

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:

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AMT Day: A Proud Day

With 365 days in a year there is a day to celebrate almost every. There are holidays like the 4th of July, Christmas and Memorial Day; there are also days to celebrate anniversaries and birthdays. There are even entire dedicated to recognizing and celebrating specific events. Taking time out of society's busy schedule to stop and recognize and celebrate these many different days helps bring awareness to the meaning behind these days.



But as an AMT you might ask, “Hey, is there a day out there that recognizes AMTs?” **The answer is yes.** Thanks in large part to Richard “Dilly” Dilbeck from the FAA’s Sacramento FSDO this day is a reality. It was because of Mr. Dilbeck’s efforts that in 2002 California passed the first **Aviation Maintenance Technician Day Resolution** which specifically recognizes **May 24th** of each year as AMT Day. This resolution was not achieved over night; not by a long shot. It was due to Dilly’s conviction, passion and determination that he was able to have then Senator Knight introduce and pass this important resolution.

With California leading the way other AMT Day resolutions started to be introduced and passed. The Aircraft Maintenance Technicians Association, WWW.AMTAUSA.COM, with the help of Maryann DeMarco and the late Bill O’Brien, was able to have U.S. Congressman Bob Filner (CA) introduce and pass a U.S. Congressional AMT Day Resolution **bringing federal recognition to May 24th**. There are efforts to have the U.S. Senate introduce and pass a similar resolution.

Okay, so AMTs have a day to call their own. But what does it mean? And why May 24th? This day was chosen in honor of **Charles E. Taylor’s birthday**. Charles was the Wright brother’s mechanic who built, by hand, the first aircraft engine which enabled the Wright brothers, and the United States, to lay claim to being the first in controlled, powered flight. Charlie was always given recognition by Orville and Wilbur Wright for his achievements but with the Wright brother’s passing, and Charlie’s nature of

not looking for fame and fortune for doing what he loved, time quickly forgot Charlie's well earned position in aviation's history books.

With the passing of AMT Day Resolutions, May 24th has become a day where the aviation industry can stop and recognize Charles E. Taylor and today's **skilled AMTs** for their valuable contributions to aircraft maintenance, industry wide. This day belongs to every AMT who **carries the heavy responsibility of providing safe, airworthy aircraft**. Many companies are starting to specifically take AMT Day as a day of saying, "We realize the importance that AMTs provide to aviation. Year round, in all types of weather and environments, AMTs tirelessly continue to raise the standards of their craft. AMT Day allows the industry, and public, to acknowledge this dedication and professionalism."

Aircraft Engineers International



MECHANICS CREED

"Upon My Honor, I swear that I shall hold in sacred trust the rights and privileges conferred upon me as a certified mechanic. Knowing full well that the safety and lives of others are dependent upon my skill and judgement, I shall never knowingly subject others to risks which I would not be willing to assume for myself, or those dear to me. In discharging this trust, I pledge myself never to undertake work or approve work which I feel to be beyond the limits of my knowledge, nor shall I allow any non-certified superior to persuade me to approve aircraft or equipment as airworthy against my better judgement, nor

shall I permit my judgement to be influenced by money or other personal gain, nor shall I pass as airworthy aircraft or equipment about which I am in doubt, either as a result of direct inspection or uncertainty regarding the ability of others who have worked on it to accomplish their work satisfactorily. I realize the grave responsibility which is mine as a certified airman, to exercise my judgement on the airworthiness of aircraft and equipment. I therefore, pledge unyielding adherence to these precepts for the advancement of aviation and for the dignity of my vocation"

Calling All Mechanics

Keep Informed with

FAA's Aviation Maintenance Alerts

Aviation Maintenance Alerts (Advisory Circular 43.16A) provide a **channel** to share information on aviation service experiences. Prepared monthly, they are based on information FAA receives from people who operate and maintain civil aeronautical products.

The Alerts, which provide notice of conditions reported via a Malfunction or Defect Report or a Service Difficulty Report, help improve aeronautical product durability, reliability, and **safety**.

Recent Alerts cover:

- Control yoke corrosion on the Cessna 172/180/185
- Corroded flap bell crank bolts on the Cessna 208B
 - Failed gear shaft on the Slick magneto



Check out Aviation Maintenance Alerts at:
<http://www.faa.gov/aircraft/safety/alerts/>

Accident underscores importance of tire mx

The fatal runway overrun accident of a Learjet 60 on Sept. 19, 2008, in Columbia, S.C., has generated a flood of information about the **dangers of low tire pressure and aborted takeoffs**. According to the NTSB, “The cause this accident was the operator’s **inadequate maintenance of the tires**, which resulted in multiple tire failures during takeoff roll due to **severe under-inflation**, and the captain’s execution of a rejected takeoff after V1, which was inconsistent with her training and standard operating procedures.”



According to the Safety Board, the accident airplane’s tires **lose 2 percent of pressure every day**. The full inflation of 219 psi drops to 185 after eight days and after three weeks reaches 140 psi, the level estimated in the accident airplane.

During the takeoff sequence, the outboard right tire burst first at 137 knots followed by the other tires, due to excessive flexing of the tires and heat damage caused by under-inflation. Tire fragments damaged the **squat switches, and the logic switched to air mode**, which automatically stowed the thrust reversers and resulted in high forward thrust when the pilots were trying to slow the airplane during the rejected takeoff. Both pilots and two passengers were killed after the Learjet crashed into an embankment and caught fire. Two passengers were seriously injured.

The NTSB concluded that the insufficient tire pressure was **a result of the operator’s inadequate maintenance**, which raises questions about who is responsible for tire pressure and how pilots can assure that tires are properly inflated.

In an NBAA podcast about this issue, reporter Pete Combs interviewed Keat Pruszenski, manager of customer support engineering at tire manufacturer Michelin North America. Michelin recommends checking tire pressure daily or before each flight for aircraft that don’t fly every day. Pilots are responsible for airworthiness, Pruszenski said on the podcast.

He then asked: how can pilots assure airworthiness if the tire pressure isn't checked frequently?

Tire manufacturer Goodyear also recommends daily tire pressure checks. Both companies recommend using dry nitrogen to fill tires and calibrated gauges when checking pressure.

More information on Michelin and Goodyear aircraft tire maintenance practices is available on each company's Web site (www.airmichelin.com and www.goodyearaviation.com).

FAA materials on the subject of tire pressure include [Safety Alert for Operators 09012](#) and Advisory Circular 20-97B, "Aircraft Tire Maintenance and Operational Practices."

<http://www.ainonline.com/news/single-news-page/article/crew-heard-clicks-just-before-learjet-crash-21874/>

HF Classroom Training Aid

System Safety Services

Terrible Odds

The Terrible Odds is an Excellent Tool for Human Factors

Training Goal: Through the use of this team exercise, the participants will realize how easy it is to **make an error of incorrect installation and/or omission**. They will then develop ways to lessen the chance of making these errors.

You may order this kit for \$45 using the order form



below. Included with this kit is a complete PowerPoint Presentation illustrating via pictures the total ways the job can be done incorrectly (over 1 billion ways).

Should you wish to build your own Model, obtain a bolt, 8 nuts, 8 washers and cut # groves into each and color the (a different color for each) nut & washer as illustrated above. A model takes approx. 2-3 hours to fabricate.

For further information on how to use this model please view our PowerPoint Presentation below.

PowerPoint Presentation - Terrible Odds

<http://www.system-safety.com/trainingvideos/ordering.htm>

Learning from experience

Door Emergency Assist Bottle Safety Pin Not Removed

The aircraft was undergoing an over-night hangar check; there was a requirement to change a main entry door slide. The AMM requires that the **door assist air reservoir is made safe** by deactivating the arming and this allows the use of two suitable bolts to be used for safety pins if the identified part number safety pins are not available. However, there is a stipulation that any safety pins fitted must have a **red streamer** attached to provide a positive identification that the mechanism is in safety mode.



The door assist air bottle was accessed via a panel located in the roof adjacent to the door entrance and as the **correct part number safety pins were not available** it was decided to use the alternative method of fitting bolts to safety the mechanism, however, once the bolts were fitted the **access panel was closed** to prevent any damage to the panel or injury to other people using the doorway to enter the aircraft.

The two technicians carrying out the slide raft change **had assumed** that they would complete the task and therefore knew all the precautions that

were needed to be taken and like others, had **completed the task a number of times** before and were familiar with the requirements of the task in hand. The slide change took longer than anticipated and the technicians who started the job had to hand the task of adjusting the girt bar fittings to the morning shift, the hand-over **was not comprehensive** however and the use of bolts fitted to the door assist air bottle **was not documented**. Also **omitted** was the use of red streamers attached to the bolts used for safety pins.

Cause of chopper crash determined

Federal investigators blame **installation of the wrong part** for the crash of a crop spraying helicopter near Arvilla, North Dakota. The chopper went down last September, seriously injuring the pilot. The National Transportation Safety Board says the tail section of the Bell helicopter had been replaced three years earlier with the tail section **from a different Bell model**. The replacement was nearly **2 feet longer** than the original tail boom.

The NTSB says the overload caused fatigue failure on bolts and fractured the fitting holding the section to the fuselage.

The pilot reported he heard a crack and a bang just prior to the crash.



Airbus builds mock-up of XWB fuselage to avoid A380 errors

Airbus **aims to avoid a repeat** of the A380 production dramas caused by over-reliance on the digital mock-up (DMU), by building a physical mock-up of the A350's fuselage.

"The DMU is a fantastic tool, but the lesson learned from the A380 was that we needed to go further to anticipate system installation problems," says A350 program manager Didier Evrard. "This was a large burden we carried

on the A380 program and this is why we've built this physical mock-up."

On the A380, Airbus relied solely on digital mock-up software to test the installation of wiring and other systems, which it found to its cost was at replicating the reality of the actual assembly effort. The airframer was forced to redesign and reinstall wiring looms and re-invent its assembly process, leading to the major production delays suffered by the program.



The A350's fuselage and cabin physical mock-up is being assembled at Airbus's Hamburg plant, with the front fuselage so far having been constructed. "In the coming months the whole fuselage will be built - we have already used it a lot last year for testing design, assembly processes, tools and jigs," adds Evrard.

Next year the physical mock-up will be used for a dry run of the systems installation into the entire fuselage before this is attempted on A350-900 MSN001, says Evrard. "This will be a **very strong de-risking measure** for the MSN001 final assembly."

Picture This!

Getting someone to hold the bottom of a ladder steady while you are working on it is a wise idea, but having someone attempt to do so when several ladders have been strung together with rope is something else entirely. It gets worse. Not only is the worker on the ladder not using a safety line and not maintaining three points of contact, but unbelievably, we were told that he would hang on to the top of the ladder while workers below shook the ladder tower to shift it sideways as necessary.

