Aviation Human Factors Industry News

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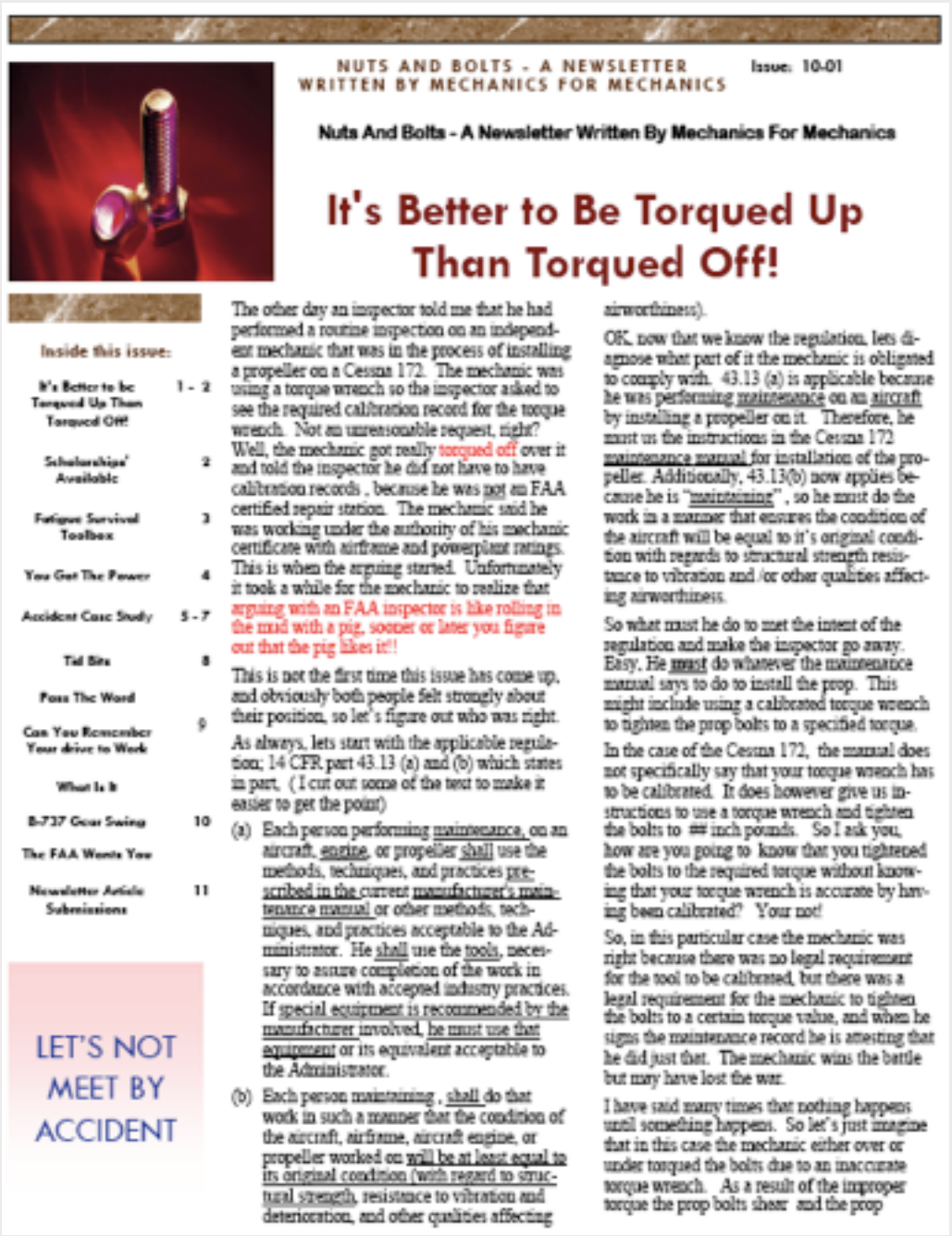
In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

Nuts And Bolts - A Newsletter Written By Mechanics For Mechanics Issue 10-01



NUTS AND BOLTS - A NEWSLETTER WRITTEN BY MECHANICS FOR MECHANICS Issue: 10-01

Nuts And Bolts - A Newsletter Written By Mechanics For Mechanics

It's Better to Be Torqued Up Than Torqued Off!

Inside this issue:

LET'S NOT MEET BY ACCIDENT

The other day an inspector told me that he had performed a routine inspection on an independent mechanic that was in the process of installing a propeller on a Cessna 172. The mechanic was using a torque wrench so the inspector asked to see the required calibration record for the torque wrench. Not an unreasonable request, right? Well, the mechanic got really torqued off over it and told the inspector he did not have to have calibration records , because he was not an FAA certified repair station. The mechanic said he was working under the authority of his mechanic certificate with airframe and powerplant ratings. This is when the arguing started. Unfortunately it took a while for the mechanic to realize that arguing with an FAA inspector is like rolling in the mud with a pig, sooner or later you figure out that the pig likes it!!

This is not the first time this issue has come up, and obviously both people felt strongly about their position, so let's figure out who was right.

As always, lets start with the applicable regulation; 14 CFR part 43.13 (a) and (b) which states in part, (I cut out some of the text to make it easier to get the point)

(a) Each person performing maintenance, on an aircraft, engine, or propeller shall use the methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or other methods, techniques, and practices acceptable to the Administrator. He shall use the tools, necessary to assure completion of the work in accordance with accepted industry practices. If special equipment is recommended by the manufacturer involved, he must use that equipment or its equivalent acceptable to the Administrator.

(b) Each person maintaining , shall do that work in such a manner that the condition of the aircraft, airframe, aircraft engine, or propeller worked on will be at least equal to its original condition (with regard to structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness).

OK, now that we know the regulation, lets diagnose what part of it the mechanic is obligated to comply with. 43.13 (a) is applicable because he was performing maintenance on an aircraft by installing a propeller on it. Therefore, he must us the instructions in the Cessna 172 maintenance manual for installation of the propeller. Additionally, 43.13(b) now applies because he is "maintaining" , so he must do the work in a manner that ensures the condition of the aircraft will be equal to it's original condition with regards to structural strength resistance to vibration and /or other qualities affecting airworthiness.

So what must he do to met the intent of the regulation and make the inspector go away. Easy. He must do whatever the maintenance manual says to do to install the prop. This might include using a calibrated torque wrench to tighten the prop bolts to a specified torque.

In the case of the Cessna 172, the manual does not specifically say that your torque wrench has to be calibrated. It does however give us instructions to use a torque wrench and tighten the bolts to ## inch pounds. So I ask you, how are you going to know that you tightened the bolts to the required torque without knowing that your torque wrench is accurate by having been calibrated? Your not!

So, in this particular case the mechanic was right because there was no legal requirement for the tool to be calibrated, but there was a legal requirement for the mechanic to tighten the bolts to a certain torque value, and when he signs the maintenance record he is attesting that he did just that. The mechanic wins the battle but may have lost the war.

I have said many times that nothing happens until something happens. So let's just imagine that in this case the mechanic either over or under torqued the bolts due to an inaccurate torque wrench. As a result of the improper torque the prop bolts shear and the prop

http://www.faasafety.gov/gslac/ALC/lib_categoryview.aspx?categoryId=20

Mechanic Left Drive Shaft Bolts Loose – A Very Close Call

Shortly after starting the LongRanger's engine for a ferry flight, the pilot heard a loud bang and felt a vibration. "He immediately shut down the and exited the helicopter," the NTSB report said. "Examination of the helicopter revealed that the tail rotor drive shaft and coupling had severed just forward of the gearbox, which resulted in substantial damage to the tail boom." The accident occurred at Gilliano, Louisiana, U.S. the morning of March 2, 2009, following maintenance that included removal of the tail rotor drive shaft from the coupling. "When the two components were reattached, the mechanic only hand-tightened the bolts, figuring additional maintenance was still planned for the gearbox," the report said.

The mechanic reinstalled the drive shaft cover but did not make a logbook entry indicating that the bolts [on the drive shaft and coupling] were only hand-tight. "Another mechanic later performed additional maintenance to the gearbox, but the bolts were not checked since the maintenance manual did not require the removal of the tail drive shaft cover", the report said.

The helicopter had been returned to service after an uneventful 12 minute maintenance flight check. The accident occurred during the next engine start.

Crews keep 'copters ready

Flight mechanics troubleshoot weight distribution issues on one of four HH-65 Dolphin helicopters at the U.S. Coast Guard Air Station North Bend. Coast Guard flight mechanics at Air Station North Bend perform the 100-hour maintenance package on an HH-65 Dolphin helicopter.

It is imperative that the mechanics of the aircraft are always well maintained. No pilot wants to troubleshoot a mechanical problem while in flight.

Any Coastie will tell you that fixers are flyers.

This is what makes the U.S. Coast Guard aviation division unique -- all flight mechanics fly on the aircraft. It ensures that the flight mechanics and pilots uphold the utmost seriousness about their job.
'No one wants to be responsible for someone dying," said David Baylor, an aviation maintenance technician, second class.

The aviation crew at Air Station North Bend is knowledgeable about every piece of their aircraft. The crew performs routine maintenance checks daily and after various amounts of flight time. After 100 hours, members check the rotors and oil chambers. Anything beyond repair will be replaced. A night crew works until midnight or beyond to increase turnaround.

When a call comes in and the bell sounds, a HH-65 Dolphin helicopter and its flight crew is airborne in less than 15 minutes.

Panel on Cat No. 1

Aircraft 500 had shot off cat No. 1, so everyone headed back to their shops. Then we heard a call, "Combat FOD Walkdown." A panel had separated from the jet and landed on the cat. How could this happen? We have some of the most stringent safety precautions in the Navy. Unfortunately, it often happens the same way and has been printed in this magazine several times.

The morning had started out pretty rough. We had been at sea for a week, and I had not gone to sleep before 0100. As the only CDI in the shop, I walked into work and faced four VIDS/MAFS that needed a CDI. One job involved the replacement of an external power monitor, which is located in the port No. 2 shoulder panel.

We had cannibalized this part several times and had done various special inspections that had required us to remove the same panel. I had been in the same area so many times I could not tell you which aircraft, on what day, or at what time.

After checking the jets, I signed the CDI block on the MAFS and went to the maintenance meeting. The day went along well. In fact, I was heading to my rack at 2030 when I got a call to come to maintenance control. When I saw the panel leaning on the master chief's desk, I had no idea that it was mine. I was about to ask who did this when he made sure I knew who was responsible. The panel was only "tacked" onto the aircraft with two fasteners. It still was waiting for a CDI. I tried several times to figure out what had happened, but to this day I only know why it happened.
I had been working so long with little sleep and literally was living on caffeine. As the only CDI in the work center, every maintenance action had to go through me. I also had all the duties that come with being the LPO, section leader, berthing petty officer, and the many other responsibilities of a PO1. In the end, I had overextended myself and could not keep track of the simple things.

Shortly after this incident, we had three no fly days. I took the time to throttle back, get some sleep, and think of ways to keep this from happening again. Even before I left for boot camp, I learned about a "wheel book" and how important a tool it can be. I dug out my FOD pouch, inventoried a complete Navy issue pen, wheel book, and pair of earplugs. Using that book already has helped me keep track of my people and the jobs they are doing. I also got wheel books for all of my Sailors. We started a kind of "back to basics" program in our shop. We double check each other, verify tool logs, and constantly keep the pass-down log updated, instead of at the end of the shift.

The squadron is working on a program to make sure all panels are fully attached to the jet before take off. In the interim, I have my Sailors apply a strip of masking tape to each panel that hasn't had a CDI inspection. They mark the tape with the words "PANEL TACKED ON." These little steps have helped us to make a big improvement in communication, safety and maintenance.

When I reflect on my mistake, I know terrible things could have happened that night. The panel could have taken out the horizontal or vertical stabilizers and put the jet in the water. It could have come down and killed someone, instead of landing on deck. The potential for loss of life during this incident is a very sobering experience. One that I never will forget.

We have turned a negative into a positive. Our shop never has worked so tightly as a group. Our attention to detail is keener, and I have seen more publications pulled out and just studied than any other time in my 15-year career. I learned and passed on to my people that we never can be too proud to ask for help. Too often, some leaders see this action as a failure or weakness. They shouldn't feel that way because safety is an all-hands responsibility. We need to look symptoms of fatigue and intercede to prevent exhausted Sailors or Marines from making mistakes or causing mishaps. This incident happened to me, but I know others in the fleet face similar circumstances. I hope they take the time to prevent a similar outcome.

Delta TechOps Named Aviation Week 'MRO of the Year - Outstanding Maintenance Group'

Delta Air Lines' maintenance division, Delta TechOps, was named the Aviation Week MRO of the Year - Outstanding Maintenance Group. The MRO of the Year Awards recognize the best Maintenance Repair and Overhaul providers worldwide for pioneering achievements. Award recipients are selected by the editors of Overhaul & Maintenance magazine in four separate categories, including Outstanding Maintenance Group.

"It's an honor to be recognized by one of the industry's leading publications for our leadership in service, innovation and technology in the global MRO industry," said Tony Charaf, president - Delta TechOps. "Our achievements rest solely on the shoulders of our experienced team of more than 8,500 maintenance professionals around the world."

The award recognized Delta TechOps for its recent merger integration with Northwest Airlines, which successfully leveraged the expertise of both maintenance divisions to maintain best practices and maintenance skills, including adding Northwest's industry-leading Airbus proficiency to Delta.

Aviation Week specifically noted Delta TechOps' successful bid to support Hawaiian Airlines' Airbus A330s through a multiyear "Complete Fleet" agreement that includes line maintenance, component maintenance

services, inventory, planning, maintenance and engineering support and contractor management. Delta TechOps secured this agreement as a direct result of its successful integration with Northwest.

In total, the TechOps MRO now serves more than 150 airline customers worldwide.

FAA To Pilots: Put Those Phones Away

The FAA on Monday told airline pilots they should "evaluate their personal practices" regarding the use of devices such as phones and laptops while on duty. Also, the FAA said, operators need to create a safety culture" that reinforces the importance of controlling cockpit distractions. The FAA released its guidance in an Information for Operators memo (PDF). The memo cited several recent incidents of distracted flying -- the crew that flew past their destination while working on their laptops, a pilot who was texting after pushing back from the gate, and an FAA inspector's report that a crew member's mobile phone started to ring during the takeoff roll. The NTSB has asked the FAA to tackle the distraction problem, and will hold a three-day forum on professionalism among pilots and air traffic controllers next month.

http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info/all_infos/media/2010/InFO10003.pdf

FAA Launches Incursion Campaign

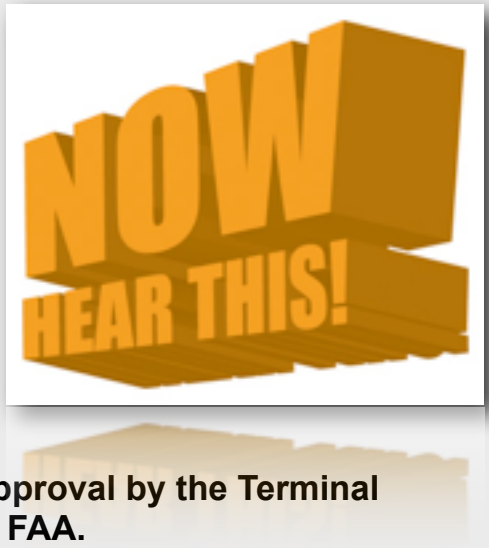
The FAA is starting an aggressive campaign aimed at curbing runway incursions in general but GA deviations in particular. At Sun 'n Fun 2010, Wes Timmons, the FAA's director of runway safety unveiled a new called "If You've Crossed The Line, You've Crossed The Line." As the name implies, the campaign is aimed at reminding pilots to pay attention to controllers'

instructions and only enter the protected runway space with permission. Timmons told AVweb that 75-80 percent of incursions are caused by GA aircraft and that needs to improve.

The campaign stresses that pilots have "crossed the line" when they cross, take off, land or at position and hold if they don't have a clearance. They're also jeopardizing themselves and their passengers if they don't follow ground control instructions. The message is to "stay focused, follow instructions, taxi carefully."

http://www.faa.gov/airports/runway_safety/

FAA Kills "Taxi To" For Takeoff



Effective June 30, 2010, the FAA is deleting the term "taxi to" from taxi and ground movement operations as it pertains to aircraft cleared to taxi to an takeoff runway. The change requires controllers to issue explicit runway crossing clearances "for each runway (active/inactive or closed) crossing." And aircraft issued clearance to cross a runway must cross that runway before receiving clearance for a subsequent runway crossing. There is an exception: "At airports where the taxi route between runway centerlines is less than 1,000 feet apart, multiple runway crossings may be issued after receiving approval by the Terminal Services Director of Operations," according to the FAA.

The change applies to "the Terminal Services organization and all associated air traffic control facilities." It will be made manifest in Air Traffic Control, Paragraph 3-7-2. The FAA Runway Safety Call to Action Committee has issued the recommended change to improve runway safety and changes "will also be made to the AIM and AIP," according to the FAA. For the full text of the notice, click through (PDF).

http://www.faa.gov/documentLibrary/media/Notice/N7110.528.pdf

NSTB Announces Professionalism in Aviation Forum

Available to the public as a webcast, the May 18-20 event stems from recent incidents including the Colgan Air flight 3407 crash in February 2009.A May 18-20 National Transportation Safety Board forum about professionalism in aviation will be available as a webcast to the public. NTSB said the three-day forum will be chaired by NTSB Chairman Deborah A.P. Hersman and follows some high-profile incidents in the recent past.

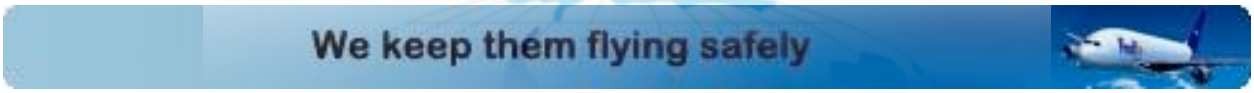
"NTSB's investigations into the midair collision over the Hudson River last August, the crash of Colgan Air flight 3407 in February 2009, and the October 2009 Northwest pilots' overflight of their intended airport provided the impetus for this forum because all of them clearly demonstrated the hazards to aviation safety when pilots and air traffic controllers depart from standard operating procedures and established best practices," Hersman said. "During the forum, we will gather information on the screening, selection, and training of pilots and controllers and methods to reinforce professionalism and excellence."

The event will resemble an NTSB hearing because it will include panelists representing industry groups, a technical panel of NTSB staffers from the Offices of Aviation Safety and Research and Engineering, and NTSB board members sitting as a Board of Inquiry and questioning the panelists. The keynote speaker will be Dr. Tony Kern, Ed.D., a human factors and pilot performance expert who is CEO and senior partner of Convergent Performance, a company based in Colorado Springs, Colo.; other panelists' names and the agenda will be available in early May.

The event, "Professionalism in Aviation: Ensuring Excellence in Pilot and Air Traffic Controller Performance," will be held at NTSB's Board Room and Conference Center, in Washington, D.C.. The public can view the forum in person or by webcast on the NTSB web site.

FMI: www.ntsb.gov

AIRCRAFT ENGINEERS INTERNATIONAL



CODE OF PROFESSIONALISM

Members of Aircraft Engineers International should act with integrity and in the interest of the flying public, exercising all reasonable professional skill and care to:

1. ***Promote and maintain high levels of aviation safety***
2. ***Promote and maintain high levels of health and safety for others and themselves***
3. ***Maintain their competence and keep up with relevant technical and procedural advancements***
4. ***Undertake or approve professional tasks for which they are competent***
5. ***Treat all persons fairly, without bias and with respect***
6. ***Encourage and assist others in their learning, competence and professional development***
7. ***Avoid harming the reputation or employment of others by false or malicious actions***
8. ***Perform to the best of their knowledge and abilities, keeping high standards of work***
9. ***Follow the specified procedures, regulations and law***
10. ***Accept appropriate responsibility for the work carried out by them or under their supervision***
11. ***Reject attempts from others to persuade them in any way to approve aircraft or equipment as airworthy against their judgment***
12. ***Reject bribery and never permit their judgments to be influenced by money or other personal gain***

13. *Provide all information relevant to safety matters and acknowledge their errors*
14. *Ensure that their decisions and actions are not adversely affected by their medical, physical and psychological condition (by factors such as fatigue, fitness, alcohol, drugs, medication, stress, eyesight, hearing etc)*
15. *Respect employer's/organization's/customer's property*

Should I buy an SMS Manual?

With all the talk about the impending Safety Management System (SMS) requirements, some operators are hitting the panic button and buying a pre-made SMS manual, in the belief that if they buy the manual they now an SMS *program*. When, in fact, nothing could be further from the truth. All they have is a nice looking document with [your name here] inserted in all the appropriate places and nothing more.

The sobering reality is that SMS isn't just another manual for your library that becomes "shelf-ware," to be put on exhibit whenever the FAA or aviation safety auditors drop by, but instead is an active *program* to comprehensively identify, review and manage risk throughout your organization.

Probably the most significant piece of an active SMS *program* is a positive safety culture or "way of doing business." This isn't something you get out of a manual. It's a mind-set that must be constantly reinforced by telling employees that they are doing the right thing when it comes to safety. Everyone at every level of the organization must be involved. It can't be the sole responsibility of the safety manager to worry about safety "24/7."

At this point you might be thinking, "Get real, I don't have time to develop an SMS program on my own." If you do decide to buy a manual, be sure it comes with assistance to: (1) customize its contents to your way of doing business, and (2) implement its contents throughout your company. You'll also need mentoring and guidance to keep you on the path as you develop an SMS *program* tailored to your operation. Find someone who will stick with you over the long haul.

An SMS *program* can't be thrown together in 60-90 days. It takes a long-term commitment to put all the pieces in place and conduct periodic reviews to ensure it actually works, and hasn't turned into shelf-ware.

Developing a Safety Management System Video

Helicopter International Association

Have a look at the Helicopter International Association SMS educational video. You will come away with a better understanding of SMS and how a company may begin to structure its program.

http://www.rotor.com/Default.aspx?tabid=2481