



Aviation Human Factors Industry News

March 21, 2007

Vol. III, Issue 10

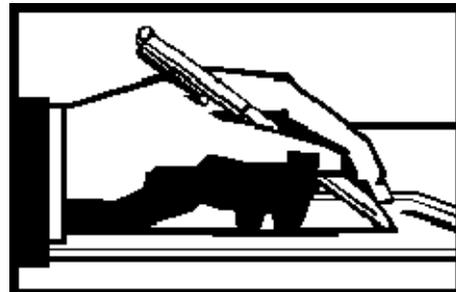
The Importance of a Proper Turnover

By AE3 Robert Dubrasky

We have all heard it before: Make sure you get a **proper turnover** before taking the watch or assuming your shift. Why else would someone show up a half hour before a shift? A better question is: **Do most of us give a proper turnover?** I would like to think so, but I found out how important it really is.

It was the perfect winter day in the North Arabian Gulf as we neared the end of a six-month deployment. At the end of the fly day, one of our jets came back with a downing discrepancy. After troubleshooting, we determined that the No. 2, top-deck relay box was the source of the problem. Maintenance control gave us the OK to remove and replace the part, and a new one was ordered.

It wasn't long before the part was received, and the **night shift** began their workday with the usual **turnover**, or so it seemed at the time. They removed and replaced the relay box. After doing an operational check of the system, they discovered that the downing discrepancy wasn't fixed. Night-check then began to troubleshoot the system to find the problem. After a closer look at the schematics, we discovered that **we had changed the wrong top-deck relay box**. We had changed the No. 1 relay box instead of No. 2.



It's common for EA-6B electricians to change the No. 1 relay box but not the No. 2 box. When the electricians saw the gripe and ordered a replacement, **they incorrectly assumed** it was the No. 1 component. **Our shop had become complacent, and that lax attitude was the key factor in the error.** The task was just another **routine maintenance discrepancy**; however, **it didn't turn out to be routine this time. The cost was half a day of missed flights.**

How did night-check replace the wrong component? The answer goes **beyond complacency; we did not put a detailed turnover in the logbook.** We use various logbooks throughout the Navy and Marine Corps to record important information. Turnover logs are no different. The AEs **did a verbal turnover**, but **we didn't have a written record. The words and message were lost.**

What are the learning points here? Approaching the end of deployment, **maintainers need to sharpen their focus** on seemingly routine tasks so that mistakes are avoided. **Use the turnover log** and record all the information that is crucial to maintenance and safety, including those items that will help avoid wasted maintenance man-hours and missed sorties. Too many times when a simple log entry is missed, extra work is done that didn't need to occur. Help your shipmates and **provide a complete turnover.**

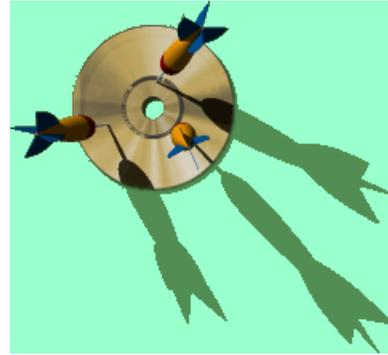
[FAA issues emergency AD on ERJ-170/190 cargo door opening in flight](#)

The FAA issues an **emergency AD** to prevent a cargo door from opening during flight; which could lead to structural failure or loss of control. The FAA had received a report that **the aft cargo door of a Embraer ERJ 190 airplane opened in flight just after takeoff.** The airplane returned to the departure airport and landed without incident. The assessment of the event indicated that the door was not fully closed when the airplane took off. Inspection of the airplane revealed that the door frame lateral roller fitting was cracked and the roller fitting cover plate was distorted. The roller fitting cover plate distortion caused a malfunction in the door position indication system. A similar situation was found on the forward cargo door on a Model ERJ 170 airplane. In that instance, **the problem was discovered by ground personnel**, and the door was secured prior to takeoff. (FAA) AD 2007-06-53



ATSB releases final report into Boeing 777 in-flight upset event

In August 2005, Malaysian Airlines Boeing 777-2H6ER 9M-MRG suffered an in-flight upset en route from Perth to Kuala Lumpur. A safe landing was made back in Perth. **The Australian ATSB concluded that a contributing safety factor was that an anomaly existed in the component software hierarchy that allowed inputs from a known faulty accelerometer to be processed by the air data inertial reference unit (ADIRU) and used by the primary flight computer, autopilot and other aircraft systems. Other safety factors identified were: 1) The software anomaly was not detected in the original testing and certification of the ADIRU; and 2) The aircraft documentation did not provide the flight crew with specific information and action items to assess and respond to the aircraft upset event.**



Japan: Airline OKs Bombardier Flights

TOKYO — Japan's All Nippon Airways resumed operating its Bombardier planes Thursday, two days after a **landing gear problem** forced an emergency landing and spurred the company to ground the fleet.

None of the 60 people on board the Bombardier DHC-8 turboprop were injured when the pilot was forced to land the plane Tuesday with only its rear wheels after the frontal landing gear failed to extend.

A Transport Ministry investigation panel said Wednesday **the landing gear door failed to open because a bolt was missing from the mechanism that operates it**, ministry official Ryotaro Miyamoto said.

ANA inspected the landing gear systems on all its Canadian-made Bombardier aircraft and determined the planes were safe to fly, the company said in a statement.

Bombardier officials arrived in Japan on Thursday, Kyodo News agency reported. The officials were to meet with officials of the Transport Ministry on Friday and also to inspect the plane, Kyodo said.

The mishap was the latest in a string of problems with ANA's fleet of 13 Bombardier aircraft, which forced Japan's second-largest airline to issue a formal apology last year.

How Indonesia became aviation's Wild West

Indonesia's air safety regime is not only minimal, but constantly degraded by high levels of recruitment of its more experienced pilots by the rich and rapidly expanding carriers of the Middle East.

This sees pilots being promoted to captain in jets the size of the 737 that crashed and burned at Yogyakarta many years sooner, and with considerably less first officer experience, than in most parts of the world.



It isn't known if this was a factor in this crash, but it is regarded as a serious overall problem for Indonesian aviation by foreign safety experts who have a close understanding of the human skills factors in other recent disasters in the country.

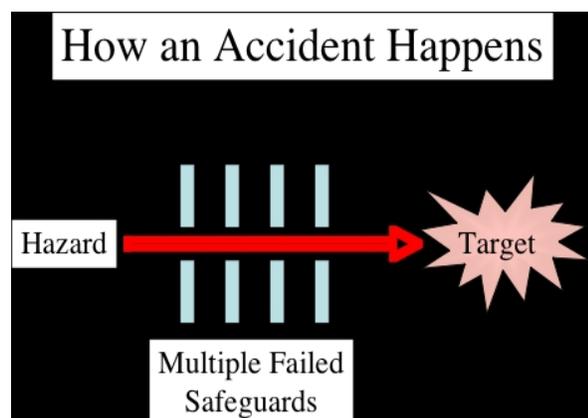
Even Australia suffers from this phenomenon, with many skilled pilots, engineers, systems and standards personnel being recruited to the tax-friendly career opportunities offered in the UAE and Singapore.

And while Indonesia sees its more skilled pilots enticed to better jobs abroad, it is experiencing the same rapid expansion of low cost domestic aviation as the rest of its hemisphere, except that China, Malaysia and Thailand are all making parallel investments in flight standards, new jets, and safer air traffic control systems.

This leaves Indonesian aviation in a wild west limbo that will take an immense amount of money, and political will, to change.

Army blames human error

Human error, not mechanical failure, was the central contributing factor in the Army helicopter crash last summer that left four special operations soldiers dead and one miraculously able to walk away from the burning wreckage.





In a released statement, officials at Fort Campbell, Ky., cited **“lack of aircrew situational awareness and coordination”** and deteriorating weather conditions as factors in the crash.

The MH-47 Chinook helicopter, the newest model of that type of helicopter designed for navigating in the dark and at low altitudes, **clipped a wire on a WFXL television tower** while traveling from Savannah’s Hunter Army Airfield to Fort Rucker, Ala., through an early morning fog. It tore apart and burned in a field.

“The crew was aware that the towers were in the vicinity of their flight plan,” said 160th Special Operations Aviation Regiment spokesperson Kimberly Laudano. “They were in control of the helicopter. They were paying attention. When we said that there was a **lack of situational awareness**, the entire crew has a lot that they’re responsible for in flight,” she said, adding that **there are a lot of monitors inside the cockpit the crew was required to watch**. “What the investigation found is that **there wasn’t a good balance of maintaining all of that information and processing**. ... **One of the things that can happen is you can focus too much on one aspect**. ... **They could have communicated better at many different points about obstacles along the way, specifically the towers.**”

Multiple factors contributed to the accident, Laudano said. There is no one specific action or lack of action that led to this crash. When flying aircraft, especially with advanced technologies, pilots must use a combination of basic navigation skills, paying attention outside of the aircraft and monitoring multiple, highly technical navigation tools inside the cockpit. It is concluded in this instance the crew did not combine all tools available effectively, she said.

In a collateral investigation such as this, the investigating officer reviewed things like the mission planning documents, crew training records, **aircraft maintenance documents**, statements from other personnel and information from outside agencies, such as weather and radar records, she said.

Some of those safety training enhancements mentioned in the statement include additional training in aircrew coordination with an emphasis on the MH-47G **high demand for “heads down” time to monitor multiple information displays** in the cockpit, route selection training and base aviation task training such as maintaining airspace surveillance, tactical navigation and digital map systems operations, Laudano said.

The Army also is **reviewing internal documents for opportunities to increase emphasis on obstacle awareness and avoidance and is exploring different methods to more accurately and visibly display hazards on mission planning systems**, she said.

“Nothing will reverse the outcome of that tragic day, but the hard lessons we have learned will prevent such a tragedy from occurring again,” said Maj. James Gregory, a U.S. Army Special Forces Command public affairs officer, in a released statement.

“That helicopter crash claimed the lives of four Night Stalkers. We will never forget our fallen comrades’ memories and contributions to this unit and our thoughts and prayers remain with their families and friends. This accident was a tragic reminder of why the regiment has a policy of **making safety a priority for every mission**, no matter the risk level, experience of the crew or whether the mission is for training at home or while deployed in combat.”

THE NEAR MISS

Taking Advantage of Your 'Free Shot' to Fix a Safety Problem

Close only counts in horseshoes and hand grenades.

You’ve probably heard that old saying. Maybe close *doesn’t* count for most people.

But for those of us in the world of workplace safety, close does count. A lot. The close I’m talking about is the **“close call” or near miss**. Let’s talk about why it’s so important and what we can do to take advantage of it.



The Significance of a Near Miss

Safety professionals in aviation and other industries do their best. But **they’re human like everybody else**. And so are the people they work with and depend on. **Flawed people produced flawed programs**. What that means is that **every safety program has some flaw somewhere**. The important thing is to figure out where the flaws are and fix them. Unfortunately, it usually takes an incident to find the flaws.

But not all incidents injure people and damage property. The incidents where nobody or nothing gets hurt are called **“close calls” or “near misses.”** A near miss incident is thus a **“free shot”** to identify and fix problems in a safety program before they do actual damage. It could be anything from someone walking in a hallway and almost getting hit by an opening door to a screwdriver being dropped to the floor by the **maintenance technician** working on a ladder and narrowly missing the skull of a **maintenance technician** below. Incidents like this happen all the time.

Why We Don’t Take Advantage of Near Misses

The problem is that near misses are the late Rodney Dangerfield of the safety world. **“They don’t get no respect.”**



One of the reasons for this lack of respect is the tendency to confuse compliance for safety. The OSHA recordkeeping regulations require us to record and report all occupational *injuries and illnesses* in the workplace. **But the recordkeeping requirements don't cover near misses.** And if we don't have to report those near misses that we see happen everywhere, **we tend not to pay them any attention. No blood, no foul.**

So let's say a worker almost gets hit by a falling box. The **safety culture** might take the following view: "Wow that was a close one! Thankfully, there was no injury, no first aid, no lost or restricted time. I almost had a boatload of paperwork, investigation, corrective action and training to do on that one."

Respect the Near Miss

Of course, that is a terrible mistake. The truth is that **neglect of near misses is a missed opportunity for prevention and a recipe for future accidents.** The fact that nobody got hurt or no machinery got damaged was an accident. What's important to realize is that **something went wrong and it could go wrong again.** So you need to fix the problem because the next time you might not be so lucky. And you need to be grateful the near miss happened because **it gave you the chance to prevent an injury.**

Doing Something about Near Misses

You may say that there's no way to address near misses since you don't know when they occur. After all, you can't be everywhere to see them happen. And you can't necessarily count on workers to report them.

Not knowing about near misses is a real problem. I'm not so naive to believe that all of the near misses that happen on the hangar floor or ramp will get recognized and reported.

But there are steps you can take to make it more likely for near misses to get reported. **Establishing a safety conscious attitude** throughout the company and explaining the importance of near misses will go a long way toward getting people on the floor/ramp to recognize and report them. I know that that's easier said than done and that for many of us this may be the biggest challenge in establishing an effective safety program.

This is especially true if your organization has that sports locker room code of **"what happens in the shop stays in the shop."** But this is where the **safety culture** can really make a difference. A good **safety culture** can change that mentality. So there's our challenge: Go out and **create that work environment atmosphere that has workers thinking safety every day.** They are the individuals who are visible, accessible, active and relentless. **Safety is everyone's responsibility,** we should be working with supervision and the safety department to strengthen the **safety culture** as everyone is a resource.

Conclusion

If you are part of the companies safety department, the next time you get a call from a technician, ramp personnel, supervisors, foremen, lead persons or operators on the hangar/ramp floor asking you to come and look at a potential problem, don't think – great, here comes a load of \$*#^\$%#@!! paperwork. Instead, think– **hey, my safety program is working.** They're telling me about a problem and giving me a chance to fix it before it does real damage. If **they're** doing something right, I must be doing something right. And, **if we're all doing something right, we must be on our way to a safer and healthier workplace.**

Australia targets skills in bid to improve safety

The greatest gains in **reducing aviation accidents** could be achieved by **reducing skill-based human errors**, according to a new report on **human factors** by the Australian Transport Safety Bureau (ATSB).

Improvements in aeronautical decision-making and the modification of **risk-taking behaviour** could also reduce aviation fatalities, the ATSB says.

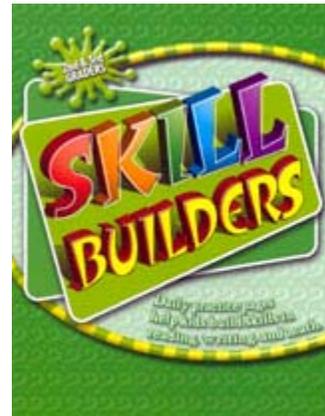
The study looked at the type of **human errors** in Australian civil aviation accidents and compared the results with a sample of accidents in the USA. The bureau found that while the types of accidents between the two countries varied, the pattern of **aircrew errors was remarkably similar.**

In both countries **skill-based errors** were the most prevalent, followed by **decision errors, violations and perceptual errors.** Further study is needed to determine which skills need improving, the ATSB suggests.

Meanwhile, the bureau has found that the average age of the Australian fleet of turbofan aircraft is low and continuing to decrease, while the average age of the country's piston engine fixed-wing fleet has risen to 30 years.

While the average age of many aircraft in the country is increasing, this should not affect their safety if quality maintenance systems are in place, says the bureau. However, it suggests that the high average age of multi-engine piston aircraft needs to be considered in relation to their safe operation in passenger services.

The average age of turbofan-powered aircraft used in regular passenger transport operations - in the 50,000-100,000kg (110,000-220,000lb) category - is low at six years.



This figure is two years lower than that found in the last study in 1995, thanks largely to the expansion of Qantas and the use of new aircraft by Jetstar and Virgin Blue, says the ATSB.

In the larger turbofan-powered aircraft category, above 100,000kg, the fleet is on average 11 years old.

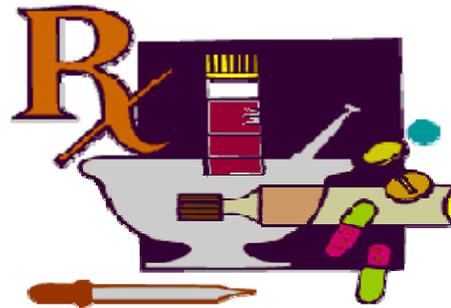
The country's turboprop fleet, which primarily operates on low-capacity airline services, has an average age of 18 years - two years older than in 1995. Additional and specific maintenance is key to ensuring that these aircraft meet the necessary airworthiness standards for passenger operations, says the ATSB.

The oldest aircraft are the piston-powered aircraft, including small single-engined aircraft used by flying schools and private operations and twin-engined aircraft used in charter and low-capacity operations. These aircraft are on average 30 years old and do not receive the same level of ongoing support from manufacturers as turbo-fan-powered aircraft.

The ageing aircraft population in the country requires co-operative approaches by operators, manufacturers and regulators to ensure any defects are notified to the industry, says the ATSB. **"If quality maintenance systems are in place, ageing aircraft need not lead to reduced safety,"** it adds.

| Medication Errors Common

Children undergoing surgery are more likely than to then other hospital patients to be victims of medication errors, the pharmaceutical industry's standards-setting body said this week. The board analyzed 11,000 errors reported by hospitals and found that 5 percent of patients undergoing surgery were the victims of medication errors, but the rate of children was 12 percent. Mistakes in calculating the correct dosages of medicine for children, the group said, frequently led to massive overdoses.



Healthy Sleep Without Sleeping Pills

In analyzing data from 31,000 Americans interviewed for the 2002 National Health Interview Survey, researchers found that **nearly one-fifth of adults reported difficulty sleeping in the last 12 months.**



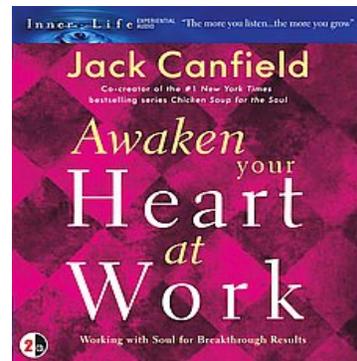
Additionally, researchers found that **about 5% of those who reported difficulty sleeping tried alternatives to prescription drugs to treat their sleeplessness**. The majority of those who tried the alternative therapies, such as meditation and herbal supplements, said they helped, with nearly half saying they helped **“a great deal.”** As for why people tried alternative sleep aids, the most common responses were their doctor suggested it, they thought it would be interesting to try and that conventional medicine was too expensive. (Hilary E. MacGregor, “Dozing off without a prescription” Los Angeles Times, September 25, 2006)

Surprisingly very little research has been done on sleeping pills and daytime sleep. Therefore it's unclear if **shiftworkers** should turn to prescription sleeping pills for their sleep problems. Perhaps a **better path towards healthy sleep** comes from research studies that show better sleep is achieved **without sleeping pills** and instead by utilizing the principles of cognitive-behavioral therapy (CBT). Where can you learn more about CBT? Check out www.GoodSleep.com, a website started by Dr. Martin Moore-Ede, Circadian's founder, and Dr. Gregg Jacobs, who as an Assistant Professor of Psychiatry at Harvard Medical School developed the first drug-free program for insomnia. In addition to offering a wealth of information on insomnia, sleep disorders, and excessive sleepiness, the site features a Good Night Insomnia program that utilizes the principles of CBT.

[Heart At Work](#)

There are two things you should know about **heart attacks**. The first is how to live a healthy lifestyle to hopefully prevent having one. The second is what to do if someone is having a heart attack.

A few of the **risk factors** for heart attack are: age, male gender and a family history of heart disease. These are beyond your control, but **there are many other risk factors you can change**:



High blood pressure is a major risk factor for heart attack. Also known as **hypertension**, this condition is excessive force of the blood against the artery walls. Blood pressure can be **controlled by diet, exercise and stress management**. If you are prescribed medication to lower blood pressure, be sure to take it as directed.

Another risk factor is a **high level of cholesterol** in the blood. High cholesterol can be related to a diet high in saturated fat and cholesterol. To keep blood cholesterol at healthy levels, eat a diet low in saturated fat and cholesterol, exercise regularly and take your prescribed medication as directed.

Tobacco smoking is another major risk factor for heart attack. Smoking damages the arteries and encourages blood clotting. If you are having trouble quitting ask your doctor for help.



Lack of exercise is also a major lifestyle risk factor. Regular aerobic exercise increases cardiovascular fitness.

Obesity - being more than 20 per cent over your healthy weight - also increases your chances of heart disease.

Stress is another risk factor. Learn to manage the stress in your life. It is important to be able to recognize the signs of heart attack in yourself or others.

These are common warning symptoms:

Crushing pain in the chest, often radiating to the neck, jaw, shoulder and arm
Excessive sweating without reason
Nausea
Suddenly rapid or irregular heartbeat
Severe shortness of breath
Dizziness, faintness or unusual weakness

In women, the symptoms of heart attack can be somewhat different:

Tightness or pressure in the chest, maybe radiating to the arm, jaw, neck or cheek
Unexplained severe anxiety, dizziness, fatigue or weakness
Swelling of the legs or ankles
Frequent shortness of breath
Palpitations of the heart
A cold sweat
Pale appearance
Frequent shortness of breath
Stomach pain or nausea

When heart attack is suspected, **call for medical help immediately**. If no pulse is detected, CPR (Cardiopulmonary Resuscitation) may be able to keep the person alive until the ambulance arrives. **CPR is an important skill for everyone to learn**. You should not attempt CPR unless you are trained and qualified to do so.

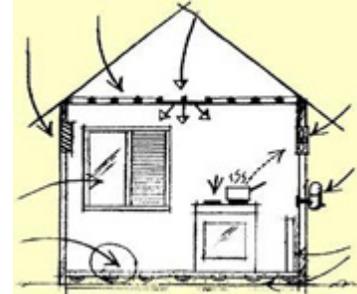
A heart attack can occur from other causes besides heart disease. **Electric shock, exposure to toxic gas and heat stroke can also stop the heart.**

Besides employees trained in CPR, some workplaces also have electronic rescue devices for cases of sudden cardiac arrest. These are **AEDs, Automated External Defibrillators**. If your workplace has them, find out how to get training.

Heart attack - change your lifestyle to avoid it, and know how to help someone who is having one.

15 WAYS TO IMPROVE YOUR HOME FOR SAFETY

Rather than approaching your home renovation projects from solely an aesthetic perspective, set aside at least one weekend this spring to give your house a clean sweep for safety. Here are 15 suggestions:



1. Install security alarms.
2. Install smoke and carbon monoxide detectors.
3. Repair worn carpets.
4. Install fire escape ladders on high windows.
5. Install window guards on high windows.
6. Install grab-bars in the bathroom.
7. Test GFCIs in the bathroom and kitchen.
8. Check for mold or condensation in the bathroom and windows throughout the house.
9. Look for water seepage in the bathroom and kitchen.
10. Upgrade ventilation in the kitchen and bathroom.
11. Repair or replace water-damaged walls and floors.
12. Tighten handrails on the stairway.
13. Reduce concrete floor dust with water-based wax sealer in the basement.
14. Install night lights in the hallway.
15. Check heating, cooling & hot water equipment for electrical or fire hazards in the basement.

Now That's What I Call "Trusting"

A safety consultant in Ontario snapped this photo at a busy intersection during lunch time. This construction worker probably figured, "Heck, how dangerous could this be? How could any motorist miss seeing this big piece of plywood and my bright red shirt?"



Yes, drivers are always paying close attention. **The problem is** that they are sometimes paying close attention to changing CDs or unwrapping a muffin or dialing a cell phone or trying to pick up that pen they just dropped onto the floor mat. And this doesn't even factor in a sudden gust of wind that might turn this sheet of plywood into a parasail.

No, this looks like a two-person job to me. One to carry the plywood, and another to watch out for cars and wave a caution flag.