Aviation Human Factors Industry News

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

Hello all,
To subscribe send an email to: rhughes@humanfactorsedu.com
In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

Fallen airport worker may not have worn harness: union

A Calgary airport worker who plunged to his death while de-icing a plane may not have been wearing a safety harness, said a union spokesman. Murgappa Naiker, 52, died early Monday morning after falling out of a cherry picker-type machine to the ground six meters below. He leaves behind his wife and two adult children, who live in Vancouver.

Officials from the Human Resources Department are investigating the incident, along with Naiker's employer, Servisair, which provides aviation ground services.

Workers at the airport have many unanswered questions about what happened, said Mike Ambler, a spokesman for the International Association of Machinists and Aerospace Workers.

"Normally they would wear a harness and it would be attached to a bucket. It appears he wasn't wearing one, but we don't know why he wasn't," Ambler said.

Naiker was working alone at the time and no one saw him fall. The machine is a safe piece of equipment, Ambler said.

"The newer ones are more enclosed, but we have been using ones that haven't been enclosed for 35 years, so they are certainly safe to work with. It's more of a comfort thing, when it's enclosed you are not out in the elements."

Died a day before his birthday.

Naicker said he has never seen such an accident at the airport.

"I wouldn't say it was a dangerous job. They supply you with all the mandatory, standard safety procedures and everything. We are well trained by the company," he said.

"This isn't the first year he is doing it. He is a very experienced guy and I really don't know what happened out there."

Why You Need to a Deliver a Fall Safety Talk

Did you know that your odds of winning the lottery are 1 in 135,145,920(multi-stage mega-millions jackpot)?

Can you guess what your lifetime odds are of dying as the result of a fall?

1 in 184 (Source: National Safety Council)

Here are a few more fall statistics:

* Men experience twice as many brain injuries as women.

People between the ages of 15 and 24 are at greatest risk for suffering a traumatic brain injury.

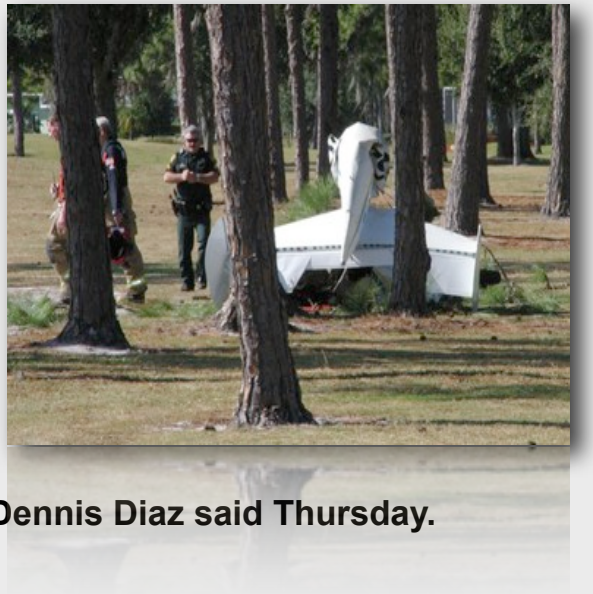
* Motor vehicle accidents account for 28% of traumatic brain injuries.

* Brain injuries account for about 34% of all injury deaths in the US.

* In Canada, an estimated 45% of traumatic brain injuries occur as a result of falls.

An estimated 62.3 out of 100,000 Americans ages 15 and older are living with functional impairments caused by a traumatic brain injury.

One tiny hole may have caused Golf Hammock crash



The light airplane flown by missionary pilot James Weener erupted in a black cloud. The white tail section landed among group of trees beside Golf Hammock's 10th fairway.

Why did the plane crash a year ago at Golf Hammock? An NTSB investigation is focusing on a single hole drilled into the wing structure.

"The origin of the breakup is in the vicinity of the hole," National Transportation Safety Board investigator Dennis Diaz said Thursday. "That's where it started to come apart."

On Dec. 13, 2008, an Ercoupe 415-D broke up in mid-flight over northwest Sebring. Parts of the plane were found over a half-mile long area. The seats landed in trees near the golf course clubhouse. The pilot, James Weener, 70, and passenger, James Ricker, 46, died.

The report

Why was it drilled, and why would one screw hole cause a plane to crash?

NTSB investigators are fact finders, Diaz said. The NTSB board itself will explain why in its Jan. 7 final report.

Diaz also hasn't determined who drilled the hole. His Nov. 13 factual report states that the factory drilled two holes into the wing spar - the I-beam which holds the weight of the wings.

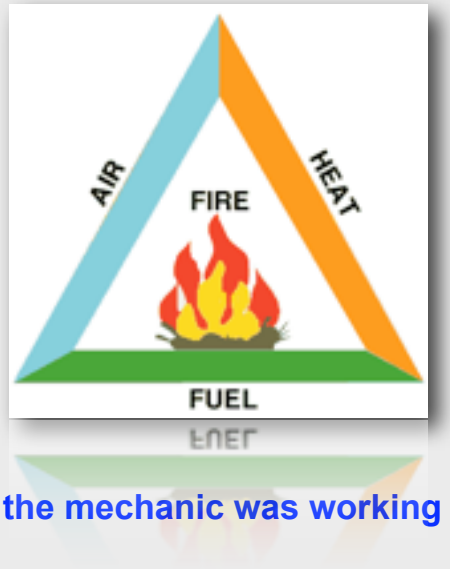
Two holes were drilled by the factory into the top wing spar, the top of the I-beam. The Ercoupe 415-D seats two, a pilot and a passenger, side by side. They sit in two seats, which are mounted to the seat pan. The two holes are to fasten the seat pan to the wing spar.

"Three screw holes were observed in the spar cap with the tip of a broken self-tapping screw still in one of the holes," Diaz's report said. The third hole was located between and less than one inch from the two original seat-pan holes.

That single hole could have caused the crash, local pilot Jon Lowe agreed. He owns an antique aircraft restoration business at Sebring airport.

Plane in hangar catches fire, mechanic suffers minor burn

A mechanic suffered a burn to his hand Wednesday after the plane he was working on caught fire in a Deer Valley hangar, officials said. The private plane was being housed in a Phoenix Deer Valley Airport hangar when it caught fire at about 1 p.m., according to Claire Stern, aviation department spokeswoman for Sky Harbor International Airport.



The mechanic suffered a minor burn to his hand, and a few other people were treated for smoked inhalation.

The fire was apparently caused by sparks when the mechanic was working on the plane, Stern said.

Stern said the airport serves only privately owned planes, and no public or private air traffic was impacted by the fire.

Step-by-Step

As a QAR, I should not have missed this caution, which states: "Make sure the head of the pin is pointed aft. Incorrect orientation of the pin may cause gouging of the main landing-gear support beam." Maintenance procedures not only show how to maintain and repair equipment, they keep us from

making mistakes. “Notes,” “warnings” and “cautions” in maintenance manuals capture our attention and remind us of the possible hazards, as well as their consequences. The C-40A Clipper’s governing publications are written differently than most Navy maintenance manuals. However, “notes,” “warnings” and “cautions” remain just as important.

Pin installed correctly

Besides routine maintenance that was scheduled one evening, a significant amount of work for the night shift also was planned to correct ongoing leaks with aircraft RX-835. The 100- division night check was tasked with the following: changing a main-mount tire and landing gear brake, removing and replacing two ground-spoiler actuators and a nose landing-gear actuator, and changing a main landing-gear actuator. The normal night-check CDI wasn’t available because of two simultaneous detachments and other operational commitments. To address this CDI shortfall, an additional QAR from the day check was scheduled to work that night.

Pin installed incorrectly

The night started on the wrong foot; I noticed technicians changing the landing-gear (MLG) tire using the maintenance manual. I intervened. Shortly afterward, I noticed they were skipping steps in the maintenance manual. I immediately stopped the work and told them how important it is to follow the maintenance manual step-by-step. Things seemed to run more smoothly after that.

Around 0400, we began installing the MLG actuator. This part was attached to the walking beam and the hanger beam (per the manual). When the technicians raised the actuator into place, though, they noticed that the piston-end had rotated 90 degrees, which made it impossible to align. Some 100-division personnel disassembled the walking beam, hanger

beam, and actuator so they could attach the latter part to the trunion and rotate it to the proper alignment. When we started reassembling the parts, we missed a "caution" that pertains to alignment of the main pin, which connects the components of the landing-gear assembly. As a QAR, I should not have missed this caution, which states: "Make sure the head of the pin is pointed aft. Incorrect orientation of the pin may cause gouging of the main landing-gear support beam." As you already may have guessed, we installed the pin backward.

After completing the incorrect installation, night check secured, leaving the MLG drop-check for day check. During this drop-check , day-check personnel heard a loud "bang!" when they retracted the landing gear. They stopped and inspected the area but found no damage. Some suspected the bang was the result of insufficient lubrication, so they applied more grease to the fittings. In subsequent drop-checks, the banging noise lessened and then stopped. Some assumed naively that the grease had worked its way into the fittings, and the MAF was signed off.

The next day, the aircraft flew a scheduled mission. On approach to McChord AFB, the landing gear extended and locked, but it took one minute and six seconds (53 seconds longer than the 13-second limitation). When the aircraft returned home, maintenance issued another MAF. More troubleshooting revealed the actuator was faulty. Maintainers removed and cleaned it, then discovered that the bolt holding the pin in question had gouged the panel support beam. That problem had caused the noise during the gear's drop-checks.

According to the structural-repair manual, the damage to the support beam was beyond repair limitations. Consequently, the aircraft was down for three days, while we waited for engineer-approval of a temporary fix. The permanent fix would have to wait until the aircraft entered the next depot-level maintenance evolution.

This embarrassing event has been a wake-up call for all of us at the squadron. Things could have been much worse. Lives hang in the balance of our actions, or lack of them. As a QAR, it's my responsibility to catch things and to stop them from happening. Everything we had done correctly that night was erased by the one thing we all missed: adherence to our

maintenance manuals. Because of this incident, ORM checklists now are incorporated into our maintenance evolutions. We also hold monthly QA/CDI training that focuses on major discrepancies, quality of work, responsibilities, and publication usage.

If you don't use the publications properly and follow the instructions step-by-step, you can damage aircraft. As a result, maintenance man-hours are wasted, and lives are put at risk.

Cabin supervisor praised after Ryanair pressurization drama

Irish investigators have credited a cabin service supervisor with containing a serious pressurization incident which developed after a Ryanair Boeing 737-800 suffered a tail-strike on take-off from Dublin. Despite realizing that something had occurred during rotation, the crew allowed the aircraft to continue climbing while they considered the situation. By the time the pilots had identified a probable tail-strike, and started the necessary checklist procedure, the aircraft had reached flight level 120.

Part of the checklist involved activating the pressurization outflow valve, but the aircraft's relatively high altitude meant this resulted in a serious loss of cabin pressure.

"Crucially the flight crew did not consider fully the consequences of manually opening the outflow valve," says the Irish Air Accident Investigation Unit, adding that the passenger oxygen system did not deploy automatically because the aircraft had leveled below 14,000 ft.

"It was apparent that the [cabin service supervisor] alone quickly realized the seriousness of the situation when the cabin was depressurized and took the correct action in immediately informing the flight crew."

The supervisor tried contacting the pilots on the intercom but, because the crew was putting on oxygen masks, they did not hear her.

She resorted to banging on the cockpit door in order to alert the pilots to the depressurization and the lack of passenger masks.

After this call the flight crew deployed the passenger oxygen system manually, although the investigators note that three service units - providing masks for nine seats - failed to open.

"The initial event on this flight, the tail-strike with the runway, was not a serious event in itself," says the AAIU. "However, the chain of events following the tail-strike led to this occurrence becoming a serious incident where many of the passengers were anxious and upset."

In their final report, the investigators state that the cabin supervisor's intervention was a "significant contributing factor" in resolving the crisis.

The aircraft, serial number 33632, was only a few months old at the time of the incident on 11 September last year. It returned to Dublin and landed safely.

Ryanair has since introduced a number of changes including an amended take-off brief, clarity over communication procedures between cabin and cockpit, and better training regarding tail-strike avoidance and depressurization awareness.

Computer typo caused Emirates jet's tail-strike

The damaged tail section of the Emirates

A simple keystroke error by a pilot on a laptop computer put the lives of 275 people at risk by causing an Emirates jet to scrape its tail along a runway at Melbourne Airport during take-off.

The Airbus A340's first officer mistakenly entered the plane's take-off weight as 262.9 tons, when in fact it weighed 362.9 tons, the latest report by the Australian Transport Safety Bureau has found.

The plane's captain, who cross-checked the first officer's figures, did not detect the error

in the data entered. The mistake meant the jet's engines were programmed with insufficient thrust to achieve take-off.

That fact became apparent as the plane started to run out of runway without having left the ground.

When the captain realized the plane was not lifting off, he ordered maximum engine thrust and extra elevation, exceeding the maximum take off angle of 13.5 degrees by 0.2 degrees, scraping the tail along the runway and clouting antennas and a light fixture at the end of the runway as tried to climb into the air.

When flight attendants alerted the pilots that there was smoke in the cabin shortly after take-off, the pilots requested an emergency landing, dumped excess fuel over Port Philip Bay and touched down.

Transport safety investigators say they do not believe fatigue was a factor in the mistake.

The captain and first officer both had a 30 hour break since their previous flight, but an earlier report said the captain had only slept for 3 1/2 out of the previous 24 hours.

"We have not at this stage seen anything that would lead us to the view that fatigue is a significant contributor to this," Mr. Dolan told reporters in Canberra this morning.

Mr. Dolan said the regulator had not found any broader explanation for the incident, agreeing with the description of it as "an unfortunate error".

"Based on what we know, (that's) a reasonable summary of where we stand, but it's the sort of error we want to avoid a repetition of."

The regulator said the captain and first officer were no longer employed by the Emirates, but it did not know if they were working elsewhere as pilots.

Procedures have been developed for better cross-checking, with both pilots required to independently enter the data on separate laptops to spot anomalies.

But what is still under development is a real-time runway length calculator that tells pilots how much tarmac is left, where the plane is on the length of the runway, and systems that check take-off speed and engine power settings.

Aviation Injuries, Aloft and on the Ground

More than 1,000 people a year are hospitalized for aviation-related injuries, with only one-tenth of them passengers in commercial aircraft. Researchers have analyzed data from 2000 through 2005, gathering information on crashes, parachuting accidents, airport maintenance worker injuries and passenger injuries sustained on the ground, among others. The report, which appears in the December issue of Aviation, Space, and Environmental Medicine, uses a group of health care databases maintained by the federal government's Healthcare Cost and Utilization Project.

Only 10.6 percent of those hospitalized were traveling in commercial aircraft. More than 32 percent were injured in private planes, and almost 11 percent in gliders or hang gliders. Unsurprisingly, jumping out of an airplane is quite dangerous: 28.9 percent of those injured were parachutists.

More than 28 percent of all injuries were to the lower limbs. And while burns were seen in just 2.5 percent of the patients, they accounted for 17 percent of deaths after hospitalization.

The military services have established effective surveillance systems to track aviation injuries, but the researchers write that the sources of information on nonmilitary injuries are not as complete.

Neither the National Transportation Safety Board nor the Federal Aviation Administration collects complete information on all injured aircraft passengers, and Susan P. Baker, the lead author of the study, believes this is a problem. "I think we have made good use of a valuable data source," Ms. Baker said, "but the ideal information on injuries would come from the N.T.S.B., so that it could be correlated with data on the aircraft and the crash circumstances."

Ms. Baker, a professor of health policy and management at Johns Hopkins, said that while the largest category of injuries and deaths had always been private planes, "it surprised me that there were so many parachutists among the injured."

“There were almost as many parachute injuries as civil aviation injuries,” she said.

http://www.nytimes.com/2009/12/15/health/15stat.html

Boeing 787 Maintenance Training Will Stress Computer Literacy

The days of mechanics/engineers and a computer person being different over, said Jeff Haber, Boeing 787 training manager, highlighting the need for mechanics/ engineers to be computer-literate to maintain the 787.

Boeing assigns maintainers taking the 787 training course a Tablet PC for everything from note-taking to troubleshooting practice, Haber said at AVIATION WEEK's MRO Asia Conference. This provides better practical training because students use the same software as on the airplane, so there are no "for-training-purposes-only" situations.

Haber says this synthetic training also allows better training that takes less time.

Laptops used for 787 maintenance training are considered ground support equipment because they are crucial for troubleshooting and maintaining the 787, which is supposed to first fly before yearend.

Haber said that ANA is scheduled to receive its first 787 in the fourth quarter of 2010.