



## Aviation Human Factors Industry News

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### Loose Fuel Line Fitting Causes Power Loss

#### **Bell 206L-1 LongRanger Destroyed. Two fatalities, tow minor injuries.**

The helicopter **lost power** about five minutes after departing from an airport near Patterson, Louisiana, U.S., for a charter flight to an offshore platform in the Gulf of Mexico the morning of March 14, 2006. “The commercial helicopter pilot subsequently made a hard forced landing at an off-airport site comprised of tall vegetation and soft terrain,” the NTSB report said.



The helicopter came to rest upright, and the two rear-seat passengers exited before it was engulfed in flames. **The pilot and front-seat passenger were killed.**

**Examination of the engine revealed that the nut connecting the fuel line to the fuel nozzle was loose and had not been secured with a lock wire.** A fuel-nozzle inspection, which was required every 50 hours, **had been performed the evening before the accident occurred.** “This inspection required the removal, disassembly, cleaning, inspection, reassembly and reinstallation of the fuel nozzle,” the report said. **“An interview with the maintenance personnel revealed that fuel nozzle installation procedures found in the engine manufacture’s maintenance manual had not been followed.”**

Post accident tests indicated that a loose fuel nozzle can cause a substantial loss of power and a flameout. "Testing further revealed that conditions would have been conducive for an in-flight fire," the report said. "Investigators could not determine if the fire originated in flight or during the ground impact."

## [NTSB Reports on Fuselage Hole](#)

SYRACUSE, N.Y. — A [12-inch hole in the fuselage](#) that forced a Detroit-bound Northwest Airlines flight to make an emergency landing in Buffalo last month [could have been caused by baggage handlers in Syracuse](#), according to a National Transportation Safety Board report.



The preliminary three-page report does not assess blame or pinpoint the cause of the gash that forced Flight 1411 to make an unscheduled landing May 18 at Buffalo Niagara International Airport.

However, the report recites the circumstances surrounding the event and says ["the height of the damage on the airplane was approximately the same height as the top of the cab of a baggage cart tug used by contract personnel to load passenger luggage onto the airplane."](#)

[The 12-by-5-inch hole was approximately six feet forward of the cargo door](#) and was ["consistent with the skin being damaged by a foreign object,"](#) the report said.

NTSB investigator Todd Gunther said the agency is looking into whether the ground crew reported any collision between their vehicles and the 38-year-old Douglas DC-9 plane.

The plane had completed an airworthiness inspection one day earlier, the report said.

The ground crew working in Syracuse for Northwest Airlines is employed by Air Wisconsin, the nation's largest independently held regional airline, which also provides ground handling services for United Airlines. Air Wisconsin spokeswoman Barb Jones did not immediately return a phone call seeking comment.

Northwest spokesman Roman Blahoski said the [Minneapolis-based airline's preliminary investigation indicated the incident was the result of ground damage](#). The airline has no additional details to provide at this time, he said.

The NTSB will issue a final report on the mishap in six months, Gunther said. That report will be sent to the NTSB board, which will issue its findings on the cause 30 days later, he said.

The episode is **virtually identical to an incident two years ago in Seattle** when an Air Alaska jet was forced to return for an emergency landing after a decompression episode caused by a 12-inch gash in the fuselage. **A ground crew member had struck the plane with his loading cart but failed to report it because he said the damage did not seem severe.**

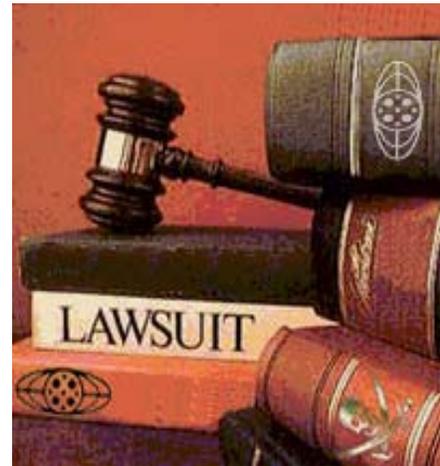
In that case, a ground crew member was suspended, while others had to **undergo safety training.**

## **Insurance Company Sues Pilot, Helo Company**

### **Suit Calls Routine Inspection "Cursory And Inadequate"**

The insurance company for Porter Valparaiso Hospital Campus filed a federal lawsuit Thursday against the pilot and owners of a medical helicopter over a failed takeoff in July 2005.

While transporting a patient to the University of Chicago Hospital, the helicopter pitched uncontrollably and came crashing back down onto the hospital helipad shortly after liftoff. No one on board was injured.



**The lawsuit alleges both parties were negligent by failing to properly inspect and maintain the aircraft and that a maintenance company performed defective repairs before the crash. The cause was ultimately determined to be a mechanical problem.**

**The National Transportation Safety Board report concluded, "The loose tail rotor drive shaft coupling due to its improper installation by the operator's maintenance personnel, which resulted in the failure of the tail rotor drive shaft."**

The insurance company is attempting to recoup the \$469,258 it paid out to the hospital for damages to the building from the accident, according to the Northeast Indiana Times.

The pilot, Edward D. Ban of Naperville, IL, reported he tried to steer the helicopter to the right, but the aircraft would not respond. **He said he performed a routine inspection of the helicopter prior to take-off; the lawsuit calls that inspection "cursory and inadequate."**

A Wisconsin-based company, Helicopter Specialties, **is also named in the suit. It alleges that it was the company that performed the mechanical overhaul of the helicopter shortly before the crash.**

## NTSB Says Lake Michigan Accident Pilot Reported Runaway Trim

**Loss Of Control Seen As Possible Cause Of Accident** Less than 24 hours after a Cessna Citation 550 carrying medical personnel and organs for a double lung transplant surgery crashed into Lake Michigan, an investigator with the National Transportation Safety Board identified a possible cause of the accident that **claimed six lives.**

NTSB investigator John Brannen told reporters Wednesday the Citation's pilot told controllers at Mitchell International Airport **he had a "trim runaway" shortly after the plane departed** for its short flight to Willow Run. The pilot reportedly declared an emergency, and asked to return to the airport.

Six minutes later, witnesses saw the bizjet impact the water. Radar returns showed the plane in a steep descent prior to the accident.

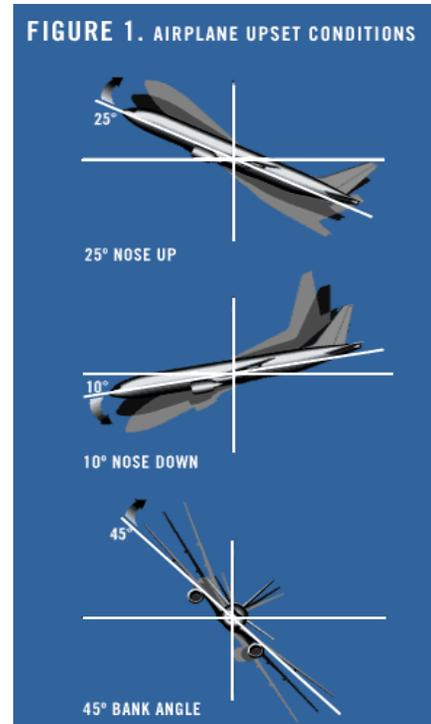
**It is possible trim failure could have led to a loss of control and resulting crash, although investigators may never know for certain what may have caused that condition... as most of the plane's wreckage lies in deep water.**

"There's a concern we won't get all the pieces we need to do a complete reconstruction of the events," Brannen said.

## NTSB's Rosenker 'Disappointed' With FAA's Response To Safety Recommendations

**Five Of Six Are Listed Red, For "Unacceptable"**

National Transportation Safety Board Chairman Mark V. Rosenker told Congress Wednesday **he was disappointed** at the number of recommendations to the Federal Aviation Administration on the



Board's **Most Wanted List that are in an unacceptable action status.**

Testifying before the Subcommittee on Aviation of the US House of Representatives Committee on Transportation and Infrastructure, Chairman Rosenker noted that, **of the six items before the FAA from the Board's Most Wanted List, five of them have been color-coded Red, for Unacceptable Response.**

These **deal with reducing dangers** to aircraft flying in icing conditions, **preventing runway incursions**, improving audio and data recorders and requiring video recorders on aircraft, **reducing accidents caused by human fatigue**, and improving crew resource management for Part 135 (air taxi) operations.

The sixth item, eliminating flammable fuel/air vapors in fuel tanks of transport category aircraft, has been given a Yellow color code, meaning that the FAA's response is acceptable but progressing slowly.

The Safety Board's Most Wanted List of Safety Improvements was devised in 1990 as an additional way for the NTSB to focus attention on a group of safety recommendations selected for intensive follow-up.

Rosenker conceded items on the list tend to be **those that are among the most complex and difficult to implement.** However, he concluded, "while the FAA has made some progress, I am disappointed that there are so many recommendations on this list that are in an unacceptable status."

## **Air crash inquest hears of safety questions**

**The operator** of the doomed aircraft behind one of Australia's worst aviation disasters **may have been too focused on generating profits at the expense of safety**, a coronial inquest has heard.



Headed by Queensland Coroner Michael Barnes, the inquest into the Lockhart River plane crash, in which **15 people were killed**, began this morning on Thursday Island in the Torres Strait.

On May 7, 2005, a Fairchild Metroliner III operated by Transair smacked into a 500-metre high, rugged hill and exploded into flames on impact while approaching Lockhart River airstrip.

All 13 passengers and two pilots on board perished on the flight from Bamaga on the tip of north Queensland.

The inquest began today with an opening address by counsel assisting the inquiry, Ian Harvey, in Thursday Island's courthouse, packed with families of the victims, legal representatives and journalists.

While detailing the chronology of events surrounding the tragic circumstances of the disasters, Mr Harvey raised a number of issues to be explored by the inquest including **Transair's safety culture.**

**"(What is that) the senior management of Transair were simply too involved in the commercial aspect of their operation to ensure proper safety management of their airline?"** Mr Harvey asked.

He also questioned why the plane was travelling at 350km/h shortly before it slammed into the hillside.

"These speeds exceeded the (recommended) speed ... for that approach," Mr Harvey said.

The inquest will delve into areas identified as contributing to the crash by a two-year-long investigation by the Australian Transport Safety Bureau.

## Fatigue vs. Function

### **The damaging effects of fatigue on mechanics' performance and safety**

By [Lisa Danes](#)

You are nearing the end of your sixth workday in a row, and you have been working diligently for the past 11 hours with possibly only a few breaks and a short lunch. As you start to feel a bit irritated, you remember that last night's sleep was not what dreams are made of. What you may not realize is that what you are experiencing are the effects of **fatigue**, and if the symptoms persist, it may start to have **an effect on your work performance, putting yourself and those who ride in the aircraft you are servicing in danger.**

There is nothing wrong with a strong work ethic, but there is a point when working hard can mean hardly working. **It is a mechanic's responsibility to show up for his or her shift well rested and ready to perform.** When **fatigued**, the quality of work and level of productivity is compromised. Physical or mental **fatigue** leads to immediate safety concerns and potentially long-term health effects.



**Fatigue's** negative effects can be dangerous in numerous situations. When **fatigued**, a person is often tired, lacking initiative, and doesn't pay as much attention to detail. When repairing an aircraft attention to detail is not an option, rather an obligation.

Working when **fatigued** can be very challenging in the hangar. **Fatigue** can reduce a mechanic's ability to make good decisions, do complex planning or tasks, impair communication skills, and increase forgetfulness. These are all qualities that are dangerous to behold when working in the hangar. Aircraft mechanics perform maintenance duties to ensure that an aircraft can be considered airworthy. When working **fatigued** you are putting yourself and countless others in danger.

Many things can lead to **fatigue**, and knowing what your triggers are is just the beginning.

It may be hard not to show up for your sixth day of work a little groggy, because it may be the direct cause of your **fatigued** state. Long work hours or extensive work that requires a large amount of physical or mental activity can be considered the leading causes for aircraft mechanic **fatigue**.

Matters may get worse if mechanics are not given enough time in between shifts to get enough rest before starting up again. Chances of **fatigue** are increased even more if the shift being worked is at night, because it can have adverse effects on circadian rhythms.

Circadian rhythms are cues to your body regarding when to wake up and when to sleep, forming your body's biological clock. These cues are influenced mainly by the rising and setting of the sun. It is possible for a person to adjust this biological clock, but it is not typical and can take several weeks or months. If these rhythms are interrupted frequently by shift work, the result may be chronic **fatigue** or even health problems.

One may think that eight hours of sleep any time of day would be sufficient. This is entirely untrue because of circadian rhythms. The truth is that sleep during the day is often of a much lower quality than sleep obtained during night hours. In addition, circadian rhythms trigger your body to perform better during daytime verses night. So you know what causes **fatigue**, but how do you know if you are a victim?

#### Falling victim to **fatigue**

It is important that both mechanics and hangar supervisors recognize the symptoms of **fatigue**. That way, they can address the matter before any serious accidents or injuries occur. There are many signs of **fatigue**; following are some to look for.

A **fatigued** worker may seem anxious, irritable, have a lack of confidence and energy, sleep poorly, and relationships with coworkers may be suffering. Being indecisive, a reduced quality in performance, increased errors, loss of interest, difficulty concentrating, loss of appetite, and digestive problems are also indicative signs. These are all symptoms that may be results of **fatigue**. Once **fatigue** is recognized it is important to address. There are immediate ways to address **fatigue**, but preventing **fatigue** is preferred.

#### **Fatigue** prevention

Prevention can be done both by the mechanic and maintenance supervision. The success of operations depends on workers' ability to perform jobs both reliably and efficiently. Preventing **fatigue** ensures this.

A good way to start, on behalf of the maintenance supervisor, is to set specific work hour limitations. Shifts should be limited to a length no longer than 12 hours including overtime. In addition, there should be at least 11 hours between each shift for time to recover before the next. A weekly maximum of 48 to 60 work hours, including overtime, would also help to prevent **fatigue**.

Such limitations on hours may be difficult to live by, especially with the seemingly more noticeable shortage of maintenance professionals. Having mechanics cover the unmanned shifts or jobs may seem like a good idea until they end up missing work because of a cold they fell victim to due to their lowered immune system as a result of **fatigue**.

In addition to limiting work hours, developing a safety oriented culture will also help to encourage workers from working beyond what their abilities will allow. Hangar supervisors should be sure that mechanics are informed of the symptoms and causes for **fatigue**, along with the potential risks involved when working in a **fatigued** state.

Information can be transmitted through educational programs and training. The workplace can also be modified to keep workers alert by using bright lights, maintaining comfortable hangar temperatures, limiting high levels of noise, and providing a variety of tasks to be completed. It is also a good practice to continuously watch for symptoms of **fatigue** in others and warn them when something catches your attention.

The FAA currently holds restrictions on the work hours of pilots, but not control tower or maintenance employees. **It is up to hangar supervisors and mechanics themselves to be sure that they are protecting themselves and the safety of others.**

## Midnight Shift Nugget

>Avoid stimulants, such as caffeine and nicotine, several hours before bedtime. If you are working nights and need to sleep from morning until afternoon, try to avoid caffeine after midnight.



>Arrange to sleep uninterrupted in a quiet, dark room. This means you may have to turn off or unplug your phone, hang darkening curtains on the windows or wear a sleep eye mask, make appointments outside of your sleep period, and train your family and friends to leave you alone while you sleep. Make your sleep time sacred.

>Try melatonin. Some studies suggest that taking 1 to 3 milligrams of melatonin improves the quality and duration of daytime sleep in night shift workers.

>Fit in a nap. When your daytime sleep period is too short, taking a nap just before work or on a break during your night shift has been shown to improve alertness and reduce accidents while on the job.

>Develop and follow a sleep routine. It's best if you go to sleep and wake up at the same time every day. Try not to vary this too much on weekends. Your body likes routine.

>Take extra care to eat a healthy diet and exercise regularly. Shift workers tend to gain weight and have an increased risk of heart disease — mostly because they tend to eat fattier foods, smoke more and exercise less.

>If you have tried all these things and are still having problems getting enough quality sleep during the day, talk to your doctor or a sleep specialist. Sometimes medications may be helpful and safe. In other cases, there may be an underlying sleep disorder that needs to be addressed.

## How to Pass the Character Test

Here are some of the questions and techniques that you should be prepared for: **Mom & Dad:** "Tell me about your mother and father." What sounds like a simple ice-breaker is often, in fact, an acid test of character.





The general assumption is that individuals have the same values and qualities as their parents. So, for example, a compliment like "my dad's work ethic is second to none" essentially tells the prospective employer that *you* can be counted on to work hard.

**Driving Style:** Believe it or not, you may be judged by how you drive. Prospective employers may arrange to have you drive them somewhere so they can observe your driving style, behavior and attitude behind the wheel. If you find yourself in this situation, show courtesy and patience. Don't speed, weave in and out of traffic or violate traffic rules.

**Treatment of Waiters:** One of the key reasons to take job candidates out to dinner is to observe their interactions with others, especially waiters and waitresses. Being rude to a waiter suggests a general lack of respect for subordinates and can seriously mar the prospective employer's perception of your character and effectiveness as a manager.

**Eating & Drinking Habits:** Understand that the way you eat and drink sends messages about your character. An obvious example is drinking too much. But some messages are more subtle. For example, shaking salt on your meat before you even taste it suggests that you do things in a programmed manner without thinking.

**Sportsmanship:** The golf course can be a great place to learn about a person's character because it introduces the element of competition. You don't want to curse, toss your club or display signs of temper because you shank a putt. And

don't even think about advancing your ball when you think nobody's looking or altering your score on a hole. The old maxim "cheaters never prosper" has never been more true than it is today about corporate job-seeking.

## **Conclusion**

The character factor is changing the way corporations hire. Resumes, references and other traditional elements of the hiring process are still in play but they don't reveal character. So companies are playing a new game: Take the applicant to a casual setting and see what he does. Be alert and understand that the next time you're out and about with a prospective employer - whether on a golf course, at a restaurant, behind the steering the wheel or anywhere else - that judgments are being made about the kind of person you are.

**Wishing you career success,**

## PUTTING 'THINGS' IN PERSPECTIVE

### **The Things We Can't Live Without**

What are the things we can't live without? I'm not talking about health, happiness, peace and all the things money can't buy. I mean what *material* things do we think we need to live a decent life? Ask a bunch of people that question and you can **learn a lot about the culture and values** of the society they come from. The Pew Research Center put this question to 2,000 Americans. Here were the results:

- Car (91%)
- Clothes washer (90%)
- Clothes dryer (83%)
- Home air conditioning (70%)
- Microwave (68%)
- TV set (64%)
- Car air conditioning (59%)
- Home computer (51%)
- Cell phone (49%)
- Dishwasher (35%)
- Cable or satellite TV (33%)
- High speed Internet (29%)
- Flat screen TV (5%)
- iPod (3%)

What does it mean? I have no idea, although I'm betting that the Best Buys, Circuit Cities, Comp USA and other electronic store giants are loving every minute of it.

Source: "Luxury or Necessity? Things We Can't Live Without," Pew Research Center Report,



The electric bagel slicer: One of the few motorized items that didn't make the "most needed" list

Picture This!



**END**