



## Aviation Human Factors Industry News

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### Neglect of SOP's Leads to Ramp Damage

Boeing 767-300. **Substantial damage.** No Injuries.

The airplane was at the gate, ready to be pushed back for departure from Washington Dulles International Airport on June 17, 2006. "A ramp employee, operating a tractor with a baggage cart in tow, was on the left side of the airplane when a pushback guideman on the right side of the airplane signaled that he needed hand wands for the pushback," said the NTSB report.



The tractor operator told company officials that **he forgot that he had a baggage cart in tow and did not follow standard operating procedures (SOPs) when he drove under the airplane to reach the guideman.** "In the process, the baggage cart impacted the underside of the fuselage about 25ft aft of the nose and 17 ft in front of the wings," the report said.

NTSB said that the **tractor operator's failure to follow SOPs was the probable cause of the accident and that a factor was his "diverted attention" to an on-time departure.**"

### Why Cape Air grounded itself

HYANNIS — Cape Air has decided to voluntarily **"ramp down"** its flight operations for several days to **make engine repairs** to its fleet of Cessna 402 aircraft, according to a company spokeswoman.



"This is the most painful chapter in this airline's 18-year history," Michelle Haynes, communications director for Cape Air, said late last night in a telephone interview.

Haynes said the airline, which has a fleet of 49 Cessna 402s, **discovered abnormal wearing in the Cessnas' engines. She said the problem is linked to the crankshaft counterweight.**

Haynes said Cape Air decided **to ground all of the Cessna 402s until repairs are made after consultation with Federal Aviation Administration officials and the manufacturer of the aircraft's engine.**

"The unusual wear pattern on these parts has to be fixed," she said. **"It's a tough decision, but it's the only decision."**

Hundreds of flights will be affected by the repairs, including Nantucket Airline flights, Haynes said. The latest advisory from the airlines says passengers flying with Cape Air today and tomorrow will most likely be affected.

A handful of the Cessnas already had been repaired as of last night, according to Haynes, but the regional airline expects to cancel many flights through the weekend.

"We expect the entire airline to be up and operational by early next week," she said.

Haynes said it was premature to comment on how much the repairs would cost and whether the engine manufacturer, Continental Teledyne, would pay the costs.

## **System to blame, not just pilot: inquest**

A coronial inquest into a plane crash that **killed 15** people in far north Queensland has been warned that simply **blaming pilot error will not lead to improved aviation safety.**



Australian Transport Safety Bureau (ATSB) senior investigator Greg Madden told the inquest that **the nation's chief aviation regulatory body was partly to blame** for the Lockhart River plane crash on Cape York on May 7, 2005.

A recent ATSB report into the crash, released following a two-year investigation, **has blamed, among other contributors, pilot error and the Civil Aviation Safety Authority's (CASA) failure to properly regulate airline operator Transair.**

Immediately after the report's release, CASA's chief executive Bruce Byron laid much of the blame for the crash at the feet of the pilot in command, Brett Hotchin, 40.

Investigations revealed Mr Hotchin had a **history of flying too fast** and that the plane was traveling at more than 100km/h over the recommended limit shortly before it ploughed into a 500-metre-high hill and exploded in flames.

Under cross-examination by CASA's lawyer Peter Dunning, Mr Madden said **zeroing in on pilot error "neglects the reality that if there is a failure of a human being, it also represents a failure in the system, given the maturity of the system"**.

**"There will be no improvement in aviation safety and furthermore ... a particular lesson will not be learnt,"** Mr Madden said.

**"The end result being that if we concentrate on individual actions ... we are basically taking a very blinkered and narrow view of the situation."**

Mr Madden said CASA **had not given its officers enough guidance** to properly audit Transair, which operated the Fairchild Metroliner III involved in the crash.

As a result, the officers had **overlooked critical safety and management problems found to have contributed to the tragedy**, he said.

The inquest continues on Thursday Island before Queensland Coroner Michael Barnes.

## **Jet leaving SFO nearly missed turboprop in controller error**

SAN FRANCISCO - An air traffic controller's **error is being blamed** for a near-miss at San Francisco International Airport.

Federal investigators said today a commercial jet taking off from one runway missed a turboprop

plane landing in its path by about 50 feet late last month.

A National Transportation Safety Board report says the controller cleared the SkyWest plane from Modesto to land, **forgot about** the flight and then cleared the Republic Airlines jet bound for Los Angeles for take-off.

The jet was traveling too fast to stop by the time an automated warning system alerted the controller of the error.



The jet's captain took the flight airborne at the last second to avoid a collision with the other plane.

The veteran controller was decertified and required to complete additional training before being recertified by airport management. No one was injured in the incident.

## NTSB: Faulty Repair Cause Of Chalk's Crash

WASHINGTON -- A federal safety board **blamed faulty repair** of a wing crack and weak federal regulation for a seaplane crash that killed 20 people in Florida in 2005.

All five National Transportation Safety Board members were highly critical of the management of financially troubled Chalk's Ocean Airways, whose 58-year-old Grumman G-73T Turbine Mallard crashed Dec. 19, 2005, within sight of the Miami skyline.

"It glares at you that this was a poorly operated airline," board chairman Mark Rosenker said. Spokesmen for Chalk's and for the Federal Aviation Administration said their workers complied with all safety requirements and inspections for the aged aircraft.



The twin-engine seaplane carrying 18 passengers and two crew members lost its fuel-laden right wing and then exploded shortly after takeoff from Miami en route to Bimini Island. The plane crashed at 2:30 p.m. into a ship channel just east of Miami Beach as people watched from crowded beaches.

The board found that **pre-existing cracks caused the right wing to break off during normal flight conditions, which set off an explosion of the fuel tank inside the wing.** It said there was nothing the crew could have done to save the plane or its passengers.

The board said **the company had placed thin metal sheets over a 16-inch crack in the wing after it was troubled by regular fuel leaks, but did not fix a crack in a**

**support strut.** As a result **the remaining cracks were not visible** to pilots in preflight inspection. And the board concluded the **plane crashed because the repair was not sufficient to restore the wing's strength.**

Although **there are no records describing the repair,** the board said metallurgical tests indicated Chalk's did the work. But Dennis M. O'Hara, attorney for Chalk's, said, "Chalk's did not make that repair." He said **Chalk's believes the repair was made before it bought the aircraft in 1999 or 2000.**

The board said another cause of the accident was the "failure of the Federal Aviation Administration to detect and correct deficiencies in the company's maintenance program."

### FAA Responds To Charges

FAA spokesman Les Dorr responded that his agency "did not have any indication that Chalk's maintenance program was inadequate. It served them well for many, many years."

Dorr said the FAA maintenance inspector completed all his assigned tasks at Chalk's "so **it's difficult to see how the FAA is a cause.**"

The board's aviation safety director, Tom Haueter, said problems at Chalk's should have prompted the **FAA to step up its surveillance** and the company to do more than it did, including multiple fuel leaks from the wing that failed and similar cracking found and repaired months earlier on the plane's sister aircraft.

Under pressure from board member Debbie Hersman, the board agreed to have its staff add an additional finding that these and other factors, such as the money-losing company's financial troubles and **practice of having pilots double as safety managers,** should have alerted FAA to increase surveillance.

**The board staff also said the company's March 2005 internal examination of the wing should have found the cracks, but Gregory Feith, a former board staff investigator serving as a Chalk's consultant, disputed that.**

Feith said Frakes Aviation, which renovated the planes and outfitted them with more powerful engines in 1983, **failed to provide structural maintenance manuals and left Chalk's with no procedure for finding such cracks.** "You can't just stick a flashlight into the wing, because you don't know what you're looking for," Feith said in an interview.

### Deprivation hurts safety

**Sleep deprivation** and **overwork** long have been complaints from the nation's air traffic controllers.

Critics said the union for the traffic controllers - the men and women largely responsible for safe navigation of our airports and air space - were exaggerating problems in order to secure a more favorable contract.

Recently, however, the National Transportation Safety Board recommended that the Federal Aviation Administration improve its practices to reduce fatigue and improve alertness.





The recommendations were made as part of the NTSB's investigation of the deadly Comair crash last year in Kentucky. Although the board did not cite sleep deprivation as the cause of the crash, it noted that the controller who cleared the flight for takeoff on the wrong runway **had taken only a two-hour nap** during his nine hours off before coming back on duty.

**FAA regulations allow traffic controllers to work four 10-hour shifts over three days, even though their work contract calls for five eight-hour shifts over five days.** Negotiations on a new contract broke down last year, so the FAA imposed its own regulations.

When traffic controllers do work eight-hour shifts over five days, many are assigned an unusual schedule rotation - **typically 3 p.m. the first day, then 2 p.m., 7 a.m., 6 a.m. and 10 p.m.** The rotation spreads out the workload by assuring that everyone has to work a **midnight shift, but prevents controllers from getting regular, restful sleep.**

The FAA said that the tight schedules were often set at the request of traffic **controllers themselves.**

**Sleep experts say that swing shifts are especially difficult. The body has no time to accommodate and adjust to a new sleep pattern. Insufficient sleep then impairs cognitive processes such as the data tracking and quick, accurate decision-making that air traffic controllers are called on to perform.**

**Lack of sleep** is also a problem in the trucking industry, where new rules allow drivers to drive more hours in a shorter time frame - or, for that matter, in any industry where safety is an issue.

In a sort of Catch-22, most people who are **sleep-deprived** are **too impaired** to even accurately judge their state of alertness - rather like people who are too impaired to know when they've had too much to drink. Researchers say that **sleep-deprived** people think they have adjusted to a lack of sleep, when in fact objective testing shows that **their thinking abilities and reaction times have deteriorated, leading to more errors.**

**Sleep deprivation** also is **linked to depression, obesity, diabetes and high blood pressure.** The FAA knows about this research. It has even conducted its own reviews.

The NTSB criticized the agency for not acting on its own report, conducted in 2001, which recommended re-evaluating work schedules with an eye toward offering longer rest periods.

The board might have stopped short of blaming the Comair crash on controller fatigue, but it has identified numerous near-misses in recent years that were the result of fatigue.

Sleepiness may seem like a mundane and therefore negligible issue. It isn't.

## San Bernardino County sheriff's mechanics keep emergency aircraft in flight

RIALTO - It is rarely discussed, but the nine men who work beneath the San Bernardino County sheriff's fleet of planes and helicopters know they're doing more than ensuring someone's weekend joyride is running smoothly.

That's why, within their good-natured battles over the radio station, they'll spend weeks at a time meticulously checking parts most would think mundane.



"Sometimes a simple screw or bolt will hold us up for a week or two," said Chris Baboyan, one of the sheriff's aviation mechanics at Rialto Municipal Airport.

"When you work for profit, everything's about money and time. But we can't cut corners."

Without the higher profile of the deputies who fly missions tracking suspects, fighting fires and rescuing stranded hikers, the sheriff's mechanics servicing their aircraft may be just as vital.

As one of the sheriff's pilots put it, their role cannot be understated.

"They keep us up in the air," said Cpl. Brian Miller, a watch commander over the sheriff's aviation pilots.

With eight mechanics and a supervisor caring for 11 helicopters and four airplanes, things can be hectic. Each mechanic works 10-hour shifts and rotates on-call duty -- which could mean getting up in the middle of the night to follow a firefighting copter to the desert in case it needs emergency service.

The work has most of the staff lamenting the overall pay scale for aviation mechanics, which they say is pushing people out of the field and into more lucrative pursuits such as working at private auto repair shops.

"Sometimes, later in life, you want to work on cars," said mechanic Kevin Carver, "because the responsibility is so much greater here."

Like many of his colleagues, Carver got into aviation repair through the military. His supervisor, Ray Sarr, said that is the main path the department takes to recruit its mechanics, because they already understand what it is like to work on a fleet used in high-stakes situations.

"We only hire experienced mechanics," Sarr said. "But for years and years, they wouldn't get paid any money, so now when you go out looking for mechanics, they're just not there."

### No Major Problems

Most days, the mechanics are consumed by regular inspections of the aircraft, done after every 100 hours of flight. The fleet includes smaller patrol helicopters, larger medic and search-and-rescue models, and the airplanes. They service two single-engine propeller planes -- used exclusively for drug interdiction and surveillance -- and two twin-engine propeller planes used for firefighting and transportation.

"There will always be problems, just like your car," Sarr said.

But the fleet has never experienced major breakdowns or, worse, a crash caused by a mechanical failure. Two years ago, the department bought newer-model patrol copters costing roughly \$2 million each. They came with an additional \$1 million of special equipment, such as searchlights and mapping technology.

Other mechanics at this airport service private craft, which don't have those kinds of add-ons, something that Allan Rogers recognizes. The former Canadian military mechanic has been with the Sheriff's Department for 11 years and said he couldn't see being a part of a different kind of operation.

"I think there's a certain prestige to it," he said.

## Women in Aviation; Entering a man's world

**Annette Enriquez** stands on a scaffold helping to rebuild a jet engine, wielding a wrench as long as her leg.

The 21-year-old was one of about **30 women** working on the shop floor of Kelly Aviation Center recently, surrounded by about 400 men.



Across the street at Boeing, only **11 women** actually work on the equipment maintaining military aircraft out of the 1,500 employees who work there. Aviation traditionally has been a man's world, although there have been pioneering women dating back as far as 1906 when E. Lillian Todd was the first woman to design and to build a plane. But that is slowly changing, as more women are becoming pilots, engineers and **mechanics**.

**The number of women in aviation is small but growing**, said Amy Laboda, a pilot and editor of Aviation for Women Magazine.

**"Women make up 5 1/2 percent of the pilot population and less than 2 percent of the mechanic population,"** Laboda said. "Since the very beginning of flight, it's been that way. A lot of that has been the mystique that it's a man's world. But there have always been women involved."

As recently as last year, Lockheed Martin veteran Marillyn Hewson was in charge of Kelly Aviation Center. Hewson now runs a Lockheed division in Fort Worth. Colleen Barrett is the president of Southwest Airlines, and Marion C. Blakey is administrator of the Federal Aviation Administration.

Most of San Antonio's female aviation mechanics are at KAC, a joint venture between Lockheed Martin, GE Aviation and Rolls Royce.

Kelly's staff is made up mostly of former Air Force personnel who joined the civilian work force when their Air Force base was shuttered.

"We have an aging work force," KAC spokeswoman Cheryl Kahn said. "A lot of these people are going to be retiring," **creating opportunities for women**. Unfortunately, Kahn said, "females don't think of this (job) as a possibility."

**More than 120,000 women are involved in aviation in non-pilot roles**, including about 100,000 flight attendants. But the number of women working as **mechanics**, dispatchers, ground instructors and parachute riggers has grown more than 18 percent since 2000.



Laboda, who also works for Women in Aviation International, said the goal of her organization is to raise awareness among women about aviation jobs.

"There have been jumps in the number of women who've gone into piloting, **aviation maintenance and avionics**," she said. "More and more women entrepreneurs are going into the business of sales and actually owning the businesses on the airports that provide the services, the fuel, the maintenance and hangars. Women are starting to become engineers. NASA is one of the best equal-opportunity employers."

NASA got 23-year-old Adela Carrillo interested in aviation. She was part of an aerospace scholars program in high school that was sponsored by NASA. She still wants to work for NASA and is working at Kelly while studying for a degree in mechanical engineering.

**"Women think you're a mechanic, and you get dirty," Carrillo said. "It's engineering, math and science."**

She and Enriquez are both graduates of the Alamo Area Aerospace Academy. It's one of three professional academies that were developed in partnership with the Alamo Community College District, the city of San Antonio, local businesses and schools. The other two academies are for information technology and manufacturing.

"We're doing everything we can to try to get out to the high schools and work with the counselors to present the program to as many 10th-graders as we can," Alamo Academies Director Gene Bowman said. "The sophomores are our audience because the program is a two-year program for juniors and seniors. We try to work with the high schools and parents."

Kelly Aviation Center offers internships to aerospace academy students and those often turn into job offers upon graduation.

Maria Garcia, 25, got her job through a predecessor to the Alamo Area Aerospace Academy called the Project Phoenix Academy. That academy focused on trades that included plumbing, auto repair and electrical contracting. Garcia opted for aerospace based on the pay and the fact that she's always been mechanically inclined.

"I've worked on cars," Garcia said. "I've done brake installation, oil changes."

Garcia was the first woman hired from one of the high school academies and she's been there seven years.

"It's been a struggle, and (it's been) challenging," she said. "It's a man's job. I had to prove I could do the same job they have. They trust me."

On a recent day, she was helping rebuild an engine cell. The blades inside the turbine have to be installed and assembled to exacting specifications.

Jim Menard, Garcia's supervisor, said she is more than able to hold her own.

"I was a senior mechanic when she started," Menard said. "She was new. She kind of stayed to herself. But she picked it up pretty fast. It's considered a man's job. But we've come a long way since I've been here."

**"It's a man's job. I had to prove I could do the same job they have. They trust me."**

## Midnight Shift Nugget

### The Sugar Trap

Candy bars, Twinkies and other high-sugar snack give you a burst of energy- understandably appealing at 4 a.m. But the 'high' wears off in 20 minutes, leaving you sleepier than before you snacked. Keep your **nighttime (and overall) sugar intake low** to stay off the energy rollercoaster and avoid weight gain, dental problems and heart disease. Have healthy alternatives at hand for when you **crave sugar**. And pay close attention to food labels: words sucrose, fructose and corn syrup signify sugar. **Alternatives** to the sugar trap are: fresh fruit, unsalted pretzels, fig bars, low-fat crackers, low -fat yogurt and graham crackers. Some shiftworkers like to munch on dry cereal.



## GO FIGURE

### Trafficking Safety

**201 million**

What does this number represent?

**Answer:** The number of people on the roads and highways in the United States, according to the National Safety Council.



June is National Safety Month and this year the National Safety Council is focused on Celebrating Safe Communities, with June 11 to 18 aimed at highlighting driving behaviors. Here are some other driving statistics:

- **2,536,000** people are projected to have been **injured** in a motor vehicle traffic crash in 2006\*
- **25%** of car crashes are due to **distracted** driving, such as cell phone use, personal grooming, eating, etc.
- **55%** of **fatally injured** passengers in 2005 **did not use a restraint** (e.g., lap belt, child safety seat, etc.)\*
- **Alcohol** was a factor in **40%** of road fatalities in 2005
- In 2006, the number of **people killed in alcohol-related crashes** is projected to have increased by about **2%**

*(Sources: National Safety Council and \*NHTSA's National Center for Statistics & Analysis)*

## Picture This!



END