# Aviation Human Factors Industry News

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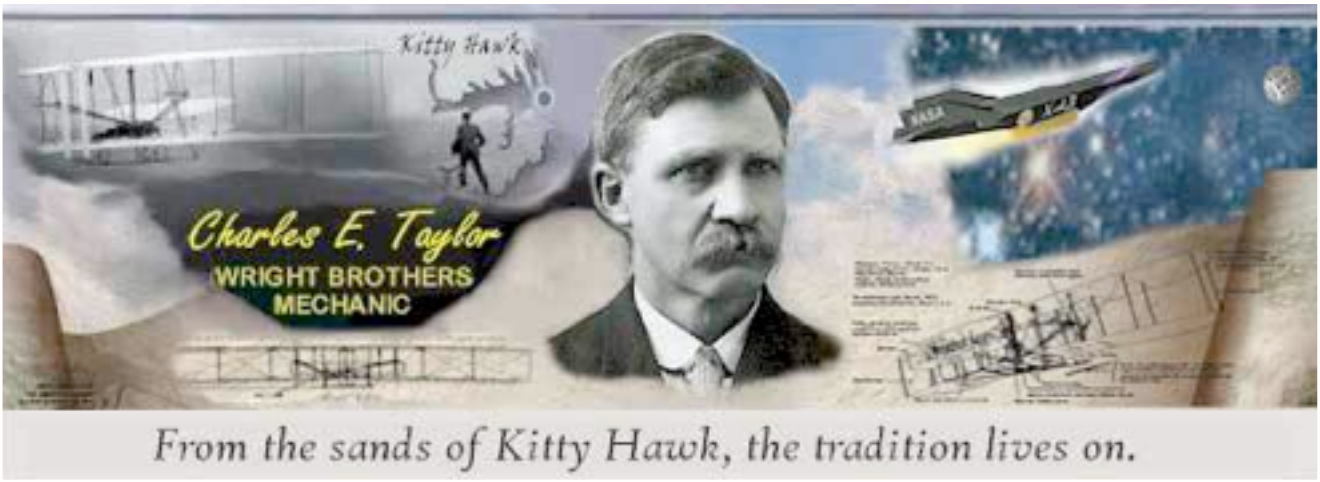



**Hello all,**
***To subscribe send an email to: rhughes@humanfactorsedu.com***
**In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:**

# Fatigue Countermeasure Training

**Free on-line training for maintenance personal. Take this opportunity to learn about effective fatigue risk management.**


## Welcome to the Maintenance Fatigue Countermeasures Workshop

**This interactive training keeps you interested and involved as you learn the basics about fatigue, sleep, and fatigue risk management.**

**Lesson 1: Fatigue Basics. In this section you will learn the causes of fatigue and how to look for symptoms. You will be able to identify fatigue hazards and how they can dangerously impact your life.**

**Lesson 2: Sleep Basics. This section describes why your mind and body become fatigued so you can proactively look for solutions.**

**Lesson 3: Fatigue Management Strategies. This section helps you identify methods you can use to effectively prevent or combat fatigue.**

**Course Exam:** The end of course exam will ask you questions over the materials you reviewed in the lessons. You will only be able to enter your answer once and you must score 80% to pass the course. A printable congratulatory certificate with your name and date of issue is provided upon successful course completion.

We hope that you will use the information from this interactive training and apply it to your life. You will be surprised how using a few fatigue countermeasures can help you get some extra sleep that will improve your overall mood, health, and safety.

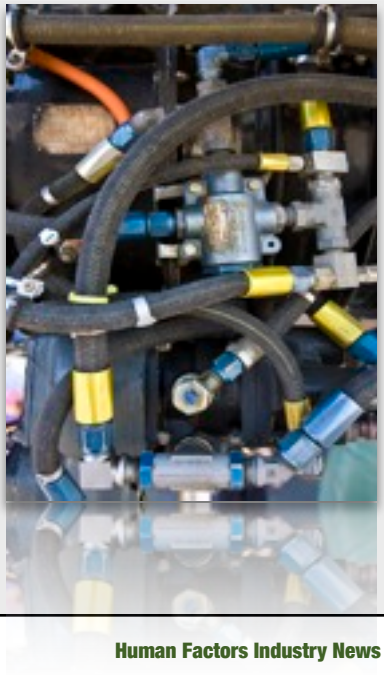
If you are interested in earning credit for the FAA's AMT award program, this course will be available on the FAASAFETY.GOV site in January 2011.

**Attention Trainers:** If you would like to incorporate this course into your training program, the editable file is available for your company's adaptation. If you would like to use this training program in your company and need the complete file, please contact Joy Banks at joy.banks@faa.gov to coordinate.

https://hfskyway.faa.gov/hfskyway/fatiguehome.aspx

## Human Factors training is just common sense... Or is it?

**Gordon Dupont - System Safety Services**



Many times over the years, I have had class participants tell me that they don't need human factors training because it is just common sense. Nothing could be farther from the truth.
For example, look at the picture of the plumbing fittings on the right. It is just common sense that even your grandmother would know to tighten every single one of those fittings. Yet in my seven years of accident investigation I have met all too many very qualified, conscientious and loaded with common sense maintenance personnel who have left a line loose on an aircraft.

**Human Factors training is nothing more than training the person on how to avoid the error they never intended to make.**
**It calls for providing the person with information on what can set him/her up to make an error and more importantly, what "safety nets" the person can put in place in order to prevent an error from occurring or to prevent any error from becoming a accident.**

**What is a "Safety Net"? A safety net is a regulation, a policy, a procedure or a practice which if in place, might break a link or prevent a link from forming. An example is: developing the habit to always go back three steps in your work after being distracted. In Human Factors training you are taught that your mind can work faster than your hands and thus you may think and believe you have completed a task when in fact you have not. Now take a look at our plumbing lines, a safety net of always using TorqueSeal to mark lines as you tighten each fitting would let you and others know that each fitting is correctly tightened. A dual inspection by a second person would also help ensure no lines were left loose.**

## To error is human

**Ever since Eve made the error of eating the forbidden apple, we humans have been making human errors. To lessen errors being made we have tried to "Murphy-proof" everything we have come into contact with. For example; you can't start your car unless it is in neutral or park or you can't retract the landing gear on the ground.**
**We also have come up with rules, laws and regulations to reduce human errors. I.e., You must stop at a red light even though common sense tells you there is no one around and it would be safe to not do so. If you do make an error we have put up warnings to prevent it from causing an accident or at least lessen its consequences. I.e., A warning horn to let you know that you forgot to lower the landing gear before you land or a seat belt to keep you Safer if you choose to ignore the horn.**

**Today we have "human-proofed" the aircraft to the extent that we have a whole new set of problems. The pilots and crew on many occasions don't even know what the aircraft is doing.**

**We also have so many rules nowadays that there are rules for the rules and because there are so many, few of us can remember them all. But the fact still remains that human error is still our biggest problem and in order to lower human error we must provide the correct training to all humans in the organization because EVERY human can make a mistake even with years and years of experience.**

## But what is the correct training?

We believe that by providing training that each participant believes in, can understand and easily apply to his work, to be the correct training. There are some terrible training courses out there. Courses that pilots call "Charm School" and maintenance call "Hug a Tree 101". These courses are simply a waste of time and money.

Human factors training for everyone (maintenance and pilots included) center around the "Dirty Dozen." The Dirty Dozen consist of 12 contributing factors that can set you up to make an error.

While human factors (HF) training will help lower human error we must also provide a work environment that is resistant to human error. This is the role of a Safety Management System (SMS) of which HF training is a part of. HF training will help ensure the success of any SMS and is an integral part of any SMS seeking to lower human error to as low as reasonably practical. (ALARP).

http://www.system-safety.com/ourservices/maintenance_posters.htm

## Why we must always factor in the human element

Increasing automation on the flight deck is supposed to improve safety – but many pilots are questioning whether, in fact, automation overload is putting aircraft at risk. Research into human factors has thrown up some that cultural differences may not be adequately considered in automation design, training, certification, and operations. If they are not factored in, they may have resulting effects on performance and how automation is used.


At the same time, automation design may not be guided by a philosophy that gives adequate attention to the proper role and function of the human and to human capabilities and limitations. This may compromise system effectiveness and safety.

Pilots from different cultural backgrounds should be involved in the basic design of the avionics functions and of the training systems.

More training organizations are partnering in the Middle East and this can only be a good thing.

Part of the value of MEBAA is that we can raise these concerns with the training organizations.

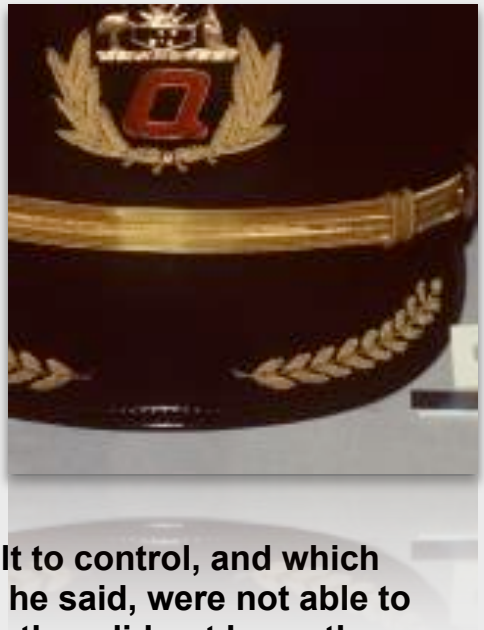
MEBAA has partnered with the Gulf Centre for Aviation Studies (GCAS) to identify training issues.

Human factors is probably the biggest one of these.

By our members working together we, as an association, can understand the issues that our pilots face and then work with the trainers and the manufacturers to ensure that safety is not just a 'priority' but is a reality as well.

## Qantas Pilots Credited With Saving Crippled A380

### ATSB Reports More Than A Dozen System Errors After Trent 900 Engine Failed



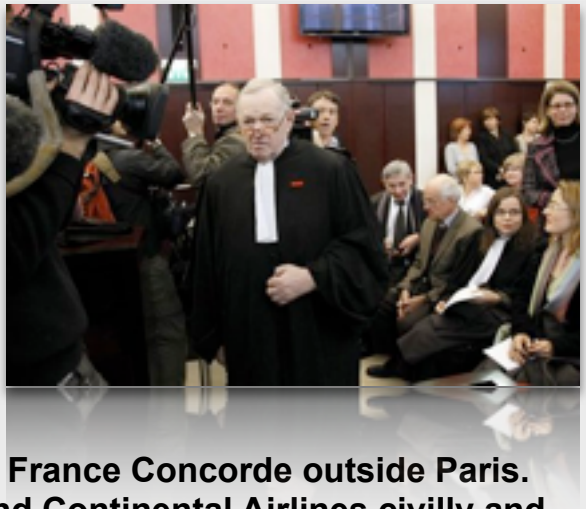
While the official preliminary report from the Australian Transportation Safety Bureau reads like a sterile government document, officials said in a conference Friday that the pilots of a Qantas A380 which suffered an uncontained engine failure over Batam Island after departing from Singapore prevented a major disaster from occurring.

Reuters reports that in a news conference, ATSB Chief Commissioner Martin Dolan told a story of a crippled airplane which stopped with just 450 feet of runway to spare. He said that the engine failure severed fuel and hydraulic lines which made the airplane difficult to control, and which caused its center of gravity to shift. The pilots, he said, were not able to transfer fuel to re-balance the airplane because they did not know the extent of the damage to the fuel systems.

After nearly an hour preparing the airplane to land and dealing with more than a dozen system errors, Dolan said the crew, which had a combined 72,000 hours of flight experience, determined that they could land the airplane some 50 tons over its maximum landing weight, but that it would leave only about 300 feet of runway when they finally came to a stop. Rather than dump fuel, which could have further upset the balance of the airplane, they decided to land heavy, which they did safely. They reportedly had about 450 feet of runway left when they came to a stop. The FDR showed that the brakes had heated to about 900 degrees celsius as the airplane was brought to a stop.

FMI: www.atsb.gov.au

## French Court "Criminalizes" Concorde Accident



A titanium wear strip from a Continental Airlines DC-10 burst one of the Air France Concorde's tires on takeoff, setting into motion a series of events that led to the in-flight fire and ultimate crash of the SST. Unfazed by pressure from various aviation alphabet groups concerned about the "criminalization" of aircraft accidents, a French court last week found a Continental Airlines mechanic guilty of involuntary manslaughter for his role in the July 25, 2000, crash of an Air France Concorde outside Paris. Judge Dominique Andreassier also found Continental Airlines civilly and criminally responsible for the accident, which killed 109 on board and four people on the ground. The judge ordered Continental to pay a €200,000 ($268,000) fine and €1 million ($1.34 million) in damages to Air France, while the mechanic, received a 15-month suspended prison sentence and a €2,000 ($2,682) fine. The court found the mechanics former supervisor, along with three French officials, not guilty of the manslaughter charges filed against them.

Crash investigators determined that during its takeoff roll from Paris Charles de Gaulle Airport, the airplane hit a titanium wear strip that had fallen off a Continental McDonnell Douglas DC-10 minutes before.

The strip burst one of the Concorde's tires, pieces of which created a pressure shock wave in the left main fuel tank, causing it to rupture at its weakest point and leak fuel, which caught fire due to an electrical arc or through contact with cut electrical cables. After the crew shut down engine Number 2 in response to a fire warning, engine Number 1 eventually stalled and the fire partially melted the left wing. After reducing power on the remaining two engines in an attempt to correct for an asymmetric thrust condition, the crew lost control and crashed into a hotel near the airport. The court found that the mechanic welded the unapproved strip of titanium to the DC-10 two weeks before the accident occurred.

Considered largely symbolic, the relatively modest fines and damages assessed no doubt meant less to Continental than the harm to its reputation the ruling stands to effect and the precedent it potentially sets. The airline, now part of United Continental Holdings, has vowed a vigorous appeal.

"While we agree with the court's decision that Stanley Ford was innocent of the charges he faced and we share his relief that his decade-long nightmare is over, we strongly disagree with the court's verdict regarding Continental Airlines and the mechanic will of course appeal this absurd finding," said Continental in a statement. "Portraying the metal strip as the cause of the accident and Continental and one of its employees as the sole guilty parties shows the determination of the French authorities to shift attention and blame away from Air France, which was government-owned at the time and operated and maintained the aircraft, as well as from the French authorities responsible for the Concorde's airworthiness and safety. To find that any crime was committed in this tragic accident is not supported either by the evidence at trial or by aviation authorities and experts around the world."

## 1960 plane collision over NYC spurred improvements

Fifty years ago this month, two commercial airliners collided one mile above New York City, raining down destruction on a busy Brooklyn neighborhood. Victims' remains bloodied the snow after one jet hit the street at 200 mph, killing everyone aboard and six people on the ground.

The Dec. 16, 1960, crash of a United jet and a TWA propeller plane was the worst aviation disaster to date, killing 134 people, including 128 people on both planes. In its wake it left a legacy of improved air safety;

it was first crash in which investigators made extensive use of so-called black boxes and it spurred a revamping of the air traffic control system to prevent future tragedies. Photos of the crash show the broken United Air Lines DC-8 resting on Seventh Avenue, the main commercial strip of Brooklyn's Park Slope neighborhood. At least 10 buildings were destroyed including a funeral home, a laundry and the Pillar of Fire Church. The dead included a garbage collector and two men selling Christmas trees.

There is no memorial at the crash scene 13 blocks to the north. The 50 years since the disaster have seen Park Slope transformed from a blue-collar neighborhood to the prototypical yuppie enclave. A vacant lot at the crash scene was replaced in 2007 by a five-story condo building.

All bodies were recovered, but some unidentified remains are buried at a gravesite at Brooklyn's historic Green-Wood Cemetery — the final resting place of abolitionist Henry Ward Beecher, conductor Leonard Bernstein and mobster Joey Gallo. The cemetery will unveil an 8-foot granite monument commemorating the crash victims on Thursday, the anniversary of the collision.

If the 1960 crash has been erased from the physical landscape, its place in aviation history is secure.

The collision was the first air disaster in which flight recorders — the planes' so-called black boxes — provided extensive details for investigators.

Air traffic controllers had instructed the DC-8 to enter an oval-shaped holding pattern upon reaching a certain point — near New York. Instead the DC-8 flew 11 miles past the holding point, possibly because one of its navigational radios was not working, and crashed into the Constellation as the other airplane was lining up to land at LaGuardia.

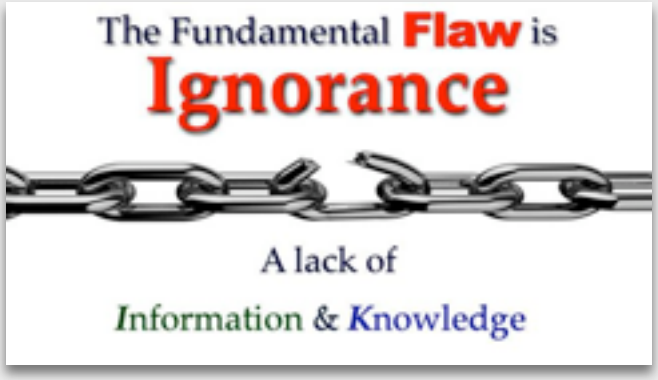
Following the crash, the Federal Aviation Agency — later renamed the Federal Aviation Administration — instituted new rules to prevent the recurrence of such a tragedy.

One new regulation required that pilots operating under instrument flight rules report all malfunctions of navigation or communication equipment. Another set a 250-knot speed limit near airports. The United plane was traveling at 301 knots.

In the longer term, the FAA said in a news release marking the crash anniversary, the collision spurred the agency to modernize the air traffic control system through a task force that reported to President Kennedy.

"It's a shame that disaster is what sparks progress, but that's what happens," said Marc S Moller, a lawyer who has spent his career litigating plane crashes. "Disaster becomes the catalyst for improvements."

## Baggage handlers blamed for emergency landing




An investigation into an Eagle Air flight, which was forced to make an emergency landing in Auckland after a cargo door opened during take off, has found that baggage handlers forgot to lock the door. The Eagle Air, which is a subsidiary of Air New Zealand, Beech 1900D plane, was heading to Whangarei from Auckland, on April 9 this year, when it was forced to make on emergency landing after the rear cargo door opened.

The Civil Aviation Authority (CAA) investigation into the flight found that baggage handlers had been forgetting to lock cargo doors, The Northern Advocate reported.

The investigation said staff had not been trained properly in "cargo door button operation".

It said a practice of leaving the door unlocked just in case bags came late increased risk that the doors would be left unlocked.

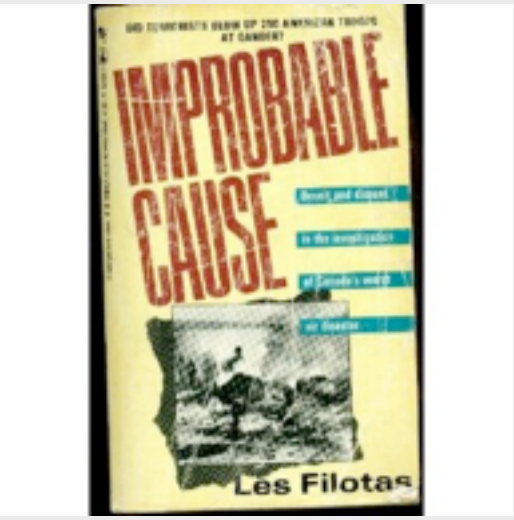
Leaving the door unlocked could have caused a major problem if the door had broken off and smashed into the tail of the plane.

Eagle Air spokeswoman Tracy Mills said actions had been taken to ensure the mistake would not be repeated.

## A tangled web

**Reports on Gander crash caused major ruckus**

**Arrow Air — 25 years later**




An RCMP officer examines the wreckage of an Arrow Air DC-8 jetliner Dec. 13, 1985 — the day after it crashed outside Gander, killing 256 people on board.

The conclusion that Arrow Air Flight 1285 crashed because of ice on the wings caused a major rift within the Canadian Aviation Safety Board (CASB).

News stories from the time indicate just how divided the board was.

"Two factions of the Canadian Aviation Safety Board feuded openly at a news conference called to release the board's findings, each accusing the other of distorting or ignoring key evidence in the Gander crash," The New York Times reported on Dec. 8, 1988.

Five of the board's members supported ice as the probable cause.

The other four believed an in-flight fire, which may have resulted from detonations, brought the plane down. The group did a report of its own, titled "Dissenting Opinion."

Les Filotas was in the minority, and 25 years after the Gander crash, he's still not buying the icing theory.

"I know what happened, but why it happened is pure guessing," said Filotas, who released "Improbable Cause," a book in which he documented what led to the conflicting reports.

The infighting within the CASB prompted Ottawa to ask a former Supreme Court judge to see if a new investigation into the Gander crash should be launched.

Justice Willard Estey deemed there was no need for another probe, saying it wouldn't be fair to the families of the fallen soldiers.

He also said the ice theory couldn't be proven.

Even though the crash is one of the largest single-day losses of life in American military history, the U.S. did not launch a full public investigation into Flight 1285.

There was a two-day hearing in December 1990 by the House Judiciary and Subcommittee on Crime and Criminal Justice.

According to a 1992 Time magazine report, that "ended without a call for action, despite surprising revelations of FBI apathy."

The magazine reported that the subcommittee found an FBI forensics team had flown to Newfoundland after the crash and waited for whatever conclusions "Canadian authorities saw fit to share with them."

The agents reportedly returned home after 36 hours and accepted the conclusion that terrorism wasn't involved.

"The FBI claimed the Canadians did not allow its agents to visit the crash site or participate in the investigation," Time reported.

The magazine story noted that a U.S. Army official who arrived at Gander hours after the crash was quoted by Arrow Air's maintenance chief as wanting "to bulldoze the site immediately."

The official, Maj. Gen. John Crosby, denied making the comment.

Time also reported a White House spokesperson as saying there was "no evidence of sabotage or an explosion in flight."

Days after the magazine story appeared in April 1992, there was an unsuccessful attempt to establish a commission to investigate the crash.

Filotas, in a follow-up email to his interview with The Telegram, said American military and civil authorities stood by in silence as the Canadian investigation disintegrated into chaos.

He also suggests there is slender hope for new information on the crash. American records on Arrow Air are reportedly sealed.

Ottawa reorganized the CASB after Estey's finding. The Transportation Safety Board of Canada has handled crash investigations since 1990.