

Aviation Human Factors Industry News

Volume V. Issue 37, November 25, 2009



From the sands of Kitty Hawk, the tradition lives on.

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:

★ASRS Research Studies on the Web

★Forty-Nine Airport Workers Commended for Outstanding Commitment to Safety

★Air crash museums keep dark memories alive

★How do I know when fatigue is affecting my performance

★Tough Love

★The Case Against Magnetic Screwdrivers

★SAFETY POSTER

ASRS Research Studies on the Web!

Did you know...that ASRS has **over 30 Research Studies** on our website?: De-Icing/Anti-Icing, Rejected Takeoffs, Clearances, General Aviation Weather Encounters, Landing Incidents, Runway Transgressions, Crossing Restrictions, Communication, Memory, Confusion, Time Pressure, Judgement, Training, Crew Performance, Flight Crew Monitoring, ASRS Cross Industry Applications, etc. A recent study looked at General Aviation Weather Encounters and includes technology related events that are relevant to this **CALLBACK** issue. All studies are available at:



<http://asrs.arc.nasa.gov/publications/research.html>

Forty-Nine Airport Workers Commended for Outstanding Commitment to Safety

Recognition Ceremony part of Detroit Metro Airport's first Safety Expo

Forty-nine members of the Detroit Metro Airport (DTW) community— of the Wayne County Airport Authority (WCAA), airlines and other airport business partners—were recognized recently for their **outstanding commitment** to workplace safety. The commendations were issued during a special ceremony in the airport's former Smith Terminal as part of the airport's first DTW Safety Expo.

“The safety and security of our customers and employees is the Airport's top priority,” said WCAA CFO Tom Naughton in his remarks. “The Airport Authority has a tremendous safety record, and we recognize that would not be possible without such a strong commitment to safety demonstrated across all Airport Authority departments, airlines,



federal and state agencies and partner companies here at Detroit Metro Airport.”

Individuals recognized during the ceremony were nominated by their managers for having demonstrated an outstanding commitment to **promoting a safe and healthy airport workplace**--and by extension--a safe, healthy and efficient environment for airport customers. Before and after the ceremony, various **seminars were conducted** for airport workers on relevant health and safety topics such as airfield and ramp safety, ergonomics, electrical safety, hearing conservation and appropriate work gear during the day-long DTW Safety Expo. The Expo also featured displays from various local vendors and agencies with resources to share regarding a safe, healthy workplace.

The Expo was conceived, planned and hosted by a collaborative effort among the airport’s Airline Management Council, representing the leadership of all airline tenants, the Airport Authority, the Michigan Occupational Health and Safety Administration, and the airport’s federal agency partners. The team plans to make the **Safety Expo** an annual event with the intent to expand the program’s offerings in future years.

Air crash museums keep dark memories alive

Charred aircraft wreckage, mangled black boxes, photographs of orphans clinging to coffins - Japan's airlines don't bury their worst air-crash memories, **they keep them alive** in museums. People with a fear of flying may want to give a miss to the carriers' two haunting exhibits near Tokyo's Haneda airport.

Among the thousands of items recovered from crash sites and on show is a **final message** a doomed passenger scrawled onto an air sickness bag as his plane went down, asking his wife to take care of their children.



Another harrowing note is a woman's last, desperate plea to survive, written onto an emergency evacuation leaflet while her airliner was on fire high over Japan, minutes before it plowed into the ground.

The morbid exhibitions, [open to the public](#), are run by flag-carrier Japan Airlines (JAL) and its main rival All Nippon Airways (ANA).

Their point is not to dwell on death, [but to preserve life](#).

Visits to their respective museums are mandatory for ANA staff and highly encouraged at JAL, with the aim of [searing into employees' minds](#), in graphic detail, the potentially catastrophic consequences of a [simple mistake](#).

"We want to be sure that the memory of the accidents of the past stays alive within the company," said ANA spokesman Rob Henderson, whose airline opened its Safety Education Centre near Haneda in 2007.

Thanks to ANA's strong safety record since the early 1970s, institutional memory of a major disaster is disappearing, he said.

"All the people who were working in the company when our last plane crash occurred, and who witnessed its terrible social consequences, will soon retire," he said during a recent visit.

Yutaka Kanasaki, who heads JAL's Safety Promotion Centre, opened in 2006, said that 90 percent of the company's more than 50,000 employees had not worked at the airline at a time when one of its jets crashed.

["We want to prevent the sadness of air tragedies from fading out and instead pass along the knowledge of aviation risks to the next generation,"](#) he said.

The exhibition prominently displays airplane wreckage, including crushed tail sections and twisted passenger seats, as well as the remains of passengers' personal remains, such as pens, eye glasses and car keys.

JAL describes its worst ever accident – and the deadliest disaster in aviation history involving a single plane – the August 12, 1985 crash of JAL Flight 123 which caused [520 deaths](#) and, incredibly, left four survivors.

The Boeing 747 went down because a piece of the aircraft, which had been [poorly repaired](#) after an incident seven years earlier, detached during the flight, ripping off the stabilizers and the rudder.

It crashed into a mountain northwest of Tokyo after violently spiraling through the sky for 32 minutes – enough time for passengers to understand they were on their last flight, and to scribble their final messages.

ANA, in its own, dimly-lit crash museum, recounts the 55 safety incidents and 10 hijackings it suffered during its 57-year history, with special emphasis on its three deadliest crashes.

Visitors are also shown footage and photos of rescuers scooping debris out of the sea, of scores of coffins lined up in school gymnasiums, and of distressed widows tearfully confronting the airline's then-president.

The section **devoted to human error** – which, visitors learn, causes 55 percent of aviation catastrophes – does not shy away from also pointing to errors committed by staff of other airlines.

In one case, the co-pilot of a Taiwan airliner noticed that the captain was heading up the wrong runway for take-off, but **out of timidity** toward his superior failed to notify officials.

The runway had been closed for repair works, causing a massive accident before the jet could lift off. The crash killed 83 people.

In another disaster, a US aircraft crew engrossed in **fixing a light bulb** failed to notice that their jet was losing altitude, resulting in 103 deaths.

Yet another flight had a lucky escape thanks to a skillful pilot, whose Boeing 767 ran out of fuel in mid-air 12,500 meters (41,250 feet) above Canada because tank fillers **had confused** litres with gallons.

The pilot, who flew glider planes as a hobby, managed to land the plane without the engines running.

Preserving, like open wounds, the memories of deadly disasters would seem odd to many western companies – but it is in **keeping with corporate Japan's tradition** of displaying contrition and guilt for **mistakes**.

That may be part of the reason both airlines are now **considered among the world's safest**. ANA's last fatal accident was in 1971 and JAL's in 1985.

Under Pressure

Managing work stress to keep your blood from boiling

We've all felt the **pressure at work** – pressure to do better, to do things, be three places at once, and let nothing fall through the cracks.

Unfortunately, job pressure can make more things fall through the cracks. Job pressure results when the requirements of the job **do not match** the capabilities, resources, or needs of the worker.

Aircraft mechanics have stressful jobs.

Mechanics are under pressure to identify and repair mechanical problems quickly so airlines can maintain strict flight schedules. Above all, aircraft mechanics are responsible for the overall safety of anyone who sets foot on an aircraft.

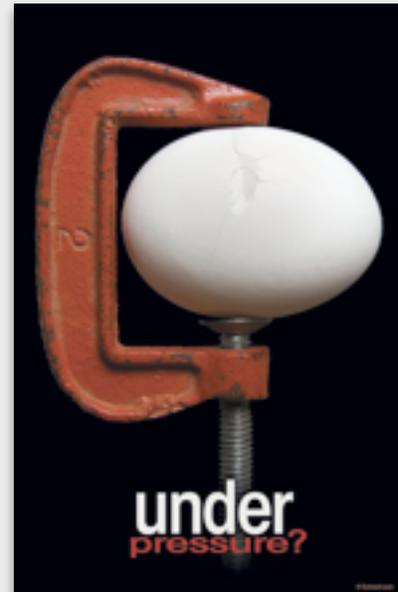
What's stressing you?

The National Institute for Occupational Safety and Health (NIOSH) published a text called **Stress at Work**. According to this text, 25 percent of employees view their jobs as the No.1 stressor in their lives. Problems at work are more strongly associated with health complaints than are any other cause of stress. Seventy-five percent of employees studied believe the worker has more on-the-job stress than a generation ago.

Health risks

Constant pressure can **cause on-the-job errors** as well as health risks. According to a blood pressure study published in *Psychosomatic Medicine*, P.L. Schnall says that change in job strain status causes a change in blood pressure. Schnall's study suggests that job strain is an **occupational risk factor** due to its relation to hypertension (high blood pressure).

In a study in *Psychological Medicine*, Maria Melchior says that work-related stress can be a direct cause of clinical depression and anxiety among previously healthy young adults. The study also found that high psychological job demands such as **long hours, tight deadlines, or**



pressure from supervisors, were associated with clinical depression, anxiety, or both.

Overall, women with high psychological job demands were 75 percent more likely to suffer from depression or anxiety than women with lower demands, says Melchior. Men with high psychological job demands were 80 percent more likely to suffer from depression than men with lower demands.

Forty-five percent of new cases of depression in 32-year-olds studied by Malchior were directly attributable to high psychological job demands.

Dealing with stress

Soon online magazine suggests **list-making** as an important first step when beginning to manage stress. It says to make yourself a “**to do**” list at the beginning of your day or your work shift. Categorize tasks according to what must be done today (A), what can be left for tomorrow (B), what can be left for someday (C), and what might not be necessary at all (D).

Starting with the “A” tasks will help you focus on what is most important. At the end of the day, don't worry about things that have not been done. Write them down on the list for the next day, perhaps giving them a different priority. **Then forget them until the next day.**

Other suggestions for curbing work stress include learning to say **no** politely to extra work, always taking time for a **proper meal break**, and **not procrastinating**.

Even **laughter** can relieve stress. Approaching situations with humor can also increase pain tolerance and support the immune system. It can relieve tension, manage stress, and improve overall health and well-being.

Be aware of your own physical well-being so that you will know the signs of stress as they arise. See a physician regularly for checkups and to have your blood pressure monitored.

Most importantly, allow yourself **downtime** to recharge. Constantly functioning at your breaking point is not healthy for you and not conducive to a positive, productive work environment.

How do I know when fatigue is affecting my performance?

Awareness of fatigue is an important first step toward taking corrective.

Some warning signs include: a strong desire to sleep

- Difficulty keeping one's eyes open
- Feeling of sluggishness
- Difficulty concentrating
- Irritability
- An inability to remember the last five minutes

When you experience these symptoms, **it's time to take a break**. You might take a quick walk, have a cold drink, or eat a small snack.

If you make a habit of checking your alertness level throughout a shift, you **can prevent fatigue** before it becomes a problem.



Tough Love

The Los Angeles County, CA. judicial system employs a **behavior program** for people convicted of drunk driving to witness real-life consequences of drinking and driving. A person is charged with driving while intoxicated when their blood-alcohol content level is 0.08 percent or more. It requires the offenders to spend **four hours at the morgue and four hours at a hospital emergency room**.



The morgue visit includes a walk-through of the service floor where autopsies are taking place along with processing of the deceased.

The coroner's office conducts 30-40 autopsies a day. What they see is what ever going on at the time, whether it be a victim of homicide or suicide or [traffic accident](#). It's to show them what reality is.

In California and other states public awareness of [drunk driving](#) is high thanks to an organization like Mothers Against Drunk Driving, but sleepy driving is barely on the radar. Sleepy drivers cause more than 100,000 traffic accidents every year. According to the National Sleep Foundation (NSF) drowsy driving accidents cause 1,500 unnecessary deaths, 71,000 injuries and \$12.5 billion in property loss and lost productivity every year.

The National Highway Transportation Safety Association reports that sleepy drivers are involved in as many crashes as drunk drivers and [sleepy driving accidents tend to be more violent](#).

From her book 'Take A Nap! Change Your Life' author Sara C. Mednick, Ph. D, writes; "Studies have shown that motorists who get only [six hours](#) of sleep are more likely to cause a crash than those with a blood alcohol content level of 0.05 percent. With each additional hour of sleep deprivation, we are ordering [another cocktail](#). After 24 hours of sleep deprivation the impairment is equivalent to a blood alcohol content of [0.10 percent](#) which is well past the legal limit for every state. If there were the equivalent of a blood alcohol test for sleep-deprived, we would be [taking car keys away](#) from many more drivers."

Maybe someday convicted sleep-deprived drivers will be joining the ranks of drunken drives visiting the Los Angeles morgue. Let's not wait for that day to arrive. There are [many strategies](#) we can incorporate into our busy schedules to manage fatigue and reduce the chances of a car accident. They are: making sleep a priority by achieving 7-8 hours of quality sleep, working a daily nap into your schedule, seeking medical attention for sleep disorders, improved sleep habits, eating healthy and exercise regularly, taking it easy on work days, use caffeine wisely and pulling off road when fatigue has you in its grip.

The Case Against Magnetic Screwdrivers

Q: Where can I find one of those cool magnetic screwdrivers I saw my using? He was able to start a Phillips-head screw **in the most impossible-to-reach location** by simply sticking the screw head to the tip of the blade and twisting away.

A: I've owned a few "magnetic" screwdrivers in my career. Usually these have been gifts that one of my well-meaning friends or relatives has given me as a token of their esteem. **Most of the time, they're a big pain.** The magnet makes the tip stick to stuff besides the screw head, **ruining your aim.** They often have replaceable tips, held in place by the magnet, and the tip has a **tendency to stay attached to the fastener** rather than remaining in the screwdriver's shank. In fact,

I found a magnetic Torx bit still attached to a bolt just last week.

As far as I can remember, I left it in my toolbox over a year ago. There are a bunch of ways to aid and abet your aim when installing fasteners in tough-to-reach places. A **little masking tape or duct tape** on the end of the screwdriver is a good solution. I've also used **weatherstrip adhesive**. In fact, that's what NASCAR teams use to secure lug nuts onto rims before wheels are installed. So when it's time for a tire change, the mechanic can simply throw the wheel and tire onto the hub and rattle the lug nuts tight one-handed with an air wrench.

But the simplest way to get the magnetic effect without buying new tools is to **temporarily magnetize the tip** of your nearest screwdriver. Stroke the shank with a **pickup magnet** (or any other powerful magnet) in one direction a half-dozen times. It'll pick up enough magnetism to hold your screw. Best part—**just drop the screwdriver** to the shop floor once or twice, and knock the magnetism right out of it. (The shock scrambles the magnetic domains in lightly magnetized steel.) That way, your tools won't cling together like airline cutlery.



SAFETY POSTER



the crew not to become wrecking crews
ground crews—
take care not to become wrecking crews