Aviation Human Factors Industry News

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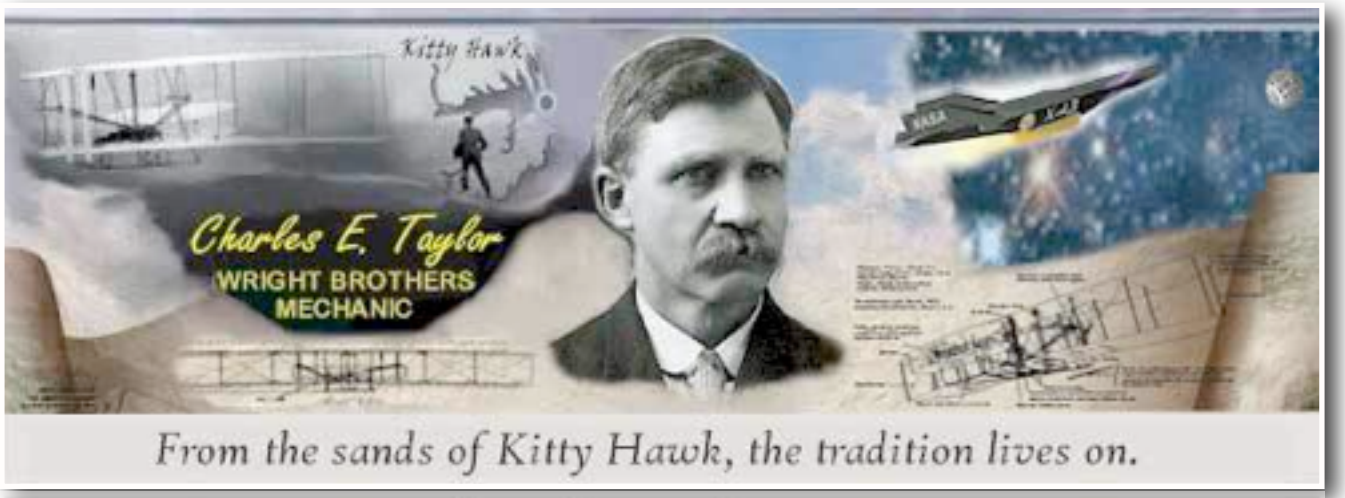


Hello all,

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:

Avoid this critical mistake when flying an ILS approach

Listen to this 2-minute roundtable audio segment where Bob Martens, Wally Moran and Bob Nardiello discuss a critical number you can find on instrument approach plates. Learn how to use this number to perform 5 critical cross checks at the Final Approach Fix.

http://pilotworkshop.com/quicklesson/faf_crossing_alt.htm

It can help you eliminate a really big mistake!

2012 Aviation Human Factors and Safety Management Systems Wings Seminar

The fourth annual Aviation Human Factors and Safety Management Systems Wings Seminar will be held in Pensacola, FL September 13-14, 2012 at the Crowne Plaza hotel. The seminar will address issues in human factors and SMS from the perspectives of operations, research and academics. The primary goals are to meet and share information, research progress and learning lessons from multiple aerospace domains. Attendees will have a chance to discuss their and opportunities with industry experts in a learning environment and receive 16 of continuing professional education credit through the Wings program.

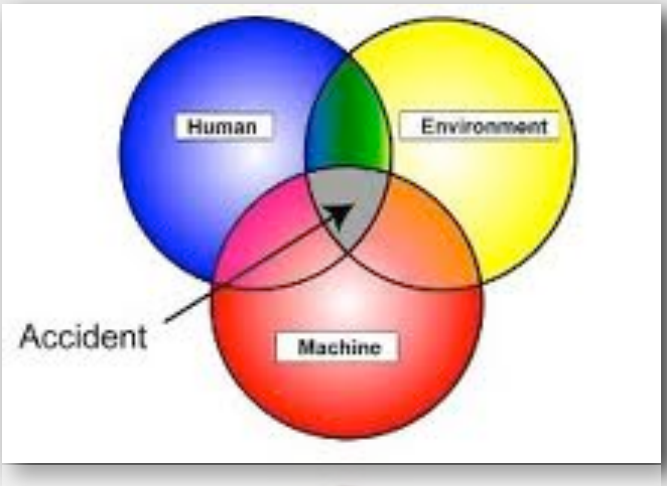
Please come join us in Pensacola for a great 2 day seminar.

Signal Charlie and FAA Safety Team present:

2012 Aviation Human Factors and Safety Management Systems Wings Seminar
September 13-14, 2012 Pensacola, FL, Crowne Plaza Hotel

For more information and to register: http://www.signalcharlie.net/Seminar+2012
Contact: Kent Lewis (850) 449-4841 lewis.kent@gmail.com

How human factor affects aviation safety



Despite rapid gains in technology, humans are ultimately responsible for ensuring the success and safety of the aviation industry globally.

However, they must continue to be knowledgeable, flexible, dedicated, and efficient while exercising good judgment to enable improve safety in air travel.

Consequently, the industry has continued to make major investments in training, equipment, and systems that have long-term implications. And because has continued to evolve faster than the ability to predict how humans will interact with it, the industry can no longer depend as much on experience and intuition to guide decisions related to human performance.Human error has been documented as a primary contributor to more than 70 per cent of commercial airplane hull-loss accidents. While typically associated with flight operations, human error has also recently become a major concern in maintenance practices and air traffic management.

It has grown increasingly popular as the commercial aviation industry has realized that human error, rather than mechanical failure, underlies most aviation accidents and incidents. If interpreted narrowly, human factors are often considered synonymous with crew resource management (CRM) or maintenance resource management (MRM).

However, it is much broader in both its knowledge base and scope. Human factors involves gathering information about human abilities, limitations, and other characteristics and applying it to tools, machines, systems, tasks, jobs, and environments to produce safe, comfortable, and effective human use.

“In aviation, human factors are dedicated to better understanding how humans can most safely and efficiently be integrated with the technology. That understanding is then translated into design, training, policies, or procedures to help humans perform better,” said Curt Graeber, chief engineer, Boeing Commercial Airplanes Group.

According to him, since improving human performance can help the industry reduce the commercial aviation accident rate, much of the focus is on designing human-airplane interfaces and developing procedures for both flight crews and maintenance technicians.

He noted that Boeing has also continued to examine human performance throughout the airplane to improve usability, maintainability, reliability, and comfort. In addition, human factors specialists participate in analyzing operational safety and developing methods and tools to help operators better manage human error.

These responsibilities required the specialists to work closely with engineers, safety experts, test and training pilots, mechanics, and cabin crews to properly integrate human factors into the design of all Boeing airplanes, Graeber added.

Meanwhile, experts in the industry believed that by taking a step back and refocusing our attention to encompass the human elements that can lead to incidents, as well as the technological, physical and environmental factors, investigations are far more efficient.

Furthermore, the likelihood of future incidents is reduced and an organizations’ efficiency, safety performance, safety culture and communication systems can be greatly improved.

They explained that, it is not simply about what happened, changing procedures or trying to control and alter observable behaviors, it is about looking beneath these behaviors in context to understand why and how they occurred and to provide ways of managing human failure so that companies are not only safer but more adaptive and proactive in their approach to safety.

Also that, the knowledge of human factors is also important for the actual investigation process itself if the best results are to be achieved because, although humans are often at the core of a problem, they are crucially part of the solution.

Adding that, an awareness of the psychological aspects of others enables the formation of a productive investigation team, who can work together to produce comprehensive results, and enables effective management of the interviewing, information gathering and dissemination of findings processes.

As recently reported, human factor has been fingered in more than 75 per cent of air accidents and incidents even as technical failures continued to drop as casual factors to air mishaps. The subject of human factor has generated so much attention globally, considering its impact on air safety.

Despite impressive improvement in technology, human beings still play a central role in ensuring safety as they serve as an interface between other components of flight operations including machines and environment.

However much progress in applying human factors to improving aviation safety was made around the time of World War II by people such as Paul Fitts and Alphonse Chapanis. There has also been progress in safety throughout the history of aviation, such as the development of the pilot's checklist in 1937.

Pilot error and improper communication are often factors in the collision of aircraft. While, the ability of the flight crew to maintain situational awareness is a critical human factor in air safety.

Maintenance Safety Tip

Notice Number: NOTC3886
Finish all the STEPS Before Calling the TASK Complete

Does this sound basic? Yes, it is…. BUT, there continue to be maintenance-induced aircraft accidents where the mechanic did not follow the order of the steps, did not finish a step, or did not complete all the steps of the task as instructed.
Instructions for continued airworthiness contain sequential steps for completing a task. It goes without saying (but we'll say it anyway!) that the sequence of steps developed by the manufacturer is very important! The job will be performed correctly and safely when each individual step is started and completed; one step at a time, in sequential order.

It is not a bingo game out there, it really is a matter of safety, and safety cannot be compromised.

Aviation Safety Databases Offer Multiple Perspectives

The National Transportation Safety Board (NTSB) database is not the only online source for curious aviators and researchers to review aviation accident and incident information. In addition to the safety board's extensive data collection, the FAA, the Flight Safety Foundation and the Aircraft Owners and Pilots sites that all categorize aircraft accident and incident data, although differently.The offering, called the Aviation Safety Information Analysis and Sharing (ASIAS) system, allows users to perform integrated queries across multiple databases, search an extensive warehouse of safety data, and display pertinent elements in an array of useful formats. The site also includes a link to the Aviation Safety Reporting System's search engine, as well as a library of data related to Aircraft Life Cycles, Accident Threat Categories and Common Accident Themes. Some human factors data extends as far back as the 1960 mid-air between a Lockheed Constellation and a DC-8 over Staten N.Y.The Flight Safety Foundation sponsors the Aviation Safety Network, a private, independent initiative founded in 1996, which covers accidents and safety issues related to airliners, military transport planes and corporate jets. ASN also houses an extensive photo collection relative to the database's research.

AOPA's extensive Aviation Safety Institute (ASI) database, offers considerable flexibility on search parameters, such as the ability to search for accidents simply by airport. AOPA's data is primarily focused on aircraft weighing less than 12,500 pounds.

http://www.asias.faa.gov/portal/page/portal/asias_pages/asias_home/

http://aviation-safety.net/index.php

http://www.aopa.org/asf/

FAA report praises FOD detection system

The FAA has announced that a Foreign Object Debris (FOD) detection system manufactured by Xsight Systems meets its requirements.

According to the FAA, its hybrid sensor solution FODetect – consisting of integrated radar and electro-optical sensors – meets or exceeds the highest level of performance in every parameter required by US regulation.Its verdict is based on the results of tests carried out at Boston Logan International Airport and were conducted by the FAA, Williams J Hughes Technical Center, Aviation Research Division, Airport Technology Branch and the Center of Excellence for Airport Technology, Department of Civil and Environmental Engineering, at the University of Illinois at Urbana Champaign.

The report simply states: "The FODetect system was able to detect the objects of various shapes, sizes, and materials on runway surfaces and perform satisfactorily in nighttime, daytime, sun, rain, mist, fog, and snow conditions, as required by FAA Advisory Circular 150/5220-24, Airport Foreign Object Debris (FOD) Detection Equipment."

President and CEO of Xsight Systems, Alon Nitzan, enthuses:“This finalizes an important milestone in the FODetect introduction to the market.

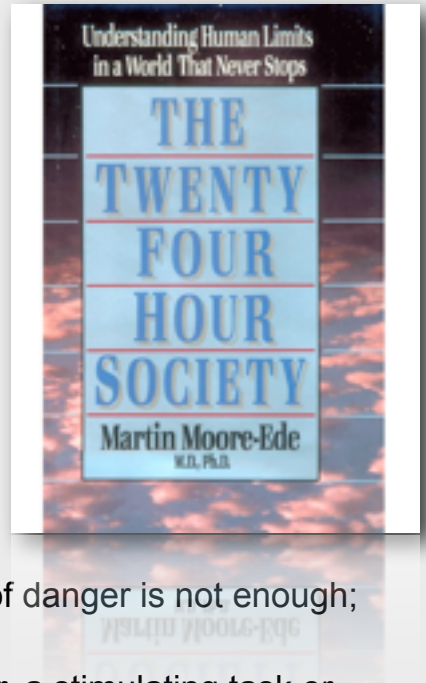
“We are proud of the results and trust that our innovative radar and day/night image processing technology provides the most reliable and efficient solution to automated runway FOD detection, which in turn contributes to heightened airport safety and to increased operational efficiency.

“Real world installations show that FODetect has detected hazardous FODs on operating runways such as metal parts from aircrafts as well as birds & wildlife.

Both are a well-known problem in the aviation world which can now be mitigated by using state-of-the-art technology."

Identifying Alertness – The Nine Switches of Human Alertness

Right now, take a moment and estimate how alert you are on a scale of 1 to 10. Now, go a step further and try to pinpoint what factors are influencing your alertness levels.In his book, The Twenty-Four Hour Society, Dr. Martin Moore-Ede identifies how a person's alertness is triggered by nine key internal and external factors that can be considered the switches on the control panel of the mind.Understanding these 9 key switches and how to manipulate them is the secret of gaining power over one of the most important attributes of the human brain: alertness.



Here are 9 switches – recognizing them can help you stay alert on the job.

1 – Sense of danger, interest or opportunity. Nothing pulls us faster from a drowsy state than the imminent threat of danger, or just surviving a near miss. The emergency fight-or-flight response is activated by the sympathetic nervous system, and the brain is placed on full alert. However, it is important to note that the presence of danger is not enough; the danger must be perceived and feared.

Although less extreme than the response to danger, a stimulating task or opportunity triggers a similar response. The flip-side is that alertness fades if what you're doing is monotonous. An endless stretch of freeway or a quiet night in a plant where everything is running smoothly can prompt drowsiness.

2 – Muscular Activity. Physical activities such as walking or stretching also trigger the sympathetic nervous system and help keep you alert. However, many jobs require us to be sedentary. Extended periods without much movement, such as sitting in a chair or car, can make it difficult to stay fully alert or even awake.

3 – Time of day on the circadian clock. Circadian rhythms – daily ups and downs in body temperature, blood pressure, hormone levels and other physiological traits – have a major effect on alertness.

We generally experience peak levels of alertness in the morning and early evening and lowest levels of alertness in the early afternoon and during the overnight hours.

4 – Sleep bank balance. How long you've been awake and how much sleep you've had in recent days affects your alertness level. If you only sleep four or five hours a day for several days, you build up a "sleep debt" that leads to reduced alertness. A long spell of sleep acts as a "deposit" that offsets your sleep debt.

5 – Ingested nutrients and chemicals. Caffeine and amphetamines temporarily increase alertness. Others, such as sleeping pills, antihistamines, melatonin and certain foods, may induce sleep. Of course, some of these substances have serious drawbacks because of their negative effect on overall health and potential for abuse or addiction.

6 – Environmental light. Bright light tends to increase alertness, particularly during the over-night hours. Whether you're at home or on the job, dim light or darkness set the stage for falling asleep.

7 – Temperature and humidity. Cool, dry air, especially on your face, makes it easier to stay alert, while heat and humidity make you drowsy. Similarly, a cold shower is invigorating, while a warm bath prepares you for sleep.

8 – Sound. As you know, sound can be both a tool for promoting sleep and increasing alertness. Be conscious of the sound around you and adjust it to fit what you need. For example, the soft hum of computers in the middle of the night might lull you into sleep.

9 – Aroma. Some researchers believe that aromas like peppermint, pine and citrus can make people more alert. Lavender, meanwhile, seems to have a sedative effect.

At first glance the Nine Switches of Alertness may seem obvious and straightforward. However, many workplaces have not embraced the 'switches' to increase the alertness of their workforce.

One challenge is that the human desire for comfort intervenes. Making oneself comfortable is not compatible with optimal alertness, especially during the wee hours of the morning. In fact, the desire for comfort may be so dominant, and lack of awareness of the compromise one is making with alertness so large, that alertness takes a back seat.

Take for example, high-tech industrial control rooms that are being built around the world. Many of them are more focused on human comfort than on alertness because of the belief that comfort equals improved performance. However, the truth is that sometime to be fully alert one must be a little uncomfortable.

Source: Martin Moore-Ede, The Twenty-Four Hour Society: Understanding Human Limits in a World That Never Stops, Addison-Wesley 1993.