Aviation Human Factors Industry News

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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:

About CHIRP

CHIRP for Aviation = Confidential Human Factors Incident Reporting Program. The aim of CHIRP is to contribute to the enhancement of aviation and maritime safety in the UK, by providing a totally independent confidential (not anonymous) reporting system for all individuals employed in or associated with these industries.

CHIRP has been in operation for aviation since 1982. In 1996 the Program was restructured in the form of a charitable company limited by guarantee to enable it to make a more effective contribution to the resolution of important safety-related issues. This corporate structure was selected in order to provide a totally independent organization, with management and fiscal responsibilities held by an Independent Board of Trustees. The maritime program has been operating since July 2003.

CHIRP welcomes safety-related reports from flight crew, air traffic control officers, licensed aircraft maintenance engineers, cabin crew and the General Aviation community and people in the maritime sector, including the shipping industry, fishing industry and leisure users.

Reporters' identities are kept confidential. Personal details are not retained and are returned to the reporter or destroyed on closure of their report. The information provided is made available, with the approval of the reporter, and in a disidentified form to those who can take action to remedy the problem. Important information gained through reports, after being disidentified, is also made as widely as possible, principally through the publications Air Transport FEEDBACK, General Aviation FEEDBACK, Cabin Crew FEEDBACK and Maritime FEEDBACK with the aim of improving safety. standards.

The CHIRP aviation program complements the Civil Aviation Authority Mandatory Occurrence Reporting scheme. Both aviation and maritime programs also complement other formal reporting systems operated by

many UK organizations, by providing a means by which individuals are able to raise issues of concern without being identified to their peer group, management, or the Regulatory Authority. Anonymous reports are not normally acted upon as they cannot be validated.

http://www.chirp.co.uk/feedback-list.asp?fb=AT

Air Transport FEEDBACK

In the last issue of FEEDBACK (Issue 90) we published a CHIRP analysis of maintenance errors reported in MORs, which identified errors during installation of components as the predominant feature.

The following categories of installation error were identified from reports relating to operations in 2008.

The following ATA headings are presented in descending order of arisings with key examples provided in each category, not all of these errors were the subject of a MEDA investigation and therefore the root cause for such events is not always readily identifiable.

As indicated previously, events such as these are a continuing feature in maintenance arisings and in comparison with other error types, the level of installation errors as an overall percentage has remained similar over a number of years representing approximately half of all CAA MOR maintenance related reports.

ATA 32 - Gears (11%)
NLG lock actuator attachment bolt loose and split pin locking missing.
Incorrect Brake Steering Control Unit fitted resulting in steering failure.
MLG wiring loom incorrectly routed chaffing against flying control cables.
Wheel spacer missing following nose wheel change.
ATA 27 - Flying Controls (10%)
Rag found wedged in elevator, jammed control surface in full nose down position.
Aileron bus cable quadrant retainer incorrectly fitted. (Item subject to an Independent inspection?)
Elevator movement reduced due primary stop fitted 180 deg displaced and cables under tensioned. (Item subject to an Independent inspection?)
Leading edge slat auxiliary track sensor fitted 180 deg displaced causing slat damage. (Item subject to an Independent inspection?)
ATA 25 - Cabin Equipment (9%)
Slide girt bar release cable missing.
Missing clips on overwing slide controller, failed to deploy.

Floor proximity lighting found inoperative following unrecorded carpet change. Instrument panel glare shield held in position by wiring harness, attachment screws missing.

ATA 35 - Oxygen (6%) Crew oxygen bottle not fully opened after installation causing flow restriction.

Flight Crew oxygen bottle not turned on after replacement. Crew oxygen generator firing pin wrongly positioned rendering unit inoperative.

Aircraft oxygen system serviced with nitrogen.

ATA 23 - Communications (4%)
Incorrect CVR fitted.
ANR batteries fell during take-off disconnecting pilot headset lead.
Incorrect audio select panel fitted.
HF system defect outside MEL limits for ETOPS flight.
ATA 72 - Engine (7%)
Severe damage to engine - torch not removed from intake after inspection.
Fan case engine stand mount not removed before flight.
Borescope plugs found loose on engine.
Tools not removed from engine cold-stream duct following overnight maintenance.
ATA 71 - Powerplant (5%)
Engine access panel detached on take-off.
Engine oil fill servicing panel detached in flight, previously oil leak check carried out.

Engine intake cowl fire extinguisher access panel separated in flight, wrong part fitted.
Engine pylon access panel lodged in pipe work of RH 'C' duct.
ATA 79 - Oil (4%)
Engine oil level over filled.
Major oil leak due to missing component on gear box mounting pad following engine change.
Following MCD replacement, failure to identify metal contamination which required engine change.

The key question we need to ask ourselves is why do such errors continue at a similar level? Human Factors training is a compulsory part of an engineer's learning program, together with bi-annual Continuation Training when such issues are commonly discussed. Maintenance organizations also seek to improve process and procedures, and simplify documentation. Today's operating environment with its attendant pressure to maintain schedules may form part of the issue, distractions and time constraints can

all conspire against us during a genuine attempt to achieve the best results. However, a significant number of events still appear to occur as a result of individuals not referring to technical information or maintenance manual instructions that are available, instead preferring to rely on their experience and intuition.

From engineers' feedback to CHIRP it is clear that they hold strong feelings regarding their professionalism and have similar expectations for other engineers. Events such as those identified in these incidents are not readily tolerated in the industry, but 'honest errors' still occur. Engineers can certainly help raise standards by involving themselves in their company's evolving Safety Management System and being proactive in identifying where practical support to achieve tangible improvements and inspire greater trust in the system. This does require extra effort by all concerned and it is worth considering the old adage, 'Safety improvement is no accident'….. but unfortunately, it sometimes takes an accident to improve safety!

The CAA has recently issued Paper 2009/05 'Aircraft Maintenance Incident Analysis'; this provides further information on the causal or contributory factors identified in maintenance related events and is available via the CAA website.

http://www.google.com/url?sa=t&source=web&ct=res&cd=1&ved=0CAcQFjAA&url=http%3A%2F%2Fwww.caa.co.uk%2Fdocs%2F33%2F2009_05.pdf&ei=Lk_fSvXjHd3k8Aac18hj&usg=AFQjCNHKtv1ZKyIfNeUHsSvIfKd30KTo4Q&sig2=s0YhLF6stZgY8p1QGAWbkg

Aircraft Maintenance Incidents on Rise

Maintenance of escape slides, followed by problems associated with gear,are the two biggest issues emerging from a study of aircraft maintenance shortcomings in the UK. Some corrective actions are proposed in the 2009 "Aircraft Maintenance Incident Analysis" prepared by the Safety Regulation Group of the UK's Civil Aviation Authority (CAA).

Released earlier this month, the report looked at 3,982 maintenance errors reported on jet aircraft weighing above 12,500 pounds take off weight. The reports were from January 1996 to December 2006.

The data was compiled from the CAA's Mandatory Occurrence Reporting (MOR) scheme in order to identify trends and common causes or factors.

The report looked at three types of deficiency:

Poor maintenance control: an event attributed to an ineffective maintenance control system, such as not implementing an airworthiness directive (AD).

Incomplete maintenance: an event where the prescribed maintenance was prematurely terminated. In these cases, the correct maintenance procedures appear to have been followed, but something was not removed, not fitted or set correctly towards the end of the process.

Incorrect maintenance action: the maintenance procedure was completed but did not achieve its aim. In these circumstances, it appears that an incorrect maintenance procedure or practice was being used. Something was not fitted or set correctly by virtue of not performing the task correctly, rather than as an error of omission. This type of error dominated (see below). Half of the reported occurrences were attributed to incorrect maintenance actions, a quarter to ineffective maintenance control, and a fifth to incomplete maintenance.

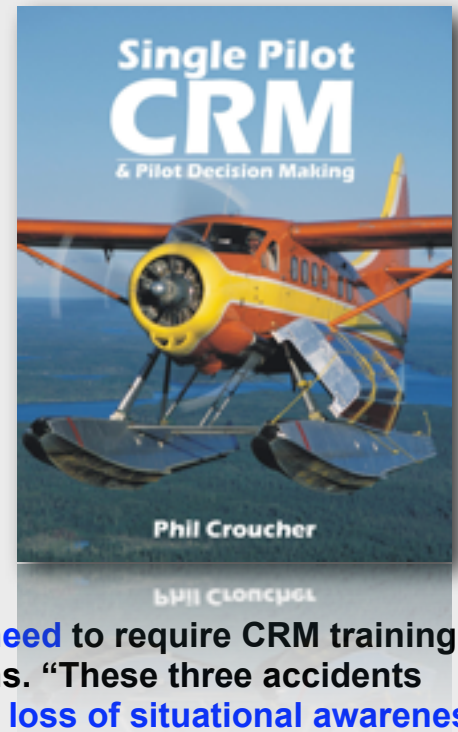
In terms of specific findings, the study found the vast majority of MORS were related to Equipment and Furnishings, and escape slides in particular. This finding may explain the high failure rate of escape slides in actual emergencies. Issues associated with seats mainly concern inadequate attachment to the aircraft structure. Thus, while the industry is fitting 16G seats – up from 9G seats – the improved passenger protection offered by the new seats is undercut by poor attachment to the structure.

Problems associated with Landing Gear were fairly evenly divided between wheels, gear and brakes.

The most frequent problem with wheels was associated with fitting the tire itself, while failure to pull safety pins accounted for most landing gear malfunctions.

The CAA ought to present its findings in a slide show given to airline maintenance directors and maintenance technicians. It is suspected that the technicians would offer insights as to causes and simple, straightforward solutions.

NATA urges mandate for single-pilot CRM



The National Air Transportation Association (NATA) is strongly that the FAA include CRM training for single-pilot as part of its notice of proposed rulemaking (NPRM) on crew resource management for Part 135 crewmembers.

While there is a plethora of CRM-related information available from the FAA and commercial sources, at this time little or none of it is designed to consider the application of training in the single-pilot environment, according to the association.

In its NPRM released on May 1, the FAA identified three accidents– two of them single-pilot–that it said illustrate the critical need to require CRM training in both single- and dual-pilot Part 135 operations. "These three accidents were all the result of poor decision making, a loss of situational awareness, a lack of communication between multiple pilots or between pilots and other key operational personnel and inadequate leadership," the NPRM said.

NATA's comments on the CRM NPRM generally supported the proposal to incorporate formal CRM training for Part 135, but cautioned the agency about several areas that could create difficulties for smaller operators. Specifically, the association called on the FAA to provide a standard program for single-pilot operators to adopt and asked the agency to minimize inspector delays in approving programs or defining CRM training program content.

Mandatory CRM training for both single- and dual-pilot operations was a recommendation from the Part 125/135 Aviation Rulemaking Committee (ARC) of which NATA was a member.

"CRM has long been applied only to aircraft operations with multiple pilots," NATA said. "However, the ARC members strongly believed that the communications, equipment management and organizational principles of CRM would also hold significant benefits for the single pilot who is solely responsible for managing all aspects of flight."

The association expressed concern about the level of support the smaller operators, particularly single-pilot, will receive from the FAA. “These operators are overwhelmingly small businesses and more likely than larger operators to conduct all pilot training in house,” NATA maintained. “Therefore, it is critical to ensure that they are provided with meaningful guidance to assist them in starting their CRM training program.”

Paper A&P Certificates to Expire

On March 31, 2008 a new FAA rule came into effect for mechanics.14 CFR 65.15(d) was added and says “Except for temporary certificates under §65.13, the holder of a paper certificate issued under this part may not exercise the privileges of that certificate after March 31, 2013.” What this means is after that date you may not exercise you’re A&P privileges if you have one of the old paper A&P certificates and have not obtained a new plastic certificate. If you’ve already obtained a new plastic certificate you’re in good shape, no further action required.

The Drug Enforcement Agency (DEA) requested the FAA make their pilot and mechanic certificates more counterfeit proof in an effort to aid law enforcement officials in the war against illegal drugs. The security features in the new plastic certificates include micro printing, a hologram, and an ultraviolet-sensitive layer that contains certain words and phrases. You might ask “How is this going to help law enforcement officials? Well I’m not really sure myself, but I take comfort in thinking that they know the bad guys better than me and if this helps keep some drugs off the streets and away from our kids, then it’s small price to pay.

How do you obtain the new plastic certificate? Just go to this website: http://www.faa.gov/licenses_certificates/airmen_certification/

You’ll find several options for obtaining a new plastic certificate. You can order it on-line or you can print out a paper form and mail it in. There will be a nominal $2.00 charge for a replacement certificate. However, if you still

have your social security number as you're A&P number, you're in luck! You can request to change you airman certificate number and you'll receive a new plastic certificate with a new random number at no charge. NOTE: You A&Ps with Inspection Authorization (IA) please pay special attention here. After you change your certificate number from the social security number to the new random number you must contact your local FSDO and have the number on your IA card changed also.

If these two numbers don't match, your IA card is invalid and you may not exercise your privileges as an IA.

I realize that everyone has nearly 3 ½ years to get this done but the word isn't spreading very fast. So spread the word to everyone you know, even to your pilot buddies and customers.

Pilots only have until March 31, 2010 to their certificates changed over.

Midnight Shift Nugget

3 Guidelines for Caffeine Use

Develop a routine. Instead of automatically heading for the coffee pot whenever you're tired, map out a caffeine strategy you adhere to night after night. On an 11 p.m. to 7 a.m. shift, you might drink one cup when you start work and second at 3:30 a.m.

1) Avoid excessive consumption. Relying on coffee to make it through the night is a bad idea. If you drink numerous cups every night, try to cut back slowly to avoid withdrawal symptoms.

2) Set a cutoff point. Although caffeine's effect on sleep varies by individuals, in genera you should stop drinking caffeinated beverages within three to four hours of bedtime. If you're thirsty late in you're shift, try drinking water or another non-caffeinated beverage.

The bottom line with caffeine is that there's nothing wrong with moderate consumption – two or three well – timed cups per day. Just make sure you steer clear of the cycle of excessive caffeine consumption because it will leave you in a state of chronic sleep deprivation.

Age not a barrier to peak performance

Whatever your politics, John McCain's energetic run for the presidency shows that age is no barrier to success in the public arena. Still, it's impossible to deny that things change as we age. Among other things, reaction times, sensory-motor skills, and fine coordination tend to decline. At the same time, though, added years provide added experience.

Can experience, knowledge, and judgment compensate for subtle mental and motor changes? Two very different studies suggest that seniority does have its compensations.

Senior pilots

The Federal Aviation Administration (FAA) requires all commercial airline pilots to retire at age 65. However, general aviation pilots do not face a similar maximum flying age. Is it safe for older pilots to take command in the cockpit?

To find out, researchers from the Stanford University School of Medicine studied 118 general aviation pilots between the ages of 40 and 69; most were men. Each volunteer was checked annually for three consecutive years. The evaluations included a battery of cognitive function tests and five tests of flying ability and performance in a computerized flight simulator.

The older pilots scored lower on the baseline tests at the start of the study. Interestingly, however, the older pilots maintained their skills over time better than the younger individuals. In addition, the most experienced and

expert pilots scored high on the initial round of tests and then showed fewer declines over time than the pilots with less experience.

"Flying" a simulated single-engine plane over flat terrain and near mountains is one thing, piloting a 747 quite another. The Stanford study doesn't address the FAA's retirement age, nor should it encourage a former Navy pilot like McCain to take the controls of Air Force One. But it does show that training and experience can compensate for the tick of the clock, and that age itself does not necessarily predict performance. And if you don't believe Stanford researchers, just ask the 155 people whose lives were saved when 57-year-old Captain Chesley B. "Sully" Sullenberger landed disabled US Airways Flight 1549 in the Hudson River on January 15, 2009.

Staying young

There is no fountain of youth, nor are there any medications or supplements that can slow the aging process. But simple lifestyle changes can help keep your mind and body young as the years pile on. Here's how:

* Avoid tobacco

* Stay physically active

* Stay mentally active

* Eat right

* Stay connected with people and your community

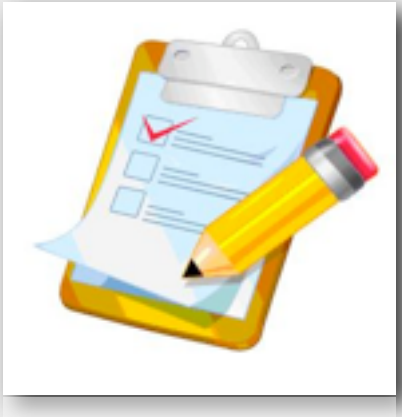
* Keep your blood pressure, cholesterol, blood sugar, and waistline under control

* If you choose to drink, stop at one or two a day

* Reduce stress and get enough sleep, recreation, and fun.

How safe are we?

The "I'M SAFE" checklist is a simple reminder to evaluate how safe we really are.



Illness – Do I have symptoms of an illness?
Medication - Have I been taking prescription or over the counter drugs?
Stress - Am I under psychological pressure from the job?
Alcohol – Have I been drinking within eight hours? Within 24 hours?
Fatigue – Am I tired and not adequately rested?
Eating – Have I eaten enough of the proper foods to keep adequately nourished during the entire shift?
Taking time to stop and evaluate before we act is a good practice to keep not only ourselves safe, but it helps keep our fellow Crewmembers safe as well.