



## Aviation Human Factors Industry News

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### NTSB says man killed at airport didn't follow rules

**Proper procedures were not followed** two years ago during a **maintenance check** that resulted in the **death of an airplane mechanic**, who was sucked into a jet engine at the El Paso International Airport, a report states of a recently completed federal investigation into the accident.

The National Transportation Safety Board investigation into the death of El Pasoan Donald Gene Buchanan, 64, determined the "probable cause" of the accident was "the mechanic's failure to maintain proper clearance with the engine intake during a jet engine run, and the failure of contract maintenance personnel to **follow written procedures and directives** contained in the airline's general maintenance manual."



The safety agency approved the final report summarizing the investigation about six weeks ago, two years after Buchanan's death.

The morning of Jan. 16, 2006, Buchanan was performing service work for Continental as part of his job with Julie's Aircraft Service, when **he was sucked into an engine of a Boeing 737.**

The Houston-bound plane, which was scheduled to carry 114 passengers and five crew members, was at the gate boarding passengers when the accident occurred.

Officials with Julie's Aircraft in El Paso could not be reached for comment. Continental Airlines declined to comment.

The report states that the airplane's first officer, while performing a preflight inspection of the airplane, noticed a **puddle of fluid** on the tarmac under the right engine. The first officer and the airplane's captain then re-inspected the airplane and then requested a **maintenance check**. **Three mechanics** from Julie's Aircraft Service responded.

"Both sides of the right engine fan cowl panels were opened for inspection, and the mechanics requested that the captain conduct an engine run to check for the oil leak," the report states.



One mechanic positioned himself on the inboard side of the right engine and another on the outboard side of the same engine. The third mechanic, who was assigned to observe as part of his **on-the-job training**, was clear of the engine.

The engine was started and run at idle for about three minutes while the oil-leak check was performed. One of the mechanics using the ground intercom system told the captain a "small leak had been detected" and then **"requested that the captain increase the engine power to 70 percent for three minutes."**

Recordings from the cockpit voice recorder revealed that the captain asked the mechanic, before increasing the engine power, whether the area was clear, and the mechanic replied, **"Yeah, we're all clear."**

The report states that "shortly after the engine power was increased, two witnesses on the ground (mechanics) and one witness in the airplane (passenger) observed the **mechanic on the outboard side of the right engine stand up, step into the inlet hazard zone, and become ingested into the engine."**

The captain reported that about 90 seconds after increasing the engine power to 70 percent, he felt problems with the engine and he returned the power to idle. The captain immediately stopped the engine run after being informed by the first officer that something went into the engine.

Investigators wrote that the airline's maintenance procedures **required** the mechanics to receive authorization from Continental Airlines Maintenance Control **before** performing any maintenance.

"The investigation revealed that Julie's Aircraft Services **did not** make contact with Continental Airlines Maintenance Control to obtain the required maintenance approval and required documentation," the report states.

Investigators say the mechanic, who had helped troubleshoot the engine, said he participated in the engine run-up **with no maintenance procedures** from the airline because "engine oil leaks were a common occurrence, and that he continued without instructions **because of his past experience.**"

Investigators found that the airline's general maintenance manual under engine-run rules includes a procedure stating, "**Engines will not be operated above idle at terminal or gate positions for maintenance purposes, unless specifically authorized by the local airport authority.**"

The report states that two other factors -- **insufficient training** provided to the contract mechanics by the airline and the **failure of the airport** to disseminate a policy prohibiting ground-engine runs above idle in the terminal area -- contributed to the accident.



At the time of the accident, the airport and its control tower had a **1996** agreement restricting engine power to no more than idle to one engine at a time for a maximum of five minutes "while on any parking or service apron areas, including the terminal ramp."

Investigators found that the control tower reiterated this policy through a memo sent to all personnel about three months before the accident. "However, the letter of agreement and priority memo **had not been distributed** to the airline's operations, the fixed-base operators, or any of the tenants at the airport," the report states.

Pat Abeln, director of aviation for the airport, said that since the policy has been in place since 1996, "**we make the assumption** that the pilots will contact the tower before engaging or moving the aircraft."

Abeln also said that because most pilots who work out of the airport don't live in El Paso, their contact with the airport is usually limited to exchanges with the airport control tower. He also said pilots must get permission from the tower before moving an aircraft.

"You cannot move an aircraft without talking to the tower," Abeln said.

He also said he and other airport officials would review the findings to see whether any changes were needed.

The report states that after the accident, Continental Airlines enhanced safety measures, **implemented of a series of checklists** to better coordinate **communication** and **documentation** before performing any engine run, provided training highlighting the hazards of running engines, and bought more safety lanyards and reinforced procedures for their optional use.

Investigators wrote that the airline had interviewed aircraft mechanics about **safety lanyards** and found that **"nearly all the mechanics indicated they never used lanyards and expressed concerns with quick release and escape during an emergency."**



Buchanan, who had been a certified airplane mechanic for **40** years, **was not wearing a lanyard** while performing the maintenance check on the jet engine.

## **Hearing Will Review Death Of El Paso Airline Mechanic**

### **Former FAA Inspector Says Investigation Was Cut Short**

The tragic death of an airline **mechanic** on the ramp at El Paso International Airport has come under scrutiny, after a former FAA inspector said his supervisors at the time **rushed their investigation** into the matter.



As ANN reported, Donald Gene Buchanan was killed January 16, 2006, as he checked a reported oil leak on a Continental Airlines Boeing 737-500. The contract mechanic was ingested into a turbofan when another mechanic, believing the area around the engine's inlet was clear, told the plane's flight crew to throttle power up to 70 percent.

According to the NTSB Probable Cause report, Buchanan step into the inlet hazard zone as the turbofan spooled up from idle. The Board cited Buchanan's **failure to maintain proper clearance with the engine intake** during a jet engine run, as well as the **failure of contract maintenance personnel to follow written procedures and directives** contained in the airline's general maintenance manual, as the primary causes of the accident.

A **lack of proper mechanic training** by Continental, as well as the **failure of the airport to enforce its own rules** prohibiting ground run-ups above idle power in the terminal area, were noted as **contributing factors**.



But that might not be the entire story. A former FAA inspector came forward recently with [accusations the investigation was cut short](#), and officials with ties to the Continental pilots granted them amnesty in the matter.

"They washed their hands of the whole matter," he told The Dallas Morning News. "It was a cover-up."

He alleges the FAA and Continental [deliberately suppressed](#) his questions about the nature of the accident -- specifically, his discovery of a number of safety violations. When he brought the issues to the attention of his supervisor, he says he was told to submit his questions about the investigation to a committee for review.

That committee included a Continental official, and a representative with the pilots' union. In the end, the committee opted to close the case through the [voluntary Aviation Safety Action Program...](#) which put an end to the investigation.

He says he asked the FAA administrator to reopen the investigation, but his request was shot down. He then went to the inspector general... but didn't hear anything further, until he was contacted by the House Transportation & Infrastructure Committee.

The former inspector is scheduled to testify April 3 before that committee, led by Representative James Oberstar... who has his own concerns about the relationship between FAA inspectors and the airlines they oversee, [and is highly critical of ASAP.](#)

FAA spokeswoman Laura Brown defended the FAA's handling of the case, noting both the agency's local office and head of flight standards in Washington "agreed that the crew, the flight crew and the pilot [met the criteria for this to be handled through the Aviation Safety Action Program.](#)

"The investigation didn't support the kind of action that he wanted to initiate," she added.

## Tapes Show Airline Pilots Possibly Asleep During Hawaii Flight

The pilots of an inter-island flight from Honolulu to Hilo failed to respond to air traffic controllers **11 times** as it overshot its destination by 15 miles while flying at an altitude of 21,000 feet.

According to air traffic control tapes obtained by TV station KGMB, a controller monitoring airspace around Maui repeatedly tried to raise the two pilots of the go! flight on Feb. 13. They are being investigated for **possibly falling asleep** during the 214-mile flight.

The controller was initially unable to contact the pilots of Flight 1002 when she tried to call them about 15 minutes after the plane left Honolulu.

Finally, about **32 minutes** into the flight, the captain responded, and the controller said: "Air shuttle 1002, guys, I've been trying to contact you for the last 90 to 100 miles. I understand you've passed Hilo, I'm going to turn you back to the northeast bound to get you back to the Hilo airport. Is there some kind of emergency situation going on?"

"Uh no emergency situation," the captain said.

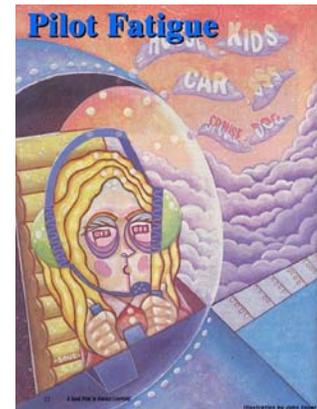
After listening to the tapes, airline analyst Peter Foreman told KGMB on Friday that it was clear something was wrong.

"By the time you get 60 miles from your destination, it's time to descend," he said. "So obviously someone was not minding the store."

The National Transportation Safety Board has said the flight had **no mechanical problems**, but its preliminary report reached no conclusion as to why the plane overshot Hilo International Airport. The Federal Aviation Administration is also investigating.

Go!'s parent company, Phoenix-based Mesa Air Group, grounded both pilots while the investigations continued.

The flight, which also carried 40 passengers and a flight attendant, landed safely



## NTSB Tired of FAA's Inaction on Pilot Fatigue

The NTSB has called the FAA's response "unacceptable" to four out of six safety recommendations addressing **human fatigue and duty-time limitations**. The agency issued the report to coincide with National Sleep Awareness Week.

"The Safety Board is very concerned about reducing accidents and incidents caused by **human fatigue**," NTSB chairman Mark Rosenker said, adding that **fatigue** was a probable cause or contributing factor in "numerous" accidents. The recommendations include requiring training, check flights, ferry and repositioning flights to be included in a pilot's total revenue time; ensuring that flight and duty time limitations take into consideration research findings in **fatigue and sleep issues**; reviewing the issue of personnel fatigue in **aviation maintenance**; and taking into consideration the length of a duty day, starting time and workload when assigning flight crew hours.



The FAA has not to date altered a 2001 Federal Register notice that calls for eight hours of rest in any 24-hour period that includes flight time. An FAA spokesman told AIN, "We believe the rules and guidance we have in place are fundamentally sound."

## France mulls lawsuit against Continental over Concorde crash

French judges on last Wednesday weighed a request to put US Continental Airlines **on trial for manslaughter** over the crash of an **Air France Concorde** in 2000 that killed 113 people.

Prosecutors in Pontoise outside Paris requested late Tuesday that the US airline, **two of its employees** and two key men in the French aerospace industry be brought to trial, said deputy prosecutor Bernard Farret.



The Concorde crashed in a ball of fire shortly after takeoff from Paris Charles de Gaulle airport on July 25, 2000, **killing all 109 people** on board and four workers on the ground.

A French accident inquiry concluded in December 2004 that the disaster was partly caused by a strip of metal that fell on the runway from a Continental plane that took off just before the supersonic airliner.

The Concorde ran over the superhard titanium strip, which shredded one of its tires, causing a blowout and sending debris flying into an engine and a fuel tank.

Prosecutors said a Continental mechanic who allegedly fitted the non-standard strip, and the airline's chief of maintenance person, should stand trial on charges of manslaughter and involuntarily causing injury.

Henri Perrier, 77, the director of the first Concorde program and Claude Frantzen, 69, a former director of technical services at the civil aviation authority DGAC, were also cited on the same charges.

They were found responsible in connection with an alleged flaw in Concorde's wing, which investigators also found to have been part of the problem that led to the crash.

Perrier was head of the Concorde program at Aerospatiale, now part of the European Aeronautic Defence and Space company, from 1978 to 1994.

He is suspected of having known about a design fault since 1979 but failed to rectify it.

But prosecutors requested that Concorde's former chief engineer Jacques Herubel be cleared of charges over the crash that shattered the plane's perfect safety record.

Judges at the Pontoise criminal court were expected to decide in the coming weeks whether to hold a trial, and proceedings could start as soon as late 2008, judicial sources said.

Continental has pledged to fight any charges that may ensue. A successful prosecution would likely result in millions of euros (dollars) in damages against the airline.

The Concorde crash began the process which led to all Concorde's, both French and British, being put out of service.

The plane, born of British and French collaboration, made its maiden commercial flight in 1976, but was retired in 2003.

Only 20 Concorde planes were manufactured: six were used for development and the remaining 14 entered service, flying trans-Atlantic routes at speeds of up to 1,350 miles per hour (2,173 kilometers per hour).

## Parts Left Behind – ASRS Report:

For an MD-80 flight crew, the discovery of a "mystery" coffee cup and cannon plug cover in the cockpit led to an extensive flight delay. More from a Captain's report to ASRS.

- While preflighting we discovered a coffee cup sitting in the cup holder by the cockpit jumpseat with 3 small screws in the bottom of the cup. Also we found a cannon plug cover on the cockpit floor under the Captain's rudder pedals. We entered this information into the maintenance log and requested that maintenance come out and remove the screws and cannon plug cover. Unfortunately, what appeared to be a simple issue turned into a major delay with what we thought was going to be a grounded airplane, since nobody could determine where the screws came from...In summary, it was determined that the screws and cannon plug cover were 'spare hardware' that was the result of an ACARS printer installation the night before. Apparently once the installation was done, the spare hardware was left behind and not removed from the airplane. This is of concern to me as it indicates...a general lack of care and due diligence in the way our airplanes are being maintained.



This maintenance oversight may have occurred during a shift change, when one technician started the job and another finished it. It's good shop practice to account for all 'spare' parts used in a job.

## Southwest Airlines drops plan to export maintenance

The carrier ended talks with the Aircraft Mechanics Fraternal Association to shift some work to El Salvador, said Louie Key, the union's assistant national director. On March 6, Southwest was fined \$10.2 million for possible maintenance violations.

What they said: "They didn't want to expose themselves to any questions or concerns about foreign maintenance vendors," Key said. A spokeswoman for Southwest couldn't confirm that discussions had broken off.



"Southwest knows that this issue is gaining visibility and gaining momentum," said Kevin Mitchell, chairman of the Business Travel Coalition. "They probably wanted to avoid further scrutiny."

## Flight/Voice Recorder Rule Enacted

The FAA has issued a final rule that will require aircraft and helicopters **Mar. 7, 2010**, with 10 or more seats to be equipped with **enhanced voice and flight data recorders**. Under the rule, voice recorders will have an audio loop **at least two hours** long instead of the **current 15 to 30 minutes** and there will have to be an **independent power source** to keep the recorder running for 9 to 11 minutes after all aircraft power is lost or interrupted. Magnetic tape is also banned and all recorders must use digital storage. Flight data recorders will have to sample more data (including pilot inputs and control-surface movements) more often and **retain 25 hours** of data.



Ironically, it's the relative safety of air travel that's being used to justify the equipment upgrade. "Because **this is the safest period in aviation history**, we now have to be able to analyze each accident in greater detail," said FAA Acting Administrator Bobby Sturgell. "These enhancements will give us more information about the causes of accidents and **find ways to avoid them** in the future."

While the rule affects all new aircraft made after March 7, 2010, fixed-wing aircraft of this size operated commercially (Parts 121, 125 and 135) will have to be retrofitted with some new equipment by March 7, 2012.

## Toyota To Follow Honda Into Jet Development?

Where Honda goes, Toyota may soon follow. Mitsubishi Heavy Industries Ltd. has extended Toyota an invitation to fund a company that would **design an advanced, fuel-efficient passenger jet**. Toyota announced Wednesday it is **considering the big leap into the aircraft industry**, following a report in the Asahi Shimbun that Toyota has plans to invest \$97 million into the project, starting in April. Toyota denied to the AFP that a decision has yet been made. As for Toyota's prior airborne excursions, the company declined comment on progress of a four-seat "one-piece co-cured (single-molded)" **carbon-fiber single-engine piston** it successfully flew in June of 2002. Mitsubishi has sought numerous investors to help carry the burden of the projected 150 billion yen development costs related to a high-efficiency passenger jet project.



Mitsubishi told the AFP that it is developing two jets with 70 or 90 seats that would incorporate **carbon fiber for weight savings** and hopes to launch the jets in 2013. Toyota's mostly terrestrial competitor, Honda, announced this week that it has taken **over 100 orders** for its \$3.9 million HondaJet and is now taking Canadian and Mexican orders for the planes.

## NTSB MOST WANTED LIST

### **AVIATION: The Federal Aviation Administration should act to:**

-  **Improve Runway Safety**
  - Give immediate warnings of probable collisions/incursions directly to flight crews in the cockpit
  - Require specific air traffic control clearance for each runway crossing.
  - Require landing distance assessment with an adequate safety margin for every landing.
-  **Reduce Dangers to Aircraft Flying in Icing Conditions**
  - Use current research on freezing rain and large water droplets to revise the way aircraft are designed and approved for flight in icing conditions.
  - Conduct additional research with NASA to identify realistic ice accumulation and incorporate new information into aircraft certification and pilot training requirements.
-  **Eliminate Flammable Fuel/Air Vapors in Fuel Tanks on Transport Category Aircraft**
  - Implement design changes to eliminate the vulnerabilities of flammable fuel/air vapors in all transport category aircraft.
-  **Improve Audio and Data Recorders/Require Video Recorders**
  - Require cockpit voice recorders to retain at least 2 hours of audio.
  - Require back-up power sources so cockpit voice recorders collect an extra 10 minutes of data when an aircraft's main power fails.
  - Install video recorders in cockpits to give investigators more information to solve complex accidents.
  - Install dual combination recorders.
-  **Reduce Accidents and Incidents Caused by Human Fatigue**
  - Set working hour limits for flight crews, aviation mechanics and air traffic controllers\* based on fatigue research, circadian rhythms, and sleep and rest requirements.
  - Develop a fatigue awareness and countermeasures program for air traffic controllers.
-  **Improve Crew Resource Management**
  - Require commuter and on-demand air taxi flight crews to receive crew resource management training.

## UK CAA warns of escape slide safety risk

Faulty aircraft escape slides frequently put the lives of passengers at risk, according to the findings of a UK study into the main causes of **maintenance-related incidents** on aircraft.

"Although these are rarely a direct hazard to the aircraft, these items can pose a **direct threat** to survivability in the event of an accident," says the UK Civil Aviation Authority in its **Aircraft Maintenance Incident Analysis**.



It proposes a more in-depth study of escape slide upkeep, recommending that efforts to solve persistent problems should focus on airlines that have few problems, as a source of **best practice**.

Published late last year, the study analysed a selection of **maintenance-related incidents** on jet aircraft above 5,700kg (12,560lb) maximum take-off weight, logged under the requirements of the CAA's Mandatory Occurrence Reporting (MOR) scheme in an effort to **identify common causes or factors**.

Meanwhile, a US survey of **maintenance human factors** regimes worldwide reveals a general "inconsistency between belief and action" in preventing technicians making **mistakes through fatigue**.

Over half those surveyed by the US Federal Aviation Administration indicated that **managing fatigue** was an important element of their **safety management system**, but only a quarter admitted actually having a **fatigue management system**. "The inconsistency between belief and action was further evident in that only 36% reported that their organization provided **training on fatigue management**," says the FAA.

The CAA's Safety Regulation Group says its analysis would help it focus on areas there was still work to reduce the number of **maintenance errors**.

"The CAA will continue to analyse **maintenance incident** occurrence reports to monitor trends and to work closely with groups like the Royal Aeronautical Society's HF-Engineering group, UK Confidential **Human Factors** Incident Reporting Scheme's MEMS Group and the European Aviation Safety Agency's HF Maintenance Focus Group to understand why **maintenance errors** occur and what can be done to reduce the number of occurrences," it says.

## New Cushion Clutch Pneumatic Screwdrivers Announced

### Pneumatic Screwdrivers speed assembly operations

A new series of cushion clutch **pneumatic screwdrivers** has been announced by the ASG Division of Jergens, Inc. The new Torq2(TM) HCP Series pistol grip drivers are available with **easily adjustable torque ranges** from 4.5 lbfoin to 80 lbfoin. The drivers provide a high speed rundown, with a clutch that ratchets at the preset torque. They provide speed, power and torque repeatability appropriate for most assembly applications including those with wood and sheet metal screws. The drivers have been value-engineered to offer **outstanding performance** at a moderate cost.



The new drivers feature an **ergonomic design** that provides operator comfort and gripping power. The sculpted thermoplastic elastomer housings have been designed to help deliver balanced, **non-fatigue performance**. A quick change collar facilitates bit changing.

The ASG division also announced a complete line of accessories related to the new air drivers, including filter/regulators, lubricators, reels, holsters, quick connects, torque arms, torque testing and error-proofing equipment.

ASG provides a full line of equipment and systems for precision assembly work, including pneumatic and electric torque-controlled drivers, torque testing equipment and assembly production aides.

ASG is located at 15700 South Waterloo Road, Cleveland, OH 44110-3898.

Telephone (216) 486-6163 Fax: (216)-481-4519. E-mail: [asginfo@asg-jerg](mailto:asginfo@asg-jerg)

## Saint Exupery Mystery Solved?

Has the final chapter been written in one of the great aviation mysteries? A **former Luftwaffe pilot** says **he shot down** Antoine de Saint Exupery as the French writer, considered by some to be the **greatest aviation author**, flew his P-38 off the coast of France in 1944. But Horst Rippert, now 88, who claimed 28 victories during the Second World War, says **he never would have opened fire** if he'd known his favorite author was at the controls.



"If I had known it was Saint-Exupery, I would never have shot him down," Rippert told the [London Daily Telegraph](#). "He knew admirably how to describe the sky, the thoughts and feelings of pilots. [His work inspired many of us to take up our vocation.](#)"



Apparently Rippert has kept the secret all these years and gave it up after being tracked down by Luc Vanrell, a diver who [found the wreck](#) of Saint Exupery's aircraft in 1998, and a war researcher named Lino van Gartzen. Saint Exupery was flying for the Free French from Corsica and was on a reconnaissance flight when Rippert said he spotted the Lightning from above and it was easy prey for his Me-109. Many believed the writer, who penned such classics as *Pilote de Guerre* (*Flight to Arras*), had committed suicide, but there has also been a persistent theory that he was shot down.

## [Midnight Shift Nugget](#)

### [FATIGUE IN THE WORKPLACE](#)

#### [A Sleep Primer for Workers](#)



The beginning of March ushered in National Sleep Awareness Week. So it's a good time to explore the following question with your workers: Are they getting enough sleep? Lack of sleep is more than a personal problem; it's a matter of workplace safety. Fatigue has been identified as a factor in many incidents and fatalities. Here's a sleep primer to share with your workers.

### [Sleep & Safety](#)

Your mind and body need rest to recover from the stresses of the previous day and prepare for the next. Most adults need eight hours of sleep per day. Failure to get adequate sleep thus leads to a host of dangerous physical and mental effects that can put life and limb at risk, including, on the moderate end, slow reaction time and, on the extreme end, road rage and hallucinations.

Each day you deprive yourself of sleep, you build up a "sleep debt." That debt may not become apparent right away. But, like money debts, it can accumulate until suddenly you find yourself in over your head, and too tired to work safely.



## Are You Short on Sleep?

Ask yourself two simple questions:

1. Can you wake up on time without an alarm?
2. Do you feel rested?

If not, you may be shortchanging yourself on needed sleep.

## Signs of the Sleep Deprived

Tired workers show a variety of safety-sapping effects:

- Slowed reaction times;
- Inability to process or respond to ongoing events;
- Poor logic and judgment ; and
- Difficulty concentrating.

Tired workers are also less motivated and more forgetful. They have a greater tendency to take risks. Poor performance due to fatigue is more noticeable with repetitive tasks that take more than 30 minutes, or are complex and require close attention. Fatigued workers tend to rely on others to stay abreast of work, and often compensate for poor concentration by checking and re-checking their own work.

## 9 Tips for the Weary

Here are 9 tips for getting more sleep:

1. Keep to a regular schedule.
2. Go to bed and get up at about the same time. Staying up late and sleeping late on weekends can disrupt your regular sleep schedule.
3. Don't rely on drugs. Sleeping pills, alcohol, caffeine and other drugs can't be used to help you sleep and wake up. You'll find they backfire and cause sleeplessness and other problems. Avoid caffeine late in the day.
4. Get regular exercise to help you sleep and to keep you fit to fight fatigue.
5. If you're having trouble sleeping, try going for a short, brisk walk about an hour before bedtime.
6. Learn to say "no" to other activities when you need to sleep.
7. Enlist the help of your family in making time for enough sleep.
8. Make sure your room is a sleep zone, with noise and light banished. If you're a shiftworker, this goes double. If you have to sleep during the day, block light from windows completely and ask your family for help in keeping the area quiet.

9. If you must, eat a small healthy snack such as an apple before bed. Big meals at the wrong times can keep you uncomfortably awake when it's time to sleep, but sleepy when you need to be awake.

## Conclusion

Make sufficient sleep a priority for their health and safety. They'll be less stressed, work safer and be more pleasant to be around, too.

## AUDIO SAFETY TALKS!



SEE IT? SAY IT!

Let's say one of your workers noticed a **small patch of oil on the floor** one day. He or she might take action, going to the broom cupboard, setting out "**slippery floor**" signs and mopping up the spill. But what if someone came along and **slipped** while the employee was fetching the equipment to mark and clean up the hazard? Present this safety talk to your workers to let them know that **it's hard to avoid the hazard no one tells you about.**

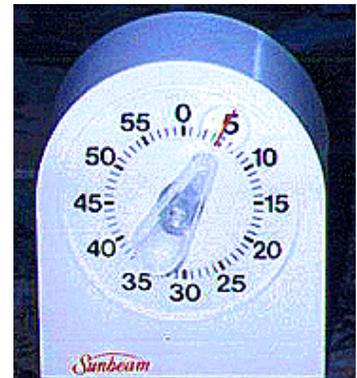
■ [To listen to the talk, click this link](#)



## Bad Designs

### Kitchen timer

This is a nice little kitchen timer unless you want to set a time **less than 15 minutes**. To do so you must first turn the indicator to a time greater than 15 minutes and then turn it back to the time you actually want! There is **no indication** of this on the front of the timer. What ends up happening is that you set times less than 15 minutes without first turning the indicator past 15 minutes. Then the timer doesn't go off.



### Design suggestion

This design **violates your expectations** by having one rule for setting times greater than 15 minutes (turn the indicator to the desired time) and a different rule for setting times less than 15 minutes (turn the indicator to a time greater than 15 minutes and then to the desired time). A device like this **should follow a consistent rule**. There is nothing in the appearance of the timer that would lead you to believe that it works like this.

## GAS PAINS

### What's Behind the Price of Gas

High gas prices affect all of us, including human factors managers. As companies spend more on energy, selling human factors will become that much harder. When you go to the pump and pay for a gallon of gas, what are you actually paying *for*? Here are the components of the retail price of gasoline:

- 53%: The cost of crude oil
- 19%: Federal & state taxes
- 19%: Refining costs & profits
- 9%: Distribution & marketing

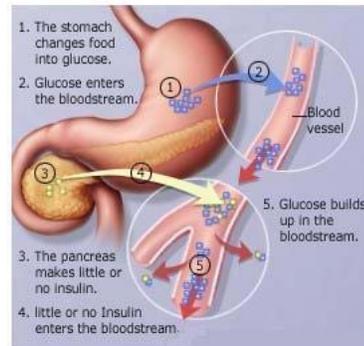


Source: Energy Information Administration, U.S. Govt. (2005)

## Living well with diabetes

The odds are that you or someone you know has diabetes already or is at risk for developing this disease. Nearly 21 million Americans—or roughly one in every 14 people—have diabetes, and many more are at risk. Of course, if you or someone you love has diabetes, the disorder is about much more than a statistic. It means a new way of life.

However, there's plenty of good news emerging about diabetes. Research shows that keeping your blood sugar levels as close to normal as possible is worth the time and effort. Rigorous blood sugar control can enable you to delay or even prevent the progression of diabetes and its debilitating long-term complications.



The treatment regimens needed to achieve and maintain near-normal, or “tight,” blood sugar control differ for type 1 and type 2 diabetes. Type 1 treatment centers on replacing insulin to offset the body's inability to produce it. Type 2 treatment typically relies on exercise, weight loss, and one or more medications to overcome insulin resistance and compensate for the insulin shortfall. Insulin injections, though, may become necessary. Most people with type 2 diabetes also have the added burden of managing one or more other conditions, such as obesity, high blood pressure, or high cholesterol. Your treatment goal, regardless of which type of diabetes you have, is to keep your blood sugar levels as close to normal as possible to prevent damage to your eyes, kidneys, heart, nerves, and blood vessels.

### Managing type 1 diabetes

Insulin is the foundation of therapy for people with type 1 diabetes. Insulin, at least in its present form, cannot be taken orally because digestive enzymes in the gastrointestinal tract destroy it. So it must be injected or inhaled, usually several times a day. Oral and skinpatch delivery systems are being studied, but are not currently approved for general use. Diet and exercise are also integral to treatment because both affect blood sugar levels and insulin requirements. The goal of insulin replacement is to mimic the levels normally supplied by the pancreas. This means maintaining a small, stable quantity in your bloodstream between meals and taking a larger, measured dose with meals to limit the increase in blood sugar that would otherwise occur.

Your doctor initially determines the insulin regimen, including the pattern and number of doses, by looking at your blood glucose, diet, and activity levels. Higher blood sugar, bigger meals, and low amounts of activity require more insulin, while lower blood sugar, smaller meals, and increased activity require less.

Because food, activity, and medications all influence your blood sugar and because they affect each person differently, it's important to perform frequent checks. By providing a snapshot of your blood sugar level at a given time, self-monitoring gives you the information you need to tailor your treatment plan. For example, as your blood sugar fluctuates, you can adjust the doses and timing of insulin throughout the day and better maintain your target blood sugar levels.

### Managing type 2 diabetes

Traditionally, clinicians took a one-step-at-a-time approach to type 2 diabetes. First they asked someone newly diagnosed to make lifestyle changes—namely diet and exercise—to reduce weight. If these initial measures failed, the doctor prescribed a sulfonylurea, the oldest class of oral diabetes medications. Once the maximum dose was reached, a new drug was started, and once medication options were exhausted, insulin injections began. But this approach was only modestly successful, as it wasted valuable time in getting blood sugar under control. As a result, the metabolic abnormalities of type 2 diabetes progressed, and most people with the disorder were unable to achieve near-normal blood sugar levels with this gradual approach.

In 2006, the American Diabetes Association, in conjunction with the European Association for the Study of Diabetes, released new guidelines for the management of type 2 diabetes. The new recommendations focus on tighter blood sugar control, as early as possible, to reduce the risk of developing long-term complications. In a major shift, the guidelines encourage doctors to prescribe medicine as well as lifestyle changes—preferably at the time of diagnosis—to increase the chances of achieving good blood sugar control.

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*Diabetes: A plan for living* will help you better understand and manage your diabetes. It covers the two main forms of diabetes, type 1 and type 2, as well as other variations of this disease. Among other things, you'll learn the basics of how your body metabolizes sugar, the tools of diabetes control, and the fundamentals of nutrition and exercise. You'll get up-to-date information about recent innovations in treatment and the latest recommendations for how best to manage your diabetes. [Click here to read more or buy online.](#)



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### Picture This!

Two questions that you should always ask yourself with regard to keeping yourself and your co-workers safe are, "**Should (s) he be doing that?**" and "**Would it be smart if I let myself do that?**" However, just asking yourself the question is clearly no guarantee that you'll get the right answer. These pictures require at least two people to ask themselves those two questions and come up completely wrong on both.

