

# Aviation Human Factors Industry News

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

Hello all,

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

★The NEW FAASafety.gov

★Pilots Unaware Flight Should Have Been Daytime VMC Restricted

★Professionalism in Maintenance

★Norms: One of the Proud “Dirty Dozen” of Aviation Human Factor related traps

★Paying the Checklist Dues

★Urgent Action Needed to Save Canadian Aviation Maintenance Industry!

★ICAO addresses shortage of skilled aviation professionals

★Picture This!

## The NEW FAASafety.gov

Notice Number: NOTC2163

FAASafety.gov is Changing!

The FAA Safety Team is pleased to announce that when you log in to FAASafety.gov on Friday, March 12, 2010, you will see a **completely new look**. We are excited to announce that many of the changes users like you requested have been incorporated in this upgrade. A Summary of Changes is available by clicking [here](#). We invite you to go to the redesigned FAASafety.gov on Friday and look it over. We think you will be as excited as we are with the new look and feel!



<http://faasafety.gov/>

## Pilots Unaware Flight Should Have Been Daytime VMC Restricted

Second Large Penalty Proposed In Six Days Against The Airline

The FAA announced Thursday that it is proposing a \$300,000 civil penalty on American Airlines for a **maintenance violation**. It is the second such civil penalty proposed in the past six days. The FAA alleges that on Feb. 2, 2009, American Airlines mechanics **deferred maintenance** on a McDonnell Douglas MD-82 under the airline's DC-9 Minimum Equipment List (MEL) by noting that the "pitot/stall heater light off" light on the aircraft's annunciator panel was inoperative.



However, maintenance personnel determined the next day that the inoperative part was **actually the captain's pitot probe heater**. Pitot probes are mounted on the exterior surfaces of an airplane and are used in measuring airspeed. Because they can be affected by a build-up of ice, these devices are equipped with heaters. The airplane's MEL allows for maintenance on the pitot probe heater to be deferred, but it restricts flights **to daytime only**, in Visual Meteorological Conditions (VMC). It prohibits flights into known or forecast icing or visible moisture.

Because mechanics logged the discrepancy as an inoperative panel light, the **flight crew was unaware that the daytime, VMC restrictions** applied to further flights. The aircraft was operated on five passenger revenue flights, in violation of Federal Aviation Regulations.

"We expect full compliance with all of our maintenance standards," said FAA Administrator Randy Babbitt. "Safety is our top concern. Maintenance personnel **must pay attention to every detail when they are working on an aircraft.**"

Just six days ago, the FAA proposed over three-quarters of a million dollars in civil penalties against American for maintenance violations.

American Airlines has 30 days from the receipt of the FAA's civil penalty letter to respond to the agency.

## **Professionalism in Maintenance**

Dr. Bill Johnson, Chief Scientific and Technical Advisor Human Factors-FAA writes that FAA Administrator Randy Babbitt has been talking about **personal responsibility and professionalism** a lot lately. Babbitt spent the majority of his airline career in left seat (with Eastern Airlines) and as of the Airline Pilots Association, but his father worked as both an **airline** and an airline pilot. For that reason, Babbitt understands and respects airline mechanics. While he does not have an A&P, he knows maintenance more than most flight crew members and surely more than most of his predecessors. When Babbitt talks about professionalism, he includes all members of the airline community.

In a speech to the Airline Industry Association, Babbitt said that "many of the [recent newspaper] headlines are devoted to aberrations-mistakes made by people who just flat out weren't doing their jobs.

And most of them [were] little mistakes, but in airplanes, little mistakes can add up and become one big mistake with fatalities.

Industry personnel must **strive to maintain professionalism**, to take responsibility for personal actions, and to remain aware of how each individual contributes to the overall safety of the company and of air transportation at large. You can take action daily to build a reputation for professionalism.

First of all, you must be **fit for duty**. While fitness often refers to a physical condition, the real challenge is to ensure a mental fitness for duty. The quality and quantity of sleep are important means to necessary mental awareness and attitude. FAA's 2010 Fatigue Management Calendar, filled with sleep tips, is on the website. The basic rule is to get about eight hours of sleep every night. Sleep duration is critical-and non-negotiable.

Some may debate the importance of appearance as it applies to professionalism in aviation maintenance. You must decide what is practical, fits your organization's culture, earns your peer's acceptance, and meets contemporary fashion standards. Do what works for you, but realize that appearance, posture and general physical demeanor communicate how you feel about your job and may reflect your level of professionalism.

You also demonstrate professionalism through your use of voluntary reporting systems, such as FAA's **Aviation Safety Action Program (ASAP)**. No one like to make an error and tell everyone about it. However, a professional knows that he can learn from an error and takes steps to ensure that no one else makes the same mistake.

it is also important to use ASAP to learn for others' errors. FAA is working with an Air Transport Association committee to extend the pilots' Line Operations Safety Audit (LOSA) into the maintenance and ramp workplace. The system will help maintenance personnel conduct **non-threatening peer-to-peer audits** of normal operations. This system should help identify both good and the sub-optimal maintenance practices.



Such a system will permit companies to predict problems rather than wait for an event to occur.

Professionals take pride in **mentoring one-another**. They also work hard to guide newer employees or coworkers who may not be familiar with a new aircraft type or new procedures. The person being mentored demonstrates professionalism by accepting help from a colleague. It is a two-way street.

Maintenance professionals like their flight deck partners, **use checklist**, job cards, and technical instructions. They take the personal responsibility to follow the principles and practices of the manufacture or the company's General Maintenance Manual. Like sleep duration, use of the proper documentation **is not negotiable**.

Finally do not discount the **"Dirty Dozen."** If we could work together to combat these 12 most common human errors, then we would be well on our way to knowing that we are maintenance professionals.

## Norms: One of the Proud "Dirty Dozen" of Aviation Human Factor related traps

(1) A side effect of working in teams is the use of **norms to guide a person's behavior**. For example, a maintenance team may meet

**"Dirty Dozen"**

regularly before and after a shift is over or even socially, during days off. If this meeting is not required by the organization, but expected by the team members, then it is a norm.

(2) Norms are omnipresent in society. Norms are expected, yet implicit rules for behavior. That is, norms dictate fundamental rules of dress, speech, and basic interaction. Because they are **rules for behavior that define others' expectations**, norms facilitate social interaction by reducing the number of surprises one may encounter in a given social context.

(3) **Violation** of a norm can prove distressing. For example, a group of maintenance technicians may vigorously enforce the wearing of proper personal protective equipment (PPE) when at work. Not wearing PPE may be not only a source of concern for the norm breaker, but may also elicit negative reactions from those who conform. In this case, others in the surrounding group may sanction the norm breaker.

(4) Norms are usually developed to solve problems that have ambiguous solutions. When faced with an ambiguous situation, an individual may use another's behavior as a frame of reference around which to form his or her own reactions. As this process continues, **group norms develop** and stabilize. Newcomers to the situation are then accepted into the group based on adherence to norms.

**Very rarely do newcomers initiate change** in a group with established norms.

(5) **Some norms are unsafe** in that they are non-productive or detract from the productivity of the group. **Taking shortcuts in aircraft maintenance, working from memory, or not following procedures are examples of unsafe norms.** Newcomers are better able to identify these unsafe norms than long-standing members of the group. On the other hand, the newcomer's credibility depends on his or her assimilation into the group. The newcomer's assimilation, however, depends on adherence to the group norms. Everyone should be aware of **the perceptiveness of newcomers** in identifying unhealthy norms and develop a positive attitude toward the possibility that norms may need to be changed. Finally, as newcomers become assimilated into the group structure, they build credibility with others. Once this has been done, a relative newcomer may **begin to institute change** within the group. Unfortunately, such actions are often difficult to do and rely heavily on the group's perception of the newcomer's credibility.

(6) Norms have been identified as one of the **dirty dozen** in aviation maintenance and a great deal of anecdotal evidence points to the use of unsafe norms on the line. The effect of unsafe norms may range from the relatively benign, such as determining accepted meeting times, to the inherently unsafe, such as **pencil-whipping** certain tasks. Any behavior commonly accepted by the group, whether as a standard operating procedure (SOP) or not, can be a norm. MRM courses should attempt to **help individuals identify** group norms, ferret out unsafe norms and take appropriate action.

## Paying the Checklist Dues

### A U.S. NAVY Tech. Story

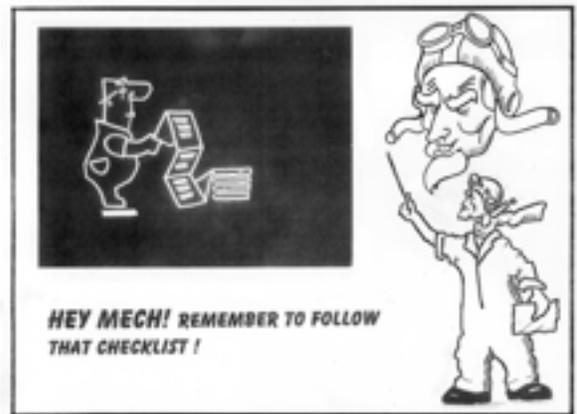
On the FA-18C, Aviation Electronics Technicians (ATs) do release-and-control checks. This procedure ensures the aircraft is capable of firing weapons or dropping bombs, and it tests the ability of the aircraft to jettison those stores.

**Release-and-control checks are done using a checklist**, and they are

crucial in providing the squadron with a well-tuned warplane. Not using the checklist can end in disaster. The

night in question started like any other night aboard a carrier. The ATs had just finished the flight schedule and were preparing for the work ahead. I was sent, with an AT3, to work a radar gripe on aircraft 404. After grabbing our tools, conducting an ATAF, and signing them out, we went to work. While we were working on the radar, we were tasked with a release check on the aircraft. **Having done these checks a thousand times before**, as well as being the team leader for the squadron's release-check team, I **felt** more than qualified for the job. We wrapped up the radar job, and I went back to the hangar to get the required test equipment for the check. When I got back, I walked around the jet making sure no CADs (Cartridge Actuated Devices) still were installed in the jet. These explosive devices are used to separate the weapons from the aircraft in the event that the pilot initiates jettison. **Thinking everything was OK**, I then briefed my co-worker on the procedures for this test.

A couple mechanics were standing near the aircraft, waiting for us to complete the test. They were going to hang another fuel tank on the aircraft. The **work area was noisy**, and I asked one of the ADs to relay signals from my co-worker, who was on the ground. I then jumped into the cockpit and set it up for the test. Once everything was ready, I gave the mechanic a thumbs-up signal, and the eject command followed. As soon as I hit the button, **I knew something was wrong**. I heard a sound like a shotgun going off, and the aircraft shuddered. At that point, it was apparent I just had ejected a fuel tank onto the flight deck. I knew exactly what the first question would be. **"Did you have a checklist with you?"** Of course, the answer was "No!" In accordance with the checklist, making sure the aircraft is properly de-armed is one of the first steps in the check.



**This incident would not have occurred had I used the checklist and had followed it step by step.** That lesson is will live with me forever. Always use the checklist no matter how many thousands of times you've done a maintenance action. I'm thankful that no one was hurt, but many have been hurt in similar incidents.

## **Urgent Action Needed to Save Canadian Aviation Maintenance Industry!**

The recent announcement by Air Canada/AVEOS of the layoff of more than **one thousand aircraft maintenance mechanics** is the latest indication that Canada is in danger of losing its place in this growing global industry. "If we don't do something right now, these jobs and this industry aren't coming back," declared IAMAW Canadian General Vice-President Dave Ritchie. The IAMAW is calling for an immediate response to this crisis.



"Air Canada has not accepted the responsibility for administering measures like an EI Work-sharing program, to mitigate the damage, in this time of high unemployment," said IAMAW District 140 President and General Chairperson Chuck Atkinson. "There also needs to be greater support for training and re-training programs to assist impacted workers and communities."

"While the Mulroney government's Air Canada privatization legislation contained a requirement for Air Canada to continue to have maintenance bases in Mississauga, Winnipeg and Montréal, this seems to have no appreciable effect on the company's plans to **phase out a large part of heavy maintenance work and ship it abroad**, with the inherent risks of weaker regulation and lower standards," explained Atkinson.

"Canada is losing an industry which has considerable growth potential as a globally competitive industry - an industry that could provide a growing number of highly-skilled high-technology jobs for young Canadians," said Ritchie.

"Canada needs an industrial strategy to maintain and build the capacity of this sector - starting with domestic procurement requirements for maintenance on Canadian-registered commercial aircraft being done in Canada where possible and including support for investment to modernize equipment."

The IAMAW calls on our governments to step up to this challenge.

The International Association of Machinists and Aerospace Workers is the largest union at Air Canada, representing over 11,000 workers.

## ICAO addresses shortage of skilled aviation professionals

Representatives from States, industry, training institutions and students defined and quantified the problem, proposed approaches to solve the problem and outlined the leadership role of ICAO in generating cooperation among **concerned stakeholders** towards reaching and implementing solutions.



### **Statistics**

\* In the next 20 years, airlines will have to add **25,000 new aircraft** to the current 17,000-strong commercial fleet

\* By 2026, we will need **480,000 new technicians** to maintain these aircraft and over 350,000 pilots to fly them

\* Between 2005 and 2015, 73% of the American air traffic controller population is eligible for retirement

### **The underlying problem**

Simply stated, the demand for aviation professionals will exceed supply. Factors include:

- wholesale retirements in the current generation of aviation professionals

- aviation professions **not attractive enough** to potential candidates
- competition with other industry sectors for skilled employees
- training capacity **insufficient** to meet demand
- learning methodologies not responsive to new evolving learning style
- accessibility to affordable training
- lack of harmonization of competencies in some aviation disciplines, and
- little awareness by the "next generation" of types of aviation professions available.

### **Solutions**

Solutions must be globally-harmonized in nature and include human resource planning tools, accredited training and educational programs adapted to the next generation, and wide-ranging cooperation among concerned stakeholders.

### **ICAO's role in solving the problem and moving forward**

In 2009, ICAO established the Next Generation of Aviation Professionals Task-force, consisting of 29 representatives from industry, education and training providers, regulatory bodies and international organizations. Near-term objectives are to: inventory human resources planning data; identify and support initiatives to reach out to the next generation; and, **find ways** to harmonize training regulations. The Task Force will also support initiatives relating to the next generation of aviation professionals.

ICAO and the International Air transport Association (IATA) are collaborating on this issue, generating synergy between ICAO's Next Generation of Aviation Professionals Task-force and IATA's Training and Qualification Initiative (ITQI). IATA is supportive of global harmonized standards and will be implementing evidence-based training and as well as competency-based training for engineering and maintenance.

### **Looking ahead, the following are planned:**

- In 2010, ICAO will develop a new training policy that will allow the Organization to endorse aviation training institutions by 2011.
- By the end of 2011, the Next Generation of Aviation Professionals Task-force will complete the development of competencies for most of the Annex 1 (Personnel Licensing) functions including: airline transport pilots

(ATPLs), air traffic controllers, **and maintenance.**

Along with all aviation training stakeholders, ICAO is committed to creating an environment that will allow the next generation to lead in the development of aviation's future. This includes maintaining active lines of communication with the students as the Next Generation of Aviation professionals.

All presentations made at the Symposium are available on the ICAO website : [www.icao.int](http://www.icao.int)

## **Picture This!**

A contributor discovered this coffee travel mug stored in a flammable cabinet.

“In case you’re wondering why it’s stored there,” she writes, “it’s because **there’s a chemical stored in the mug!**”

Of all the things that you shouldn’t put hazmat in, even just a little bit for a little while, this tops the list. Also, soda cans and disposable plastic drinking cups.

