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NTSB: Braking delay, 'poor' decisions doomed jet to overshoot Midway runway

Josh Woods was killed in the automobile while an adult received serious injuries and three others received minor injuries. Eighteen of the 103 persons on board the airplane received minor injuries, and the airplane itself was substantially damaged.

A 14-second delay in deploying the maximum braking capabilities of a Southwest Airlines jet doomed the aircraft to overshoot its landing and crash through a blast fence at Midway Airport two years ago, killing a 6-year-old boy, federal safety investigators concluded today.

But the pilots of the Boeing 737 made a poor decision to land at Midway in violation of a Southwest policy that required them to use the worst-case scenario when calculating runway stopping distances in poor weather conditions, the National Transportation Safety Board found.

The pilots told investigators they weren't aware of the policy.

Even so, NTSB member Steven Chealander said: "Ignorance of the law is not an excuse for breaking the law. The decision to land was what allowed that chain of events to occur."

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The NTSB, in its final report on the deadly 2005 crash, determined that Southwest Airlines Flight 1248 would have been able to come to a complete stop on the runway if pilots had applied maximum reverse thrust immediately after the plane touched down.

Instead, there was a 14-second delay, and the maximum setting wasn't used.

The NTSB said the pilot was distracted because he was using the plane's automatic brakes for the first time, in keeping with a new policy at Southwest.

Yet, even if the thrust reversers had been used properly, the crew still made a "bad decision" to land on a snowy, slick runway at Midway with a moderate tailwind behind the plane, Chealander said.

After receiving mixed reports from other pilots on runway conditions, the pilots calculated their landing distance based on braking action being fair, not poor. Had they chosen the worst-case scenario, they would have expected to have only 40 feet of runway left after stopping, instead of 560.

"Forty feet in those conditions assumes perfection in implementation. That, to me, slices the salami a little too thinly," said NTSB Chairman Mark Rosenker. "These people should have made a different decision."

Southwest policy requires pilots to calculate stopping distance based on the worst reported conditions. The crew also would have been required to divert to another airport if tailwinds exceeded 5 knots, which was the case with the 8-knot tailwinds on Dec. 8, 2005.

But the accident flight crew wasn't aware of that rule, the NTSB said. Neither were the pilots of three other Southwest planes that landed at Midway before the crash.

NTSB human performance expert Katherine Lemos blamed poor training at Southwest, which has since revamped its training and cockpit manuals to make its guidelines clearer.

Another mistake was that the crew figured incorrectly that the braking assistance provided by the plane's thrust reversers had not been factored into the onboard computer's estimates of how much runway the plane needed to stop.

The crew's confusion on this point was attributed to conflicting information in the flight manual and differences between Boeing 737 models.

NTSB member Kitty Higgins said the pilots "were concerned about safely landing and getting people there safely. But there was a lot working against them."

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Vane Failure Precipitates Power Loss

The airplane was on initial climb from Globe, Arizona, for a cargo flight the morning of July 22, 2005, when the pilot heard a loud "thunk" and noticed a total loss of power. He began to turn back toward the airport but realized that he would not be able to reach the runway.

"The pilot initially set up to land on a highway but believed there was too much traffic and he would hit something," the NTSB report said. He then focused on landing in a field adjacent to the highway." The Caravan touched down on the edge of the highway, rolled down an incline and came to a stop in the field.

Examination of the P&W Canada PT6A-114A engine revealed a fatigue failure of the outer rim of the compressor turbine stator vane. A fragment of the rim separated and damaged the downstream turbine blades. The engine had accumulated 4,461 hours of operation. The operator had received approval to extend the engine-over-haul period from 3,600 to 5,100 hours.

The report said the operator had failed to conduct borescope inspections of the compressor turbine vane during fuel nozzle checks, as recommended by the maintenance manual and by Service Information Letter PT6A-116, issued in January 2003.

95% air crashes caused by human error

Ninety-five percent of air accidents caused in Nepal are due to human error, said aviation experts at a workshop on 'Aviation Safety in Nepal' by the Society of Ex-Budhanilkantha Students (SEBS) to mark the first anniversary of helicopter crash in Ghunsa.

Speaking at the program, Pratap Bahadur Tiwari, manager of Civil Aviation Authority in Nepal (CAAN), said public awareness was the most important factor for aviation safety as data shows that only five percent accidents are caused due to technical reasons.

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Tiwari, however, said the pilots only were not to be blamed as he has pressure from the management and the passengers. For that, supply-side intervention and the demanding services should be safety-oriented.

"Regulating authority has to monitor the age of the craft and its maintenance for safety," said Kanank Dixit from Himal Media. He added that factors like unexpected weather, heavy load, faulty maintenance and management pressure caused the accident so it has to be improved for the safety.

Dipendra Purush Dhakal, former secretary, Ministry of Culture, Tourism and Civil Aviation, said most official document shows human error putting the onus on the dead pilot and do not focus on mechanical errors due to management problem which could drag manufacturer, maintenance employee as well as politician into the fray.

Dhakal said that the policy of liberal sky policy has to be changed as open sky policy and modern equipment has to be installed for the safety. The government authority has to take stand on the maintenance of aircraft and take action to those, who do not act as per the policy.

Investigative journalist Toya Dahal presented a preliminary report on the Ghunsa helicopter crash. The report cites human error like mental pressure on pilot since it was carrying VIPs on board and pilot who have little knowledge of the weather pattern of the area as responsible for the crash.

Dahal said there were 40 air crashes in Nepal after 1990 and the first air crash in Nepal was on March 31, 1975.

Close Calls - A Forgotten Message

How easy we find it to push aside or to forget a close call incident. This is because of our ability to rationalize that nothing serious happened. But if we took the time and closely investigated each close call, we would find a message telling us there's much more to it.

For example, a young mother notices her toddler carrying a small object. When she stops the child to see what the object is, she finds it to be a bottle of prescription medicine. She quickly takes the bottle away and corrects the child on the potential dangers. She says to herself, "That sure was a close one," and then goes on with her day.

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The mother failed to see the message. The problem wasn't only the wrong-doing by the child and the potential harm that could have occurred.

The fact that the child was able to obtain the bottle in the first place which means the storage area may be in a location easily reached by the child must be considered.

Here's another example: An employee is working on a piece of moving equipment when he spots a flying object coming his way. He quickly moves out of its path. When the object comes to rest on the floor nearby, he notices it to be a piece of a drive belt from the main drive motor.

He checks the drive area and sees that one of the belts has become damaged and calls maintenance to replace it. They quickly do so and once again things are running.

The incident is quickly forgotten and, again, the message not received. If the employee took the time to investigate further, he would have questioned why the belt became damaged and why the belt wasn't guarded to prevent such an occurrence. Because there was no injury, it was quickly forgotten.

The point here is that all close calls are sending messages of potential danger and injury. All close calls need to be thoroughly investigated to understand what happened, why it happened and what needs to be done to prevent reoccurrence.

We should never just push aside a close call, no matter how minor. We should never just say, "Wow, that was close", and then quickly forget it.

We're too valuable and too important to take things so lightly when it comes to our health and well-being.

Close calls serve as warnings that something is wrong. They should always be reported and taken seriously.

Former BP plant boss acknowledges safety worries before blast

The manager at BP's Texas City refinery at the time of a deadly 2005 explosion testified last month that he was concerned enough about safety before the disaster to launch his own investigation of previous worker deaths, but did not believe there

was a need to shut down operations.

"There was no indication prior to the incident that required shutdown of the facility," Don Parus, 55, said from the witness stand in a Galveston district court.

He said he included money for upgrades in his 2005 budget, but that the company reduced his budget.

Four former workers at the refinery are suing BP for injuries and emotional distress they say they suffered as a result of the March 23, 2005, explosion that killed 15 workers and injured scores more.

The trial now before state District Judge Susan Criss is the first to emerge from the blast. BP has settled at least 1,350 of about 3,000 explosion-related lawsuits, but the company's lawyers told jurors that they didn't settle the cases on trial now because of weaknesses in the plaintiffs' claims.

The plaintiffs' lawyer, Brent Coon, who has taken the lead in organizing the vast litigation, countered that BP put profits over safety by cutting budgets, training and personnel in the years before the blast.

Parus has been on paid administrative leave from BP since the blast. His testimony during the second day of the trial marks the first time he has spoken at length in public about the incident and his role.

An internal BP investigation of the explosion completed in February recommended that Parus and three other senior executives be fired, but he remains on the payroll.

Three deaths in 2004, including two men who died from hot water burns in September that year, prompted Parus, then new to overseeing the refinery, to investigate on his own how many people had died at the facility in the previous 30 years.

He was surprised both to find 22 deaths in 30 years and that the body count wasn't widely known.

"It was shocking that all employees didn't know, not just management," said Parus, who became emotional when he spoke of visiting one of the burned men in the hospital before he died.

Parus then commissioned a workplace safety consultant, Telos Group, to study in more depth the safety culture at the refinery. A survey of 1,100 found many workers believed each day at work could be their last.

"We have never seen a site where the notion of 'I could die today' was so real for so many hourly people," the report said.

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Parus shared the results with supervisors in Chicago, where BP's U.S. operations are based, and at company headquarters in London, he said.

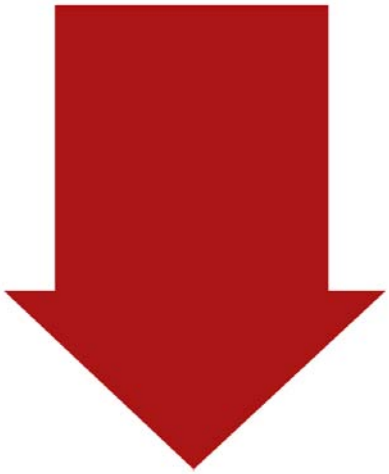
He also included money for upgrades in his 2005 spending request, but his budget was reduced, he testified.

Testimony began Wednesday with two witnesses' descriptions of the gruesome scene after the 2005 blast.

The explosion occurred after a piece of equipment overfilled with flammable liquid hydrocarbons. Alarms and gauges designed to warn of the problem failed, and vented vapor ignited during startup of a unit that boosts octane in gasoline.

Fatal Crashes of Airplanes Decline 65%

After two infamous crashes in 1996 that together killed 375 people, a White House commission told the airline industry and its regulators to reduce the domestic rate of fatal accidents 80 percent over 10 years. That clock ended Sunday.



They have come close to reaching that goal. Barring a crash before midnight Sunday, the drop in the accident rate will be about 65 percent, to one fatal accident in about 4.5 million departures, from one in nearly 2 million in 1997.

There have been no fatal airliner crashes involving scheduled flights this year in the United States and just one fatal accident: a mechanic who was trying to close the cabin door of a chartered Boeing 737 on the ground in Tunica, Miss., fell to the pavement during a rainstorm.

Around the world, airliners continue to crash. There have been 7 crashes this year that killed more than 20 people each.

Even so, there has been strong progress internationally. William R. Voss, president of the Flight Safety Foundation, recently calculated that if the 1996 accident rate had remained the same in 2006, there would have been 30 major accidents last year. Instead, there were 11.

“This is the golden age of safety, the safest period, in the safest mode, in the history of the world,” said Marion C. Blakey, the administrator of the Federal Aviation Administration, in a speech to an aviation group in Washington on Sept. 11, two days before her five-year term ended.

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Some of the improvement may be luck, as there is an element of randomness to crashes. But part of the explanation certainly lies in the payoff from sustained efforts by American and many foreign airlines to identify and eliminate small problems that are common precursors to accidents.

Airlines around the world, even in less-developed nations, have also benefited from equipment improvements, like cockpit instruments that help planes steer clear of mountains when visibility is poor, and jet engines that are so reliable that pilots can go through their entire careers without seeing one fail.

Aviation safety experts have uncovered subtle problems. One oft-cited example is a discovery in the last decade by US Airways (then US Air) that many of its planes approaching Charlotte Douglas International Airport in North Carolina were coming in "high and hot," too fast and at a steep angle.

As a result, airplanes were conducting "unstabilized approaches," meaning pilots had to fiddle with flaps, throttle and other controls just before landing.

The US Airways discovery at Charlotte was something new because the airline did not demonstrate it after a crash or from pilot reports.

The airline instead tapped into the system that feeds information to one of the "black boxes," the flight data recorder, and siphoned off a stream of data that went to a removable recording device. Then it analyzed flights by the hundreds and looked for unusual patterns, a technique now common with airlines.

Convinced, the F.A.A. changed the approach procedure there, and the airport installed a system to guide planes at a proper angle.

Nearly all unstabilized approaches end with a safe landing, but a study by Mr. Voss's organization found that such approaches were a factor in two-thirds of 76 accidents and serious incidents worldwide during landing attempts from 1984 to 1997. So one focus of the last 10 years has been to look for air traffic procedures that could cause problems.

The Air Line Pilots Association cited another problem that is now being resolved. The airlines pooled their data — an action that was itself an innovation — on operations at Reno, Nev., and found that the cockpit system that warns of imminent flight into a mountain often sounded a false alarm.

Aviation experts say that if safety alarms sound falsely too often, they become like the homeowner's smoke alarm that is set off by an egg frying in the kitchen — people start ignoring it. As at Charlotte with the "high and hot" approaches, this was a known glitch in the system that had not caused any crashes, but that might someday contribute to one.

The solution in Reno, which is still being developed, is better guidance for pilots to follow flight paths precisely and stay farther away from mountains in the area.

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In other places, improvements have been as simple as better signs on taxiways to prevent planes from moving into the path of other aircraft.

"It's not one thing. It's a series of small things," said John Cox, who was an Air Line Pilots Association safety representative for 20 years.
Many of those small things were minor problems observed in everyday operations, he said, then counted, scrutinized and eliminated before they caused an accident.

Newer planes are also safer. All American airliners, for example, now have "enhanced ground proximity warning systems." These systems use the Global Positioning System to compare the plane's position against a database of mountains and buildings, and warn of impending collision.

Analyzing data from safe flights is a reversal of the historic practice, which is to go out and "kick the tin" after a plane crash, looking for clues. Analyzing safe flights is almost all that is left, experts say, as the accident rate falls and there is less tin to kick.

"The sample is so small, you won't have effective data sampling," said Hank Krakowski, a United Airlines executive who served as co-chairman of the Commercial Aviation Safety Team. That team is an outgrowth of the White House commission, and it comprises airlines, aircraft builders and pilot unions. (In October, Mr. Krakowski is to become the F.A.A.'s chief operating officer.)

Some unions have complained about trends like maintenance outsourcing, in which an airline pays another airline or an outside shop to do crucial safety work, and some government auditors have echoed the concern.

But there have been no fatal crashes in which maintenance error was a cause since January 2003, when a US Airways Express flight, a Beechcraft 1900, went out of control on takeoff because of an improperly rigged tail.
Statistically, the era of outsourcing appears to be safer than when airlines did most of the work themselves, although that does not suggest a cause-and-effect relationship.

The decade-long push to reduce the accident rate began with a "safety summit" in 1996, after the T.W.A. Flight 800 disaster off Long Island and the ValuJet crash in the Everglades of Florida. The summit was convened by the secretary of transportation at the time, Federico F. Pena, who declared a goal of zero accidents.

In 1997, a national commission on aviation safety and security, led by Vice President Al Gore and known as the Gore Commission, concluded that a more realistic goal would be to cut the rate of fatal accidents by 80 percent.
Because crashes are sporadic, the goal was stated as the average of the most recent three years.

Despite the safety improvements since then, not all the trends are positive.

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Airports have lately recorded a disturbing number of what they call "proximity events," in which a plane lands on a runway already occupied by another because someone made a wrong turn or a controller made an error.

On July 11, for example, a United plane in Fort Lauderdale, Fla., took a wrong turn onto a runway where a Delta Air Lines plane was supposed to land; the two came within 100 feet, according to the F.A.A.

"Probably the biggest threat of all, today, many, many people agree, is not so much a midair collision as a runway incursion incident," said Richard Healing, an aviation safety expert and former member of the National Transportation Safety Board.

The F.A.A. has a radar system at many airports to warn tower controllers of conflicts on the airport surface, but the system can be confused by puddles on the pavement, which the radar sometimes misinterprets as airplanes. And it warns only the controllers, not the pilots directly.

The F.A.A. is improving the ability to track airplanes on the ground by gradually installing a system that uses a combination of radar and other means, including one that uses multiple antennas to listen for radio beacons on the plane and, by triangulation, calculate its position.

But the safety board argues that even if the new system works as designed, it is still inadequate because several seconds will elapse from the time the system sounds an alarm to when the controller sees it and issues instructions to pilots.

The F.A.A. is experimenting at Dallas-Fort Worth with "runway status lights," embedded in the pavement, that flash at pilots when a runway is occupied.

As the number of flights increases, the rate of crashes has to decline or the absolute number of crashes will rise. And as airports get busier, the risk of a crash on the ground increases.

Adding to the problem is that airliners are getting smaller, and a new class of "very light jets," seating four to eight people, is entering service.
Some of those may be flown by a single pilot who is not a professional, but they will fly at the same altitudes as airliners.

The F.A.A. is facing challenges as it handles ever more traffic. It wants a new air traffic system that can squeeze planes closer together. It wants more reliance on user fees instead of taxes on passenger tickets, cargo and fuel.

But Congress has not agreed. It has approved only a temporary extension of current taxes. And although the F.A.A. administrator's five-year term has expired, the White House has not named a candidate it will try to get through the Democratic Senate.

The aviation system continues to evolve, with new runways, new terminals and new towers.

In mid-September, the F.A.A. opened a new tower at Washington Dulles International Airport. It will handle 25 million to 26 million passengers this year, but the airport's managers estimate that traffic will double by 2025. The number of runways will go to five from three, and midfield concourses will double to four.

The new tower replaces the signature Eero Saarinen model of the early '60s, which is perched next to the sweeping roof line of the terminal. It can house up to a dozen working controllers comfortably; the old one was a squeeze for nine.

At 25 stories tall, it lets controllers see even small jets between the terminals. The older, shorter tower required them to strain to see some planes taxiing between terminals.

"With the regional jets, we'd see the top of the tail through the air-conditioners," said David Bridson, a controller.

Don Bateman's Big Heads-Up

In December 1995, an American Airlines jet slammed into a mountain while descending in clear conditions near Cali, Colombia.

The crash claimed 159 lives. The year before, a Learjet 25D operated by Mexican carrier Taesa hit trees while approaching Dulles International near Washington, D.C. It cost 12 lives.

Between 1985 and 1995, 134 crashes involving perfectly functioning planes flying into terrain killed thousands of people.

These would be the last of what the airlines call controlled-flight-into-terrain accidents.

Donald Bateman, chief of technology at Honeywell International was about to release its improved version of the Ground Proximity Warning System, or GPWS, which he invented in the early 1970s.

His new Enhanced Ground Proximity Warning System, or EGPWS, would eliminate pilot error and make the aviation industry safer than ever. The system was launched in 1996. Since then, not one such accident has taken place. Numerous lives have been saved.

Such was Bateman's lifelong goal, and he has come through.

Bateman, a Canadian-born engineer, invented the Ground Proximity Warning System and developed the Enhanced Ground Proximity Warning System, used in 99% of worldwide aircraft.

"Don Bateman has done more for aviation safety than anyone I can think of," Bob Vandel, executive vice president of the international Flight Safety Foundation, told IBD. "And I don't know anybody who would argue with me on that."

Here's why: With Bateman's GPWS and EGPWS up and running, pilots almost never steer planes into terrain, obstacles and water. The systems make sure aviators see and hear clearly.

Device Could Help Prevent Collisions

An Arizona helicopter pilot and a technology company are taking steps they hope will prevent accidents like the mid-air collision in Phoenix, Ariz. last month where four people were killed. The system's aim is to provide communications to pilots who are hooked into the system and are within one mile of each other. The device would be wireless-based and work off a NAVSTAR global positioning system. If the aircraft are within 300 ft of one another, an alarm would sound. Chris Morrison, president of Scottsdale-based Nuvo Technologies and Ralph Gannarelli, an aircraft mechanic and former television news helicopter pilot, filed a patent for the device last week. The device, to which a name has not yet been assigned, could cost $50,000 per helicopter and would have to be approved by the FAA.

Next-Gen Glass Cockpit from Rockwell Collins

In case you haven't noticed, the glass cockpit concept is now into its third decade and although progress has been steady, it's also been slow. The basic displays haven't changed much and the human interface—the buttonology—is long overdue for an overhaul. And that's exactly what Rockwell Collins is doing with its latest EFIS product, which it's calling Pro Line Fusion, a clean sheet design that's the next generation from the industry standard Pro Line 21.

Click for a Larger Image

Says Denny Helgeson, Rockwell Collin's VP for business and regional aviation systems, Fusion's architecture will concentrate on flexibility to easily integrate with external sensors and products of all kinds. Rather than the usual soft keys and knobs, it will have a graphic user interface more in tune with desktop computing logic than traditional avionics. Voice recognition and context sensitive logic are also planned as prominent features. The system will display on high-resolution LCDs and will integrate both GPS-derived synthetic and real-time enhanced vision capability, a first for the industry. The system will also have heads-up display capability.

If all that sounds neat, it is. But don't expect it next year. Or even the year after. Bombardier's Global Express XRS/5000 series is the launch customer and Fusion isn't expected to enter service on those airplanes until 2011, although elements of it may appear sooner than that. Meanwhile, Helgeson says the company's popular Pro Line 21 will continue as a discrete product and will likely integrate some features developed for Fusion.

Pogo to Launch With Eclipse 500 Fleet

As the first air-charter companies flying very light jets line up along the starting gate, POGO, led by former American Airlines CEO Robert Crandall, has been closely watched. At first the company said it would fly Adam 700 jets, then revised that, saying none of the new VLJs nearing certification quite fit its needs. Back in May, Pogo President Cameron Burr confirmed that Eclipse 500 jets would make up its fleet. Recently, the company filed papers for an Initial Public Offering that said operations will begin in early 2009 with a fleet of 25 Eclipse jets, which will grow to 100 by 2011.

The company Web site says it will offer charter services at about $2,000 per hour block time, along with jet-card and lease-back options. All trips will be flown with a two-pilot crew. The jets initially will be based in Western Massachusetts and offer service within a 600-mile radius of New York City, a region that includes over 700 GA airports. Linear Air, based at Bedford Field just outside of Boston, has already taken delivery of its first Eclipse jet, though service hasn't yet started. Linear Air says a 300-mile day trip for four passengers in the jet, flying 345 mph, will cost $3,590. DayJet, in Florida, also has taken delivery of three Eclipse jets, and has said operations should start soon.

Zeroshift tool tracker increases aerospace maintenance efficiency

Anyone with a tool shed will be familiar with the scenario - your beautifully erected shadow-board is all but empty because tools are strewn all over bench-tops or have long since disappeared into the ether. In industry this can be much more than just a minor frustration - particularly in safety intensive fields like aerospace where missing tools lead to serious productivity, procedural and safety headaches.

A new solution from Zeroshift that automatically records who removes and returns tools from the cabinet seeks to redress this issue in a less intrusive manner than via the use of barcodes or RF tags. The Intelligent Tool Control System (ITC) has been developed by Zeroshift specifically to solve many of the tool management problems faced by aerospace manufacturing companies.

The Intelligent Tool Control System (ITC) is supplied as an exceptionally strong tool cabinet available in a range of standard sizes. Tools are fitted into a precision cut, solvent resistant polyethylene foam available in a choice of colors. The electronic control system is a modular design to simplify maintenance and minimize downtime.

To access a tool, users must first enter their PIN via either a swipecard or a keypad. The system will compare the PIN with its internal or network database and allow (or disallow) access to the tool drawers. An optical sensor mounted under the tool cavity notifies the control system when a tool is removed or replaced. Tools can be made of any material including wood and plastic and even very small items such as precision sockets can be accommodated. Cabinets can operate as individual units or can be networked to provide an integrated tool monitoring system managed by remote PC. Management software allows tool usage to be tracked by user and by time and for missing tools to be quickly identified along with the last user.

By keeping track of tools the Zeroshift ITC will help to eliminate Foreign Object Debris (FOD - items that shouldn't be in aircraft during flight), increase the availability of tools and provide useful productivity information. "The US Federal Aviation Administration (FAA) has estimated the cost of FOD at more than $60 million per year," explains Zeroshift's ITC manager Paul MacGregor.

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At high speeds and g-forces, anything left in an aeroplane can be extremely harmful to pilots and other occupants. It can also damage engines, jam control systems and impact other equipment, interfering with safe flight. "Tools are the second biggest contributor to engineering-related FOD, after fasteners," says MacGregor. "The FAA suggests depanelling, non-destructive inspection and even x-rays to locate missing items. A single missing tool can cost hundreds of thousands of dollars to find and lead to significant delays."

Lack of sleep may be deadly, research shows

People who do not get enough sleep are more than twice as likely to die of heart disease, according to a large British study released on Monday. Although the reasons are unclear, researchers said lack of sleep appeared to be linked to increased blood pressure, which is known to raise the risk of heart attacks and stroke.

A 17-year analysis of 10,000 government workers showed those who cut their sleeping from seven hours a night to five or less faced a 1.7-fold increased risk in mortality from all causes and more than double the risk of cardiovascular death. The findings highlight a danger in busy modern lifestyles, Francesco Cappuccio, professor of cardiovascular medicine at the University of Warwick's medical school, told the annual conference of the British Sleep Society in Cambridge.

"A third of the population of the UK and over 40 percent in the U.S. regularly sleep less than five hours a night, so it is not a trivial problem," he said in a telephone interview. "The current pressures in society to cut out sleep, in order to squeeze in more, may not be a good idea -- particularly if you go below five hours."

Previous research has highlighted the potential health risks of shift work and disrupted sleep. But the study by Cappuccio and colleagues, which was supported by British government and U.S. funding, is the first to link duration of sleep and mortality rates.

The study looked at sleep patterns of participants aged 35-55 years at two points in their lives -- 1985-88 and 1992-93 -- and then tracked their mortality rates until 2004.

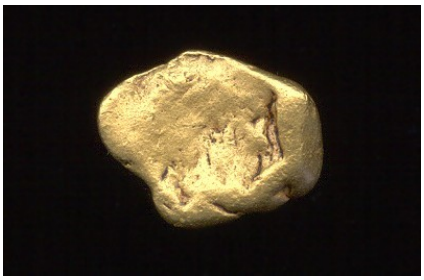
The results were adjusted to take account of other possible risk factors such as initial age, sex, smoking and alcohol consumption, body mass index, blood pressure and cholesterol.

The correlation with cardiovascular risk in those who slept less in the 1990s than in the 1980s was clear but, curiously, there was also a higher mortality rate in people who increased their sleeping to more than nine hours.

In this case, however, there was no cardiovascular link and Cappuccio said it was possible that. longer sleeping could be related to other health problems such as depression or cancer-related fatigue. "In terms of prevention, our findings indicate that consistently sleeping around seven hours per night is optimal for health," he said.

Midnight Shift Nugget

Sleep-Inducing Foods



Certain protein-rich foods contain L-tryptophan, an amino acid. In scientific studies, it has been found to induce sleepiness, decrease the time it takes a person to fall asleep and provide more restful sleep. Milk, cheese, turkey, nuts, and tuna have l-tryptophan. If you plan to sleep after work, it's a good idea to eat a light meal that includes these foods.

Booze a Major Player in Adult Fire Fatalities

More than 50 percent of adults who die in fires in the United States are under the influence of alcohol at the time, according to the US Fire Administration. Drinking greatly hampers one's ability to detect and respond to a fire and safely escape, according to the American Society of Safety Engineers (ASSE).

The society is particularly concerned with helping college and university students prevent fires, and in the event that they occur, get out alive. The main causes of fires in dormitory-related structures are cooking, contained trash or rubbish piles, and intentional fires.

Alcohol intoxication is of particular concern because students may fall asleep with lit cigarettes or sleep through loud fire alarms. It is estimated that 50 to 60 percent of fire deaths are caused by smoke inhalation rather than burns. Smoke inhalation is the leading cause of fire deaths.

ASSE says all residence halls should be equipped with self-closing doors that are never left propped open. Exits must be clearly marked. Heating and ventilation systems should be checked regularly, as should fire extinguishers and fire alarms.

On-and-off campus fires can be avoided by developing a fire escape plan; having and knowing how to use fire extinguishers, escape ladders and fire alarms and detectors; not overloading extension cords, power strips or outlets; cooking safely; avoiding open flames; and correctly discarding smoking materials.

This last bit of advice will probably fall on deaf ears for many students who consider partying a vital part of campus life: Don't get so drunk that you pass out and sleep through a fire alarm.

A healthier, fitter YOU — Simple strength training tips

If you've never lifted weights in your life — and many people haven't — why should you start now? The answer is simple: Muscle tissue, bone density, and strength all dwindle over the years. So, too, does muscle power. These changes open the door to accidents and injuries that can compromise your ability to lead an independent, active life. Strength training is the most effective way to slow and possibly reverse much of this decline.

Having smaller, weaker muscles doesn't just change the way people look or move. Muscle loss affects the body in many ways. Strong muscles pluck oxygen and nutrients from the blood much more efficiently than weak ones. That means any activity requires less cardiac work and puts less strain on your heart. Strong muscles are better at sopping up sugar in the blood and helping the body stay sensitive to insulin (which helps cells remove sugar from the blood). In these ways, strong muscles can help keep blood sugar levels in check, which in turn helps prevent or control type II diabetes and is good for the heart. Strong muscles also enhance weight control.

On the other hand, weak muscles hasten the loss of independence as everyday activities — such as walking, cleaning, shopping, and even dressing — become more difficult. They also make it harder to balance your body properly when moving or even standing still, or to catch yourself if you trip.

The loss of power compounds this. Perhaps it's not so surprising that, by age 65, one in three people reports falls. Because bones also weaken over time, 1 out of every 20 of these falls ends in fracture, usually of the hip, wrist, or leg. The good news is that the risk of these problems can be reduced by an exercise and fitness routine that includes strength training.

Beginner's simple strength boosting exercises

A sturdy chair with armrests and athletic shoes with non-skid soles are all you need for these simple strength building exercises.

Seated bridge

Sit slightly forward in a chair with your hands on the armrests. Your feet should be flat on the floor and slightly apart, and your upper body should be upright (don't lean forward). Using your arms for balance only, slowly raise your buttocks off the chair until nearly standing with your knees bent. Pause. Slowly sit back down. Aim for 8–12 repetitions. Rest and repeat the set.

Triceps dip

Put a chair with armrests up against a wall. Sit in the chair and put your feet together flat on the floor. Lean forward a bit while keeping your shoulders and back straight. Bend your elbows and place your hands on the armrests of the chair, so they are in line with your torso. Pressing downward on your hands, try to lift yourself up a few inches by straightening out your arms. Raise your upper body and thighs, but keep your feet in contact with the floor. Pause. Slowly release until you're sitting back down again. Aim for 8–12 repetitions. Rest and repeat the set.

Standing calf raise

Stand with your feet flat on the floor. Hold onto the back of your chair for balance. Raise yourself up on tiptoe, as high as possible. Hold briefly, then lower yourself. Aim for 8–12 repetitions. Rest and repeat the set.

TOP 10 LIST

Job Satisfaction

One of the things I admire most about safety professionals is how much they care about what they do. Unfortunately, having a passion and belief in a professional cause—in this case, the protection of the workforce—doesn't always equate to satisfaction with a particular job.

Still, a recent survey seems to suggest that there is a positive correlation between professional purpose and job satisfaction. Researchers from the University of Chicago compiled about 20 years worth of data from general social surveys asking about job satisfaction. Here's some of what they found.

Roofers: Nice views, low job satisfaction

The 10 Occupations with the Highest Job Satisfaction

1. **Clergy (3.79 mean score*, 87.2% Very Satisfied)**
2. **Physical Therapists (3.72, 78.1%)**
3. **Firefighters (3.67, 80.1%)**
4. **Education Administrators (3.62, 68.4%)**
5. **Painters, Sculptors, Related (3.62, 67.3%)**
6. **Teachers (3.61, 69.2%)**
7. **Authors (3.61, 74.2%)**
8. **Psychologists (3.59, 66.9%)**
9. **Special Education Teachers (3.59, 70.1%)**
10. **Operating Engineers (3.56, 64.1%)**

The 10 Occupations with the Lowest Job Satisfaction

1. **Roofers (2.84, 25.3%)**
2. **Waiters/Servers (2.85, 27.0%)**
3. **Laborers, Except Construction (2.86, 21.4%)**
4. **Bartenders (2.88, 26.4%)**
5. **Hand Packers & Packagers (2.88, 23.7%)**
6. **Freight, Stock & Material Handlers (2.91, 25.8%)**
7. **Apparel Clothing Salespersons (2.93, 23.9%)**
8. **Cashiers (2.94, 25.0%)**
9. **Food Preparers, Misc. (2.95, 23.6%)**

10. **Expediters (2.97, 37.0%)**

Relevance to Safety

If you're a safety professional, you should take note that many of the occupations on the dissatisfaction list are the front line workers you're charged with protecting. In another set of findings, the following occupations ranked in the bottom 12 in "General Happiness":

- **Garage & Service Station Attendants (Rank: 1)**
- **Roofers (2)**
- **Molding & Casting Machine Operators (3)**
- **Construction Laborers (4)**
- **Construction Trades (5)**
- **Pressing Machine Operators (9)**
- **Kitchen Workers, Food Preparations (11)**
- **Machine Operators, Misc. (12)**

The fact that these men and women don't seem to derive great satisfaction from *their* jobs probably serves to make *your* job that much more difficult.

Where do safety professionals land on the job satisfaction list? Unfortunately, safety professional wasn't one of the listed categories. But industrial engineers were listed number 9 in General Happiness.

*** Mean score runs from 1 for someone who is Very Dissatisfied to 4 for someone who is Very Satisfied.**

Source: Tom W. Smith, *Job Satisfaction in the United States*, NORC/University of Chicago, April 17, 2007,

Picture This!

A common way of preparing for possible sprays or particles in workers' eyes is the eyewash stand. But would you want to use this one? It was mounted near some caustic chemical storage bins in a water purification plant. Your emergency equipment needs to be checked, maintained and yes, cleaned. Otherwise it will be useless come the emergency.