

# Aviation Human Factors Industry News

Volume V. Issue 39, December 11, 2009



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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## Crew Chief – First In, Last Out

Staff Sgt. Michael Pratt, 14th Fighter Squadron **crew chief**, performs on an F-16 Fighting Falcon Oct. 22. Every crew chief is assigned one aircraft.

When dealing with **aircraft maintenance**, having **great communication** between the production supervisors and the expeditors is important, but the first maintainers to lay hands on the aircraft are the crew chiefs.



The 64 crew chiefs assigned to the 14th Aircraft Maintenance Unit actually ensure that the **rubber meets the road**, by changing tires, maintaining the landing gear and a host of other maintenance activities and inspections, ensuring the aircraft are war ready.

"Pilots can't fly the jets unless jets are ready to go," said Tech. Sgt. Edward Waskosky, 14th AMU assistant aircraft section chief. "Crew chiefs directly contribute to this **by accomplishing inspections and maintenance.**"

Crew chiefs perform a wide array of tasks to include, tire and brake changes, landing gear and hydraulic systems repairs and inspections. They also perform scheduled maintenance on components that require changes due to wear.

Crew chiefs are also **responsible for reviewing aircraft forms for errors**, and if the forms are wrong they are returned to the shop that preformed the maintenance for corrections, said Staff Sgt. Melody Bedtke, 14th AMU crew chief.

Even if the aircraft does not need repairs, crew chiefs perform multiple inspections before, during and after the flight to ensure the aircraft is fully-mission capable.

"We're on the aircraft from the beginning of the day until the end of the day," said Sergeant Bedtke. "We have our names stenciled on the canopy, and that is a huge source of pride and ownership that we as crew chiefs get to enjoy."

## **Scholarship for Aviation Maintenance Technicians Now Available**

If you are about to graduate, or have recently graduated from an FAA Part AMT School, you are eligible to apply to the Helicopter Foundation International (HFI) 2010 Bill Sanderson Aviation Maintenance Technician (AMT) Scholarship Award Program.

Enhance your studies and career options by attending one of the eight manufacturer courses:

- Agusta Aerospace Corporation (A109 series)
- Bell Helicopter Textron, Inc. (any model)
- Eurocopter (except Super Puma)
- MD Helicopters (500/600/900 series)
- Pratt & Whitney Canada, Inc. (PT6T, PT6B- 36/-37 or PW-206 engines)
- Rolls Royce (250 engine - any model)
- Turbomeca (Arriel 1 & 2 series and Arrius 2 series engines)
- Schweizer (269C-C-1), (300C/300CBI) (This is a ten day course)



To apply, please click here. <http://helicopterfoundation.org/Default.aspx?tabid=1751#2>

For more information, contact Jose Orozco; [Jose.Orozco@rotor.com](mailto:Jose.Orozco@rotor.com), 703-683-4646.

## 'MIRACLE ON THE HUDSON,' ANIMATED

The NTSB in June released **an animation** of the short flight of US Airways 1549, which ditched in the Hudson in January, but now a private company has posted online its own animated rendering of the data that is **like watching a movie** of the event. K3 Resources, a Denver-based company that specializes in technical animation and accident reconstruction, took on the project at first as a marketing promotion, but Kas Osterbhur, a vice-president of engineering who is also a flight instructor, got intrigued with the project and invested about 200 hours in it.



"The **human brain is an amazing computer** but it doesn't do very well at reading gigabytes of raw data," Osterbhur told EAA.

"My goal is to bring together as much information into one place as possible, usually in a graphic way, and allow that human computer to do its job."

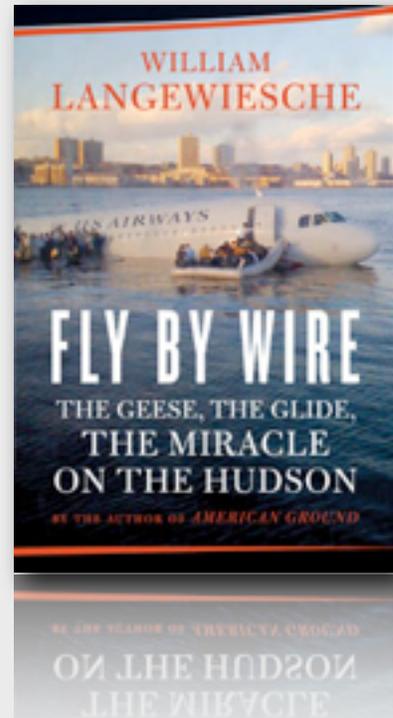
Animated rendering: [http://www.exosphere3d.com/pubwww/pages/project\\_gallery/cactus\\_1549\\_hudson\\_river.html](http://www.exosphere3d.com/pubwww/pages/project_gallery/cactus_1549_hudson_river.html)

## Sullenberger Finds Fault With Langewiesche Book

US Airways Capt. Chesley Sullenberger said the new book *Fly By Wire*, by Langewiesche, "greatly overstates how much it mattered" that the Airbus A320 he ditched in the Hudson had some automated systems, according to *The New York Times*. Sullenberger told the *Times*, "There are some situations where the automation will protect a pilot, but at the same time **a highly automated airplane makes possible other types of errors**, so it's a mixed blessing. And greater knowledge is required to fly a highly automated aircraft." He added, "Others in the industry knowledgeable about these technical issues know there are misstatements of fact in 'Fly

by Wire.' " Langewiesche said he was mystified by Sullenberger's reaction, according to the Times. "There have been some characterizations of the book that are wrong," he said. He added that he didn't think the role of fly-by-wire was "critical" to the outcome, "but it was functioning, **it's part of the story.**"

Dan Sicchio, a US Airways pilot who represented the pilots union in the NTSB investigation, told the Times the safety board's final report may show that in regard to the fly-by-wire system, "there were things that helped Sully and things that hurt him." He added: "**There are things that I hope will come out that will show problems with the control system in this airplane.**"



## Ergonomics & Shiftwork

Many **shift workers** know about equipment engineering, but what about **human** engineering?

First off, what is ergonomics?

Ergonomics is the science of designing and arranging the workplace in that people and their equipment **will interact as effectively and safely** as possible. Most people have heard of "ergonomic injuries" at work – from wrist pain that people who use keyboards sometimes suffer from a low back pain in those that have to lift packages. **Good ergonomic practices** have helped many workplaces improve the way in which we do our jobs and to reduce the chance of injury. Here are some questions that are important for night and shiftworkers:



### **What changes at night?**

Scientists have found evidence that our ability to **generate force decreases** slightly at night. In other words, we have to exert ourselves slightly more when lifting at night compared to lifting the same weight during the day. This extra exertion **could increase the chance of physical fatigue and injury**. Well-designed ergonomic practices for the nightshift, however, can significantly reduce the risk of injuries.

It's also possible that **if we are less alert, our accuracy decreases**. A procedure that requires placement of a part may take only one try during the day, but take two or more tries during the night. **Fatigue** can also affect our reasoning and motor skills, resulting in a higher chance of sudden accidents. Therefore it's always important to **arrive at work well-rested** – whether it's for the day or night shift.

### **I'm working 12-hour shifts. Is this worse than an 8-hour shift?**

In a word, no. On 12-hour shift, work for a longer time each day. But, compared to 8-hour shifts, you also **get more days off to recover and sleep**. For example, you work for 75 percent of the days of the year on a typical 8-hour shift, compared to 50 percent of the days of the year on a 12-hours shift.

### **Are ergonomic injuries just back pain and wrist pain?**

No. There are many different types of ergonomic injuries. Back and wrist pain are usually chronic injuries, meaning they usually do start with a single event, but develop over time. Acute injury, which is linked to a single event, can also be a form of ergonomic injury. This could include things such as falling from a height.

### **What are the some of the most common ergonomic injuries?**

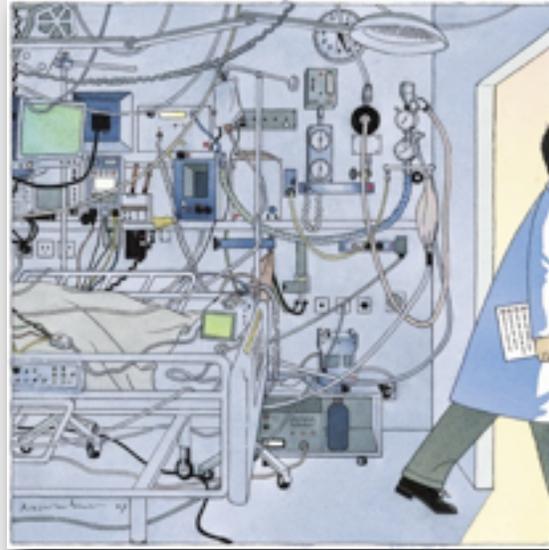
Back, leg, and wrist pain are among the most common ergonomic injuries. Back and leg pain is also more common in those **who are overweight**. Therefore it's good to maintain a healthy weight.

## Checklist culture helps improve patient safety

**CHECKLISTS** like those used to **prevent air accidents** are being given to Nottingham hospital staff. The aim is to improve patient safety by **borrowing the expertise** from the aviation industry.

Nottingham University Hospitals Trust has started a number of schemes in recent weeks to cut the number of **avoidable incidents** which harm.

Bosses at City Hospital and Queen's Medical Centre are aiming to produce more **standardized guidelines to reduce the potential for human error.**



The approach is partly inspired by the aviation industry, where checklists are commonly used to prevent accidents.

Patients are being given wristbands with electronic, standardized information from this month, rather than having it written by hand.

The wristbands will be printed with patients' last names, first names, date of birth and unique NHS number.

Staff making calls to other parts of the hospital also now **have checklists** in front of them to ensure the right patient information is passed on. They all have to run through the SBAR (situation, background, assessment, recommendation) forms that are placed by all internal phones.

Wayne Robson, the trust's patient safety program lead, said: "We know that when incidents do happen **one of the factors is poor communication.** This enables staff conversations to be broken down in a very structured way.

"In **safety-critical industries** like aviation they have a history around checklists and we are really picking up from that. There is no reason why health shouldn't learn from other industries."

Other recent improvements include introducing new standardized procedures to ensure injectable drugs morphine, heparin and potassium are given correctly.

Nottingham is one of 12 hospital trusts in the country piloting the new way of working.

Checklists are also being strengthened in surgical theaters which staff will have to run through to cut the risks to patient safety.

Linda Abolins, deputy director for infection control, said: "A lot of it is probably very simple stuff, it is not necessarily about introducing massive changes. It is all about standardization and checklists, it is about **eliminating any possibility of error** by going through a set way of doing things."

Phil Fox, head of patient safety for the trust, said: "There is a huge commitment to safety in this organization. When you are talking to colleagues it is like pushing at an open door – **they want a good outcome** for patients."

Patient Safety First Week, which ends tomorrow, is being held across the country to reduce the number of avoidable incidents which could harm patients. Nine primary care trusts and eight hospital trusts in the region have signed up and pledged to tackle the issue in five specific areas.

## **BP Fined Record Amount for Failing to Correct Safety Hazards**

OSHA has issued the **largest proposed penalties** in its 40-year history to Products North America Inc. for the company's **alleged failure** to correct potential hazards faced by workers. **Safety violations** at BP's Texas City, TX, refinery resulted in a massive blast that **killed 15 workers and injured 170** others in March of 2005. BP, which was later fined \$21 million by OSHA, entered into a settlement



agreement to correct potential hazards that could lead to a similar catastrophe.

But OSHA says a six-month inspection designed to evaluate BP's compliance with the agreement found that the company **has come up short on its promises**. And now BP is facing more than **\$87 million** in proposed fines.

Secretary of Labor Hilda Solis says that instead of living up to its commitment, "BP **has allowed hundreds of potential hazards to continue unabated.**"

Solis says the US Department of Labor won't tolerate the preventable exposure of workers to hazardous conditions.

Read the OSHA news release here: <http://www.safetyezine.com/send/link.php?M=259189&N=853&L=1811&F=H>

## How Would You Stop a Vehicle Accelerating Out of Control?

Imagine jamming your foot down on your vehicle's accelerator pedal to merge and having the vehicle suddenly **accelerate out of control**, well past the speed limit, toward slower moving traffic ahead.

This thought may sound like a nightmare, but it has been a frightening reality for several owners of Toyota and Lexus vehicles. Toyota has conducted a recall of 3.8 million vehicles to deal with **accelerator pedals that have become stuck under floor mats**.

Some Toyota owners have said their vehicles have accelerated out of control after removing their driver's side floor mats, but those claims have not been proven.



Would your workers know how to deal with a vehicle that suddenly accelerated out of control? Give them the following test to determine how they would react and then inform them of the proper answer, as provided by Consumer Reports senior automotive engineer Jake Fisher.

**If your vehicle suddenly accelerated out of control, what would you do?**

1. Pump the brakes to slow down.
2. Shut off the engine.
3. Press down hard on the brakes, shift the transmission into neutral and shut the engine off after the vehicle stopped.

**The correct answer is 3.**

Fisher says pumping the brakes in situations of unintended acceleration may actually cause a total loss of power brakes. And shutting off the ignition may cause the steering wheel to lock, meaning that the vehicle can no longer be steered. Also, with the ignition off, the driver loses both power steering and power brakes. None of these scenarios is good in a vehicle that is traveling at breakneck speed.

Hitting the brakes hard, quickly shifting into neutral and shutting the revving engine off only after the vehicle is safely stopped is the proper way to respond to this type of emergency. Fisher recommends that drivers practice shifting their vehicles from 'drive' into 'neutral' in parking lots until they are comfortable with this practice.

**Watch Jake Fisher's video here - A must watch!**

<http://www.safetymagazine.com/send/link.php?M=259189&N=865&L=1824&F=H>

## **Red LED to Preserve Night Vision**

The Petzl Tikka has just about everything you could ask for in a headlamp. It is lightweight, has a super long battery life, comfortable head strap, and 3 LED lights. If you are still carrying around heavy flashlights, you don't know what you're missing. The Petzl Tikka is sure not to disappoint.

Hands down, the best feature of the Petzl Tikka is its battery life. Their website suggests that the Petzl Tikka will run for up to 170 hours without any noticeable change in light brightness.

While the Petzl Tikka headlamp doesn't adjust angles, it is set at a standard

angle that works well in any situation. The Petzl Tikka housing is tough enough to handle random drops and the headband is super comfy for any sized head.

#### Features

- \* Has 3 LED bulbs
- \* Runs for 170 hours
- \* Uses 3 AAA batteries
- \* Adjustable headband
- \* Lightweight



<http://www.rei.com/product/751757>