

Aviation Human Factors Industry News

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From the sands of Kitty Hawk, the tradition lives on.

Hello all,

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

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DEF Contamination



“You can’t see it, you can’t smell it and you won’t know about it—until the contents of your fuel tanks begin to crystallize.”

[Mistaking](#) diesel exhaust fluid (DEF) additive for fuel system icing inhibitor PRIST on the flight line is a growing problem on ramps all over the world. [This can be disastrous](#) since DEF causes jet-A to crystalize and clog aircraft fuel filters and lines. In fact, DEF contamination of jet-A has already forced several business aircraft crews to perform engine-out landings in the U.S. and elsewhere.

[LISTEN TO THE EPISODE](#)

SpiceJet engineer killed during aircraft maintenance working without supervision: DGCA panel

SpiceJet engineer Rohit Pandey, who died at the Kolkata airport on July 9 after getting stuck in the flaps of a plane's landing gear door, [was untrained and working without any supervision](#), a DGCA committee has found.



Pandey, 22, was killed after he got stuck between the hydraulic door flaps of the main landing gear of an aircraft during maintenance at the airport, the airline had said.

"The report of the committee has been received and it has pointed out that the [trainee](#) (engineer) [was not trained](#) and was carrying out work on the aircraft without any supervision by a trained or licensed engineer," a source said on Friday.

"The committee in its report has mentioned [other contributing factors](#) to the fatal incident, [which include](#) lack of training, unsupervised maintenance by 'unlicensed and unauthorized' personnel and [non-adherence to basic maintenance practices](#)," the source said.

The Directorate General of Civil Aviation (DGCA) would take action against those responsible for the incident, the source said.

The regulator would also be taking action to address the "shortcomings" observed during the incident, the source added.

The committee found that the aircraft operating flight SG-3218 on July 9 at Kolkata-Silchar sector had taxied out from apron at 3.35 pm and returned to bay number 32 at 3.55 pm due to snag in Yaw Damper unit.

The Yaw Damper unit is a device found in the aircraft and is used to dampen the oscillations of the plane on vertical axis.

"The aircraft was parked for trouble shooting and rectification. The rectification could not be completed by licensed engineers (AMEs) during the day shift and the [task was carried forward](#) for rectification by the engineers during the [night shift](#)," the DGCA panel found, according to the source.

The committee also found that during this time, the AME, while also attending to another snag on the same aircraft, [pressurized the plane's hydraulic systems](#) to check the movement of flaps and spoilers in the landing gear.

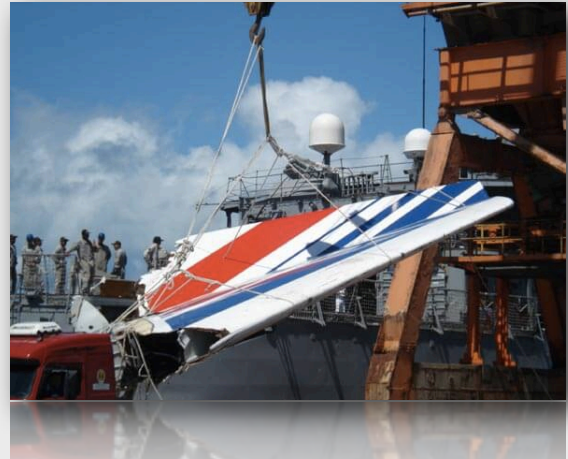
"[On pressurization of the hydraulic system](#), the right hand landing gear door closed, resulting in the trapping of Pandey who was carrying out layover inspection inside the right hand main wheel aft door, which is towards the tail side of the plane," the panel found, according to the source.

According to the committee's report, the source said, Pandey was taken out by cutting the doors and was declared dead by the attending doctor.

AF447: Air France sent back to court, case dismissed for Airbus

The Paris Public Prosecutor has requested Air France [to face trial for manslaughter and negligence](#) in the training of pilots, following the crash in 2009 of flight AF447 between Rio de Janeiro and Paris which killed 228 people. The Prosecutor also asked to dismiss a case against Airbus, whose A330-200 crashed in the middle of the Atlantic after an icing of the Pitot probes.

On June 1, 2009, an Air France A330, registered F-GZCP, carrying out flight 447 from Rio de Janeiro to Paris crashed at sea, killing all 228 people on board. The accident remains the worst Air France has ever suffered, and the deadliest involving an Airbus A330.



The final report of the French Bureau of Enquiry and Analysis for Civil Aviation Safety (BEA), released in 2012, [pointed at icing of the Pitot probes and incorrect pilot reactions as the main causes of the crash](#). As for the criminal investigation, it was concluded on February 18, 2019.

Since then, families have been awaiting a trial. On June 4, 2019, the SNPL, Air France's main pilot union, demanded everyone involved in the crash to be sent to court.

On July 12, 2019, the office of Paris Public Prosecutor required for Air France to be sent to court. It considers that the airline "[committed negligence and imprudence](#)" by not providing its pilots with [sufficient information on the procedures to be followed](#), especially after several incidents of the same kind occurred during the preceding months. "This negligence and carelessness are certainly related to the accident, as the pilots, insufficiently informed, felt a strong surprise when the autopilot disconnected and could not have the appropriate reaction," says the office.

As for Airbus, it should not be prosecuted due to "an absence of sufficient evidence". This decision is contested by the "Association entraide et solidarité vol AF447", which represents around 360 family members of the victims. "For years, the builder Airbus has tirelessly tried to forget the obviousness and simplicity of the cause of the disaster: [Pitot probes and automatisms](#)," says the association, adding that no trial "can only comfort Airbus in a feeling of impunity harmful to the safety of all".

The SNPL also voiced its "incomprehension" of the decision. It claims that Airbus should also be tried, as it failed to recommend proper training to pilots. But the prosecutor dismissed the manufacturer's responsibility as the documentation of Airbus had been validated by the authorities.

“To fully understand what it is, it is as if Boeing was relieved of all liability in the 737 MAX accidents on the grounds that the FAA had certified the aircraft,” says the union.

While Air France said it was already preparing its defense, the investigating judges of the Paris court will now decide to follow or not the requisitions of the Public Prosecutor’s office.

https://reports.aviation-safety.net/2009/20090601-0_A332_F-GZCP.pdf

Renewed calls for child safety on airplanes, 30 years after flight from Denver crashed

On the 30th anniversary of a catastrophic airplane crash that killed 11 children, the union representing flight attendants is renewing its call for [stricter child safety rules on airplanes](#).

The Association of Flight Attendants wrote a letter to lawmakers and FAA officials this week, imploring them to mandate that every passenger have a seat with a proper restraint, effectively doing away with so-called ["lap kids,"](#) or children under the age of 2 who are allowed to sit on their parent's lap during a flight.



The renewed push is in conjunction with the anniversary of the crash of [United Flight 232](#). The DC-10 departed Denver's Stapleton Airport on the afternoon of July 19, 1989, bound for Chicago. An hour into the flight, it suffered an explosive engine failure, and pieces of the tail engine's fan disk destroyed the airplane's hydraulic systems, making it nearly impossible to control. The plane's captain was forced to land in a corn field just shy of the airport in Sioux City, Iowa.

Of the nearly 300 people on board, 112 were killed.

"(Flight) 232 started off as just a normal flight, and ended up being one of the most famous disasters in aviation history," Steve Cowell, an aviation safety expert, told FOX31.

"I was just in awe how anybody could've possibly survived," he said. "One of the first things that happened was the nose of the airplane broke off like a pencil tip. There was nothing in the United manuals that spoke to anything like this, or the remote possibility of anything like this happening. They didn't have a procedure," Cowell said.

The legacy of Flight 232 is the many changes brought about because of the crash.

["It changed so much afterward.](#) Changed the way engines are made, changed United Airlines' inspection procedures, it changed the way hydraulic systems are located in an airplane," Cowell said.

But the one crucial thing that [has not changed](#) is how to handle "lap kids." In the moments before the crash of Flight 232, flight attendants were instructed to tell passengers to put their "lap kids" on the floor of the airplane. It was airline procedure at the time, but it wasn't safe, because the kids became projectiles upon impact. So a fix was made.

"And they developed a child restraint system, but unfortunately, to this day, the FAA has never mandated the use of child restraint belts on an aircraft," Cowell said.

He believes it's time for airlines and the FAA to get more serious about child safety.

Cowell also says that there is one thing we can all do to stay more safe during flight: listen to the safety briefing.

"There's no excuse for not putting down the headphones, for not listen to the flight attendant. [To think about that for 30 seconds could save your life](#)," Cowell said.

To learn more about the safety issues onboard Flight 232, and hear the stories of survivors, watch this FOX31 web special, "Retro Colorado: Flight 232."

<https://vimeo.com/348727547>

<https://kdvr.com/tag/children-of-flight-232/>

International Transport Workers Federation affiliates testify on need for greater aviation safety

Testifying before Congress last week, union affiliates of the International Transport Workers Federation (ITF) advocated for aviation safety, calling attention [to a host of issues](#) they see as suspect.

In particular, attention was drawn to the [policy of U.S. airlines to offshore aircraft maintenance](#). Addressed by John Samuelson of the Transport Workers Union (TWU), that policy allows airlines to avoid U.S. jurisdiction and its own more stringent safety standards monitored by the Federal Aviation Administration (FAA).

It's not the first time the issue has been raised, however, and Congress has twice previously demanded a change on the practice from the U.S. Department of Transportation. Thus far, the department and the regulator have made no policy changes.

They also brought before Congress the issue of air pollution. Unions are concerned about the effects of exposure to [leaking aircraft fluids in cabin air supplies](#) could have on cabin crews and others. Ideally, they want aircraft to come equipped with air sensors that would detect and alert crews to toxic fumes so that action can be taken.

Beyond these more general concerns, specific attention was also drawn to Boeing, which remains in scrutiny over its handling of the 737 MAX 8 aircraft and potential negligence that led to several disasters and several hundred deaths. Those planes remain grounded, and legislators heard from relatives of those killed in the crash of Ethiopian Airlines flight 302.

Lori Bassani of the Association of Professional Flight Attendants and Mike Perrone of the Professional Aviation Safety Specialists joined Samuelson in testimony before Congress last week.

Flight 73 pilots ignored alerts in fatal Air Niugini crash, report finds

Air safety investigators have found two Air Niugini pilots ignored as many as 13 alerts before their plane [crashed into a lagoon in the Federated States of Micronesia](#).

Key points:

- Air Niugini Flight 73 crashed into a lagoon as it attempted to land in Chuuk
- One passenger died, 6 were injured
- Investigators have found pilots **ignored ground warning alerts** before the crash

A passenger was killed and six seriously injured when the Boeing 737 crashed into the water 460 meters short of the runway at Chuuk International Airport.

In its final report into last September's crash, PNG's Accident Investigation Commission (AIC) stopped short of blaming the accident on pilot error, instead saying that **"human factors" contributed**. "Both pilots were **fixated** on cues associated with control inputs for the landing approach," the report found.



"[They] were not situationally aware and did not recognize the developing significant unsafe condition of an increasingly unstable final approach."

It concluded there were a total of **13 cockpit alerts** during the failed approach of flight 73.

AIC chief commissioner Hubert Namani said the recorded information from the CVR (cockpit voice recorder) showed that a total of 13 aural alerts sounded after the plane passed the minimum descent altitude.

"The investigation observed that the flight crew disregarded the EGPWS (Enhanced Ground Proximity Warning System) alerts, and **did not acknowledge** the "minimums" and "100-feet" advisories or respond to the EGPWS aural alerts; a symptom of fixation and channelized attention," he said.

Air Niugini said it would continue investigating the crash, agreeing that it was a case of "human factors" and not pilot error that contributed to the crash.

"What we have to understand here is the pilots didn't purposely fly that plane into the water," Air Niugini's managing director Alan Milne told reporters, after the findings were handed down.

He said both were experienced pilots, and something else "was a factor there that all came together to make that accident happen".

The surviving 12 crew members and 34 passengers who exited the aircraft were rescued and brought to shore by locally operated boats and US Navy divers.

The report found one passenger could not be located before the aircraft sank in about 30 meters of water and impacted the sea floor.

He was found several days later still inside the sunken aircraft and not wearing a seat belt.

Videos posted to social media after the incident showed small boats helping people to safety.

The plane is listed on the Aviation Safety Network website as having been involved in an incident at Jacksons International Airport in Port Moresby in May of this year, when the wing of a Lockheed L-100 Hercules aircraft impacted the plane's right winglet, causing "significant damage" to both aircraft.

Air Niugini is PNG's leading airline, servicing both national and international destinations.

<https://www.abc.net.au/news/2018-09-28/flight-lands-in-a-lagoon-off-micronesia/10316434>

Backbone of aviation

From sunrise to sunset, the backbone of the aviation community works through the summer heat; crew chiefs **are the gears** keeping the mission going and aircraft ready.

Even before most of the base community begins the day, Airmen assigned to the 20th Aircraft Maintenance Squadron have already begun their first shift by acquiring tools and equipment before trekking across the flightline.



At the beginning of their shift, Airmen participate in a roll call where they are assigned specific maintenance jobs that must be performed. After arriving at their Vipers, the Airmen review their technical order - **which provide guidance on how to properly performs tasks** - and assemble all the equipment needed to prepare the aircraft for flight.

“It is critical that we perform our job to the best of our abilities,” said Staff Sgt. Brandon Brantmeier, 20th AMXS dedicated crew chief. “Our work can take anywhere from eight to 12 hours, but we don’t stop until the job is done.”

Brantmeier went on to say some aircraft maintenance undertakings can take from three hours to as much as three days to complete.

“It’s important that we flawlessly execute our job because there are people’s lives at stake,” said Senior Airman Steven Kuethe, 20th AMXS crew chief. “We need to thoroughly inspect our tasked jets to ensure the overall survivability of the pilot and aircraft.”

These maintenance Airmen provide support to the more than 70 F-16 Vipers assigned to Shaw Air Force Base, South Carolina.

"Whether it's at home station or deployed, they **put their reputation** and name on the line," said Master Sgt. Christopher Patten, 20th AMXS, 79th Aircraft Maintenance Unit section chief. "I tell them every day, 'Hey you're signing for that and you need to take care of it,' and they take that to heart."

Virtual Reality Could Cut Maintenance Training Time 75 Percent

Avia Solutions subsidiary FL Technics is using virtual reality to train aviation mechanics **in less than a fourth of the time** it takes with conventional methods.

"Globally the industry struggles with the 3-month-long enrollment process needed for aviation mechanics," said FL Technics CEO Zilvinas Lapinskas in a statement. "So, that's why we are pushing to shorten that process as much as we can, and we aim to try to get it down to 3 weeks."

"The company's first VR module covers the opening of the reverse thrust engine of a Boeing 737NG. So far, the technology has **cut nearly a month** from the training process, according to Ramunas Paskevicius, head of IT and innovations.

"We now focus now on basic training for mechanics as an addition to theoretical training material," he told sister publication *Avionics International*. "The plan is to deliver, first, basic training simulations by the end of the year and then we will evaluate how effective it is [and] decide on what training should be implemented next."



In the VR module that the company has already created, the trainee completes a series of tasks necessary to open the engine: selecting tools, removing covers, opening the reverse and inserting the safety lock, for example. The trainee can turn guidance on or off and the program will **record any damage done** to the aircraft as a result of the trainee's performance in the exercise and what that damage would cost.

Ultimately, FL Technics hopes to bring its VR modules and training materials to market. However, there is not yet any timeline yet for that, according to Paskevicius, who created the training program. Bringing the product to market will be evaluated after FL Technics finishes creating and evaluating the program and gets the training timeline down to its three-week goal without any loss of quality.

Carb icing leads to forced landing

The airline transport pilot flew his experimental, amateur-built biplane on a cross-country flight with multiple legs and refueling stops. About one hour, 15 minutes into the flight and 15 miles from his destination, he initiated a descent from 3,500' to 2,500'.



When he added power to level off, the Acro Sport II's engine began to run rough and experienced a partial loss of power.

The pilot said he immediately applied carburetor heat, but observed no improvement in engine operation. The engine continued to lose power and "sputter."

During the subsequent forced landing near Loudonville, Ohio, the airplane touched down on unsuitable terrain at the edge of a soybean field, decelerated rapidly, and nosed over.

A post-accident examination of the wreckage revealed no pre-impact anomalies that would have precluded normal operation of the engine. Nearby weather was [conducive to serious icing](#) at descent power about the time of the engine power loss.

Although the pilot reported that he applied carburetor heat, it is likely that, [at the time of application](#), the ice had already accumulated in the carburetor to the extent that the carburetor heat was insufficient to melt the ice and restore full engine power.

Probable cause: A partial loss of engine power due to carburetor icing.

NTSB Identification: [CEN17LA295](#)

This July 2017 accident report is provided by the [National Transportation Safety Board](#). Published as an educational tool, it is intended to help pilots learn from the misfortunes of others.

How autopilot was born a century ago

Just over 100 years ago in Paris two men flew in a biplane along the River Seine, lined with spectators. When one pilot lifted his hands in the air and the other walked out onto the wing it was the first public demonstration of autopilot.

In the plane that day were two men. French mechanic Emil Cachin and American aviation>



pioneer Lawrence Sperry. Sperry was the son of the famous inventor and entrepreneur Elmer A. Sperry, often referred to as the "[father of modern navigation technology](#)."

He created several companies during his lifetime, including an electric, mining machine and fuse wire company.

But then he established the Sperry Gyroscope company, a business that grew to become a global technological powerhouse. Elmer's company turned the gyroscope, a children's toy, into usable technology to help tackle real-world problems.

Among his creations were a version of the gyrocompass, used by the U.S. Navy and adopted by many other countries during the first world war. Over this period, he also developed a gyro pilot system for ship's steering and built the first full gun battery fire control system.

He also designed a gyro stabilizer, designed for ships, to reduce the roll caused by waves, particularly during rough conditions.

Lawrence Sperry's original aircraft gyroscopic autopilot was a smaller, lighter version of the gyro stabilizer based on the same principles.

"I mean [they were fundamental](#) to all flying. A lot of people made gyroscopes but Sperry was right at the beginning," says Graham Rood, a retired aviation engineer.

"For engineers and certainly people who can look back and understand history they were real giants of aviation and that's how they should be remembered. "

The Sperry corporation went on to develop other gyroscopic instruments such as the artificial horizon and the heading indicator which are still built into many of today's modern aircraft.

While gyroscopes were Elmer's and Laurence's most successful venture they continued to create a wide variety of equipment and machinery. In total, they held [more than 400 patents](#) for new inventions across several different industries.

What later became the Sperry Corporation, before a series of corporate mergers, eventually became a part of the American global IT company Unisys.

Following the merger, some of its former divisions were sold off and have gone on to form parts of Honeywell, Lockheed Martin, United Technologies and finally Northrop Grumman. Last year, each company had revenues of more than \$30 billion.

India Sees Increased Safety Risks During Maintenance

As the accelerating growth of fleet sizes places more demand on support resources, [deficiencies in line-maintenance safety procedures](#) among Indian domestic airlines have increased the risk of serious accidents and incidents, according to the country's Directorate General of Civil Aviation

(DGCA). In its 2018-2022 National Aviation Safety Plan, the DGCA [listed causes for errors](#), a failure to follow published technical data or using unauthorized procedures, a failure by supervisors to follow maintenance instructions and recording maintenance properly, incorrect installation of hardware on aircraft and engines, performing unauthorized modification to aircraft, using untrained or uncertified personnel to perform ground support tasks, and use of improperly positioned ground support equipment.



A recent incident involving a 22-year old technician performing landing gear maintenance has highlighted the safety threat. “Inadvertently, the main landing gear hydraulic door closed and he got stuck in between the hydraulic door flaps,” confirmed an airline spokesperson to **AIN**. The incident came not long after another case of a technician getting sucked into the engine of an airliner in Mumbai.

While the DGCA has pledged to reduce the number of maintenance errors per 10,000 flight hours, incidents remain grossly underreported by airlines, said Vishok Mansingh, a former senior engineer with Kingfisher Airlines and CEO of Mumbai-based Vhan AeroServices. “Sometimes errors that have been reported to the DGCA are not brought into the public domain by the regulator,” he added. “It is essential they be published on a regular basis so that the industry can take cognizance of them and learn some lessons...Safety is continuous, not a post mortem.”

According to the DGCA, incidents that airlines have failed to report include incorrect assembly of aircraft parts or components found during inspection or test procedure, hot bleed air leak resulting in structural damage, defects in a part causing retirement before completion of full life, damage or deterioration (fractures, cracks, corrosion, delamination), and structural failures.

“Safety guidelines are [often] not followed due to the poor safety culture in the airlines and not checked by the regulator,” Amit Singh, former head of operations and safety at AirAsia India, told **AIN**. “As a result, it becomes a practice or a bad habit.”

Vistara, a joint venture between the Tata Group and Singapore Airlines (SIA) says it has adopted SIA safety management systems that the Vistara CEO directly monitors. “As a matter of policy, for instance, a Vistara technician can only work under the supervision of an aircraft maintenance engineer, after being assessed and passed on aspects such as human factors [and] understanding the safety management system,” said Vistara senior vice president of engineering SK Dash.

More airlines in India should adopt a similar commitment to safety, suggested Mansingh. “[A mindset change](#) for following rules and not taking shortcuts has to be inculcated in maintenance practices in India if we want to cut down on incidents,” he concluded.

Iowa Worker Who Fell 1,000 feet Wasn't Wearing Safety Equipment, Employer Cited

In May, an Iowa worker fell 1,000 feet from a television antenna tower and died. Further investigation showed [he was not wearing available fall protection equipment](#). The employer now faces two serious violations, including inadequate strength in a protection attachment.

An Iowa worker took a 1,000-foot, fatal fall from a KDSM FOX 17 television antenna tower in May while repairing equipment on the tower. On July 5, the worker's employer, Precision Communications Inc., was cited with two serious violations totaling \$15,520 in fines.



Investigation of the incident shows that fall protection equipment was available to the worker, but he was not using it while working on the tower. According to OSHA citation documents, at the time of the fall, he was making a splice in the transmission lines to hook up an existing antenna. When he disconnected his positioning lanyard to reposition himself on the tower, [he slipped and fell](#). He was not using a safety harness and lanyard for fall protection, and no other protection system such as a guardrail or safety net was in use.

Further investigation of the fall protection equipment available shows that some of the pieces of equipment to attach the fall protection system OSHA said >

did not have the required strength and were not part of the system approved by the manufacturer.

Ron Scalfani, a logistics coordinator with Precision Communications, said the company is negotiating with OSHA about the alleged violations because the victim had the correct fall protection equipment, but did not have it attached at the time of the fall. He also added that the other citation was for equipment that a worker was using on the ground, and the company believes that attachment had adequate strength.

“We’re just trying to figure out why the company is being cited for what the employee failed to do,” Scalfani said.

<https://www.desmoinesregister.com/story/news/local/2019/07/16/iowa-osh-kevin-wright-tv-tower-fatal-fall-alleman-polk-county-precision-communications/1738261001/>