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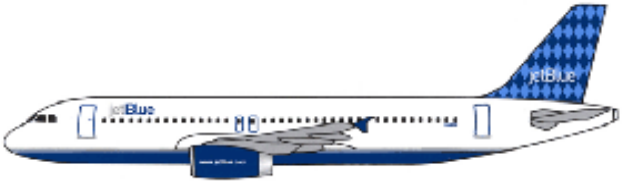

Aviation Human Factors Industry News

September 08, 2008

Vol. IV. Issue 35

Fuel blast probe reveals workers' fatal error

AIRPORT TRAGEDY: Four workers died when a Tristar aircraft fuel tank exploded at Taif Airport on Aug. 25, 2008.

Airport authorities in Saudi Arabia claim the death of four Pakistani workers at an airport could have been avoided if safety procedures had been followed.

The General Authority for Civil Aviation's (GACA) investigations into a tragedy at Taif Airport have revealed that the men did not ensure the fuel tank they were working on was empty before starting work on dismantling it.

Four Pakistani workers, who were contracted by British company Regency Projects to dismantle old aircraft, died and several others were injured when the plane's fuel tank exploded.

Abdul Hamid bin Hammad, official spokesman for GACA, said: "Investigations have revealed that the men who were working for Regency Projects Co did not ensure the tank was totally drained of fuel while working.

"They used an electrical saw to take apart the components, including the fuel tank. The sparks and friction generated by the saw caused a fire and the ensuing blast." GACA conveyed its condolences to the families of those killed.

Regency Projects Company is a London-based company involved in the purchase, operation and sale of mainly overaged vessels but most recently diversified into aviation and oil refinery management.

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FAA Recommends DFW 'Re-Evaluate' Tugs Involved In Near-Miss

The tugs can pick up the front wheel of a plane and move it at high speed, saving fuel by keeping the plane's engines shut down.

The Federal Aviation Administration has recommended that the Dallas Fort-Worth International Airport re-evaluate the use of airplane tugs such as the one involved in a near-miss between two planes last spring. Two American Airlines planes came within 25 feet of colliding on a runway in April, according to a FAA report obtained by NBC 5.

One of the planes was in the air, and the other was being pulled on the ground by a special tug bought by American to save fuel.

The giant tugs can pick up the front wheel of a plane and move it at high speed, saving fuel by keeping the plane's engines shut down. The American Airlines mechanics who were towing the jet were told to stop before crossing a runway, but couldn't stop in time and pulled the plane into the path of another AA plane.

"If you can't stop it you shouldn't be pulling it," said Rick Loewen of the National Association of Air Traffic Controllers. In a letter obtained by NBC 5, FAA inspectors recommended the airport "re-evaluates the necessity for allowing High Speed Tug towing of aircraft across runways."

Loewen said the planes that are towed at night have no lights on them, making them nearly impossible to see. "At night, it needs to be lit so that so we can see it (and) so other aircraft can see it as well," Loewen said. The FAA inspectors also recommended the airport require any aircraft being towed to "have aircraft navigation lights" on.

American Airlines is conducting its own investigation into why the tug could not stop in time. When investigators re-created the incident in June, two people were injured after they were thrown into the glass as they tried to bring a plane to a stop.

"I think if they can't stop in the same distance that an empty aircraft can stop itself, then I don't think they should be out there," Loewen said. The tug has been taken to the manufacturer in Germany for tests.

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American Airlines and DFW Airport said Monday that they are waiting for the test results before deciding whether to use the tractors again at the airport. American is still using them at four other major airports across the country, but on planes as heavy as the heavy Boeing 777 involved in the April incident at DFW Airport

Japanese suspect missing washer led to 737 fuel tank fire

A Japanese investigation, into a China Airlines (CAL) Boeing 737-800 that had a fuel tank fire last year, has said it is highly possible CAL maintenance personnel failed to attach a washer to the bolt on the right wing slat and that is why the bolt moved, puncturing the fuel tank.

Japan's Aircraft and Railway Accidents Investigation Commission made the remark in its preliminary report into the CAL 737-800, local registration B-18616, that caught fire on 20 August last year soon after landing at Naha airport on the southern Japanese island of Okinawa.

The commission disclosed last year that it had found a bolt on the 737-800's right wing slat that had pierced the fuel tank creating a 2-3cm hole.

The fuel leaking from the tank then ignited creating a fire that completely destroyed the aircraft and led the 165 people on board to disembark quickly to safety.

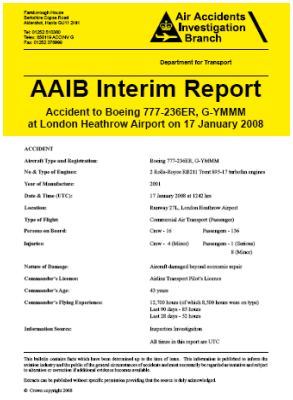
But until the release of the preliminary report, the reason for the bolt moving had always remained unexplained.

The Aircraft and Railway Accidents Investigation Commission says since the incident Boeing has changed the design of the bolt nut to make it larger.

CAL has responded to the preliminary report by issuing a statement saying it "reviewed its maintenance records and confirmed that it completed the required inspections in a timely manner on its 737-800 aircraft" and in accordance with "Boeing's service letters and service bulletins."

"The aircraft involved in the incident completed its inspection from 6-13 July 2007, prior to the event in Okinawa," it adds.

AAIB Interim Report of British Airways B777 Crash at London Heathrow Airport


Air Accidents Investigation Branch

Department for Transport

AAIB Interim Report

Accident to Boeing 777-236ER, G-YMMM at London Heathrow Airport on 17 January 2008

ACCIDENT

Aircraft Type and Registration:	Boeing 777-236ER, G-YMMM
No & Type of Engines:	2 Rolls-Royce RB211 Trent 895-17 turbofan engines
Year of Manufacture:	2001
Date & Time (UTC):	17 January 2008 at 1242 hrs
Location:	Runway 27L, London Heathrow Airport
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 16 Passengers - 136
Injuries:	Crew - 4 (Minor) Passengers - 1 (Serious) 6 (Minor)
Nature of Damage:	Aircraft damaged beyond economic repair
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	45 years
Commander's Flying Experience:	12,700 hours (of which 8,509 hours were on type) Last 90 days - 83 hours Last 28 days - 52 hours
Information Source:	Inspector Investigation

All times in this report are UTC

This bulletin contains facts which have been determined up to the time of issue. This information is published to inform the aviation industry and the public of the general circumstances of accidents and must necessarily be regarded as tentative and subject to alteration or correction if additional evidence becomes available.

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The investigation into why a British Airways Boeing 777 on Jan. 17 crashed (with no fatalities) short of the runway at London's Heathrow airport has determined "that there are two possible scenarios" that match the data collected from the flight -- both involve ice in the fuel system. The Air Accidents Investigation Board (AAIB) has found that of all flights flown with similar equipment (about 140,000), less than 0.2 percent had been subjected to fuel temperatures at or below the minus 34 degrees centigrade recorded for the accident aircraft. The accident aircraft is also noted for operating in those temperatures at very low fuel flows, but within certified operational limits. As a result, Boeing 777 pilots will be required to cycle the thrust of their engines (maximum thrust for 10 seconds prior to descent) to clear the system of ice before landing and vary their altitudes en route when fuel in the main tank is below 10 degrees Celsius for more than three hours. There are rules for low-temperature ground operations, too. All instructions apply to 220 777s worldwide. This short-term fix aims to address concerns while the exact root of the problem is further investigated and (for now) acts in place of retooling the Rolls-Royce Trent 800 fuel feed systems on the jets. For the accident itself, the AAIB has detailed its two most likely causal scenarios.

One AAIB theory involves "ice accreted over a period of time" downstream of the forward boost pump connection into the fuel manifold and upstream of the high-pressure pump inlet. "This ice would have had to have accrued to an extent to block approximately 95 percent of the cross sectional area," inducing pump cavitation and resulting in loss of power. Investigators have not been able to reproduce that scenario, but the possibility is still being evaluated.

The second theory is that ice had accreted throughout the fuel system and was released when the pilots commanded a second acceleration on final approach that was not met by the engines. Central to both theories is a requirement for the fuel system's extended exposure to both low fuel flows and temperatures "below the Critical Icing Temperature."

The report states in summary that the investigation has shown that both engines suffered from restricted fuel flow "most probably due to ice within the fuel feed system."

Again, it is noted that the aircraft was operated within its certified operational envelope at all times, but also for long periods "with low fuel flows, in an unusually cold environment." Find the AAIB's full Interim Report here (PDF).

CASA: improvements needed after QANTAS maintenance review

CASA wants Qantas to make a range of improvements to the way it manages and delivers aircraft maintenance following a special review carried out by the Civil Aviation Safety Authority.

CASA has told the airline to produce a plan to address deficiencies in meeting some of its own maintenance performance targets.

At the same time Qantas will examine whether the existing lines of authority and control over maintenance within the airline are delivering the best possible outcomes.

While these actions are under way CASA will be conducting two additional intensive audits of Qantas.

The first will be a full maintenance audit of one aircraft of each major aircraft type in the Qantas fleet – a 747-400, 737-400 and 767-300. This will involve checking all maintenance documentation for each of these aircraft to see it has been completed, as well as physically examining the aircraft on the ground.

The second audit will focus on the effectiveness of Qantas maintenance systems in managing and implementing airworthiness directives. This will identify any weaknesses in Qantas maintenance systems in relation to managing the ongoing airworthiness of its aircraft.

CASA has also called on Qantas to report on how the recent failures to fully comply with airworthiness directive requirements have been addressed. (CASA)

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Southwest won't pay $10.2 mln fine by FAA deadline

Southwest Airlines Co said on Wednesday it will not comply with a U.S. Federal Aviation Administration deadline of Aug. 29 to pay a record $10.2 million fine for alleged safety violations.

The FAA said earlier this year that Southwest continued to fly uninspected aircraft even after the carrier notified the agency that it had missed a mandatory deadline to complete the work.

The agency has said it would turn the matter over to the Justice Department if the fine were not paid by August 29.

"We just let them know that we would not be paying a fine by the 29th and that we wanted to have additional discussions," said a Southwest spokeswoman.

"It's just another step in this process and we certainly hope to continue those discussions to come up with a fair and reasonable conclusion," the Southwest spokeswoman added.

It is common for airlines to appeal fines, and in many cases the penalty is reduced.

Asked if the FAA still plans to turn the matter over to the Justice Department, an FAA spokesman said: "I really can't speculate on whether that's the course of action we would take."

The FAA spokesman added: "All I can say is that we are continuing to discuss the issue with Southwest this week but really I can't speculate on what the resolution might be."

Southwest met in April with FAA officials as part of an informal review of the fine proposed in March for the alleged maintenance shortcomings.

Southwest has said it did not compromise flight safety, and the FAA said there were no safety incidents related to the missed inspections.

The case was triggered by whistle-blower complaints to Congress, which put pressure on the FAA to step up safety oversight of the industry.

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Flaps not extended on ill-fated Spanair jet: report

Wing flaps on a Spanair jetliner that crashed in Spain last month killing 154 people were not fully extended before take off, the Wall Street Journal reported last Wednesday.

Citing people familiar with the investigation, the Journal said preliminary information from the MD-82's flight data recorder shows the movable flaps on the rear of the wings were not properly positioned. The flaps provide extra lift.

Information from the "black box" data recorder also indicates that both engines were working properly and there was no fire before impact into a ravine at the edge of the Madrid airport runway, the sources told the newspaper.

But the Journal also said investigators wanted to know why a loud horn designed to alert the crew to equipment problem apparently did not sound.

They were also checking why the unextended flaps apparently were not noticed during the pilots' routine pre-departure equipment check.

The August 20 accident was Spain's worst air crash in 25 years. Eighteen people survived.

Investigators were not expected to reach conclusions for some time, and the probe could still yield other results.

The MD-80 family is manufactured by McDonnell Douglas, which is now part of Boeing Co. Spanair is owned by Scandanavia's SAS.

FAA Changes Unapproved Parts Definition

The FAA has changed the definition of 'unapproved parts' in its latest unapproved parts guidance and the change is largely focused on eliminating definitions that could interfere with the smooth functioning of the maintenance community.

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On July 22, the FAA issued 'change one' to Advisory Circular 21-29C Download ac_2129c_chg.pdf, Detecting and Reporting Suspected Unapproved Parts. Change one alters the definition of an unapproved parts to remove several categories that used to be considered 'unapproved.'

The old definition included parts that have been maintained or altered and then approved for return to service by someone who was not authorized to perform such services. In a surprising move, this has been eliminated from the list of parts that are presumptively unapproved. While this represents a surprising move on the part of the FAA, it makes a great deal of sense.

Such work often represents a violation of the FAA's Part 43 regulations that apply to maintenance, but if the work was performed correctly notwithstanding their lack of qualification, then another (properly qualified) party may be able to inspect the part and find that it is in an airworthy condition.

A good example of where this might happen is the case of a repair station that has the right personnel, housing, equipment, materials and technical data to perform the maintenance work, but that has failed to correctly update its ratings, operations specifications and/or capabilities list so that the work represents a technical violation of Part 43.

In light of the likelihood that the work was done correctly, there is a strong possibility that such a part can be examined and found airworthy by a properly rated repair station (or by the same repair station, if it obtains the appropriate ratings from the FAA and then inspects and/or reworks the part as necessary).

The new definition also eliminates from consideration parts that have been approved for return to service following maintenance or alteration and are subsequently found not to conform to approved data. This prior definition characterized parts in need of repair due to normal wear and tear as unapproved parts, which was not useful to the FAA's mission to identify and eliminate safety problems related to parts.

The new definition eliminates a potential impetus to report normal wear as 'unapproved,' which means that the FAA's investigative resources and not being misused by being focused on normal events that do not require FAA attention – instead those resources can be focused on the true parts-related safety issues facing the industry.

Lexington crash brings subtle changes in aviation

Two years after Comair Flight 5191 took off from Blue Grass Airport down the wrong runway and hurtled into a field, killing 49 people, the accident's reverberations can be found in subtle shifts in federal aviation policy.

The changes have occurred "not because of Lexington, but Lexington was one of the high-profile accidents we took into account," said Laura Brown, a spokeswoman for the Federal Aviation Administration.

Still, the seemingly slow pace of change frustrates some safety board members and other transportation experts.

"If we start worrying why it can't be done we'd issue a lot fewer recommendations," Robert Sumwalt, vice chairman of the National Transportation Safety Board, said in an interview.

It's a common theme for an agency that has long held firm against making all of the NTSB's recommendations compulsory. Last year, the Government Accountability Office, Congress' investigative arm, found that there is "a high risk of a catastrophic runway collision occurring in the United States" because of poorly functioning equipment, fatigued air traffic controllers and spotty leadership at the federal level.

After the smoke cleared on Aug. 27, 2006, the National Transportation Safety Board and, ultimately, the FAA were left to piece together how, if at all, the Comair crash would influence aviation safety.

During a hearing in July 2007, the NTSB made several recommendations to the FAA related to runway safety, including:

■ Requiring airlines to install in aircraft cockpits "moving map" displays or automatic systems to alert pilots when a takeoff is attempted on a taxiway or runway other than the one intended.

■ Requiring enhanced markings on taxiways and runways.

■ Taking added care when an aircraft has to cross multiple runways.

"After the Lexington accident we looked back over 10 years of data at incidents when there was some confusion about the right runway to take off on," Brown said. "We were concerned that people were becoming complacent on some of the safety issues."

Last month, the FAA announced a series of runway safety initiatives designed to avoid the types of conditions that led to the Lexington crash. Those measures include installing more than $400 million worth of runway status lights at major airports that would warn pilots when it is unsafe to cross or enter a runway.

The agency expects to award a contract this fall to install the runway light systems at 22 large airports over the next three years. Lexington isn't on the list.

The FAA also hopes to provide up to $5 million to test cockpit displays that would give pilots the most up-to-date information on runway conditions.

The FAA also issued an advisory that by June 2008 large airports should implement enhanced taxiway centerline markings and painted holding position signs at all runway entrances — a move that stemmed from longstanding NTSB concerns that were sparked anew after the Lexington crash. Medium sized airports must follow suit by early 2009 and smaller airport by 2010.

"Lexington is a smaller airport and we challenged all the smaller airports to meet those standards before then," Brown said.

But for the most part, the FAA has stopped short of using the NTSB's recommendations from the Comair crash to draft additional rules and make them mandatory.

According to a letter sent last week by National Transportation Safety Board Chairman Mark Rosenker, the FAA's sluggish response on requiring stricter runway checks is "unacceptable". The NTSB was particularly troubled by wording in an FAA safety notice that instructed air traffic controllers to state the takeoff runway but didn't force controllers to wait until a plane had crossed all runway intersections before issuing clearance.

"Simply restating the takeoff runway, as the notice directs, is therefore not responsive" to the NTSB's recommendations, Rosenker wrote.

Some aviation experts say the FAA's cautious approach to rulemaking has saved both lives and money.

"In the United States we're at risk of overreacting to certain events," said Joseph Schwieterman, an aviation expert and a professor of public service management at DePaul University in Chicago. "The truth is most accidents are caused by factors that are unseen. In this case (the Comair crash), it is hard to regulate human judgment."

After the Lexington crash, the NTSB recommended the FAA change its guidelines to bar controllers from performing administrative tasks, such as the traffic count, when moving aircraft are in the controller's area of responsibility.

"A workgroup is reviewing what would the impact be if we did that," Brown said.

The NTSB recommended asking the National Air Traffic Controllers Association to work with the FAA to reduce the potential for controller fatigue — the controller on duty during the Lexington crash had two hours of sleep. The FAA responded by developing a training program, hosting a fatigue symposium in Washington earlier this year, and asking the air traffic controllers group to make recommendations on changes in work-scheduling policies.

"We've yet to adopt policies that tackle the fatigue problem head on," Schwieterman said. "It remains a weakness overall."

Similarly, the NTSB recommended requiring airlines to provide guidance to pilots on the runway lighting requirements for takeoff operations at night. The FAA responded by asking, but not forcing, directors of safety and operations at airlines and trainers to include those points in their training programs.

The NTSB concluded that the Lexington crash was a case of pilot error. The agency also ruled that the plane's two-man flight crew lost track of where the aircraft was and that the crew failed to cross-check and verify that the plane was on the correct runway before takeoff.

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In the meantime, some airlines have changed their own policies regarding verification and confirmation of the correct departure runway and have prohibited operations on unlit runways.

However, aviation experts agree that ultimately human error is beyond the powers of the regulatory process, and there is no foolproof way to guarantee that an accident like Comair 5191 doesn't happen again.

"Something we've seen over the last few years is that some of the most difficult safety issues involve human decision-making," Brown said. "There's technology that adds a layer of safety. But human risk factor is one of the most difficult safety issues to solve."

Embry-Riddle To Offer Aviation Doctorates

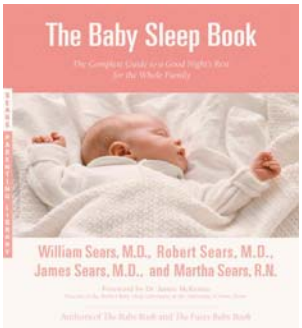
Embry-Riddle Aeronautical University will offer two new doctoral degree programs in 2009, including the first Ph.D. in Aviation in the U.S., the school said this week. The new program will allow students to "pursue interests in aviation in a diverse, intellectually versatile and multidisciplinary environment and to affect a global impact on the aviation industry," the university said in a news release. The flexible, online program will require one week a year on campus and will take about three years to complete.

The university is also offering a new Ph.D. program in Engineering Physics at its Florida campus at Daytona Beach, which covers topics in space physics, upper atmospheric physics, remote sensing, spacecraft instrumentation, spacecraft systems engineering, and control of aerospace systems.

"These doctoral programs are designed to give both working professionals and research professionals the opportunity to pursue their intellectual interests through rigorous programs and meet their professional goals to prepare them to serve as our aviation, science, and engineering technology leaders of tomorrow," said Dr. John P. Johnson, Embry-Riddle president.

The university is accepting applications for both programs now. Accreditation by the Commission on Colleges of the Southern Association of Colleges and Schools is pending.

Midnight Shift Nugget



Getting a good night's sleep can be hard for anyone. It can be especially hard on shiftworkers, who have to go to bed and wake up at unusual hours. And if you add a baby or toddler to the mix, sometimes the challenge of sleeping for seven or eight straight hours seems downright impossible.

*The Baby Sleep Book (*Little Brown 2005, $14.95) teaches parents techniques to get children to fall asleep and sleep well.

It addresses common problems such as nighttime separation anxiety, breastfeeding habits and even adult sleep problems that

have been studied at the Mother-Baby Sleep Laboratory

at the University of Notre Dame. The authors, all pediatric experts, teach parents how to understand their babies' nighttime temperament and model their lifestyles to match their babies' temperaments. This book is meant not only to help babies sleep better, but parents too.

Sleep apnea – Part I

Statistics for the population at large suggest that there are pilots and mechanics out there trying to function in a mind-numbing state of perpetual exhaustion. All they really need to banish this perplexing and hazardous condition is a good night's sleep each time they hit the hay.

Losing sleep is more than simply an inconvenience. Good slumber is essential for good health and clear mental and emotional functioning, and for this reason sleep disorders should concern pilots and maintenance technicians. The issue of sleep extends beyond duty and rest time for pilots, a different topic that is moving at snail pace through the regulatory review process, because even extended periods of rest time are ineffective if a pilot is not sleeping deeply enough to derive the proper restorative properties of a phase that accounts for about a third of our lives.

According to the National Sleep Foundation (NSF), approximately 70 million people in the U.S. have some sort of sleep problem. About 40 million Americans suffer from chronic sleep disorders and an additional 20 to 30 million are affected by intermittent sleep-related problems.

The NSF estimates sleep deprivation and sleep disorders cost Americans more than $100 billion annually in lost productivity, medical expenses, sick leave and property and environmental damage.

According to an NSF 2001 Sleep in America poll, nearly seven out of 10 Americans said they experience frequent sleep problems, although most have not been formally diagnosed by a medic. It found that two-thirds of older adults report frequent sleep problems; however, only one in eight say those problems have been diagnosed. According to a follow-up poll the next year, 51 percent of Americans said they had driven while feeling drowsy in the past year; 17 percent said they had actually dozed off behind the wheel.

The National Highway Traffic Safety Administration conservatively estimates that 100,000 police-reported crashes, about 1.5 percent of all crashes, are caused by drowsy drivers each year.

These accidents result in more than 1,500 fatalities and 71,000 injuries and an estimated $12.5 billion in diminished productivity and property loss.

Health and Safety Risks

One such sleep-related ailment is sleep apnea, a particularly insidious disorder since people who have it are often not aware that they have a disease and are reluctant to talk about the symptoms because of the impact on their professional life. People with untreated obstructive sleep apnea stop breathing repeatedly during their sleep, and eventually (sometimes after a minute or longer) the brain rouses the body from this asphyxiation, thus never allowing the sufferer to enter the deep, restorative REM (for rapid eye movement) phase of a good night's sleep. This cycle can repeat itself hundreds of times a night, and the sufferer greets the new day mentally and physically exhausted, a condition that must be fought off until bedtime.

Studies have shown that about one in four men have sleep apnea but fewer than one in 20 of them know it. About 13 percent of women have the disorder, with only one in 50 recognizing it. That's not surprising, because the worse the apnea becomes, the more impaired a person's cognitive abilities become, and the less likely one is to recognize a problem.

One of the warning signs of sleep apnea is snoring. If you snore and have any of a number of additional symptoms it is possible you have sleep apnea.

Many people accept snoring as a fact of life for men as they age. While it can be harmless for most people, for some it can be literally life threatening. A person who seeks a consultation about sleep apnea is first asked whether he snores and whether he stops breathing during the night.

Snoring means your airway is partially blocked. When breathing occurs through an obstructed airway, the air moves faster, causing a vibration in the structures nearby, resulting in snoring.

Attempting to breathe through a narrowed airway requires a great deal of effort. It is not only exhausting but may also further collapse the airway. Sometimes the airway collapses entirely, allowing no air in or out. The body has a protective system that partially wakes a person who is struggling–or unable–to breathe. The pause in breathing reduces blood oxygen levels, can strain the heart and cardiovascular system, and can increase the risk of cardiovascular disease.

Mark Rosekind, Ph.D., president and chief scientist of Cupertino, Calif.-based Alertness Solutions, says apnea is far more common than most people realize.

"If you know someone with asthma then you know someone with apnea because statistically apnea is more prevalent in society."

Rosekind said trucking is the only industry where there's some data about prevalence amongst operators, thanks to a lab study at the University of Pennsylvania in 2006 that the trucking industry supported. The study found that about 28 percent of drivers had sleep apnea.

"We have no studies in aviation, but pilots should be on the lookout for it," Rosekind cautioned. "As far as the FAA goes, if you have a condition and you can treat it, you can fly. Sleep apnea is treatable, so it shouldn't ground anyone once you're being treated for it."

He pointed out that there are two kinds of associated risk: personal health and safety. "Personal health risks are well documented, though the jury is still out on the subject of organ failure. Loss of memory, decreased capacity to learn and decreased attention may never be fully recovered after treatment; there may be permanent damage," he said.

The other risk factor is public safety. "People with apnea have a six times greater risk factor for car accidents, and some studies conclude that the risk could be as much as nine times greater. People with mild to moderate apnea can show performance degradation equivalent to .06 to .08 blood alcohol level, which is legally intoxicated in most states. The implication for pilots is significant."

Rosekind said changing time zones and alcohol consumption exacerbate the problem because they inhibit a person's ability to wake up. He said, "Normally, when a person stops breathing his brain wakes him up in about 10 seconds and he gasps for air. Multiple time zone changes and alcohol consumption both inhibit your arousal mechanism and may result in oxygen deprivation for 30 seconds or longer before arousal occurs. When you add up the oxygen starvation resulting from many occurrences per night, the effect can be significant."

According to Dr. Barbara Phillips, chair of the National Sleep Foundation, the consequences of sleep loss are substantial. "Historic tragedies have been linked to fatigue-related human error, among them the Exxon Valdez oil spill and the NASA Challenger shuttle explosion.

"Although we naturally think of sleep as a time of rest and recovery from the stresses of everyday life, research is revealing that sleep is a dynamic activity, during which many processes vital to health and well-being take place. New evidence shows that sleep is essential to helping maintain mood, memory and cognitive performance. It also plays a pivotal role in the normal function of the endocrine and immune systems. In fact, studies show a growing link between sleep duration and a variety of serious health problems, including diabetes, hypertension and depression," she said.

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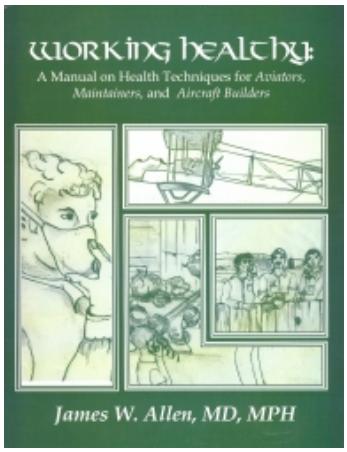
Extensive literature on the subject of sleep apnea also stresses the relationship between the quantity and quality of one's sleep and many health problems. For example, insufficient sleep affects growth hormone secretion that is linked to obesity; as the amount of hormone secretion decreases, the chance for weight gain increases.

Research has also shown that insufficient sleep impairs the body's ability to use insulin, which can lead to the onset of diabetes. An increasing number of studies show a correlation between insufficient sleep and disease.

Dr. James Allen, an environmental health physician from Wilmington, Del., and author of Working Healthy, says there is clearly a relationship between obstructive sleep apnea and reduced vigilance.

"While apnea is certainly a problem for pilots, technicians don't get a pass. Inspecting an aircraft requires vigilance and concentration. When looking for fatigue cracks, chafing on wires and telltale stains they will be obvious only to those who are watchful and alert. Sleep deprivation results in drowsiness, which reduces vigilance."

Working Healthy



by James Allen, MD, MPH

ISBN: 9781892451569

Published Date: 2006

Pages: 248

1st Mechanic: I'd like to work on Doc Allen's airplane, but my hands get numb when I use tools.
2nd Mechanic: If I'm around any more paint or vapor, my next asthma attack will kill me.
3rd Mechanic: Did you say something?

This is a "no excuses" book that belongs with every A&P student, mechanic, technician, and aircraft builder. Or at the very least, it belongs with every repair station library, and with every training and repair station manager.

Working Healthy is a manual on health and safety techniques written by an aviation medical examiner specifically for the aviation technician.

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Learn how to protect yourself from the many risks and long term health issues common in an aviation facility. Learn to advise and protect your most valuable assets (your employees and students), and in doing so reduce absenteeism, job delays, and your company's Workman's Compensation premiums. Just one prevented minor injury will pay for this book 100 times over.

Dozens of common health risks including lifting, toxic metals and chemicals, ear and eye protection, heat and cold exposure, tool handling, to the ergonomics of a simple oil change are covered in depth but written and illustrated to be clearly understandable without medical experience.

Learn how to properly fit an ear plug and a respirator. Learn how to select tools that match your hand and the job. Learn about skin protection and how to avoid toxic fumes from the dozens of sources around every aviation facility. Learn about biological issues including around lavatories and bird droppings. Learn how to recognize if a liquid or solid substance will make you sick. Learn to protect yourself from repetitive motion injuries.

Each of these issues and many others are discussed, including their causes, recognition of danger signs, recommended methods of performing the job, methods of prevention and what to do if a situation or symptoms occur

HURRICANE PREPAREDNESS

Lessons from a Survivor of Hurricane Katrina

Are you prepared for this?

A few months ago, Cailey Bennett wrote an article on how to prepare for a hurricane. Although the article was good, there are some other issues it didn't address. As a survivor of Hurricane Katrina, I know firsthand that there are other things that you must be aware of and prepared for.

Here are six points to consider:

1. Phone Service

Keep in mind that phone service and cell phone service may not be working. It is a good idea to know the emergency numbers but be aware that they may not work.

2. The Structure

Being in a low part or ground floor of your home or building during the storm is great; however I lost friends because the water level rose past 25 feet which drove people to the upper floors and into the attic then the unthinkable happened... They died because they were trapped. Some by drowning, some by the collapse while trying to get out, and others when the entire structure was destroyed because of the wind, tornados and/or flooding. You need to have contingency plans for the worse case scenario.

3. Supplies

It has been recommended that you have 3-5 days of supplies on hand, but do not believe it. Ensure that you have up to 14 days of supplies. It took 11 days for many of us in Katrina to get help. The only person you can depend on after a Katrina event is yourself. Also note that after a Katrina event you will not have power and that means little or no air conditioning, it will be very hot so make sure you have plenty of water (lots of it).

4. Toilets

After a Katrina-type event during the first 1-2 days it is OK to use a bucket of water to flush the toilets; however when you get to day 3, you may be faced with the realization that you will not be able to flush the toilet with the bucket of water. This is due to the lift stations (which rely on electricity) to become backed up. This means it will back up into your home. You will need to make plans to use a facility (like an outhouse or makeshift toilet) outside your home.

5. Insurance

Even if you're not in a flood zone, get flood insurance and make sure that you also have wind insurance. This is critical and surprisingly not that expensive. Many homeowners and renters could have been better covered for their losses with it. Yes, renters can get this type of coverage too.

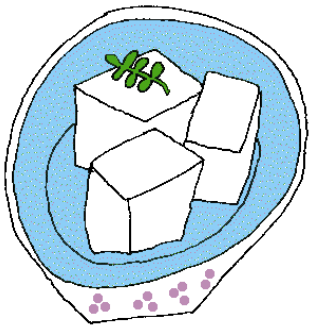
6. Returning or Moving About After the Storm

The one thing not listed in the article is the very high potential for puncture wounds from nails, splinters, and other sharp objects. Watch where you are walking and wear good shoes.

Conclusion

There are many more things to consider. If you're new to an area that is prone to hurricanes do all that you can to ensure that you are prepared and aware of some of the hidden dangers.

Soy and Sperm



Male vegetarians beware: Eating tofu and other soy-based foods can lower your sperm count. In a study of 99 men, reachers found that eating soy cut a man's sperm count in half, from the usual 80 million sperm cells per milliliter to just 40 million (still within normal range).

It's possible that such a change could reduce a man's ability to conceive a child, scientists tell MSNBC.com "It suggest soy food could have some deleterious effect on the reproductive system and especially on sperm production," says Dr. Jorge Chavarro, leader of the study. Men don't even have to eat very much soy to see a difference in their sperm count: Researchers noted the effect when men ate only half a serving of soy per day, the equivalent of a coup of miso soup or a single serving of tofu. Scientists believe that this happens because soy's isoflavones mimic the female hormone estrogen in the body.

Fact Check

From 1975 through 2006, an estimated 226,567 lives were saved because passenger vehicle occupants wore seat belts.

Source: National Safety Council, "Injury Facts," 2008

BRAIN GAMES »

BRAIN TRAINING: http://brainist.com/brain_training/index.htm

Did You Take Your Vitamins?

VITAMIN A - Keeps your skin and your eyes healthy; helps you heal your body, aids in your taste, appetite and growth. Vitamin A is in eggs, milk, and green and yellow vegetables. But, be careful, too much vitamin A is not good for you. Stick to the recommended daily allowance.

VITAMIN B1 (THIAMINE) - It helps your body break down carbohydrates and keeps your nervous system humming along nicely. Plus it helps repair alcohol damaged nerve tissue. Milk, liver, peanuts, yeast, rice, and pork are all good sources of B1.

VITAMIN B2 - Important for you growth, skin, nails, hair, sensitive lips and tongue, eyesight, and the breakdown of protein, fat and carbohydrate. Get your B2 from green vegetables, cheese, fish, liver and other organ meats, and milk.

VITAMIN B3 (NIACIN - Helps you metabolize carbohydrates and also oxidizes sugars. Open up for peanuts, lean meats, fish and bran.

VITAMIN B6 - Good for preventing skin conditions, nerve problems, helps the body absorb protein and carbohydrate. Without enough B6 you can become sore, irritable and weak. To get some B6, chow down on whole-grain cereals, bananas, chicken, pork, fish, dried beans, and liver.

VITAMIN B12- It helps you make red blood cells and is important in digestion, the absorption of nutrients and in nerve health. Eggs, milk, cheese, and liver contain B12. Vitamin B12 is not available in vegetables.

VITAMIN C - Keeps your connective tissue, cartilage, and bones healthy; keeps your metabolism chugging along. It's also vital to your immune defense system, and it's a protection from viruses and bacteria, along with healing wounds, reducing cholesterol, cell lifespan, preventing scurvy. Plus, it's a natural laxative. Stock up on citrus fruits, kiwi fruit, berries, tomatoes, cauliflower, potatoes, green leafy vegetables and peppers.

VITAMIN D - Helps with calcium and phosphorus absorption in your body (these two compounds being essential for bones and teeth). How to get some: Sunlight (the action of sunlight on the skin allows our bodies to manufacture vitamin D), cod-liver oil, sardines, herring, salmon, tuna, milk and milk products.

VITAMIN E - Aids in fighting toxins and is believed to help your body deal with free radicals, which may fool around with cellular structure. Nuts, soybeans, vegetable oil, broccoli, sprouts, spinach, wholemeal products, and eggs are all sources of this vital vitamin.

VITAMIN K - -Helps your blood clot. Leafy green vegetables are a good source along with various oils such as soybean and olive.

PICTURE THIS!

Never Underestimate Obliviousness

Here's the story. Subcontractors on site had just finished a water main tap, completed the tests and inspections, back filled and poured the concrete. A worker was directing traffic as they were getting ready to set the plates over the recently poured concrete.

Their checklist might have looked like this:

- Traffic signs in place—Check.
- Cones in place—Check.
- Worker directing traffic—Check.
- Police officer with cruiser—Check.
- Oblivious driver—Check, exclamation point.

This driver drove past the worker directing traffic, through the cones, and then came to what could have been an extremely permanent halt. Workers brought an excavator into the road, hooked it up with a chain and slowly pulled her out.