon of Jan. 31, 2005, the Danish Air Transport flight crew conducted a flight-control check. Following company SOP's the commander checked the rudder while the first officer checked the elevator and ailerons. **The first officer told the commander that the elevator required more force than normal and that the thought the "stiffness" was due to the wind.**



The commander accepted the first officer's explanation and did not check the elevator himself. "Correct elevator function is a condition for safe flight, and in the light of hindsight, it is easy to see that **the commander should have been more careful and investigated whether he could register any anomaly with the elevator**" the AIBN report said.

The airplane accelerated normally during takeoff, but the commander had to **apply excess elevator-control force for rotation.** "At first, he thought that the elevator trim was incorrect," the report said.

However, immediately after liftoff, it became clear that the elevator was not working as it should. Full elevator deflection was necessary to maintain normal pitch (attitude).

The crew declared an emergency and returned and returned to the airport. "The landing was accomplished without further incident seven minutes after takeoff," the report said. None of the 25 occupants were injured.

Examination of the aircraft revealed that the outboard end of the right elevator was hanging 30 cm (12 in) below the horizontal stabilizer and remained attached to the aircraft only by the inboard hinge. "A bolt was missing from both the center and outboard hinges," the report said. "Both of the bolts and one of the nuts were that normally should connect the hinge assemblies together were found. One of the bolts was found on the runway, the other inside the elevator."

AIBN concluded that inadequate torque had been applied to the self-locking nuts on the hinge bolts during reinstallation of the elevator after the aircraft was repainted in 1999; the nuts had progressively loosened and eventually detached from the bolts on the center and outboard hinges.

"Investigation indicates that the bolt belonging to the outer hinge assembly fell out during the takeoff in question, while the bolt in the center hinge assembly had fallen out at an earlier point in time, with being discovered," the report said, noting that a double inspection had been performed after reinstallation of the elevator and that maintenance and various inspections had subsequently been conducted.

Maintenance of jets still under fire

The Federal Aviation Administration has not done enough to tighten safety rules for the growing volume of airplane maintenance that airlines are outsourcing to contractors, the Department of Transportation's internal watchdog told Congress Thursday.

DOT Inspector General Calvin Scovel said the current FAA program that asks airlines to voluntarily report where they outsource key maintenance doesn't work because not all airlines comply. The FAA's voluntary process for airlines to report their top 10 "critical maintenance" providers has produced reports from only seven of nine carriers, Scovel said. They were due Dec. 31.



He said the FAA cannot adequately oversee the quality of maintenance because it has no way of knowing where all the work is done.



Critics and defenders of the FAA's maintenance oversight testified before the House aviation subcommittee.

Nicholas Sabatini, the FAA's associate administrator for aviation safety, **defended the agency's oversight** of an industry that he said has become "incredibly complex." Terrorism and high fuel prices forced airlines to slash costs to survive, pushing them to seek a wider variety of contractors to maintain their fleets.

He called **Scovel's proposed oversight reforms unrealistic**, saying they "would essentially require that I have inspectors at the turning of every wrench."

Sabatini and Basil Barimo, a safety official of airline trade group Air Transport Association, argued the **airlines' safety record** shows the current system works.

The last U.S. plane crash blamed on maintenance occurred in January 2003 in Charlotte. An unlicensed maintenance contractor improperly adjusted a flight control on an Air Midwest aircraft being flown for US Airways Express. The plane crashed on takeoff the next day, killing all 21 aboard.

Outsourcing has increased briskly since 2001. As of last year, nine large U.S. airlines were outsourcing 67% of their heavy airframe maintenance, up from 34% in 2003, Scovel said.

Mechanics at maintenance contractors tend to be non-union and earn less than airline mechanics. Airlines are outsourcing work to firms in the USA as well as Mexico, Central America, Africa, Asia and other locations with lower pay scales than the USA.

Employees at foreign repair contractors are not required to undergo the drug tests or background checks that are required at U.S. firms.

Flexing their political muscle as the new majority party, Democrats on the panel sharply criticized the system that treats licensed repair firms in the USA differently from those abroad, many of which are unknown to the FAA.

Rep. Peter DeFazio, D-Ore., called the FAA's oversight a "parallel system" of safety that puts airline passengers at risk.

Chairman Jerry Costello, D-Ill., said he wants the FAA to require airlines to have safety-related work done only by the airlines or by repair firms that are FAA licensed. Costello and Rep. Jim Oberstar, D-Minn., said they want the FAA to hire more maintenance inspectors.

NTSB: Fatigue threatens air safety

Sleep-deprived air traffic controllers played a role in at least four near-fatal incidents on the nation's runways, and the controller on duty in the worst U.S. crash in five years got only **two hours of sleep**, federal accident investigators said Tuesday.

"Fatigue decreases aviation safety," the National Transportation Safety Board (NTSB) said in a letter urging reform in air traffic scheduling and training.



The NTSB said the problem of tired controllers is **exacerbated by scheduling two eight-hour shifts within 24 hours, a common practice that gives controllers little chance to get normal sleep.**

The safety board said the Federal Aviation Administration, which employs controllers and regulates aviation, **does "not adequately consider the potential impact of work scheduling on fatigue and performance."** It also found that **controllers interviewed after incidents often admitted that they didn't make it a priority to get enough sleep.**

The FAA will study the recommendations, agency spokeswoman Laura Brown said. **The FAA requires at least eight hours between shifts, and "we expect controllers to be responsible and make sure they are adequately rested,"** Brown said. Schedules are negotiated with the controllers' union, so changes would require approval from employees, she said.

National Air Traffic Controllers Association spokesman Doug Church said the union welcomes the NTSB report. "This is the **number one problem** in the controller ranks," Church said. **"There are not enough of us.** The FAA is stretching their controller resources too thin."

Relations between the FAA and the union soured following a bitter fight over changes in work rules and a contract that reduced controller compensation.

The controller on duty shortly before dawn on Aug. 27 when Comair Flight 5191 crashed in Lexington, Ky., told investigators he did not see the jet taxi to a closed runway because he turned away to perform paperwork. **The controller said he had slept two hours the previous afternoon before reporting to work at 11:30 p.m. for his second eight-hour shift that day.**

The NTSB has not yet established the cause of the crash. But the agency said **four other completed investigations highlighted the problems that tired controllers can create.** Among them:

•The controller who ordered a passenger jet to take off directly into the path of another jet at Chicago's O'Hare International Airport last year told investigators he had slept only four hours before reporting to work at 6:30 a.m. He said he was "not as sharp as (he) could have been," the NTSB reported.

•A controller who cleared a cargo jet for takeoff on a closed runway in Denver in 2001 told investigators she had gotten 60 to 90 minutes of sleep before working an overnight shift. She told investigators she was "probably tired, not alert enough."

Pilots admit they took a nap on air

New Delhi: Details from voluntary information reports handed over by pilots to their flight safety departments cite extreme fatigue.

"I was tired. My mind had stopped functioning. I took a power nap," a pilot said.

Another pilot added, "There was a point in my flight today when I could see nothing. I lost focus. I had dozed off."



The reports shown exclusively to CNN-IBN are anonymously dropped by pilots and co-pilots in a Debrief Box, in which many of them admitted to taking a nap on air.

"Flying is a complex job. After all a pilots body is similar to any other human body," says Former Indian Airlines Chief Operation, R S Anand.

The number of hours a pilot flies is governed by Flight and Duty Time Limitation or FDTL. According to the DGCA rules – no pilot can fly more than 125 hours during a period of 30 consecutive days, and not more than 30 hours in week. However, within this any permutation or combination is possible.

These regulations were made to make sure men flying these machines were never tired. But in times of crisis, these rules are often overlooked.

"We know of instances during fog days when pilots come in early but actually sign in only when the fog clears out. So they have been on duty for long, but the paper work shows something else," says Sudhakar Reddy of the Air Passengers Association.

Meanwhile, officials have admitted of instances when both the pilot and co-pilot have left the cockpit while the plane was on air. It was later opened with a secret code that the pilot has.

The incident is one of a kind but also reflects the flip side of the open skies policy that aviation discipline is not what it used to be.

So the onus is on pilots, and the British Airways (BA) pilot who refused to fly because he was sleepy after a disturbed night at the hotel may have inconvenienced a lot of passengers, but was reinforcing high standards of air safety.

Aviation workers face more scrutiny

A pilot program at 5 airports is in the works to screen employees for weapons.

WASHINGTON -- Congress is moving quickly toward a pilot program to screen aviation employees for weapons. And the head of the Transportation Security Administration said Thursday that he would support the plan to try it out at five airports.

Rep. Sheila Jackson-Lee, D-Texas, said the Homeland Security Transportation Security Subcommittee, which she chairs, will vote Tuesday on the bill. The arrests of workers at Orlando International Airport in an alleged gun-running scheme drew attention to the issue of workers who can get into secure areas of airports without going through screening.



"The more time we wait, the more time we have the vulnerability and chance of tragedy," Jackson-Lee said.

TSA chief Kip Hawley said physically checking all employees with access to secure areas nationwide would require twice as many screeners as his agency has now. He has opposed that idea as not a good use of resources. But, he said, a pilot program could yield useful information about security among the caterers, maintenance workers and other airport employees.

"It's an evolution. We'll never finish adding security to the system," Hawley said.

TSA on Wednesday announced a six-point plan to better search employees for security threats, including training airport workers to recognize suspicious behavior and upgrading ID badges. The higher-tech badges could include biometrics such as fingerprints and computer chips to alert authorities about a person's location when they are in an area where they shouldn't be.

Hawley said that sort of pinpointing might help in cases such as the Orlando security breach. Comair workers allegedly used their badges to get a duffel bag of guns into the airport and then on a flight to Puerto Rico.



Rep. Ginny Brown-Waite, R-Brooksville, has pushed the legislation to set up screening at five airports for all workers who enter secure areas.

She took Hawley to task for saying the Orlando incident raised awareness of the problem, saying she and others have long pushed the idea. "With all due respect, [I] have been saying there is a serious problem here at the back door of the airport.

"It flies in the face of what Americans believe security should be," Brown-Waite said. To pay for it, companies such as those that sell food at the airports could "add a nickel to the already unhealthy corn dogs they are selling."

TSA has increased the number of screeners at OIA since the incident. Miami International Airport already has an employee-screening program and has spent more than \$5 million increasing security, said Lauren Stover, the assistant aviation director for Miami-Dade. [This week the tighter security netted arrests of air-cargo employees charged in an alleged drug-smuggling ring.](#)

Jackson-Lee said the Miami example shows that it's possible for airports to screen workers.

"Their doors are still open," she said.

But Hawley said screening workers will always be different than passenger checkpoints designed to keep weapons away from travelers. [Workers such as those who do maintenance already have access to weapons -- such as blowtorches and tens of thousands of gallons of jet fuel. Screening them to bar cigarette lighters doesn't make sense, he said.](#)

Hawley said TSA needs to focus on tactics such as [random checks of workers](#) inside the airport instead of screening each worker at the airport's perimeter.

"The idea is not to check all employees at specific, known locations, but to check them throughout the facility, to discern hostile intent, to track their movement patterns, and [to train employees to detect suspicious behavior.](#)"

Help for allergy sufferers

In springtime, when trees burst with leaves and flowers open, are you **distracted** by sneezing, sniffing, and itchy eyes? In summer, do you shut out the breeze and hide indoors? Year-round, do you wage a constant battle with dust mites or pet dander? If so, you are all too familiar with the symptoms of an allergy attack.

The American Academy of Allergy, Asthma, and Immunology estimates that **40 million to 50 million Americans suffer from allergies**. Allergies can range from irritating inconveniences to chronic debilitating conditions. They can even be life-threatening, as in the case of allergic shock. Because of their potential severity and increasing prevalence, allergic reactions have been the focus of rigorous research.

This work has resulted in a greater understanding of the complex nature of allergic reactions, which in turn has led to more effective treatment options.

Hay fever, or rhinitis, is the most common allergy in the United States, affecting about 40 million Americans. There are two categories of rhinitis: allergic rhinitis caused by allergens, and non-allergic rhinitis caused by irritants, such as fragrances, tobacco, and wood smoke. Pregnancy can also bring on non-allergic rhinitis symptoms, as can certain medications and conditions, such as thyroid hormone deficiency.

Generally, an allergic rhinitis reaction occurs when you breathe airborne, outdoor or indoor allergens. Within minutes, the whole shebang of sneezing, runny nose, nasal congestion, and itchy eyes is in full swing. Regular exposure to these allergens leads to persistent symptoms.

Tips for avoiding pollen exposure

Here are some ways to minimize your pollen exposure:

- Stay indoors when the pollen count is high, and especially on dry, windy days.
- Stay indoors between 5 a.m. and 10 a.m., when airborne pollen is likely to be at its highest each day.
- Keep home windows closed at night, and turn on the air conditioner.
- Keep car windows closed when driving.
- Vacation at the coast during high pollen season.
- Don't cut your grass; have someone else do it.
- Don't hang clothing and bedding out to dry.

Allergy tip: To reduce hay fever symptoms, start taking your allergy medicines (antihistamines, nasal steroids, and so forth) several weeks before you anticipate your allergy season will start. Clinical trials have demonstrated that this strategy is more effective than starting the same medicines after you have already developed symptoms.

When the trigger is pollen — from trees, grasses, or weeds — or mold, and your allergies kick in seasonally, the common term is “hay fever.” But allergic rhinitis can also be a year-round condition that can lead to and exacerbate other allergies, such as allergic asthma and allergic conjunctivitis. And repeated exposure to allergens hypersensitizes the nasal mucosa, so that ever lower amounts of allergens can spark a reaction, as well as make you sensitive to non-specific irritants.

Allergies can be successfully managed but not cured. Educating yourself about your allergy — what triggers it, how it works in your body, and the various treatment options available — can make a big difference in the quality of your life. Especially if you are predisposed to allergies, you may have more than one type of allergy, making it even more important to understand how to manage your allergies.

Increased medical knowledge and new developments in modifying existing medicines are making allergy treatments safer and more effective. As a result, your doctor can tailor medications to you and your lifestyle.

SAFETY TIP OF THE WEEK

Look Up!

Spring is a popular time for pruning trees, but it can also be a popular time to get zapped. Here are some tips to prevent electrocution while trimming trees:

- Never trim branches that are close to power lines.
- Never use a metal ladder near overhead wires.
- Call your local utility company to make it safe for you to prune.
- Watch for hidden wires before actually cutting branches.
- Hire a professional tree trimmer to do it safely.
- If you see lightning, stop pruning and get indoors.



PICTURE THIS!

Danger - WIDELOAD



END