

# Aviation Human Factors Industry News

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

Hello all,

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

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## Wrong parts, poor maintenance caused Nelson plane crash

Wrong parts and poor maintenance caused the [landing gear to jam](#) on a training flight in Nelson, an investigation has found.

The aircraft was substantially damaged during landing in Nelson Aerodrome on May 11, 2011, but neither of the two pilots on board were injured.



### A Transport Accident

Investigation Commission report released today said the Piper PA31-350 Navajo Chieftain had a history of landing gear defects, and some of the earlier problems had been fixed using [incorrect parts and unauthorized repair work](#). The aircraft, owned and operated by air2there, was being flown by a flight examiner and a pilot being assessed for competency.

They were simulating an engine failure during approach to Nelson when the landing gear "unsafe" light was illuminated.

The pilots could see through a mirror the landing gear was only partially retracted. Attempts to fix the jam using an emergency hydraulic hand pump were unsuccessful.

The flight examiner declared a full emergency, and landed the plane by shutting both engines down before touching the nose to the runway.

Neither pilot was injured but the plane received substantial damage to the propellers and underside of the nose cone.

The TAIC investigation found the jam occurred because of incorrect and faulty parts that had been fitted.

"Improper repair and maintenance practices [spanning several maintenance organizations and individual maintenance engineers](#) over several years contributed to a series of defects and incidents involving the nose landing gear assembly on the airplane."

TAIC recommended the Director of Civil Aviation take action to improve the level of compliance in the aviation maintenance sector, and widen the range of maintenance that requires a duplicate check.

### **Key lessons**

The Commission noted the following from this inquiry:

- persons who work on aircraft **must refer to the appropriate technical data** and instructions, including maintenance manuals, to ensure that the correct procedures are followed fully. **Effective supervision requires that** supervisors physically check completed tasks before the tasks are signed off
- a physical check of a part taken off or installed, and comparison with the appropriate reference data, will ensure that the part is correct. Part number errors can arise, and be perpetuated, **if reference is made only to the previous log book entry** (which might be wrong)
- the correct part name and part number must be used in aircraft maintenance documentation to help **avoid installation errors**
- defect rectification is not completed just by repairing or replacing the defective part. The cause of the defect must be established and rectified as well. When maintenance is performed away from the usual base, it is important that the engineer **is informed of any relevant recent or possible recurring defects**
- the **prompt receipt and review** of loose-leaf log book entries by Maintenance Controllers can help with their recognition of possible recurring defects.

- Download complete PDF report

[http://www.taic.org.nz/ReportsandSafetyRecs/AviationReports/tabid/78/ctl/Detail/mid/482/InvNumber/2011-004/Page/0/language/en-US/Default.aspx?SkinSrc=\[G\]skins%2ftaicAviation%2fskin\\_aviation](http://www.taic.org.nz/ReportsandSafetyRecs/AviationReports/tabid/78/ctl/Detail/mid/482/InvNumber/2011-004/Page/0/language/en-US/Default.aspx?SkinSrc=[G]skins%2ftaicAviation%2fskin_aviation)

## Couple Sues Aircraft Maintenance Company After Tail Section Falls Off At 15,000 FT

Joseph Skilken, his wife Karen, their two daughters, ages 9 and 12, along with his parents-in-law departed from Port Columbus International Airport (KCMH) on May 31 at about 9:50 AM for Colorado Springs in their Cessna 441 airplane, N383SS. The family was to celebrate Karen's 50th birthday however, what was to be a celebration turned into a nightmare for the family.

At about 12 PM, Joseph, 63, a multiengine instrument rated pilot, began his descent from 15,000 feet for Colorado Springs Airport (KCOS). Joseph began to experience some light turbulence when all of a sudden a section of the tail fell off the aircraft and it began a violent yawing oscillation.



The oscillation was so severe the fluid from the Cessna's toilet exploded throughout the cabin and the onboard tables came out of their holders and snapped off. Objects were being tossed throughout the cabin. "It was like being in a clothes dryer on the tumble setting," said Joseph. Karen said, "I truly thought we would die."

Joseph contacted ATC and made an emergency landing. The aircraft landed hard, Karen along with the other passengers received minor injuries. As a result of the hard landing the aircraft received damage to the nose wheel, airframe, left propeller, engine damage, damage to the interior components and other damage.

The day before the flight, Joseph had gone to Oxford County Regional Airport to Oxford Aviation to go up in his plane for a flight test after his airplane had been freshly painted. It was not a pleasant experience for Joseph as he had taken his plane in for a new paint job back in early May and the [company had promised him](#) the aircraft would be ready on May 29.

When Joseph walked into the hanger where his aircraft was [it was in pieces "all over the place"](#). Joseph reported at about 5PM the aircraft was put together and he went up for a test flight with one of Oxford Aviation's mechanics. To Joseph everything appeared to be ok. He flew his Cessna 441 back home.



Joseph has now filed a lawsuit alleging Oxford Aviation [failed to properly secure a portion of the tail section to the tail after the aircraft was repainted](#), causing the aircraft to make an emergency landing and sustained damage. In the lawsuit it alleges Oxford Aviation was in breach of contract, breach of warranty, negligence, negligent misrepresentation and fraudulent misrepresentation. If not for Joseph's flying skills the Cessna would have suffered a catastrophic and uncontrolled crash, which likely would have killed or caused extremely serious injuries to every passenger onboard.

## Hunting season leads to deadly September skies

Pilots eager to hunt, yet unfamiliar with their aircraft, make September the most dangerous month to fly in Alaska

Aviation safety experts say September is the deadliest month for flying in Alaska. With more than 30 deaths from 16 separate fatal air crashes already this year, the state is entering its most dangerous month with one of its worst safety records.

Aviation safety specialists said Tuesday that [part-time pilots taking to the air for the first time in months](#) for hunting and fishing trips are one major reason why its dangerous to fly Alaska's September skies. "We don't create new ways to have accidents. Everything that went wrong, or was done wrong, [has probably been done before](#)," said Harry Kieling, the chairman of the Alaskan Aviation Safety Foundation.

He said it comes down to pilots being realistic about themselves, and their own abilities.

"The first time they load up their Super Cub shouldn't be when they go hunting," Kieling said, referring to the popular Piper aircraft that's a common sight in Alaska's skies.

["They need to go out and practice,"](#) he added.



“Often times what happens is people who don't fly all the time... get out to try and do something they're not really prepared to do,” like landing on unfamiliar terrain or flying with heavy loads they haven't flown with before.

Alaska's ever-changing weather is also a key factor that often spells disaster for inexperienced pilots. “If you're not current and proficient, you don't need to be out there in low clouds or low visibility,” Kieling said.

Pilot error causes 80 percent of aircraft accidents, Kieling said, and with modern aircraft safer and better maintained, he stressed that [pilots have to inspect themselves](#) as thoroughly as their plane.

“They've got to do a risk assessment every time they fly,” Kieling said. “They've got to look at the machine, themselves as the pilot, and the environment, and not be afraid to say, no, I'm not going today.”

Tuesday, the U.S. Geological Survey put new tools at pilots' disposal, offering more than 400 new topographical maps of Alaska, the first update to the maps in over 50 years.

The old maps “never met national map accuracy standards,” said Nicholas Mastrodicasa, the project manager for the State of Alaska. Information from the Statewide Digital Mapping Initiative is being used in the new U.S.G.S maps, providing more information to pilots and other cartography aficionados than ever before.

“We found several inaccuracies up to 750 meters in some cases, which is well over 2,000 feet for a ridge line,” Mastrodicasa said, “which is fairly dangerous if you're putting it in an aircraft to fly by.” He added that the new maps, created using satellite imagery, “make it much easier for pilots to recognize terrain as they're flying, to help to keep them from getting lost.”

The maps are one tool for pilots to call on, but Kieling said that pilots can do more to take safety into their own hands. He recommended installing harnesses—above and beyond the FAA's requirements that, for some planes, require only seatbelts—and he said [pilots should wear helmets when flying](#).

Flight instructor Ben Kinney was doing his own safety checks during his pre-flight test of his aircraft at Merrill Field Tuesday. He said that, like most skills, the best way for pilots to improve is through practice.

“Fly your airplane,” he stressed. “Fly it routinely. There is a lot of that here in Alaska, where they use the airplane for the fishing season, for the hunting season, and that's basically it. But routinely fly your airplane, know your airplane, and [know its limitations](#).”

Adding safety gear, using new topo maps, and knowing you're limits: all ways to get pilots out in the country, and hopefully, back home safely.

## **Mystery revealed behind Hercules plane crash**

Poor air traffic control and crew miscalculations have been labelled as two of the key reasons why a Norwegian military plane crashed into Sweden's highest mountain last March, killing all five passengers on board.

The new report by the Swedish Accident Investigation Authority officially cleared up the cause of the accident, in which a

Hercules aircraft smashed into the side of the Kebnekaise mountain in northern Sweden last March. Details of the classified report were published in the Norrbottens-Kuriren newspaper (NK) on Tuesday.

The report claimed that the ground control team and the pilots' lack of knowledge as the key reasons the plane went down, killing all five Norwegian passengers,



"It was these weaknesses and the mistakes of the individuals that can be deemed as the cause behind the accident," the Investigation Authority wrote in the report, according to NK.

At the time of the crash, the Hercules was participating in the Cold Response military training exercise taking place over northern Norway which was scheduled to run from March 12th to March 21st and included 16,000 soldiers from 15 countries.

Two days later, wreckage as well as body parts from the five deceased crew members, were found on the east and west sides of the Kebnekaise Massive at an altitude of more than 1,500 meters.

The report also noted that the crew may have misinterpreted the instrument readings on board the aircraft as it flew near Sweden's highest peak. It added that the pilots were recorded discussing the how high they should be flying, and even discussed the height of the mountain while assessing the dangers of flying low.

A crew member even said "It's the highest mountain in Sweden, right?" just 14 minutes before the crash.

In short, the plane was **flying too low**, and the pilots **had set their terrain warning system** to a level which meant they received no warning they were on course to collide with the mountain.

Staff members at the Investigation Authority refused to comment to the paper about the report.

## **Airplane In 2012 Nepal Fatal Accident Was Overloaded, According To Officials**

### **Nineteen People Fatally Injured When Dornier Airplane Went Down Just After Takeoff**

Nepalese civil aviation officials have released their final report from an accident in Bhaktapur in which a Dornier 228 aircraft went down shortly after takeoff, resulting in the fatal injury of all 19 people on board. According to the report, the aircraft loading sheet showed the takeoff weight to be four and a half pounds under the maximum allowable takeoff weight, **but the weight did not include** the baggage that was placed on board the aircraft. The Nepalese CAA estimates that luggage added 154 to 176 pounds to the weight of the aircraft, according to the online news site [ekantipur.com](http://ekantipur.com).

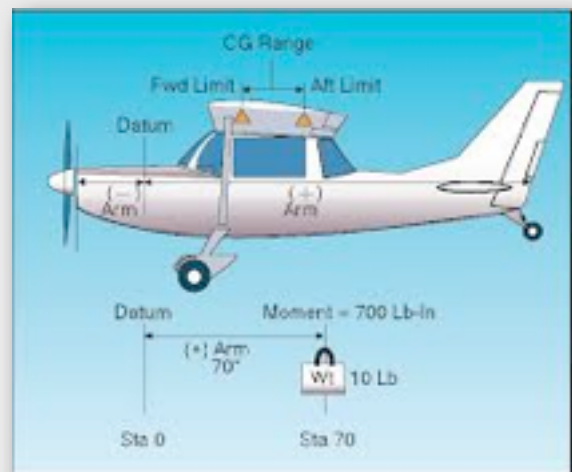


Figure 8-2. Weight and balance illustrated.

According to the report, the stall warning was triggered for nine of the final 11 seconds of the flight, initially when the aircraft was level and decelerating through 71 knots, and then as the aircraft decelerated to 69 knots and began to descend. It climbed approximately 100 ft before flying level.

The flight crew made an unsuccessful attempt to rotate the aircraft at approximately 70 knots. The aircraft drifted to the left of the runway, probably because the left engine was delivering less power than the right, the report said.



A transcript of communications from air traffic control indicates that the crew had received a warning about a bird on the runway, which the airplane may have hit during its takeoff roll. According to the report, the controller asked, "Any technical," to which the pilot replied, "[Uncertain... bird hit.](#)" Remains of what was determined to be black kite were found 1,338 feet from the Runway Intersection 2. The plane impacted the bank of the Manohara River 1,378 feet from the Runway 2 threshold.

## **Autopilot isn't enough; experts call for new pilot training standards to prevent crashed**

["If no one is mentally flying the aircraft, then no one is flying the aircraft."](#)

For over a decade, aviation safety experts like the NTSB's Robert Sumwalt and NASA scientist Key Dismukes have warned that pilots should never drop their guard — that they not only need to monitor their instruments, [but also their co-pilots to keep fatal errors](#) from occurring at times when the plane is most vulnerable. In 2003, they achieved a major win: citing a 1994 NTSB study that claimed [84 percent of accidents might have been prevented](#) if the crew caught errors and / or questioned their superiors, they convinced the FAA to officially change the on-duty titles of pilots so both individuals would always have active responsibility. Fast forward ten years, though, and the experts aren't satisfied with their progress. In the face of accidents like the crash of Asiana 214, where crew members didn't seem to be aware of the aircraft's speed, they want the FAA to require pilots to actually be trained how to monitor their often confusing aircraft, and [to practice that skill regularly](#). They've brought up the idea at least twice with the aviation authority, but in the absence of movement, they've created a working group of their own — the Active Pilot Monitoring Workshop. It will use the weight of the Air Line Pilots Association (ALPA), a union which represents some 59,000 US and Canadian pilots, to drive its message home.



With the help of the ALPA's [Human Factors and Training Group](#), and a huge list of participants including many major US airlines, the group plans to issue a report this December to convince the entire industry that [with a little more monitoring](#), future accidents can be avoided.

"We've talked about monitoring in the past, but we've never taken such a comprehensive look as this project," says Helena Reidemar, ALPA director of human factors, who co-leads the working group.

The group presented the idea at this year's Air Safety Forum. If you've got an hour and a half to spare, it's all right here on video.

<http://libraryonline.erau.edu/online-full-text/ntsb/safety-studies/SS94-01.pdf>

[http://safetyforum.alpa.org/portals/31/2013/Reidemar\\_7-17-13.pdf](http://safetyforum.alpa.org/portals/31/2013/Reidemar_7-17-13.pdf)

[http://www.youtube.com/watch?v=b5hUVzhuPAI&list=PL1bl\\_TorEIHUnhbDR-dzKLoa49PqkSBaO](http://www.youtube.com/watch?v=b5hUVzhuPAI&list=PL1bl_TorEIHUnhbDR-dzKLoa49PqkSBaO)

## **India's Aviation Authority to Permit Pilots to Nap in the Cockpit**

Pilots for several airlines in Europe and Asia are permitted to take short naps in the cockpit, as long as another pilot is awake, of course. No such leeway in the U.S., although pilots have been given longer mandatory rest times between flights in the wake of the Colgan Air accident of 2009. Pilots in India can now take a nap while operating a flight provided the forty winks are no longer than 40 minutes on a flight of duration of three hours or more.



On longer flights, the flight crew may take more than one rest period, the Directorate General of Civil Aviation (DGCA) has said.

The aviation regulator said it had been observed that short sleep periods of only 25 minutes can help improve performance.

## OIG: FAA Needs to Improve Air Traffic Controller Scheduling

FAA's policy regulating the scheduling of its air traffic controller workforce [needs improvement to mitigate its impact on fatigue](#), controller performance and agency costs, according to a new report released by the Department of Transportation's Office of the Inspector General (OIG).



After a series of highly publicized incidents in 2011 where air traffic controllers either fell asleep or became unresponsive, FAA took action to improve the impact of its scheduling practices on controller performance. One of the changes required an additional controller to the midnight shift at 30 air traffic control facilities that only had one controller scheduled for that time. That change costs FAA about \$1.9 million per year, the report says. However, auditors found that 20 of the 30 facilities where an additional controller was added are actually candidates for reduced operating hours during the midnight shift, because they don't meet FAA's requirements for 24-hour operations.

Another new policy that emerged between 2011 and 2012 was a requirement for controllers to [have a minimum of nine hours off before daytime shifts](#). OIG reviewed 32,000 shifts between April and July 2012 and [found 279 cases](#) where controllers did not have the required nine hours off. There were another 102 cases where controllers had not had at least eight hours off, which is required prior to all shifts.

"When schedules were rearranged to accommodate the 9-hour requirement, controllers reported to work early [in order to avoid long commute times](#) in urban areas and were forced to wait until they had at least 9 hours of off-duty time to start working, even if they were already at the facility," the report says.

Furthermore, the report states that FAA [does not have the proper metrics in place to measure](#) the impact of its nine hour rule on controller performance.

Despite the negative findings of the report, the agency has been **making progress on the overall impact of fatigue** on air traffic controllers, according to a statement from the National Air Traffic Controller's Association (NATCA).

"According to the National Transportation Safety Board, tremendous progress has been made on the fatigue issue. It actually removed fatigue from its most wanted list of safety issues for 2013," a spokesperson for NATCA said in an emailed statement. "A NATCA-FAA working group recommended starting a training program and implementing a [Fatigue Risk Management System](#), both of which have worked well. We know that we must constantly build on the positive progress that has been made."

OIG issued four recommendations as a result of its review; develop milestones for implementing reduced operating hours at 24-hour facilities that do not meet agency requirements for 24-hour operating schedules, require supervisory approval prior to allowing controllers to sign on for work before the time-off requirement is fulfilled, continue audits of its nine hour rest requirement and develop guidance that specifically defines rest requirements governing "recuperative breaks" during midnight shifts.

## Fixed hours of work soon for air traffic controllers

New Delhi

Like pilots and cabin crew, Air Traffic Controllers too will soon have a flight duty time limit. In the case of pilots and cabin crew, the limit stipulates how many hours they are expected to work and what their rest period will be. Similar [guidelines are being prepared](#) for ATCs by the Directorate General of Civil Aviation. “The FDTL will be a part of [Fatigue Risk Management System](#),” DGCA C link for passenger safety as they mandatory. The Controller issues aircraft at any given time.

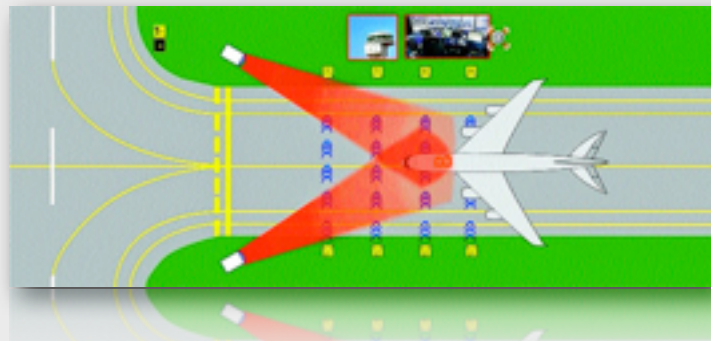


Technically speaking, ATCs follow normal working time of 8 hours, but in practice and [due to shortage of manpower](#), many of them work longer. Considering the stressful nature of their jobs, longer work hours increases the possibility of fatigue, which could jeopardize passenger safety.

“FDTL for ATC could be fixed at 8 hours. This will be operational once DGCA starts giving license to ATCs,” a senior Aviation Ministry official said.

## **Scientist grip on plane safety**

Airports in the US may soon operate on an [aviation technology](#) developed by an aerospace scientist hailing from Patna to prevent collision hazards due to presence of any unauthorized object on the runway at the time of take-off or landing of aircraft. The



Federal Aviation Administration (FAA) — the national aviation authority of the United States of America — has shortlisted the Ground Reality Information Processing System (GRIPS) — [a technology to prevent runway incursion](#) developed by Mirza Faizan, an Indian aerospace scientist born and brought up in Patna. GRIPS is among three technologies from across the globe shortlisted by the FAA for use at all airports in the US to prevent runway incursions.

“I received an official communication about this on Saturday,” Faizan, 34, who is presently pursuing his aviation research projects in the US, told The Telegraph over phone from Texas.

The International Civil Aviation Organization (ICAO) defines a runway incursion as any unauthorized and unscheduled presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft.

Runway incursion has been a major aviation safety issue across the globe. FAA statistics show there were [1,150 runway incursion incidents in the US alone in the year 2012](#), witnessing a surge by approximately 21 per cent from 2011.

The incidents of runway incursion are growing rapidly in India as well. There were 13 near misses reported in 2003, 15 in 2004, 21 in 2005 and 26 in 2006.



From October 2012 to April 2013, there were seven runway incursions at Indira Gandhi International Airport at Delhi, one at Calcutta's Netaji Subhas Chandra Bose International Airport and another at Vijayawada airport, said Faizan.

Identifying runway incursion as one of the major threats to modern day aviation safety, Faizan started his research on GRIPS in 2009 and the working model was developed and demonstrated by 2011.

GRIPS is an innovative system to prevent runway incursion and detect foreign object and debris on runways in real time. "We use sensors and have developed intelligent computer algorithms, which make accurate decisions. GRIPS has been evaluated by NASA scientists and recommended to National Air Traffic Services in the UK as well. Authorities at Bangalore International Airport Limited have also shown interest to install GRIPS and have requested for a pre-order demo as well," said Faizan.

Outlining how his technology is different from other conventional incursion prevention systems in practice across the globe, Faizan said: "The existing technologies like Airport Surface Detection Equipment, Model X or (ASDE-X) and Runway Status Lights (RWSL) depend a lot on surface movement radar to acquire data. However, such radar data in general is generated after intervals of 10 seconds, sometimes 12 seconds. [Thus, it is already too late](#), by the time Air Traffic Controller (ATC) realizes an incursion and the aircraft can't back up by then. Whereas, GRIPS relies on an array of laser sensors, pressure sensors and CCTV cameras on the runway [to provide real time data](#) within fractions of seconds. Besides, a computer program-based intelligent algorithm detects any incursion quickly and generates warnings to pilots as well as the ATC in a matter of milliseconds. GRIPS detects unauthorized objects on the runway faster and more accurately."

Faizan recalled that he conceptualized the idea for GRIPS while he was working with an aerospace giant in France.

"Though I was offered a substantial amount for my innovative idea, I was not ready to sell it to a foreign company. I wanted the world to know that an Indian engineer developed this ground-breaking system, so I founded an aerospace research company in India to work on it," he said.

Faizan, who is also an air-crash investigator with specialization in black-box data analysis, founded Avembsys Technologies Pvt. Ltd, an aerospace and avionics research centre in Bangalore in 2010, which was inaugurated by then Air Vice-Marshall Shankar Mani.

Faizan is an active member of the American Institute of Aeronautics and Astronautics, and presently lives in Texas, US.

## Online Courses Offer Advanced Aviation Education, For Free

If you're interested in airplanes and wish you knew more about aerodynamics -- or air traffic control, space policy, satellite engineering or airline management -- you can study all of those topics and more, [for free](#), at the Massachusetts Institute of Technology, via their OpenCourseware website. Each course features a syllabus, readings, video lectures, and projects that you can [complete at your own pace](#). The courses don't include any instructor support, classroom or certification, so learners must be self-motivated. If you prefer more structure, MIT also offers MOOCs, or massive online open courses, together with Harvard, at the EdX website. These courses run on a schedule and offer active discussion forums, and students can receive a certificate when they complete all the coursework.



Upcoming aviation-related courses at EdX include Introduction to Aerodynamics, starting in September, and Flight Vehicle Aerodynamics, starting in January. Students can choose to simply audit the courses, or complete all the homework assignments and exams to [earn a Certificate of Mastery](#). The prerequisites for Intro Aerodynamics include a familiarity with vector calculus, differential equations and control volume analysis, so if you're starting from familiarity with the Pilot's Handbook of Aeronautical Knowledge, it may be tough going -- but [there's nothing to lose if you fail](#), and no limit on how many times you can re-take the course.

<http://ocw.mit.edu/index.htm>

<https://www.edx.org/>

## There's Nothing Like Success

Remember back to an event when you felt successful in its accomplishment. Maybe it was a home run in school baseball or a game-winning touchdown during a home football game, or your graduation from high school or college. Perhaps you accomplished a difficult task and won praise from your peers who didn't think it possible. Remember how you felt; [you felt really good](#), didn't you?



### Success in Safety

If we were all to think about safety every day, both collectively and individually, we could accomplish what many would say is not possible. There are some people who believe that on the job injuries [are just a cost of doing business](#) as an airline. Like any active organization, human mistakes are inevitable. But, even though we run in high gear all the time, we can still take the time to take care of ourselves. We can reduce our employee injury rate. We just have to think about it more than we do.

### The Time to Slow Down is when You're in a Hurry

The next time you [feel pressured](#) to accomplish your next job activity, try slowing down. Slow down just a little and keep safety in mind; see how little time it really takes to accomplish those tasks safely. If you get pressure from anyone to hurry up, tell them if you speed up, someone might get hurt, probably you. Then, when that job is done, look back and assess how much extra time it took you to accomplish it. I think you'll find it is but [a small investment](#) in yourself and your company that will pay you personal dividends as well as dividends for your station and company. A strained back, a sprained ankle or wrist, a smashed finger probably doesn't seem like a big deal but, collectively, it's expensive in personal costs as well as for the company. We can be proud of our safety success.

## Census of Fatal Occupational Injuries Summary, 2012

A preliminary total of **4,383 fatal work injuries** were recorded in the United States in 2012, down from a revised count of 4,693 fatal work injuries in 2011, according to results from the Census of Fatal Occupational Injuries (CFOI) conducted by the U.S. Bureau of Labor Statistics. The 2012 total represents the second lowest preliminary total since CFOI was first conducted in 1992. The rate of fatal work injury for U.S. workers in 2012 was 3.2 per 100,000 full-time equivalent (FTE) workers, down from a rate of 3.5 per 100,000 in 2011.



Transportation incidents accounted for **more than 2 out of every 5 fatal work injuries** in 2012. Fatal work injuries among those fatally injured in aircraft incidents in 2012 declined by 14 percent from 2011, accounting for 125 fatalities or about 7 percent of the transportation total.

Fatal falls, slips, or trips took the lives of 668 workers in 2012, down slightly from 2011. Falls to a lower level accounted for 544 or about 81 percent of those fatalities. In 2012, the height of the fall was reported in 437 of the fatal falls to a lower level. Of those cases, about one in four occurred after a fall of 10 feet or less. Another one-fourth of the fatal fall cases occurred from falls of over 30 feet.

While the total number of fatal work injuries involving contact with objects and equipment in 2012 remained about the same as in 2011, the number of workers fatally injured after being struck by objects or equipment increased by 7 percent (to 509 fatal work injuries in 2012 from 476 in 2011). This total includes 233 workers struck by falling objects or equipment and 199 struck by powered vehicles or mobile equipment not in normal operation.

For more detailed information on fatal injuries visit Bureau of Labor Statistics at <http://www.bls.gov/news.release/cfoi.htm>

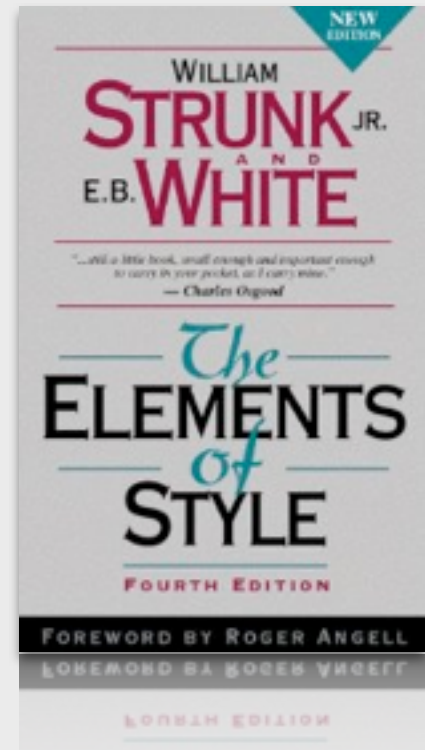
Note: Click on graph to view statistics

<http://www.bls.gov/iif/oshwc/cfoi/cfch0011.pdf>

## 8 Common Grammar Mistakes You Should Never Make Again

There are some basic grammar mistakes almost everyone makes, no matter how good (or bad) a writer he or she is. If you can learn to get these right, [you're off to a good start](#).

1. **Affect vs. effect.** The easiest way to remember the difference between the two is that "affect" means "to influence." So if you're going to influence something, you will affect it. If it's the result of something, it's an effect.
2. **Impact.** Impact is a noun, not a verb. A plane can crash on impact. You can have an impact on something. But you cannot impact something. (When you are tempted to use "impact" as a verb, use "affect" instead; see #1.)
3. **Their, they're and there.** You'd think everyone would have learned this rule in fourth grade, but it's a very common mistake. Use "there" when referring to a location, "their" to indicate possession, and "they're" when you mean to say "they are."
4. **Care less.** The dismissive "I could care less" is incorrect. If you could care less about it, then you're saying you *could* care less about the topic, and you've lost the impact you meant to have. To use this phrase correctly, insert the word "not" after the word "could," as in, "I could not care less."
5. **Irregardless.** This word doesn't exist. The word you should use is "regardless."
6. **Your and you're.** Another mistake you'll often see in people's social media profiles or other content they create is the incorrect use of "your" and "you're." If you mean to say "you are," the correct word is "you're." Use "your" when referring to something that belongs to "you," as in "your business."
7. **Fewer vs. less.** Another common mistake, "less" refers to quantity and "fewer" to a number. For instance, Facebook has fewer than 5,000 employees, but I got less sleep than you last night.
8. **Quotation marks.** Among the great debates, people ask all the time whether or not punctuation belongs inside or outside of quotation marks. Let's set the record straight. The period and the comma always go inside quotation marks. The dash, the semicolon, the exclamation mark and the question mark go inside when they apply to the quoted matter (if it's not the entire sentence) but outside when they apply to the whole sentence.





People make so many grammar mistakes today that [The Elements of Style](#) is on its fourth edition. If you keep a copy of it on your desk and practice your craft, you'll never have to worry about the grammar police paying you a visit.

## **Energy Drinks: The Good, the Bad, and the Jittery**



Step aside coffee, energy drinks are taking over! About half of all adults have tried them, and about half of all teenagers and young adults drink them regularly. In fact, energy drink sales in the United States reached more than \$10 billion in 2012 – and that number is only growing.

But many questions still remain about the safety of the ingredients in energy drinks and the accuracy of their marketing claims. In this white

- Examine the ingredients that give energy drinks their boost
- Define the difference between energy drinks and other caffeine sources
- Look at the rise and popularity of energy drinks
- Identify potential safety issues
- And suggest best consumption practices

**[Download the White Paper:](#)**

## **Book Release:**

Since its first flight on 15 December 2009, the Boeing 787 'Dreamliner' has been the most sophisticated airliner in the world. It uses many advanced new technologies to offer unprecedented levels of performance with minimal impact on the environment.

Flying the Boeing 787 gives a pilot's eye view of what it is like to fly this remarkable machine. It takes the reader on a trip from Tokyo to Los Angeles as the flight crew see it, from pre-flight planning, through all the phases of the flight to shut-down at the parking stand many thousands of miles from the departure point. Lavishly illustrated with specially taken photographs of the B787's controls and instruments, this book will be of interest not just to pilots, **but to all aviation enthusiasts**: it gives an insight into a world normally hidden for the flying public, at the technical and operational cutting edge of commercial flying. Gives a pilot's eye view of flying this remarkable machine - the Boeing 787 'Dreamliner'. Also an insight into a world normally hidden from the flying public, at the technical and operational cutting edge of commercial flying. Lavishly illustrated with 176 specially-taken color photographs of the B787's controls and instruments.



## **Inspiration**

**“Hard work spotlights the character of people: some turn up their sleeves, some turn up their noses, and some don’t turn up at all.**

