

# 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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In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

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## NTSB issues final report on 'sleeping pilots' case

The National Transportation Safety Board has confirmed an initial finding that the captain and first officer of a flight that overflowed its destination in Hawaii **inadvertently** fell asleep while the plane was on autopilot. The NTSB on Monday issued its final report in the case of a 2008 go! airlines flight from Honolulu that overflowed Hilo International Airport by 30 miles.



A **contributing factor** in the incident was the captain's previously **undiagnosed severe obstructive sleep apnea**, a condition that likely caused him to experience chronic daytime fatigue and contributed to his falling asleep during the Feb. 13, 2008, flight, the NTSB said.

Another **contributing factor** was the flight crew's then-recent work schedules, which included several consecutive days of **early morning** start times, it said.

The day of the incident "was the third consecutive day that both pilots started duty at **0540**," the final report said. "This likely caused the pilots to receive **less daily sleep** than is needed to sustain optimal alertness and resulted in an accumulation of **sleep debt** and increased levels of daytime fatigue."

"The effect of early start times on sleep is well documented," the NTSB said.

"A 1998 National Aeronautics and Space Administration Report, 'Flight Crew Fatigue II: Short-haul fixed wing air transport operations,' for example, concluded that requiring early report times makes it **more difficult** for crewmembers to obtain adequate sleep," it said.

The NTSB also cited a 1998 report published by North Atlantic Treaty Organization Research and Technology Organization that concluded "pilots reporting **before 0600** had a significantly shorter total sleep time, impaired sleep quality, and **impaired performance** both preflight and at top of descent."

Flight 1002, with 43 people aboard, passed over Hilo International Airport at 21,000 feet and continued straight on over open ocean before the pilots awoke and landed the plane safely.

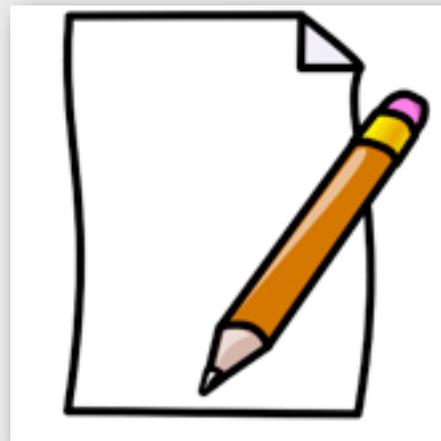
## FAA Safety Awards Call For Nominees

Looking For People Who Promote Flight Safety And Education In each of past 46 years, the General Aviation Awards program and the FAA have recognized a small group of **aviation professionals** in the fields of flight instruction, **aviation maintenance**, **avionics**, and **safety** for their contributions to aviation, education, and flight safety.

This awards program is a cooperative effort between the FAA and more than a dozen industry sponsors. The selection process begins with local FAA Safety Team managers at Flight Standards District Offices (FSDO) and then moves on to the eight regional FAA offices. Panels of aviation professionals from within those four fields then select national winners from the pool of regional winners.

The FAA administrator will present the national awards at the "Theater in the Woods" program at EAA AirVenture 2010 in Oshkosh, Wisconsin. Included in the prize package for all four national winners is **an all expense paid trip to Oshkosh** for the recipient and a guest to attend the awards presentation and other GA Awards activities.

These awards highlight the important role played by these individuals in promoting aviation education and flight safety. The awards program sponsors are pleased that four outstanding aviation professionals will receive the recognition they so richly deserve before their peers in Oshkosh.



Nominations are due to your local Flight Standards District Office by **September 30, 2009**.

## Counteracting Complacency - Part I

Believe it or not, sometimes being “safe” just doesn’t cut it. Just because your workplace has an unblemished safety record **doesn’t mean** that accidents can’t or won’t happen. **Assuming** that everything is as safe as it can get is a sign of a complacent view of your job, your responsibilities, your surroundings.

Complacency is a feeling of **quiet pleasure or security**, often while unaware of some potential danger or defect. It is a self-satisfaction or smug satisfaction with an existing situation or condition. According to Tzvetomir Blajev of SKYbrary, **overconfidence in a system leads to complacency and lack of adequate vigilance**.

The International Civil Aviation Organization (ICAO) says that complacency or a false sense of security should not be allowed to develop as a result of long periods without an accident or serious incident. An organization with a good safety record **is not necessarily** a safe organization.

“There is absolutely no room for complacency where safety is concerned. There never was, and there never will be,” says Dr. Assad Kotaite, former president of the Council of the ICAO.

### Contributors to complacency

Complacency can show its ugly face in many ways, all of which can lead to a reduced awareness of danger. Overconfidence and self-satisfaction, especially when combined with contentment, will lower a likelihood of suspicion. Simply put, if you assume nothing bad can or will happen, you **won’t anticipate danger** and you won’t know how to react when it happens.



Someone who is overconfident might take on too many tasks at once. When a simultaneous workload is higher, so is the **chance for error**. According to Aviation Electronics Technician (Second Class) Lawrence Brown, trying to do too many things at one time can cause confusion in processes. Missed steps can result from **knowingly or unknowingly cutting corners**.

For example, the report “Influence of Time Pressure on Aircraft Maintenance Errors” by Takahiro Suzuki, Terry L. Von Thaden, and William D. Geibel illustrates cases of complacency: “When an AMT pointed out a problem with an aircraft in ACN 641974, a lead mechanic told an AMT to dispatch an aircraft because ‘it was just making a round trip.’ A **complacent attitude** was also observed in ACN 635595 in which an AMT had conducted a bird strike inspection **without using** the printed inspection instructions because the AMT **could not print out** the maintenance manual.”

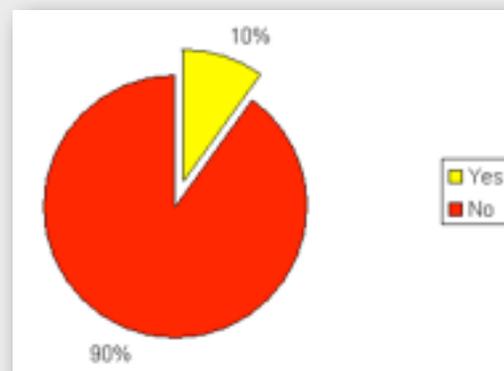
High stress, excessive hours, low morale, fatigue, and unreasonable deadlines are **also factors** that can lead to complacency. Any single one of these factors could cause someone to speed through a process “just to get it done.” Now imagine a combination of those factors.

Quality of **workmanship suffers** when technicians become complacent — and no aircraft passenger deserves to board a plane that was maintained or repaired poorly. Brown says that poor workmanship can also result in high rework costs and time lost, which causes even overall lower production rates.

“The **fatigue from working too many hours** could cause an inspector to overlook critical checkpoints,” says Brown. “The outcome of what could happen if the final inspectors don’t do their jobs is scary to think about.”

## US FAA gives pointers on latest aviation safety trends

Officials of the US Federal Aviation Administration (FAA) recently lectured major repair stations in the Philippines and its neighboring countries on the latest aircraft safety and **maintenance practices** to keep them abreast of international standards.



During the first-ever **Maintenance Safety Seminar** in the Philippines, the US FAA San Francisco International Field Office (SFO-IFO) and FAA Safety Team (FAAST) provided comprehensive safety practices in civil aviation maintenance that airlines and repairs stations around the world should strictly follow.

The three-day seminar was sponsored by flag carrier Philippine Airlines (PAL) in cooperation with the Civil Aviation Administration of the Philippines (CAAP).

A total of 165 participants from various airlines, repair stations and training organizations including the Philippine Navy joined the FAA safety seminar. There were 140 representatives from the Philippines and 25 from other countries in the Asia Pacific region. The Economic Section of the US Embassy sent two observers.

Discussions focused on **14 areas in aircraft maintenance** that FAA regularly monitors. These include: Parts and materials, record keeping, work away from fixed location, contract maintenance, certificate requirements, maintenance and alterations, technical data, quality control system, tools and equipment, manual system, training program, personnel, housing and facilities, and maintenance process.

The FAAST Team also discussed Safety Management System, Risk Management and **Human Factors** which are required by the International Civil Aviation Organization (ICAO) to avoid aviation-related accidents.

"Safety consciousness is **intrinsic** to PAL's operations. It is part of our way of doing business," commented PAL President and COO Jaime Bautista.

"It is second nature to our staff, whether at the frontlines or the back office. We put a very high premium on safety compliance."

The flag carrier's commitment to safety paid off since PAL earned the distinction as the only Philippine carrier that passed the strict IATA (International Air Transport Association) Operational Safety Audit (IOSA), he added.

## New Alarm Clock Tracks Your Sleep

In general, alarm clocks only do two things: They keep the time and they generate a loud, obnoxious noise to remind you to get up. But a new alarm clock reviewed in the New York Times has an additional function: **It monitors your sleep**. On a typical night, you alternate between **REM** (rapid eye movement) and **NREM** (non-rapid eye movement) sleep in a cycle that repeats itself about every 90 minutes. NREM sleep is generally when relaxation occurs, leading to REM sleep — or "active" sleep — which provides energy to brain and body and supports daytime performance.



The Zeo Personal Sleep Coach, which costs **around \$400**, comes with an elastic headband that measures your brainwaves as you sleep, **tracking** the amount of time you spend in each different stage of sleep. You can then upload these stats to your computer for a better idea of how much sleep you're getting and the quality of your Zzzs.

Why should you care about your brainwave stats? New York Times writer David Pogue notes that the device can lead to what he calls the "Personal Trainer Phenomenon." In other words, if you spend enough money and effort on something — like a personal trainer or a \$400 device that measures your sleep — **you're more likely** to take the training seriously. The Zeo also sends e-mail updates that include important sleep tips, but you can already find information like that online for free — like on a certain Web site run by the National Sleep Foundation.

[http://www.nytimes.com/2009/07/16/technology/personaltech/16pogue.html?\\_r=1](http://www.nytimes.com/2009/07/16/technology/personaltech/16pogue.html?_r=1)

## Midnight Shift Nugget

### Exercise & Alertness on the Night Shift

Imagine sitting in a dimmed room, feeling your head nod and sleep over you as you monitor a control screen. Should you get another cup of coffee, or should you wheel the **exercise bike** over and cycle for 20 minutes while monitoring the screen?



Unfortunately, most workers don't have the option of the exercise bike and would fall back to getting another cup of coffee.

But for those night shift workers that have either access to an exercise bike or are able to get in a **brisk walk on the job**, there are many **alertness benefits** to some low- to moderate-level exercise on the night shift. In this article, we'll take a look at how exercise increase alertness on the night shift.

Even low-level exercise **causes changes** in the body. Movement of the muscles creates different demands on the rest of the body systems as it requires the use of energy sources, an increased oxygen supply, a system to get rid of waste products, and a method to get rid of the heat produced. In order to support the effort of exercising, the heart, blood vessels, nervous system, lungs, liver and skin respond. Exercise prompts the release of adrenaline into the bloodstream, which causes increased brain activity.

**Exercise may increase alertness** by raising the body temperature of the worker during the overnight period. The body temperature naturally **drops by about two degrees Fahrenheit over the nighttime hours** in order to induce and maintain restful sleep. By exercising, the body temperature is maintained and perceived sleepiness decreases (Matsumoto, 2002).

The type of exercise performed should be carefully considered, as humans tend to have **reduced physical performance** during the overnight hours. In particular, balance and hand-eye coordination are reduced, so employees should remember to pay special attention when working out. Exercise bikes or elliptical machines with hand-holds can be easier than treadmills for workers in the nighttime hours. Naturally, individual preferences will vary.

Low- to moderate-level exercise should be encouraged, as it is extremely unlikely that workers on duty have time to overexert themselves. Starting an exercise program slowly will help ease workers into the habit of working out, and supplying information about warming up, cooling down and stretching will promote safe exercise practices. Obviously, all workers should be encouraged to consult their physicians before starting significant exercise programs.

Not only does exercising on the shift create an immediate boost in alertness, improve sleep quality, and speed the transition to the block of night shifts, research has shown that workers who exercise are also **more alert the following day after waking from sleep** (Yoshida, 1998). This is probably due to the increased sleep quality they had following night-shift exercise. It's a win-win for the workplace and the family if the health and happiness of the worker improves.

For more information on exercise, check out CIRCADIAN's white paper on "Physical Exercise and Working Extended Hours."

[http://www.circadian.com/pages/157\\_white\\_papers.cfm](http://www.circadian.com/pages/157_white_papers.cfm)

## **SuperSize Me!**

In Mississippi, nearly one in three adults is obese—the nation's highest rate. 1991, **no state** had more than a 20 percent obesity rate. Today the **only state** that doesn't is Colorado, at 18.9 percent.

People who struggle with their weight are likely to lose the battle if they have a **high -stress job or chronic financial problems**, says a new study. In analyzing the health records of 1,355 men and women over a decade, Harvard Medical School researchers found that people who were already overweight **really packed on the pounds** if they rated their jobs as highly stressful or said they had trouble paying their bills. **"The stress effect didn't appear to impact normal-weight people,"** researcher Jason Block tells *USA Today*. People with weight problems often use food to distract or medicate themselves in times of stress, he said, which would suggest that



the current economic recession may worsen the country's growing obesity problem.

## What really motivates

When it comes to **inspiring employees** to be more productive and, “leaders miss the mark” said David Javitch in *Entrepreneur.com* Their first big mistake is to assume that workers are motivated by money alone. In fact, the effects of a raise or bonus are “often short term at best.” Studies show that **recognition and status** have a more lasting impact on output. Employers also tend not to worry about motivating their smartest employees. **Big mistake:** “Intelligence and self-motivation do not necessarily go hand in hand.” In fact, bright employees are often vulnerable to **boredom and frustration**-so find out what those staffers are interested in and tweak their job description accordingly.

