

Aviation Human Factors Industry News

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Hello all,

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Welcome to the FAA's Maintenance (MX) FATIGUE section

While many **maintenance professionals** want to learn more about fatigue challenges, it is impossible to research the thousands of documents, books and web sites on the internet. The FAA has sponsored a multi-disciplinary subject matter expert work group involving industry, labor, research, and government to investigate the issues associated with maintenance fatigue, and the **practical science-based methods** that can be used to manage fatigue risk.



This website is a work in progress, and a result of the multi-disciplinary work group's efforts to date. This website is intended to provide you with information that **directly applies** to aviation maintenance related fatigue.

<https://hfskyway.faa.gov/HFSkyway/FatigueHome.aspx>

FAA Proposes Millions in Penalties Against United Airlines

The Federal Aviation Administration (FAA) is proposing a \$3.8 million civil penalty against United Airlines. The government claims the carrier operated one of its Boeing 737 aircraft on more than 200 flights after United had **violated its own maintenance procedures** on one of the plane's engines.

On April 28, 2008, a United 737 returned to Denver after shutting down an engine due to low oil pressure indications. A week later, United mechanics found that **two shop towels, instead of required protective caps**, had been used to cover



openings in the oil sump area where maintenance had been performed in 2007. As a result, the plane flew **more than 200 times** when it was **not in "airworthy condition,"** according to the FAA.

The agency says that United's **maintenance procedures specifically require use of protective caps or covers** on all components that could be affected by entry of foreign materials.

Wiring Repair Anomaly

On Tuesday, Federal regulators concluded that certain electrical wiring repairs were **improperly completed** on many of American Airline's Boeing.

The regulators told the carrier it must inspect the entire fleet and quickly finish redoing the work. While the Federal Aviation Administration hasn't determined the planes are unsafe to fly, the issue highlights continuing friction between the agency and American over detailed compliance with mandatory safety directives. The FAA has launched an enforcement case and could propose civil penalties, according to people familiar with the probe.



The **electrical discrepancies** stem from work mechanics were doing in order to comply with a safety directive. In the course of that work, mechanics routed and protected certain wires that control fuel shut-off valves for the Boeing 757's engines. FAA inspectors, among other things, are concerned that **improperly placed clamps, missing rubber protective devices and other lapses in workmanship** could result in the wires chafing and posing a potential fire hazard.

An FAA spokesman said on Tuesday that "we're still in the process of inspecting all the airplanes." He declined to elaborate.

But according to people familiar with the inspections, nearly all of the roughly 90 aircraft looked at so far were found to **have some** discrepancies.

Qantas safety fears as engineers vote work ban

QANTAS faces a maintenance backlog and scheduling problems after engineers decided to take **industrial action against work conditions**. The engineers will meet today to decide what action to take on a 30 per cent pay claim over three years and **other issues**, The Australian reports.



They have **identified fatigue** as a **key issue under a call-out policy** they say is requiring them to respond to critical and complex engineering issues with **less than five hours sleep** between jobs.

They also say that company-sponsored professional development courses are **failing to keep pace** with the rapid changes in aviation technology.

"It is likely the type of industrial action could **include a ban** on call-outs and out of hours work," Association of Professional Engineers, Scientists and Managers Australia (APESMA) director Catherine Bolger said.

For most of us a failure to perform at work does not lead to the deaths of hundreds of people. Anyone with that kind of responsibility would want to be paid plenty and not be workin...

"That will mean that over time a backlog of planes which need to have maintenance approved will develop which will mean that, over time, this could have an impact on the scheduling of aircraft."

However, Qantas has contingency plans to use senior management on after-hours call-outs it says will avoid any disruption.

"We're disappointed that the union has decided to take industrial action," spokeswoman Olivia Wirth said.

"However, we have made it clear to the union that we remain committed to resolving the EPA and working with APESMA.

"But we do think the union's claim of 30 per cent over three years is excessive and we'll put in contingency plans to make sure there's no disruption."

APESMA says they are sometimes **required to work up to 18 hours a day** because they are on call-out and are often called to solve problems with aircraft in other time zones. It estimates about a third of the instances where engineers are required to sign off on non-standard maintenance occur between **5 pm and 9 am**.

King Air Goes Down On Maintenance Test Flight

All Three Aboard The Aircraft Survive

A Beechcraft King Air Turbo went down, Monday, just short of the Greenville-Spartanburg Airport near Greer, South Carolina. Witnesses say the aircraft "skipped" over a highway and came to a stop on a hill just shy of the runway threshold. All three people aboard the aircraft were injured, but survived.

Television station WSPA in Spartanburg reports that the airplane had been brought to Stevens Aviation at KGSP with a possible avionics problem. Two of those on board were employees of Stevens, but the pilot, Mado McDonald, is from Virginia Beach, Virginia.

The Stevens employees, Ed Wilk and Derrick Holliday, were asked to accompany McDonald on the flight **to look at the avionics**, but there was no indication that the plane was mechanically unsafe to fly. One portion of the investigation is centering around whether the King Air **ran out of fuel during the flight**

McDonald is being called a hero by some. In making the emergency landing, he avoided hitting cars on Highway 14, which runs near the airport, and the fact that all aboard survived is a testament to his piloting skills.

The FAA and NTSB are investigating the accident.



Budget focus cited in '06 British air crash

A Nimrod reconnaissance plane similar to these crashed near Kandahar in 2006.

An inquiry into the crash of a British aircraft in Afghanistan three years ago calls the accident "preventable," citing **a loss of focus on safety in an effort to save money** for the armed forces, the defense secretary said.



Defense Secretary Bob Ainsworth apologized to members of the House of Commons for the crash of a Nimrod XV230 west of Kandahar on September 2, 2006. It caused **the deaths of 14 people**: 12 Royal Air Force members, a soldier and a Royal Marine.

"I am sorry for the mistakes that have been made and that lives have been lost as a result of our failure," Ainsworth said, praising a "rigorous and powerful" independent review by aviation specialist Charles Haddon-Cave of the findings into the incident by a military Board of Inquiry in December 2007.

The Haddon-Cave report, which Ainsworth calls "distressing reading," said that "in our pursuit of financial savings the [Ministry of Defence] and the RAF **allowed their focus on safety to suffer**," the defense secretary said.

"Safety of our personnel is of paramount importance. That is why this report is so significant," Ainsworth said.

The Nimrod MR2 is "a maritime patrol aircraft used primarily in the roles of maritime surface surveillance, anti-submarine warfare, and search and rescue," according to globalsecurity.org.

The military inquiry in December 2007 said the "most likely scenario" that led to the loss of the aircraft was that "fire most likely resulted from escaped fuel igniting against a hot pipe in a compartment near the wing-fuselage attachment -- the No. 7 tank dry bay."

Ainsworth said Haddon-Cave was "critical of both the MOD and our industrial partners, at both organizational and individual levels" and his report pinpoints **"numerous weaknesses"** in the airworthiness system which we will address thoroughly and urgently."

At the same time, he said, Haddon-Cave said the "report does not raise concerns over the actual airworthiness of individual fleets" and he's been assured by military officials "that our fleets remain safe to fly."

The defense secretary said the government has initiated "comprehensive program" to ensure the "safety and airworthiness of the Nimrod aircraft.

"This involves implementing the recommendations of the Board of Inquiry, including:

- "Ceasing the use of the air-to-air refueling system, as well as the aircraft's relevant hot air systems while the aircraft is in flight."
- **"An enhanced aircraft maintenance and systems inspection regime."**
- Prohibiting Nimrod aircraft "to fly without having had their engine bay hot air ducts replaced."
- **An audit** "guaranteeing the safety of Nimrod's systems for its remaining service life."

Cover-up on army chopper short cuts

Claims of **slipshod maintenance** of the army's Black Hawk helicopter fleet were **covered up** by Defense and led to the alleged **unfair dismissal** of two aircraft engineers responsible for raising safety concerns. The engineers, with combined experience of more than 40 years of aircraft maintenance, told The Australian yesterday they felt "disgusted and betrayed" by the army and their former employer, Sikorsky.



Their names have been suppressed but both claim they were sacked for raising concerns with Army Aviation of maintenance **"short cuts"** involving

the improper use of computer passwords.

The claims follow the navy's own investigation into a 2005 Sea King helicopter crash off Nias, in Indonesia, that claimed nine lives, which was a preventable disaster blamed on **faulty maintenance**.

The centre of the latest claims involves Black Hawk helicopter technicians **signing off** on completion of maintenance work by using other people's computer passwords, **falsely indicating a satisfactory inspection** by up to three people, as required in aircraft maintenance.

According to the two Brisbane-based engineers, one 47 and the other 53, the practice has been widespread since 2003, involving more than 200 army and civilian contractors at Oakey, Holsworthy, Darwin and Townsville.

It is understood Defense stood down three Townsville-based warrant officers during its internal probe into the allegations.

US-based Sikorsky is responsible for providing a wide range of maintenance, logistical and technical services to the army worth tens of millions of dollars.

Both men said their names **had been used** to certify work that they had not undertaken.

One alleged breach of procedures involved critical work on the Black Hawk's stabilizer fin, said one of the technicians; and the most minor was a **false authorization** certifying aircraft had been properly washed.

Attempts to alert senior managers at Sikorsky to the corner-cutting were met with **"disinterest"** and advice to "go and sort it out amongst yourselves", the two men said. They then raised their safety concerns at Townsville with the army.

"A warrant officer got us in and gave us all an interview," said the 53-year-old aircraft electrical engineer.

"Then he tried to keep it all in house and bury it and then he got back to us and said, 'Sorry, it's gone to 16 Brigade' and we were sent home (stood down).

"As soon as we said we would seek legal advice - then an (army) investigation started.

"So all I did was ask for a paper form (to record maintenance concerns) and **I got the sack for that.**"

After complaining of sub-standard work procedures, both men were stood down for six weeks on full pay then sacked - one for alleged "inappropriate behavior" for speaking out and the other for admitting he gave his password when asked by his foreman. Asked to respond to the men's claims, Sikorsky confirmed it had sacked the technicians but denied aircraft safety issues.

"A thorough investigation and safety audit was conducted by Sikorsky Helitech in parallel to a defense department investigation," a spokesman said.

"It was conclusively found that there was no compromise to aircraft or personnel safety as a consequence of the alleged activities."

Both men have since lodged claims of unfair dismissal against the company.

BA sued for \$600,000 for broken seat!

A man in Sydney is seeking up to 600,000 dollars in damages from British Airways, alleging he was **forced to endure** a long-haul flight in a **broken seat**. Engineer Richard John Pattison, from Concord, claims he injured his neck as he attempted to remain upright for the entire 12-hour flight from London to Shanghai in September 2006 because his **seat would not recline**.

The 64-year-old told the court he could not be moved because the flight was full and the awkward angle of the seat subsequently left him with excruciating pain and unable to raise his head from the pillow without assistance later, reports the Sydney Morning Herald.

Pattison, who had been on a business trip, alleges he consequently had to hire more workers and readjust his working hours as chief executive of a plastics manufacturing company.



The airline, on the other hand, **denied being held responsible** for Pattison's injuries, saying he failed to use a pillow to support his neck and did not adopt an **"ergonomically suitable position"** during the flight.

KC-10 maintainers work around the clock to keep aircraft fuel flowing

Airmen from the 380th Expeditionary Aircraft Maintenance Squadron prepare a KC-10 Extender for an engine change Oct. 28, 2009, at a base in Southwest Asia. The Airmen **followed technical orders** to properly prepare for a No. 2 engine change, located on the upper empennage of the aircraft.

Airmen of the 380th Expeditionary Aircraft Maintenance Squadron generate KC-10 Extenders to refuel aircraft providing combat support in Afghanistan.

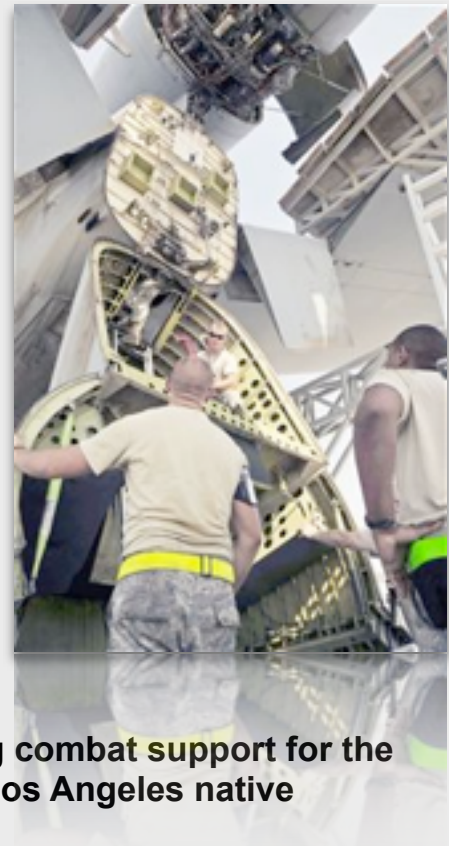
"Everything that we do on this ramp directly supports the troops in Afghanistan," said Staff Sgt. Charles Powers, a crew chief from the 380th Expeditionary Aircraft Maintenance Squadron.

"These planes go up and refuel fighters providing combat support for the troops on the ground," said Sergeant Powers, a Los Angeles native deployed from Travis Air Force Base, Calif.

The operations tempo is much higher here, **requiring additional shifts that are longer.** It is a lot hotter, he added.

Regardless of the temperature or how many hours have been worked, 380th EAMXS Airmen, such as Sergeant Powers, **remain steadfast** while servicing the aircraft.

"We are responsible for maintaining the aircraft -- from minor to major servicing," said Sergeant Powers, who is on his fifth deployment. "The most important thing we do is put fuel on the aircraft."



Although the KC-10's primary mission is aerial refueling, it can combine the tasks of a tanker and cargo aircraft by refueling fighters and simultaneously carry the fighter support personnel and equipment on overseas deployments.

This aircraft will hold 350,000 pounds of fuel. That is important for all the fighters that need to put bombs on target, he added.

The KC-10 offers the flexibility to off-load fuel to both boom and drogue equipped aircraft and on-load fuel from other tankers to stay on station longer, said Lt. Col. Michael Rickard, the 908th Expeditionary Air Refueling Squadron commander.

It carries about twice the fuel as a KC-135 Stratotanker, so it can deliver much larger off-loads, he added.

"Maintenance works hard to keep these jets operating at a high operations pace, Colonel Rickard said. "Comparative to home station, they have very little time to catch the jets from a mission, fuel and repair them for the next mission, and launch them out. This cycle is never ending and they do a great job keeping the jets as healthy as possible."

Members of the 380th AEW provides intelligence, surveillance, reconnaissance, and aerial refueling in support of operations Enduring Freedom, Iraqi Freedom.

AEA Says Safety Management Systems Unwieldy

The Aircraft Electronics Association says the FAA's approach to safety systems (SMS) is "an excessive, unwarranted and unjustified administrative burden" that is poorly thought out and has no identifiable justification or goals. The association submitted detailed comments on the FAA's Advance Notice of Proposed Rulemaking (PDF) recently and is clearly worried about the implications of the measures if they become regulations. "In addition, the agency has not clearly defined the hazard SMS is intended to address, but rather defines SMS to address 'unknown' hazards,"



the association said. "This mandate is not within the scope of current rulemaking practices." The AEA says SMS may have a place in multi-lateral organizations like airlines but **they're not much more than paper chases for smaller companies**. FAA Administrator Randy Babbitt championed the SMS proposal at the National Business Aviation Association convention but his message was out of step with the other speakers, who were all pumping the value and contribution of business aircraft, and perhaps didn't get the attention Babbitt hoped.

In his NBAA speech, Babbitt suggested aviation was analogous to the field of anesthesiology, which, in a culture of litigation-based fear, resisted thoroughly investigating the cause of numerous operating-room deaths over the past few decades. When those investigations were finally done by a committee of anesthesiologists, it was found that **relatively simple precautions** would have prevented hundreds of needless deaths. Babbitt said he hopes an SMS system would engender a similar **culture of safety** in aviation, not because there are a lot of accidents, but because there are so few that it's hard to spot problems or trends. "We've nearly eliminated the common causes of aviation accidents. But safety management systems will allow us to **spot precursors**," he said. "That's the data. That's the gold. That's where we need to dig."

<http://edocket.access.gpo.gov/2009/pdf/E9-17553.pdf>

http://www.faa.gov/news/speeches/news_story.cfm?newsId=10879