

# 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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## Cause of Russian Jet Crash: Pilot Bravado?

'Joy flight' pilot approached mountain infamous for crashes

The crash of a Russian jet during a demonstration flight in Indonesia last week **may have been caused by** pilot bravado, Der Spiegel finds. The flight was all about offering a spectacular show to journalists and potential buyers, and the captain of the Sukhoi SuperJet-100, despite his inexperience, **appears to have attempted** a foolhardy move before crashing into the



side of a mountain, experts say. Steep mountain ridges and chaotic air circulation patterns make the area tricky even for local pilots, but the Sukhoi pilot **"had absolutely no experience** with the area's unique topographical traits," a flight safety expert says.

Authorities say they were surprised by the pilot's request to approach Mount Salak, which has been the site of seven other plane crashes over the last decade. The crash has put the spotlight on manufacturer demonstration flights, dubbed "joy flights" for their informal atmosphere, notes AP. "The purpose of these flights, obviously, is **to show off the aircraft** to potential customers," says an aviation expert who has gone on many such trips. "If they are flying over a landmark, they might circle around it so the passengers can get a better look. They might fly a little lower or show the rate of climb of the aircraft." All 45 people on the Sukhoi flight are presumed dead, and investigators will know more about the cause of the crash when its black box is recovered.

## Fatal '10 copter crash likely caused by improper maintenance, NTSB says

The medical helicopter crash in 2010 that killed three people in Tucson was probably due to a **maintenance problem** with its engine, a federal report said.

Helmets and flight suits for the LifeNet crew members killed in a helicopter crash in Tucson, Ariz. are displayed during their memorial service in Tucson, Ariz., on Friday, Aug. 6, 2010.



Helicopter pilot Alex Kelley, 61, paramedic Brenda French, 28, and flight nurse Parker Summons, 41, were killed July 28, 2010, when the LifeNet helicopter hit a fence and shed outside a north-side home on North Park Avenue near East Glenn Street. The helicopter, an American Eurocopter AS 350, was operated by Air Methods Corp. of Colorado. It was traveling from Marana to Douglas on a repositioning flight.

According to the recently released report by the National Transportation Safety Board, the helicopter's engine had just been serviced to fix a problem that caused fuel parts to be coated with carbon deposits, known as "coking."

During those repairs, a maintenance technician [likely did not properly tighten the bolts](#) on the fuel inlet union, the report said.

That probably caused the helicopter's [fuel inlet union and fuel injection manifold to become detached](#), causing the engine to lose power and the helicopter to crash, the report said.

Witnesses said they heard a "whump, whump" sound and then popping noises just before the aircraft crashed. They noted the final descent of the helicopter was "unusually" quiet, the NTSB said.

Also listed as contributing to the crash were:

- The technician's engine work [was not adequately inspected](#) by maintenance personnel, the report stated. The technician inspected his own work, the report stated, which was allowed under the circumstances of this repair job.
- A duty pilot at the Marana regional airport who performed a check following the maintenance work [did not follow procedures](#) outlined by the helicopter's manufacturer.

In the days before the crash, the helicopter's engine was removed by Air Methods personnel at the Marana airport.

Since replacement of the fuel manifold is considered a higher level of maintenance, Air Methods **contracted** with Helicopter Services of Nevada to do those repairs, the NTSB report said. Once the Helicopter Services technician finished his work, Air Methods personnel reinstalled the helicopter's engine.

The day before the crash, a duty pilot at the Marana airport conducted a test of the helicopter, which included a 7.5-minute flight. A full maintenance flight check according to the **helicopter's manual typically takes about 45 minutes**, the report states.

The report is available at

[www.nts.gov/aviationquery/index.aspx](http://www.nts.gov/aviationquery/index.aspx)

## **CAA under fire over Fox Glacier death crash**

A skydiving plane that crashed at Fox Glacier killing all nine people on board was newly-modified and the Civil Aviation Authority **failed to identify document discrepancies** relating to the changes, investigators have concluded.

Four foreign tourists, four skydive masters and their Queenstown-based pilot Chaminda Senadhira, 33, died about 1.15pm on September 4, 2010, soon after the Fletcher FU24-954 turboprop they were in took off from Fox Glacier Airport. The incident was just a few hours after the first Christchurch earthquake and the worst air disaster in New Zealand in 17 years.

The Transport Accident Investigation Commission's final report into the incident, released this morning, revealed the plane **had been converted** from an agricultural crop-duster to a parachute-drop plane only three months earlier.



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=  
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"The modification ... had been **poorly managed** and discrepancies in the aircraft documentation had not been detected by the Civil Aviation Authority which had approved the change in category," the report found.

The new owner and operator of the plane, Skydive NZ, **had not completed** weight and balance calculations before it entered service.

As a result the plane was flown outside its loading limits every time it carried a full load of eight passengers.

Witnesses reported the plane took-off normally before pitching upward until almost vertical. The plane then performed a "wing-over" and plunged vertically into a field.

An interim report issued soon after the incident recommended to the CAA that no more than six passengers be carried in the forward cabins of other FU24s used for parachuting operations.

It estimated the aircraft was 5kg over its maximum certified limit of 2203kg and the plane's centre of gravity was 0.115m outside the allowable aft (towards the tail) limit of 0.645m.

The report also urged pilots to weigh passengers and their equipment before each flight and ensure they were positioned inside the aircraft so as not to upset the centre of gravity.

The CAA has implemented the recommendations and said no parachuting operation can go ahead without weight and balance checks.

The interim report also recommended parachutists be restrained in planes to stop them moving about.

Today's report also recommended that the CAA takes necessary steps to ensure **high engineering standards are maintained** by the company that made the modifications and other aircraft maintenance organizations.

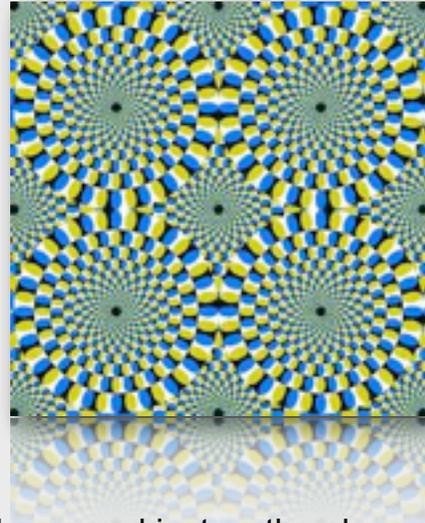
## Convair 580, C-FKFY: Optical illusion blamed for Lytton, British Columbia, air tanker crash

A report on the fatal crash of a forest firefighting plane in B.C. two years ago says an [optical illusion](#) and an [accidental retardant drop](#) may have combined to cause the accident.

Both pilots of the Conair Aviation tanker were killed when the plane hit some trees, spun out of control and crashed near Lytton in July, 2010. The report by the Transportation Safety Board says the pilot's depth perception may have been affected by a visual illusion [created by the rising terrain](#). He was then unable to avoid the trees.

It also concluded an "unanticipated retardant drop" occurred just as the plane struck the trees.

At the time of the crash the company said it had not had a fatal crash in almost 20 years.



<http://www.bst-tsb.gc.ca/eng/rapports-reports/aviation/2010/a10p0244/a10p0244.asp>

<http://www.cbc.ca/news/canada/british-columbia/story/2010/08/02/bc-crash-wildfire-conair-pilot-identity.html>

## iPhone fire on flight caused by loose screw

Thermal runaway event was the [result of a bad repair](#).

In November of last year, a report surfaced about [an iPhone that started burning shortly after an Australian flight had landed](#). A cabin crew member had noticed smoke coming from near a passenger seat during the taxi to the gate after arrival at Sydney. The crew member instructed the passenger to throw the source of the smoke to the middle of the isle, and then discharged a fire extinguisher on it.

The source was identified as an Apple iPhone 4. The Australian Transport Safety Bureau (ATSB) launched an investigation into the incident, which also included the Federal Aviation Authority (FAA) in the United States. The investigation found that the iPhone had been repaired after the screen was damaged, and [that repair was not carried out by an authorized service center](#). At the base of the iPhone is a 30-pin connector, held in place by two screws at either side. The investigators noted that the screw appeared to be missing.

An X-ray carried out on the iPhone showed the [missing screw had been misplaced](#) in the battery bay of the iPhone, where it punctured the Lithium-Ion battery casing and caused an internal short circuit. This led to a thermal runaway event - a situation where an increase in temperature influences internal battery conditions in a manner which causes a reaction to further increase the temperature. This process can occur very rapidly and [can cause combustion](#) of the battery and surrounding materials.



The report into the incident is critical of the repair carried out on the iPhone, [citing the following issues...](#)

- The incident mobile telephone had sustained a thermal runaway event within its lithium-ion battery
- The screw that was found in the battery area had precipitated the incident and was most likely from the 30-pin connector
- One of the screws used to fasten the main circuit board was missing
- Two screws that retained a flexible cable were installed incorrectly (swapped locations)
- The main circuit board flexible cable adhesive was disturbed
- The two liquid contact indicators were missing
- A metal clip near the battery was deformed

The ATSB is citing this incident as proof that devices using Lithium-Ion batteries [should be kept in the cabin](#) and not with other cargo during flights.

## [Air Canada sued for \\$20M over jet plunge](#)

Toronto law firm files suit on behalf of passengers on 2011 Toronto-Zurich flight

A class action suit against Air Canada was filed in a Toronto court Monday. Some passengers are unhappy that a plunge by their plane was blamed on turbulence [rather than pilot fatigue](#).

[Air Canada class action statement of claim](#)



A Toronto law firm has filed a \$20-million class action lawsuit against Air Canada on behalf of the 95 passengers who suffered injuries after the plane they were on took a sudden plunge.

Air Canada originally told passengers that the plunge, on Flight AC878 between Toronto and Zurich in January 2011, was caused by unexpected turbulence. But the Transportation Safety Board of Canada issued a report in April saying the terrifying episode happened when a co-pilot [woke up and was confused](#) enough to think the plane was about to collide with a U.S. military aircraft.

Darcy Merkur, a partner with the law firm Thomson, Rogers in Toronto, told the CBC that if some passengers were not wearing their seatbelts, it would be 'a minor, minor impact on their entitlement.' (Thomson, Rogers) Lawyer Darcy Merkur of the firm Thomson, Rogers, which filed the claim, says the passengers who have come forward "feel completely manipulated, completely lied to and they are pissed off; they want a corporation like Air Canada to be accountable for misleading them."

"We feel the suit was the right thing to do," says Ashlyn O'Mara who was on the flight, "there is a group of us." In the class action suit filed in court Monday, Thomson, Rogers says that Air Canada covered up the cause of the incident. The suit has not been certified as a class action suit and the allegations have not been proven in court.

## Hostess plummets from Ryanair plane in Sweden

An air hostess fell out of an aircraft exit at the [Gothenburg](#) City Airport on May 8, 2012 and was brought to hospital, bleeding from the head.

“I have never in all my years seen anything like it,” said airport CEO Annika Nyberg to news agency TT.

The Ryanair aircraft was waiting to take off to London and [was running late](#). The flight was supposed to have left at 10.15am but when passengers were finally allowed to start boarding the plane around 11am, the atmosphere was one of [stress and staff was rushing around](#), according to passengers.



“It was very confusing and unprofessional. It was almost like a state of panic when everything had to be done really quickly,” one passenger told daily Expressen.

What caused the hostess to fall out is still unknown. The vehicle which carried the stairs by which the passengers access the plane backed away and the hostess [tumbled out of the back exit of the plane](#), a fall of some 10 feet.

“The stairs had been removed and the door to the plane was closed. What made her open the door we don’t know. I find it hard to believe that she took a step out, it is more likely that the door flew open while she was holding the handle. It is [rather windy](#) today,” said Nyberg to TT.

The woman sustained injuries to her head and was bleeding when the ambulance came to pick her up, according to the passenger. According to Nyberg, she was able to answer questions asked by the medical staff but had no further information about her status.

## Solving the Problem of Sleep-deprived Pilots

In an article published in *Current Directions in Psychological Science*, a journal of the Association for Psychological Science, John A. Caldwell, a psychologist and senior scientist at [Fatigue Science](#), a Honolulu business focusing on fatigue assessment, examines the problem of sleep-deprived pilots by teasing out the complex interplay of inadequate sleep and circadian rhythms. He explains how airline industry solutions [miss the point](#) and then suggests other options. Caldwell points out that "fatigue-related performance problems in aviation have been [consistently underestimated and under-appreciated](#), despite the fact that decades of research on pilots and other operational personnel have clearly established that fatigue from insufficient sleep significantly degrades basic cognitive performance, psychological mood, and fundamental piloting skills."



Clearly, fatigue is fundamentally the result of insufficient sleep, but for pilots the important issue is the consequences of that sleep loss when they are sitting at the control panel. The author suggests that "fatigue related risks increase substantially when (a) the waking period is longer than 16 hours, (b) the pre-duty sleep period is shorter than 6 hours, or (c) the work period occurs during the pilot's usual sleep hours."

"Regulators, and often the pilots themselves, have tried to address the fatigue problem by focusing on duty hours rather than focusing on the [physiological factors](#) that are truly responsible," Caldwell says. "The combination of insufficient sleep and circadian factors is at the heart of the fatigue problem in any operational context."

Caldwell acknowledges that the very nature of airline travel predisposes pilots to disrupted sleep schedules, but he points out several approaches that can both predict a truly impaired pilot and [mitigate the consequences](#) of a lack of sleep. There are some [fatigue prediction models](#) that can help determine the impact of work/rest schedules on aviator performance. Crew members should be educated on sleep hygiene so they can snag some restorative rest before duty or during layovers. Onboard cockpit napping should be authorized so that pilots will be able to compensate for a lack of sleep.

And new wearable sleep-tracking technologies should be utilized to actually measure the pre-duty and layover sleep of flight crews so they can better manage and optimize their own sleep.

<http://cdp.sagepub.com>